Guidance framework for the selection and evaluation of ecological indicators

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ABSTRACT

Ecosystem indicators have a pivotal role in understanding, assessing, and managing ecosystems and therefore in implementing an Ecosystem Approach to Management. They represent key attributes in ecosystems and are essential for ecosystem monitoring and assessment and are used to communicate findings to a wider audience. With the on-going development of an Ecosystem Approach in Canada, there is an increasing need to select appropriate indicators for ecosystem reporting, ecosystem assessment, and evaluation of fisheries and spatial management. A comprehensive evaluation and selection of robust ecological indicators is one of the key steps in the process of implementing EA and to track progress towards meeting ecosystem goals. The purpose of this report was to develop a guidance framework for the selection and evaluation of indicators for assessment of ecosystem status, trends monitoring, analysis, and reporting. The framework was successfully tested for the Scotian Shelf Bioregion at multiple spatial scales and a final suite of 30 ecological indicators, derived from fisheries dependent and independent data, was selected. We recommend the use of this Indicator Selection Guidance Framework by Fisheries and Oceans Canada (DFO) for the selection of indicators for State of the Ocean reporting, the MPA Network program and for Ecosystem Approaches to fisheries and oceans management.

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RÉSUMÉ

Les indicateurs écosystémiques jouent un rôle essentiel dans la compréhension, l'évaluation et la gestion des écosystèmes et, par conséquent, dans la mise en œuvre d'une approche de gestion écosystémique. Ils représentent les principaux attributs des écosystèmes, sont essentiels pour la surveillance et l'évaluation des écosystèmes et sont utiles pour communiquer les conclusions à un public plus large. L'élaboration d'une approche écosystémique au Canada étant en cours, il est de plus en plus important de choisir des indicateurs pertinents pour la production de rapports sur les écosystèmes, les évaluations des écosystèmes, la planification spatiale et la gestion des pêches. Une évaluation exhaustive et une sélection rigoureuse d'indicateurs écologiques significatifs font partie des principales étapes du processus de compréhension, d'évaluation et de gestion des écosystèmes, afin de suivre les progrès accomplis concernant l'atteinte des objectifs écosystémiques et donc, de mettre en œuvre une approche écosystémique. Le présent rapport a pour objectif d'élaborer un cadre d'orientation afin de choisir et d'évaluer les indicateurs pour l'évaluation de l'état de l'écosystème, la surveillance des tendances, les analyses et la production de rapports. Le cadre a été mis à l'essai avec succès pour la biorégion de la plate-forme Néo-Écossaise à de multiples échelles

spatiales, et un ensemble final de 30 indicateurs écologiques, tirés de données dépendantes et indépendantes de la pêche, ont été choisis. Nous recommandons l'utilisation de ce cadre d'orientation pour la sélection des indicateurs, lequel a été mis sur pied par Pêches et Océans Canada (MPO) afin de choisir les indicateurs pour les rapports sur l'état des océans, le programme de réseau de ZPM et les approches écosystémiques liées à la gestion des pêches et des océans.

INTRODUCTION

Globally, marine ecosystems are subject to increasing multiple human pressures coupled with environmental pressures and climate change (Worm et al. 2006, Halpern et al. 2008, 2012, Tittensor et al. 2014). The consequences for the human and natural components of these systems can be far reaching, non-linear, complex and potentially irreversible, with loss of livelihoods, impacts of food security and loss of biodiversity and ecosystem services (Alcamo et al. 2005). Managing marine ecosystems in the face of such pressures is challenging, and an Ecosystem Approach has emerged as a means "to plan, develop and manage [fisheries] in a manner that addresses the multiple needs and desires of societies, without jeopardizing the options for future generations to benefit from the full range of goods and services provided by marine ecosystems" (Garcia et al. 2003). An Ecosystem Approach has since been broadened to Ecosystem-Based Management for the Oceans (McLeod et al. 2005, Arkema et al. 2006) and a plethora of terms, definitions and acronyms, with some variant of Ecosystem Approach or "ecosystem based", have materialised (Engler 2015). Regardless of terminology used, an Ecosystem Approach has been widely adopted. In the USA, NOAA has released its Ecosystem-Based Fisheries Management Policy and Road Map (http://www.nmfs.noaa.gov/op/pds/documents/01/01-120.pdf) and Lenfest has released its report on "Building Effective Fishery Ecosystem Plans" (Essington et al. 2016). In the European Union, the Marine Strategy Framework Directive (EU 2008) has the goal of "Good Environmental Status" by 2020, and the International Council for the Exploration of the Sea (ICES) has incorporated an Ecosystem Approach into is latest Science Plan (ICES 2013a).

In Canada an Ecosystem Approach "recognizes the complexity of ecosystems and the interconnections among component parts" and ecosystem-based management aims for "the management of human activities so that ecosystems, their structure, function, composition, are maintained at appropriate temporal and spatial scales" (Canada's Oceans Strategy released in 2002). Canada's *Oceans* Act recognizes the importance of Integrated Oceans Management, which is "an approach to planning and managing human activities in order to reduce the potential for conflict and to ensure the sustainable use of shared marine resources and ocean space" (DFO 2015, http://www.dfo-mpo.gc.ca/oceans/management-gestion/index-eng.html).

Ecosystem indicators have a pivotal role in understanding, assessing, and managing ecosystems (Link 2010, Engler 2015, Longo et al. 2015) and therefore in implementing an Ecosystem Approach. Critical to any management action is the means to evaluate the effectiveness of that action. In an Ecosystem Approach, indicators represent key attributes in systems and are essential for ecosystem monitoring and assessment at various spatial scales, including Marine Protected Areas (MPA). They allow pressures, states and responses to be measured, they provide the basis to assess the status and

trends in the condition of the system or of an element within the system, and they are essential for all subsequent steps in an Ecosystem Approach (Levin et al. 2009). Indicators are used to communicate findings to a wider audience (e.g. non-scientists and policy makers), and to evaluate the effectiveness of management actions (Noss 1999, Garcia and Staples 2000, Shin and Shannon 2010, Layke et al. 2012, Uusitalo et al. 2016).

Ecosystem assessments using indicators have been conducted globally, regionally, nationally and locally. For example, trend analyses of indicators derived from fishery-dependent and fishery-independent data have been used to evaluate the status and trends of marine ecosystems at global (Blanchard et al. 2010, Bundy et al. 2010, Coll et al. 2010), regional (Uusitalo et al. 2016), and ecosystem scales (DFO 2003, Choi et al. 2005, Shackell et al. 2012), documenting drivers such as overfishing (Coll et al. 2008), regime shifts (Choi et al. 2005, Bundy et al. 2009) and changes in the trophic structure of communities (Bundy et al. 2005, Choi et al. 2005, Cury et al. 2005, Shin et al. 2005, Longo et al. 2015). Within Canada, assessments have been conducted in several marine ecosystems including the eastern Scotian Shelf in the Maritimes Region (DFO 2003, Bundy et al. 2005, Choi et al. 2005), the Gulf of St. Lawrence in the Gulf Region (Dufour and Ouellet 2007), the Pacific North Coast in the Pacific Region (Lucas et al. 2007), the Hudson Bay (Stewart and Lockhart 2005) and the Beaufort Sea in the Central and Arctic Region (Cobb et al. 2008). More recently, Canada's State of the Oceans (SOTO) report, released in 2012, presented a synthesis of scientific analysis of marine trends and changes based on marine data gathered from all DFO regions (http://www.dfo-mpo.gc.ca/oceans/publications/soto-rceo/2012/intro-eng.html).The latest SOTO initiative will require the development of a suite of indicators to meet its evolving needs. Spatial management is one tool of an Ecosystem Approach, and since Canada has committed to the establishment of a national network of MPA by 2020 (Government of Canada 2011), the development of a suite of indicators to monitor progress in meeting MPA network goals will be critical.

With the ongoing development of an Ecosystem Approach in Canada, there is an increasing need to select appropriate indicators for ecosystem reporting, ecosystem assessment, and evaluation of fisheries and spatial management. Hundreds of indicators have been developed to this end, but they are not all are created equal, i.e. they have different properties that can make them more or less suitable for their intended purpose. However there has been limited evaluation of the properties and performance of these ecosystem indicators. Progress on an Ecosystem Approach in Canada requires a comprehensive evaluation and selection of useful ecological indicators to provide an assessment of past and current ecosystem effects of human pressures and the evaluation of ecosystem-based management actions.

The purpose of this report is to develop a guidance framework for the selection and evaluation of indicators for assessment of ecosystem status, trends monitoring, analysis and reporting, and to test this framework for the Scotian Shelf Bioregion at multiple spatial scales. The report is therefore divided into two main sections:

Part 1: Indicator Selection Guidance Framework

Part 2: Application of the Indicator Selection Guidance Framework to select a suite of indicators for an Ecosystem Approach to the Scotian Shelf Bioregion, Canada.

The development of the Indicator Selection Guidance Framework was based on a review and elaboration of several existing indicator selection frameworks (Rice and Rochet 2005, Rochet and Rice 2005, Niemeijer and de Groot 2008, Shin et al. 2010, 2012, Kershner et al. 2011, ICES 2012). The detailed application of the framework provides instrumental lessons for the use of indicators for an Ecosystem Approach and key insights into the Indicator Selection Guidance Framework and its application. Although the focus of the application of the framework is the Scotian Shelf Bioregion, this framework represents a general approach that could be applied to any set of management objectives or marine ecosystems.

We recommend the use of this Indicator Selection Guidance Framework by Fisheries and Oceans Canada (DFO) for the selection of indicators for State of the Ocean reporting, the MPA Network program and for Ecosystem Approaches to fisheries and oceans management.

PART 1: DEVELOPMENT OF THE INDICATOR SELECTION GUIDANCE FRAMEWORK

We reviewed the existing literature on guidance advice for the selection of indicators (e.g., Rice and Rochet 2005, Rochet and Rice 2005, Niemeijer and de Groot 2008, Shin et al. 2010, 2012, Kershner et al. 2011, ICES 2012), to develop a conceptual guidance framework for the selection and evaluation of indicators for DFO's Ecosystem Approach. The resultant Indicator Selection Guidance Framework consists of seven steps, which are described in Figure 1. The Framework was developed for the Scotian Shelf Bioregion (see Part 2) and can be applied to the selection and evaluation of ecological, social, economic and/or governance indicators.

STEP 1: LIST ECOSYSTEM GOALS, ATTRIBUTES AND PRESSURES

An Ecosystem Approach requires the establishment of overall ecosystem management goals and objectives that express the desired condition of the system (Jamieson et al. 2001, Levin et al. 2009, 2014, Longo et al. 2015, DePiper et al. 2017). Ideally, this would occur within a scoping process involving diverse stakeholders (Samhouri et al. 2009, Essington et al. 2016, Marshall et al. 2017) and should encompass ecological, social, economic and governance goals (DFO 2007, Samhouri et al. 2009, Levin et al. 2014, DePiper et al. 2017). All management goals should be unpacked to identify clear attributes that can be quantified using indicators to measure progress and evaluate the effects of management actions (Jamieson et al. 2001, Kershner et al. 2011, see references in Table S1).

STEP 2: IDENTIFY INDICATORS

The objective of this step is to identify indicators that provide measures, ideally quantitative, for each of the ecosystem attributes, sub-attributes and pressures identified in Step 1 (Cury et al. 2005, Fulton et al. 2005, Link et al. 2005, Greenstreet and Rogers 2006, Samhouri et al. 2009, Shin and Shannon 2010, Kershner et al. 2011). We recommend a two-step process whereby the data available to calculate indicators are first assessed, and then potential indicators compiled based on a literature review.

STEPS 3-6: INDICATOR SCREENING & SELECTION

To be tractable, the total number of indicators selected for an ecosystem assessment should be minimised and indicators should be complementary and non-redundant (Shin et al. 2010, Kershner et al. 2011). Further, to ensure indicators will deliver the information desired and are good proxies for corresponding ecosystem attributes or pressures (Fulton et al. 2005, Samhouri et al. 2009, Shin and Shannon 2010, ICES 2012, Shin et al. 2012) they should be screened using selection criteria. We conducted a literature review to evaluate published selection criteria (Table S2), many of which are based on Rice and Rochet (2005). The following eight overarching criteria are recommended for the Indicator Selection Guidance Framework: 1) public awareness, 2)

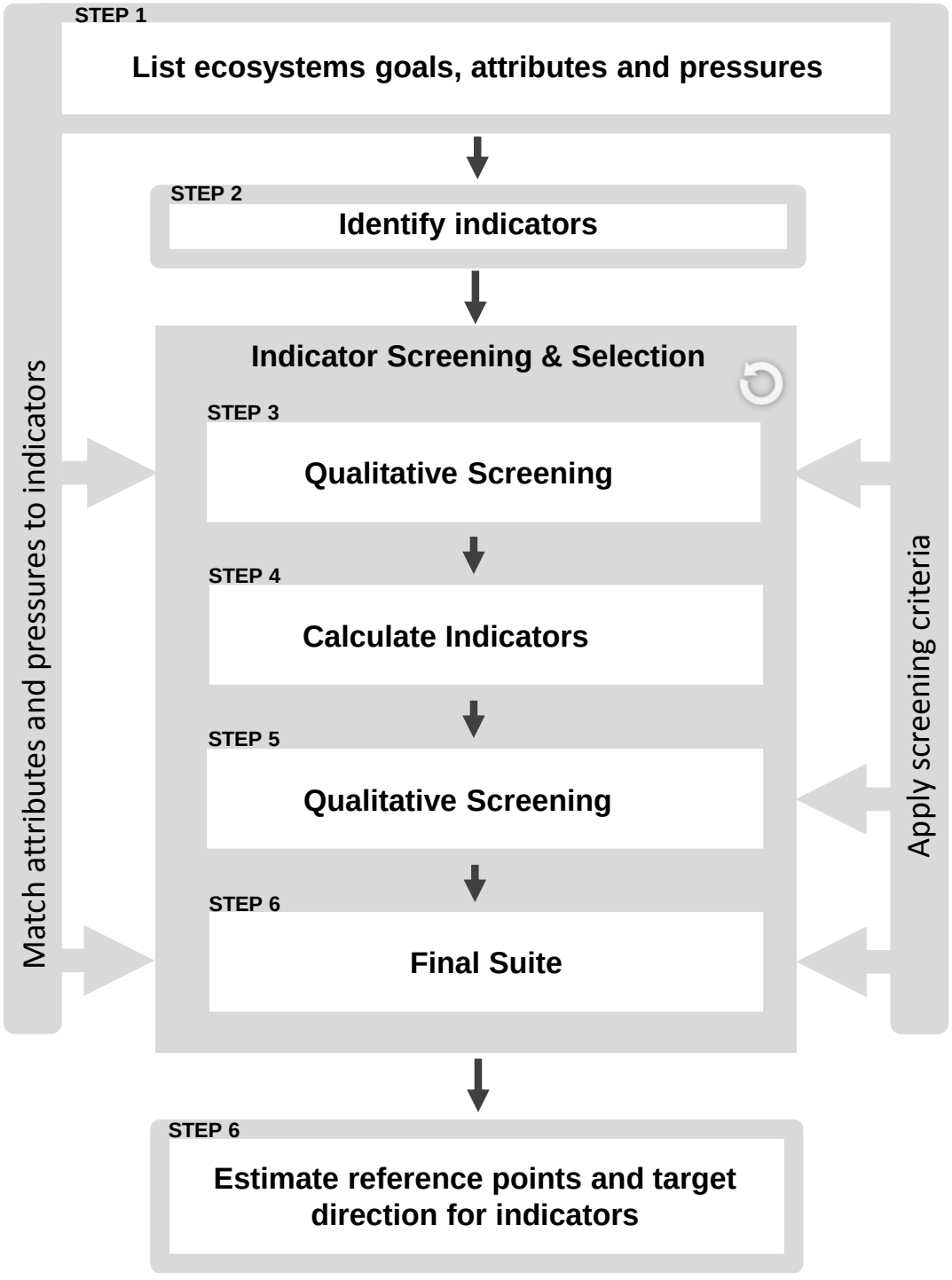

Figure 1. Indicator Selection Guidance Framework

coordination and tractability, 3) theoretical basis, 4) measurability, 5) sensitivity, 6) specificity, 7) responsiveness, and 8) redundancy among indicators.

To the extent possible, all screening criteria should be met for each indicator. However, some criteria may be given more weight than others, depending on the issue being considered (Kershner et al. 2011, ICES 2013a) and some criteria may not be achievable for all indicators. Guidelines for the extent to which screening criteria should be met are still under development (eg, ICES 2012, 2013a).

Screening Criteria

1. Public awareness: The meaning of the indicator and its link to human pressures should be simple to communicate and easily understandable by policy-makers and other non-scientists (Rochet and Rice 2005, Shin et al. 2010). In cases where indicators are "confusing or complex", scientists may strive towards translating the main message being delivered by the indicator (Degnbol 2005). Indicators should also be relevant to management concerns as well as the target audience (Kershner et al. 2011).

2. Coordination and tractability*:* Indicators should be small in number, tractable for a range of ecosystems and, ideally, updatable annually by regional experts. Their selection should be linked to regional, national and international frameworks and projects allowing a linkage and compatibility with diverse initiatives (Kershner et al. 2011, Shin et al. 2012). Indicators may be drawn from examples from other systems or the literature and where possible, indicators should have a pedigree, i.e. are established indicators with a history of public reporting and have a proven track record, and are repeatable and reproducible in different contexts. Indicators should also ideally be estimated from a coordinated monitoring process (e.g. indicators of forage fish abundance and sea bird abundance collected at the same place and time). This is challenging not only because indicators should be customised for each particular system (e.g. Blanchard et al. 2010, Fu et al. 2012) but also because some indicators are likely to depend upon thresholds that are specific for each system (Large Fish Indicator, Mean maximum length, e.g. Cury et al. 2005, Greenstreet and Rogers 2006). When possible, this criterion recommends giving preference to indicators that have been used in other geographic locations and that have proven to be reliable and meaningful in other ecosystem assessments, that is, indicators that have a pedigree (Kershner et al. 2011).

3. Theoretical basis*:* Indicators must be based on clear concepts that are consistent with established theory reflecting ecological processes underlying pressures (Rice and Rochet 2005, Greenstreet and Rogers 2006, ICES 2010, Shin and Shannon 2010). Conceptual and scientific peer-review findings should support the use of indicators to represent a given variation in the ecosystem attribute(s) or driver(s) (Keshner et al. 2011). For instance, food-web structure and species composition are considered properties of the entire system and indicators that reflect alteration of those system properties due to fishing impact are desirable (ICES 2005, 2010).

4. Measurability: There are several dimensions of measurability: a) type of data, b) spatial scale of the data, c) differences in data due to sampling methods, and d) consistency of time series data and missing data.

    a. *Type of data*: Quantitative measurements are preferred over qualitative, categorical measurements, which in turn are preferred over expert opinion and professional judgment (Keshner et al. 2011). Quantitative indicators that are consistently measurable, derived from existing/historical and ongoing time series data with broad spatial coverage and are simple and cost-effective to measure, collect and calculate, are highly recommended (see also Appendix 1 in Fulton et al. 2004).

    b. *Spatial scale of the data:* Indicators must be calculable at relevant spatial scales, which can vary from m^2 (e.g. a small spatial closure, an aquaculture site, coral reef) to thousands of km^2 (e.g. Large Marine Ecosystems, FAO fishing zones and Exclusive Economic Zones, ICES 2005, Shin and Shannon 2010). Therefore the scale of intended use of the indicator should be known and the screening process should evaluate whether the indicator can provide useful information at this scale, based on the availability of data. The geographic scale at which indicators can be estimated is directly dependent on the scale at which the data from which they are estimated are collected (e.g. surveys, fisheries data). Indicators based on fishery- independent data for example, often use data collected from research vessel trawl surveys, which are designed to estimate abundance of marine fish and invertebrates at shelf wide scales. However, the survey design may not be the optimal design to monitor smaller scales such as strata, banks, basins, Ecologically and Biologically Significant Areas (EBSA) or MPAs.

    c. *Differences in data due to sampling methods:* The criterion of measurability also considers the data used to calculate the indicators. In the case of fishery- independent data, different species of fish and invertebrates have different catchabilities to the sampling gear and are thus not caught equally by research vessel trawl surveys (Harley and Myers 2001, Harley et al. 2001). Fish size, shape, swimming speed and behaviour all affect catchability. Catchability is not usually taken into consideration in the estimation of empirical ecosystem indicators that aggregate across species, yet this could have a fundamental impact on the indicator value, trend and the overall understanding of the system.

    d. *Consistency of time series data and missing data:* Quantitative, time series data enables calculated indicators to be monitored over time. This is a critical property of indicators since it enables change to be measured and status relative to ecosystem goals to be assessed (Shin et al. 2010). Time series data should be checked for missing data prior to interpretation

and further analysis, and the implications of these gaps assessed.

5. Specificity*:* Indicators may be influenced by a range of natural and human drivers. The criterion of specificity evaluates how specific the indicator is to the driver(s) of concern and whether the effects of one driver can be disentangled from other drivers. It is critical to understand why an indicator is changing (Rice and Rochet 2005, Shin et al. 2012). Specificity has been investigated by exploring the potential effects of pressures other than fishing on indicators (Blanchard et al. 2005, Bundy et al. 2010), by modelling the relative predicted importance of natural versus human drivers in explaining indicator values and trends (Large et al. 2015), and by exploring the statistical relationship between indicators of human drivers and indicators of ecosystem variability (Fu et al. 2012, 2015, Pranovi et al. 2012). With regard to indicators intended to evaluate the effects of fishing pressure, it is critical that their specificity is understood since if they also respond to other drivers, the management response maybe inappropriate, ineffective and possibly deleterious to the ecosystem, the wellbeing of fish harvesters or both.

6. Sensitivity: Sensitivity refers to the amount of change in indicator value that corresponds to a change in the driver (e.g. fishing). The data used to estimate an indicator should be measurable to sufficient accuracy that any change or trend in the indicator is greater than the variance in its measurement, Keshner et al. (2011).The range of sensitivity of indicators can vary in response to fishing type and effort (Rochet and Trenkel 2003), and three basic types of sensitivity to pressure have been identified: linear, stepwise (where indicators are less sensitive before or beyond a threshold) and non-linear (sigmoidal) (Samhouri et al. 2010). Several recent studies have explored indicator sensitivity using model simulations (e.g., Travers et al. 2006, Houle et al. 2012, Hunsicker et al. 2016).

7. Responsiveness*:* This criterion concerns the time required for the indicator to respond to the driver(s) of interest, i.e. the rate of response. This rate of response determines the utility of an indicator and whether it can support short-, medium- or long- term management actions (Hutchings 2000, Jennings and Dulvy 2005, ICES 2010). In the North Sea, for example, 14 to 16 years of bottom trawl survey were required to detect trends and changes in size-based indicators, such as mean length of fish (Nicholson and Jennings 2004). Similarly, 12+ year time lags have been observed for the response of the Large Fish Indicator to fishing pressure in the North Sea and Celtic Sea (Greenstreet et al. 2011, Shephard et al. 2011), and assessments using empirical data have shown that recovery time of Large Fish Indicator is longer that predicted using simulation models (~8 years in the southern Bay of Biscay (Modica et al. 2014).

8. Redundancy Analysis: This final screening criterion, the redundancy analysis, applies to all indicators under consideration, the objective of which is to:

1. Reduce the number of indicators to a minimum, parsimonious and complementary suite that addresses the stipulated ecosystem attributes and sub-attributes, and
2. Eliminate redundancy among indicators in order to avoid potential bias that could result from placing too much emphasis on one type of response (Fulton et al. 2004, Rice and Rochet 2005, Blanchard et al. 2010, Shephard et al. 2011, Greenstreet et al. 2012).

Redundancy testing of indicators has been conducted through qualitative and quantitative approaches (Degnbol and Jarre 2004). The latter include linear, non-linear (Blanchard et al. 2010), factor analysis (Greenstreet et al. 2012) and correlation methods (Coll et al. 2016) to calculate the level of redundancy among indicators to identify the minimum number of indicators necessary to represent multiple ecosystem attributes. Redundancy among indicators can vary among ecosystems, for example, indicators that are redundant in the eastern Scotian Shelf might be not redundant on the West Coast (Blanchard et al. 2010). Redundancy can also vary across spatial scales in the same ecosystem. Therefore, a critical step in the development of a suite of indicators is to conduct a Redundancy Analysis of the indicators calculated for the specific ecosystem(s) and spatial scales for which they are intended. If the intent is to develop a common suite of indicators for use at multiple spatial scales, then the consistency of the redundancy results across all spatial scales must be considered.

Many of these screening criteria can be applied using qualitative and/or quantitative approaches, where the former is based on known properties of the indicator. We recommend a multi-step, iterative approach to the application of these criteria to select indicators:

STEP 3 - Qualitative Screening

Where possible, screening criteria 1 to 7 should be applied to all indicators qualitatively using expert opinion and published information. Indicators that do not meet these criteria will not be considered further. The resultant indicators are then organised by the attributes and sub-attributes to ensure that each sub-attribute is represented by at least one indicator. If a sub-attribute lacks an indicator, return to Step 2, or accept absence of indicator.

STEP 4 - Calculate Indicators

Indicator calculation method(s) should be clearly defined, formulae provided, with guidance for appropriate data sources (e.g. preferred source, alternative sources), data requirements and preferred calculation methods (Shin et al. 2010). Any data gaps discerned by the measurability criterion should be accounted for when calculating indicators.

STEP 5 - Quantitative screening of indicators

i. Apply screening criteria 4 to 7 to individual indicators
ii. Conduct a redundancy analysis (screening criterion 8) across all indicators and remove redundant indicators.

STEP 6: FINAL SUITE OF INDICATORS

Step 6 consists of selecting a final suite of indicators from the indicators that (i) fulfil the qualitative and quantitative selection criteria evaluated in Steps 3 and 5 and (ii) that represent each one of the goals, attributes and pressures of the system defined in Step 1.

Ultimately, this suite of indicators will be used to conduct an assessment of the status and trends of a given ecosystem, to track progress towards meeting management goals and objectives at a range of spatial scales, and to inform ecosystem based decisions and governance strategies (Rice and Rochet 2005, Kershner et al. 2011).

STEP 7: ESTIMATE REFERENCE POINTS AND TARGET DIRECTIONS FOR INDICATORS

Reference points can serve as targets, limits, cautionary zones or thresholds (FAO 1996, DFO 2009) and, as in single species fisheries management, reference points are an important dimension of an Ecosystem Approach (Engler 2015). They establish criteria to assess the achievement of management objectives and to inform when to take management actions (Caddy and Mahon 1995, Jennings and Dulvy 2005, Shin et al. 2005, Goberville et al. 2011, Kershner et al. 2011, ICES 2012) However, identifying reference points at the ecosystem level can be more challenging than for single species. Recent work on identifying ecosystem thresholds that identify the point at which drivers may push a system over a threshold is showing promise (Large et al. 2015, DFO 2015, Samhouri et al. 2012, 2017, Martone et.al. 2017, Otto et al. 2017). Several multivariate and modelling approaches are available to identify thresholds (Foley et al. 2015). Modeled indicator values under extreme pressure or in the absence of fishing have been investigated (Jennings and Blanchard 2004), multivariate points of reference have been proposed (Link et al. 2002), and multivariate statistical methods have been used to establish reference states for ecosystems and drivers of change (Goberville et al. 2011, Foley et al. 2015, Martone et al. 2017 and references therein).

PART 2: APPLICATION OF THE INDICATOR SELECTION GUIDANCE FRAMEWORK TO THE SCOTIAN SHELF BIOREGION, CANADA

The Indicator Selection Guidance Framework developed in Part 1 is tested here with an application to the Scotian Shelf Bioregion, Canada. It is a temperate ecosystem in the Northwest Atlantic that has been harvested for several centuries and has undergone ecosystem changes (Lotze and Milewski 2004, Choi et al. 2005, Link et al. 2011, Link and Bundy 2012, Shackell et al. 2012). The focus of the application of the framework is primarily on the selection of ecological indicators with respect to the impacts of fisheries exploitation and intended for ecosystem monitoring, assessment and management. Note that Step 7 (estimate reference points and target directions for indicators) is not included in this report, but will be explored in the future.

The Scotian Shelf Bioregion is comprised of the Scotian Shelf and Bay of Fundy, and offshore waters out to the exclusive economic zone (Figure 1), which correspond to Northwest Atlantic Fisheries Organization (NAFO) management Divisions 4VWX, hereafter referred to as 4X, 4W, 4Vn and 4Vs (Figure 1). Synoptic data for the Scotian Shelf are provided by DFO's annual summer Research Vessel Survey (hereon referred as RV Survey) and from fisheries landings data.

The Indicator Selection Guidance Framework was applied at four spatial scales (Figure 1):

1. The Scotian Shelf Bioregion
2. The eastern and western Scotian Shelf (ESS and WSS)
3. NAFO Divisions 4W, 4X and NAFO Subdivisions 4Vs and 4Vn
4. Scotian Shelf divided into the 48 strata used in the summer RV Survey

The spatial scales reflect known differences in ecosystem properties and species composition (see below) and reflect the scales at which indicators may be used. The WSS and 4X cover the same area and therefore their results are presented together as "WSS, 4X."

A BRIEF OVERVIEW OF THE SCOTIAN SHELF BIOREGION

The Scotian Shelf extends from the Laurentian Channel in the northeast to the Fundian Channel/Northeast Channel in the southwest and into the Bay of Fundy (Figure 1). It is characterised by complex topography with shallow offshore banks and inner basins separated by gullies and channels. This region is influenced by many processes, including sub-polar waters flowing into the region mainly from the Gulf of St. Lawrence and the Newfoundland Shelf, influx of warmer waters from the offshore slope, local mixing, freshwater runoff, precipitation, and melting of sea-ice (Hebert et al. 2016, Johnson et al. 2017). Seasonal variation in water temperature ranges on the Scotian Shelf is among the most variable in the North Atlantic Ocean (about 16°C) with major events of inter-decadal variability (Hebert et al. 2016). Local climate regimes and fishing both influence ecosystem responses (Shackell et al. 2012).

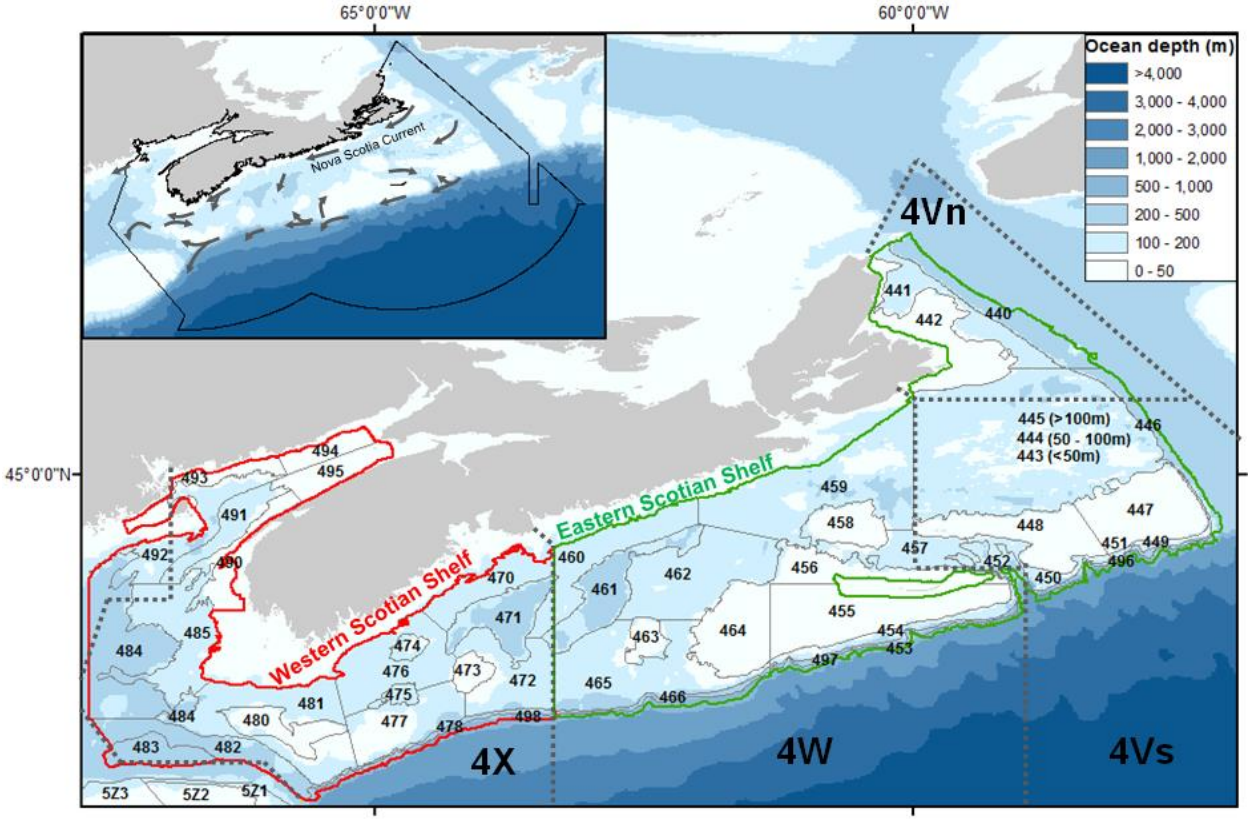

Figure 1. Map of the Scotian Shelf Bioregion. The Western Scotian Shelf (WSS: red line) and the Eastern Scotian Shelf (ESS: green line) follow the contour of DFO's summer Research Vessel Survey (light grey lines). Dark grey dotted lines indicate the boundaries of the Northwest Atlantic Fisheries Organization (NAFO) Divisions: WSS is NAFO Division 4X and ESS includes NAFO Division 4W and Subdivisions 4Vn and 4Vs. The map inset shows the prevailing currents on the Scotian Shelf (black arrows) and the boundary of the Maritimes region (black line).

The Scotian Shelf has been divided into east and west by the line between NAFO Divisions 4X and 4W, which extends south from Halifax (Nova Scotia) between LaHave Basin and Emerald Basin (Figure 1). This distinction was primarily based on historical tagging and inferred migration patterns of Atlantic cod and Haddock (*Melanogrammus aeglefinus*) (Shackell and Frank 2007). Substantial spatial variability in the environmental conditions are evident across these divisions: the eastern Scotian Shelf, mainly influenced by Labrador Slope Water, is characterised by colder near bottom temperatures, compared with the western Scotian Shelf, which is influenced by the Labrador Slope Water and the Gulf Stream. For example, in 2015, bottom temperatures ranged from an average of 4.9^0C in 4Vs to 8.2^0C in 4X (Herbert et al 2016). The Bay of Fundy is a highly productive area and home to the largest tides in the world, ranging from a mean height of 6 m in the outer bay to 11.9 m in the inner bay. It is the intense vertical mixing caused by the bottom turbulence generated by the high tides that

generates the high levels of marine productivity in this area (see Hebert et al. 2016 and references therein).

The Scotian Shelf Bioregion is highly productive and has supported substantial commercial fisheries for centuries (Rosenberg et al. 2005). In more recent years, human use of the Bioregion includes fisheries, aquaculture, offshore oil and gas, ports and shipping, ocean and coastal tourism, maritime defense, and submarine cables (MacLean et al. 2013). The Nova Scotia fishing industry traditionally exploited mostly groundfish and pelagic fish, but many of these have exhibited the classic cycles of excessive effort, stock declines and iterations thereof until the point of sequential stock depletion with the collapse of cod in the ESS in 1992 along with the serious reduction in other groundfish species and Atlantic herring (*Clupea harengus*) in 1992 (Link 2007, Bundy et al. 2009). Since then, fisheries have diversified to exploit a broader range of species, especially shellfish. Fishing provides a major source of employment and income in the province (MacLean et al. 2013 and references therein). In 1990, for example, a total value of $456,026 million was reported for Maritimes region[1], with groundfish accounting for 47% of that value (Atlantic cod, *Gadus morhua*, ~ 22%) and shellfish accounting for 23% of that value (American lobster, *Homarus americanus* ~ 4%, sea scallop, *Placopecten magellanicus* 15%). In 2015 this increased to a total landed value of $1,124,302 million for Maritimes region[1], with shellfish accounting for 87% of that value (American lobster, 57%; sea scallop, 15%) whereas groundfish only accounted for 8% (Atlantic cod ~ 0.3%).

APPLICATION OF STEP 1: LIST ECOSYSTEM GOALS, ATTRIBUTES AND PRESSURES FOR THE SCOTIAN SHELF BIOREGION

Ecosystem-based management requires the establishment of overall management goals and objectives that express the desired condition of the marine ecosystem (Levin et al. 2009, Long et al. 2015). Such a process was undertaken in the Maritimes Region in the 2000s by the Eastern Scotian Shelf Integrated Management (ESSIM) project, which developed an ESSIM Management plan (DFO 2007). The ESSIM plan recognised the “commitment for integrated, ecosystem-based and adaptive management of all marine activities in or affecting the eastern Scotian Shelf” and established three main ecosystem goals, with several sub-goals (DFO 2007):

i. Collaborative governance and integrated management
    - Effective governance structures and processes.
    - Capacity among stakeholders.
    - Knowledge to support integrated management.
ii. Sustainable human use
    - Ecologically sustainable use of ocean space and resources.
    - Sustainable communities and economic well-being.
iii. Healthy ecosystems

[1] http://www.dfo-mpo.gc.ca/stats/commercial/sea-maritimes-eng.htm

- Resilient and productive ecosystems, with diverse habitats, communities, species and populations.
- Strong marine environmental quality supports ecosystem functioning.

These goals are consistent with the current vision of the 2017-18 Departmental Plan, that is "to advance sustainable aquatic ecosystems and support safe and secure Canadian waters while fostering economic prosperity across maritime sectors and fisheries" and its three strategic outcomes (DFO 2016):

i. Economically prosperous maritime sectors and fisheries
ii. Sustainable aquatic ecosystems
iii. Safe and secure waters

The ESSIM Plan was never enacted (McCuaig and Herbert 2013) and DFO's practical implementation of integrated management and EBFM is still in its early stages. However, since formal ecosystem objectives do not exist for the Scotian Shelf Bioregion, we have assumed that the overarching management goals that were developed by ESSIM still apply to the larger Scotian Shelf Bioregion. More specifically, the ESSIM healthy ecosystem goal was used to move ahead with the identification and selection of ecosystem attributes and pressures for Step 1.

Ecosystem Attributes

In order to identify and select the ecosystem attributes that will help to define and quantify the ecosystem goal of "Healthy Ecosystems", we compiled a list of ecosystem attributes from the relevant literature (Table S1). We found that the level of detail at which the attributes were reported was highly variable, but also that there was overlap in attributes. The information in Table S1 was used to select four ecosystem attributes that represent broad key features of healthy ecosystems (Shin et al. 2010) and that summarise some of the more detailed attributes cited in the literature: 1) biodiversity, 2) ecosystem stability and resistance to perturbations, 3) ecosystem structure and functioning and 4) resource potential. These four attributes were unpacked into sub-attributes to further structure the selection of indicators (Table 1). These attributes and sub-attributes reflect the range of ecosystem features evaluated in other studies reviewed (Table S1) and allow flexibility in the selection of indicators with respect to the impacts of important drivers in the bioregion.

1. *Biodiversity,* as defined by the Convention of Biological Diversity (CBD), is "the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems". Conservation of biodiversity is the global aim of the CBD Strategic Plan for Biodiversity, which includes the Aichi Biodiversity Targets[2]. Long-term protection of biodiversity, ecosystem functioning and special natural features are also primary

[2] https://www.cbd.int/sp/targets

goals of the Canadian network of MPAs and therefore, central to good marine management (Government of Canada 2011). Fishing can affect biodiversity in a number of ways including reductions in the number of species (richness) in a community (Degnbol and Jarre 2004, Link 2005, Greenstreet and Rogers 2006), reducing the evenness of species distribution (Greenstreet and Rogers 2006), and reducing overall species diversity (Worm et al. 2006, Greenstreet et al. 2012). In this context, three important sub-attributes were selected to monitor and map diversity: *Species Richness, Species Evenness,* and *Species Diversity* (Kenchington and Kenchington 2013, Greenstreet et al. 2012, Samhouri et al. 2009, Fulton et al. 2005).

2. *Ecosystem Structure and Functioning* refers to the organization of the community and the interactions between system components and external stressors (Rapport et al. 1998). Fishing can impact the structure and functioning of the system in several ways (Pauly et al. 1998, Choi et al. 2005, Shin et al. 2005, Essington et al. 2006, Greenstreet and Rogers 2006, Frank et al. 2007, Coll et al. 2008, Bundy et al. 2010), including the following:

- by targeting large individuals and causing a shift in the size structure of the community, favouring smaller-sized organisms (Rochet and Trenkel 2003, Shin et al. 2005).
- by targeting individuals and/or species with K-strategy characteristics (late maturation, slow growth and large ultimate body size), thus shifting the community to species with R-strategy life-history characteristics (fast growth, small body size, and early age at maturation) (Shin et al. 2005).
- by targeting high trophic levels, that is "fishing down the food web", altering trophic web structure and functioning (e.g. depleting predatory fish, releasing predation pressure and increase fishing of small fish and invertebrates, Pauly et al 1998).
- by targeting low trophic levels “fishing through the food web” thus altering trophic web structure and functioning (Essington et al. 2006).

Six sub-attributes were selected to represent these potential impacts of fishing on the structure and functioning of communities: *Ecosystem Structure - Top of the food web, Ecosystem Structure - Trophic guilds, Size Structure - Fish Community, Trophic Structure, Structural Change,* and *Ecosystem Functioning.*

3. *Ecosystem Stability and Resistance to Perturbations* refers to the capacity of a system to absorb disturbance and hence to maintain its structure, functioning and feedbacks (Holling 1973, Rapport et al. 1998, Walker et al. 2004). Different human drivers can affect the capacity of a system to withstand change. For instance, the extraction of species can ultimately reduce the resistance of ecosystems against climate change threats (Sandin et al. 2008). *Ecosystem Resistance* tracks the relative abundance of species with different turnover rates, and therefore, the stability of the system (Shin et al. 2010). In general, fishing favours the emergence of species with a short lifespan, which have a fast turnover rate and whose dynamics tend to be highly influenced by environmental variability (Winemiller 2005). Stability

and resistance to perturbations is represented in this framework by three sub-attributes: *Ecosystem Resistance, Stability of the Trophic Community,* and *Stability of Community Biomass*.

4. *Resource Potential* refers to the production capacity of the ecosystem (Rapport et al. 1998, Shin et al. 2010). High fishing pressure can potentially remove, without replacement, a large amount of biomass and energy from the system (Bundy 2005), thus reducing resources. Reduced resource potential can refer to a decline in the biomass of fish in a given area which in turn can harm the productivity of the system and dependant fisheries (Rapport et al. 1998, Rochet and Trenkel 2003). Four sub-attributes were selected to represent this attribute: *Resource Potential of the Community, Resource Potential of Fished Groups, Resource Potential of Indicator Species,* and *Fishing Strategies and System Productivity*. The latter indicator is a measure of how widely and intensely fishing pressure is distributed across the ecosystem. It captures changes in fishing strategies and their impact on system productivity.

Ecosystem Pressures

Ecosystems can be impacted by multiple human drivers including fisheries exploitation, pollution, eutrophication, habitat modification, introduction of non-native species, hydroclimatic changes, acidification and human ocean noise (Halpern et al. 2008, 2012, Rombouts et al. 2013). It is therefore important to identify these drivers early in the process, to understand their relative roles and likely impacts, and to frame the selection of relevant human driver indicators. Globally, marine ecosystem assessments have tended to focus primarily on fishing pressure as the main human driver of change (Boldt et al. 2014). Fishing is one of the oldest and strongest pressures impacting marine ecosystems (Pauly et al. 1998, Jackson et al. 2001, Myers and Worm 2003, Worm et al. 2006, Coll et al. 2008). In the context of an Ecosystem Approach, monitoring key ecosystem attributes that are expected to change as a result of fishing pressure is highly desirable (Samhouri et al. 2010, Shin and Shannon 2010, Bundy et al. 2012) and the ultimate goal is to prevent fishing pressure from altering the components (e.g. biodiversity), structure (e.g. food-webs), functionality (e.g. energy flow), and services (e.g. food) of marine ecosystems (Swartz et al. 2010, Garcia et al. 2012). Note than in some ecosystems, such as the Baltic Sea and Puget Sound, other human drivers such as eutrophication, habitat modification or hazardous substances have also been considered (Boldt et al. 2014).

In the Northwest Atlantic Ocean, although local climate regimes influence ecosystem responses, fishing has been the dominant human driver of ecosystem responses (Shackell et al. 2012, Dempsey et al. 2017), therefore fishing pressure was selected as the main pressure affecting this system. **Fishing Pressure** is a measure of the intensity of fisheries exploitation. There are many ways to quantify fishing pressure, including hours fished, area fished, number of boats, size of boats, fishing mortality. Here we focus on four sub-attributes that can be measured at the species and community level:

Fishing Pressure on the Community, Fishing Pressure on Fished Groups, Distribution of Fishing Pressure, and *Total Landings*.

Table 1. Ecosystem attributes (bold), sub-attributes (italics) and fishing pressure selected to structure the selection of indicators.

Attributes	Sub-attributes
Biodiversity	*Species Richness* *Species Diversity* *Species Evenness*
Ecosystem Structure and Functioning	*Ecosystem Structure - Top of the Food Web* *Ecosystem Structure - Trophic Guilds* *Size Structure - Fish Community* *Trophic Structure* *Structural Change* *Ecosystem Functioning*
Ecosystem Stability and Resistance to Perturbations	*Ecosystem Resistance* *Stability of the Trophic Community* *Stability of Community Biomass*
Resource Potential	*Resource Potential of the Community* *Resource Potential of Fished Groups* *Resource Potential of Indicator Species* *Fishing Strategies and System Productivity*
Fishing Pressure	*Fishing Pressure on the Community* *Fishing Pressure on Fished Groups* *Distribution of Fishing Pressure* *Total Landings*

APPLICATION OF STEP 2: IDENTIFY INDICATORS

A list of indicators for each of the attributes and pressures was compiled from a literature review resulting in the initial selection of 358 indicators derived from fishery-independent data and/or fisheries data. The indicator names were then standardised and duplicates removed, which reduced the number of indicators from 358 to 186.

Two types of indicators were identified:

- State indicators derived from fishery-independent data (i.e. RV Survey) and fisheries landings data
- Pressure indicators derived from fisheries landings data

Although the search for indicators was restricted to these two data sources, the Indicator Selection Guidance Framework developed can be applied to evaluate and select additional indicators from other data sources.

APPLICATION OF STEP 3: QUALITATIVE SCREENING

The eight selection criteria outlined above were then applied to screen and evaluate each of the 186 indicators independently using the authors' expert judgement. Consequently, 145 indicators did do not fulfill some or all of the criteria and/or required further development before use and were therefore excluded, leaving 41 indicators. The rationale for the exclusion of the 145 indicators (Figure 3) is provided in Table 2. A full list of all excluded indicators with the corresponding rationale is provided in Table S3.

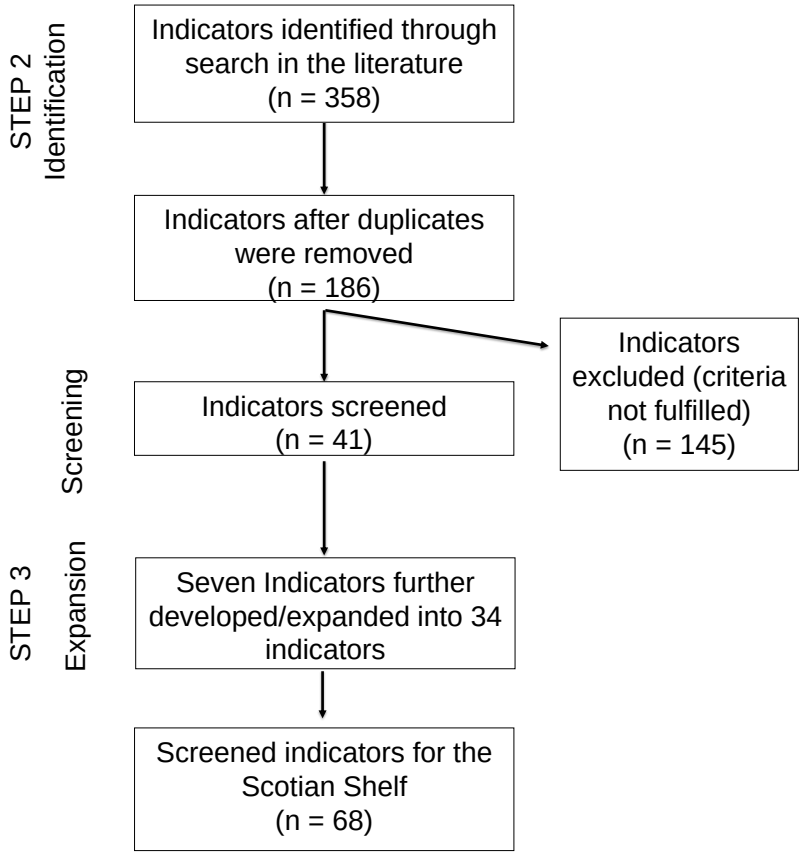

Figure 2. Process for Steps 2 and 3, Indicator Selection and Screening.

Table 2. Main reasons why indicators were screened out based on selection criteria

1. Public Awareness
Eighteen indicators were rejected because of a lack of public awareness, and possible issues concerning sensitivity to fishing. These include indicators related to k-dominance curves, intercept size spectrum, trophic spectrum analysis, among others (Degnbol and Jarre 2004, Fulton et al. 2004, ICES 2005, Yemane et al. 2005, Shin et al. 2010).
2. Coordination and Tractability
Thirty eight indicators extracted from the literature represented the same information of already selected indicators under a different name and thus were not further considered in our selection.
3. Theoretical Basis
(i) Given the goal and attributes defined in Step 1 of this report, flagship and charismatic species were not further considered in this assessment because their sensitivity to fishing is not clearly defined, and broader ecosystem based indicators are preferred. (ii) Metrics derived from fishery-independent surveys are preferred over landings when reporting on ecosystem status (Table 5 in Bundy et al. 2010). Here, 11 catch-based indicators designed to report on ecosystem status and trends were rejected since RV Survey data were available to calculate analogous indicators. (iii) Three indicators (indicator # 126-128 in Table S3) were not considered because, given the goal and objectives of this report, broader ecosystem based indicators were given preference instead of single species indicators.
4. Measurability
(i) Most indicators (44) were rejected because time series data in the region were not available, and thus, indicators could not be calculated. (ii) Indicators that required an estimate of instantaneous fishing mortality were excluded since instantaneous fishing mortality is available only for a few species. We recognized the importance of including indicators that represent a measure of ecosystem exploitation and therefore, (fishing pressure = biomass/landings). was used instead One indicator, the ratio of current biomass to target biomass, was not further considered here because it requires the calculation of reference levels for the target biomass that are not available yet for our region.
5. Specificity
To calculate size-based indicators, Shin et al. (2005) proposed that length-based measures are preferable to weight-based measures to minimize measurement error and to avoid seasonal variability (individuals may lose weight throughout seasons but rarely become smaller). This rationale resulted in the rejection of 5 weight-based indicators
6. Sensitivity
Six abundance-based indicators were excluded following the recommendations by Houle et al. (2012) who concluded that biomass-based indicators were more sensitive to the effects of fishing than abundance-based indicators, based on simulation modelling. Four more indicators (indicator # 73, 84, 131 and 136 in Table S3) were excluded because they are not expected to change greatly over time. However, their use should be further explored in later assessments as they may provide conservation-based diagnosis of ecosystem status and trends in response to fishing (Shin et al. 2012).
7. Responsiveness (& Sensitivity/Specificity)
Eight indicators fulfilled most of the criteria but were not further considered due to limited information available for their estimation or interpretation. These included the Trophic Balance Index (Bundy et al. 2005), index of declining or increasing species (ICES 2005), proportion of exploited species with declining biomass (Shin et al. 2012), proportion of under and moderately exploited stocks (Shin et al. 2010), index of spatial biodiversity (Fréon et al. 2005), and species composition (Choi et al. 2005, ICES 2005). These indicators meet the scientific and strategic criteria adopted in this review but further investigation on the behaviour of these indicators is needed before using them for the purpose of this report.

Some of the 41 indicators selected in Step 3 were further developed to represent different dimensions of their attribute. For example, Biomass of Trophic Guilds was parsed into five separate trophic guild indicators, Fulton's condition index was parsed into six indicators, Biomass per Trophic Level into three indicators, Fishing pressure into

nine indicators, Landings into seven indicators, Mean maximum length in community into two indicators, and Mean length in community into two indicators. This increased the final number to 68 indicators that met the qualitative screening criteria in Step 3 (Table 3, Table S4). A general description of these indicators is presented below, ordered by the attributes (bold) and sub-attributes (in italics) that they represent. Specific details of estimation approaches for these indicators are provided in Table S4.

1. **Biodiversity:** Nine indicators were screened to represent three sub-attributes: *Species Richness* (three indicators), *Species Diversity* (three indicators), and *Species Evenness* (three indicators).

    i. *Species Richness* is represented by the Margalef species richness index (MargalefRichness) and species richness (SpeciesRichness). Margalef index of Groundfish (MargalefGroundfish) was selected to represent richness of the Groundfish fished group.

    ii. *Species Diversity* is represented by the Shannon Diversity Index (ShannonDiversity), Hill's N1 index of diversity (HillN1Diversity) and Kempton's Q (KemptonQ). These indicators take into consideration the number of species (richness) in addition to how evenly the number of individuals is distributed among species (evenness). ShannonDiversity has been used previously in assessments of the Scotian Shelf (DFO 2003, Choi et al. 2005, Shin et al. 2010), thus it meets the criteria of coordination and tractability. KemptonQ was selected to track changes in diversity of species with a trophic level of three or higher (Kempton and Taylor 1976, Shannon et al. 2009).

    iii. *Species Evenness,* which illustrates how even is the distribution of individuals among species, was represented by three indicators: Pielou species evenness (PielouEvenness), Hill's N2 index of species dominance (HillN2Dominance), and Heip's evenness measure (HeipsEveness) (Kenchington and Kenchington 2013).

2. **Ecosystem structure and functioning:** Nineteen indicators were included to capture the impacts of fishing across six sub-attributes: *Ecosystem Structure - Top of the Food Web* (three indicators)*, Ecosystem Structure - Trophic Guilds* (five indicators)*, Size Structure - Fish Community* (two indicators)*, Trophic Structure* (one indicator)*, Structural Change* (two indicators), *and Ecosystem Functioning* (six indicators).

    i. *Ecosystem Structure - Top of the Food Web*: Large Fish Indicator (LargeFishIndicator), Large Species Indicator (LargeSpeciesIndicator) and Proportion of predatory fish (PropPredatoryFish) were selected (Greenstreet and Rogers 2006, Shephard et al. 2011, 2012, Fung et al. 2012, Greenstreet et al. 2012, Houle et al. 2012).

    ii. *Ecosystem Structure - Trophic Guilds:* Biomass of trophic guilds was divided into five trophic guilds representing the main fish feeding habits on the Scotian Shelf.

Biomass of each Trophic Guild (BTG, Table S5) was selected to represent this sub-attribute: BTGPlanktivore, BTGPiscivore, BTGLargeBenthivore, BTGMediumBenthivore, BTGZoopiscivore). Fish species captured in the RV Survey were classified into these trophic guilds based on their prey (Cook and Bundy 2010).

iii. *Size Structure - Fish Community* was assessed using the average size of fish in the community. Both abundance and biomass were used to weight mean length of fish in the community in order to explore how the results differed. Therefore two indicators were selected to represent size structure: Mean length of fish in the community weighted by abundance (MeanLengthAbundance) and by biomass (MeanLengthBiomass).

iv. *Trophic Structure* was assessed using Mean Trophic Level of the community (MeanTrophicLevel). Trophic level represents the position that an organism occupies in the food chain, whereby a decrease in mean trophic level over time indicates a decrease in individuals at higher trophic levels, and/or an increase in biomass of lower trophic organisms (Pauly et al. 1998, Shin et al. 2010, Shannon et al. 2014).

v. *Structural Change* of the community was captured by two indicators, the biomass ratio of invertebrate to demersal fish (BInvertebrateToDemersal) and the biomass ratio of pelagic fish to demersal fish (BPelagicToDemersal) (DFO 2003, Choi et al. 2005, Fulton et al. 2005, Bundy et al. 2009, Shin et al. 2010). Note that demersal fish and groundfish include the same species and are therefore equivalent here.

vi. *Ecosystem Functioning* is represented by the physiological condition of the community using Fulton's Community Condition index (CommunityCondition), which is calculated from the relationship between the fish weight and length (Shin et al. 2005, Rochet and Rice 2005). Community condition (CC) was also estimated for each trophic guild (Table S5) to describe potential change at a less aggregated level: CCPlanktivores, CCPiscivores, CCLargeBenthivore, CCMediumBenthivores and CCZoopiscivores.

3. **Ecosystem stability and resistance to perturbations:** Eight indicators were selected to capture the potential impacts of fishing on this attribute and its three sub-attributes: *Ecosystem Resistance* (four indicators), *Stability of the Trophic Community* (three indicators), and *Stability of Community Biomass.*

i. *Ecosystem Resistance*: In general, fishing targets larger, longer lived species, which can cause a shift in the community to favour smaller, shorter lived species which have a faster turnover rate and are less resistant to environmental variability (Winemiller 2005). Mean Lifespan (MeanLifespan) is a measure of the average age in the community and a proxy for community resistance to change (Shin and Shannon 2010). Mean Maximum Length of the community represents

changes in the species composition driven by differences in life-history characteristics (ICES 2012). Similar to the *Size Structure - Fish Community* indicators described above, Mean Maximum Length of the community was weighted by abundance (MMLengthAbundance) and biomass (MMLengthBiomass) to explore how the results differed.

The life history of fish species contributes to their 'intrinsic vulnerability' to fishing (Jennings et al. 1999): species with larger body size, greater longevity, higher age at maturity, and lower growth rates have higher vulnerability to fishing and may not endure high fishing mortality. To capture this we calculated the Intrinsic Vulnerability Index of the total catch (Intrinsicvulnerabilityindex.L) using the average of the Intrinsic Vulnerability Index per fish species, weighted by their annual catch (Cheung et al. 2007). Note that unlike other state indicators described thus far, the Intrinsicvulnerabilityindex.L is calculated from fishery-dependent landings data and is expected to increase with increasing fishing pressure.

ii. *Stability of the Trophic Community* was assessed using Biomass per trophic level. Fish species captured in the RV Survey were aggregated into trophic levels (TL) two, three and four, i.e. BiomassTL2, BiomassTL3, and BiomassTL4 (Araújo and Bundy 2011, Table S6).

iii. *Stability of Community Biomass* was assessed using the Inverse of the Coefficient of Variation in Biomass (InverseCVBiomass) (Shin et al. 2010). The removal of biomass by fisheries can reduce the energy of a system, decrease interactions among species, and can lead to destabilization of the system (Fulton et al. 2004, Hsieh et al. 2006). A decrease in this indicator represents greater biomass variability, and lower ecosystem stability.

4. **Resource potential** (i.e. Biomass): Ten indicators were selected to represent the following four sub-attributes: *Resource Potential of the Community* (three indicators), *Resource Potential of Fished Groups* (five indicators), *Resource Potential of Indicator Species* (one indicator), and *Fishing Strategies and System Productivity* (one indicator).

i. *Resource Potential of the Community* is represented by biomass of the community including fish and invertebrates (Biomass), biomass of finfish (all finfish species reported by the RV Survey: BiomassFinfish), and biomass of invertebrates (all invertebrate species reported by the RV Survey: BiomassInvertebrates).

ii. *Resource Potential of Fished Groups* reflects the biomass of Clupeids (BiomassClupeids), Forage Fish (BiomassForage), Gadoids (BiomassGadoids), Groundfish (BiomassGroundfish), and Flatfish (BiomassFlatfish) (Table S5).

iii. *Resource Potential of Indicator Species:* Biomass of Skates (BiomassSkates) was selected to represent this sub-attribute. Skates (Table S5) were selected because they have slow growth and late maturation, and may therefore indicate long-term changes in the ecosystem. For example, changes in these species may indicate that broader change is occurring or may occur (i.e., the canary in the coal mine). In addition, Skates are not currently targeted by commercial fisheries and therefore represent the indirect impacts of fishing (Bundy et al. 2009, Simon et al. 2011), although they are caught unintentionally as bycatch in Groundfish trawling and Scallop fishing operations (Gavaris et al. 2010).

iv. *Fishing Strategies and System Productivity:* Fishing in Balance (FishinginBalance.L) was selected because it responds to the average trophic level targeted by the fishery and the productivity of the system (Pauly et al. 2000, Fulton et al. 2004). A positive trend of FishinginBalance.L indicates that the fishery has expanded and/or bottom up effects are occurring, and there is more catch than expected. A negative FishinginBalance.L indicates that the fishing impact is so high that the ecosystem function is impaired and the ecosystem is less productive owing to excessive fishery removals (Pauly et al. 2000).

5. Fishing Pressure: Twenty two indicators derived from fisheries data were screened to reflect the four sub-attributes of fishing pressure: *Fishing Pressure on the Community* (three indicators), *Fishing Pressure on Fished Groups* (six indicators), *Distribution of Fishing Pressure* (three indicators), and *Total Landings* (Ten indicators).

i. *Fishing Pressure* (*biomass/landings*) *on the Community* is considered for all landed species (FishingPressure.L) and for all landed finfish (FPFinfish.L) and invertebrates (FPInvertebrates.L) separately. Total biomass, total finfish biomass and total invertebrate biomass represent all species reported in the RV Survey for these groups.

ii. *Fishing Pressure on Fished Groups* includes fishing pressure on Clupeids, Forage fish, Groundfish, Gadoids, Skates, and Flatfish: FPClupeids.L, FPForageFish.L, FPGroundfish.L, FPGadoids.L, FPSkates.L, FPFlatfish.L (http://www.dfo-mpo.gc.ca/fm-gp/peches-fisheries/comm/atl-arc/index-en.html).

iii. The *Distribution of Fishing Pressure* is represented by the mean trophic level of fisheries catches (MeanTrophicLevel.L), the Marine Trophic Index (MarineTrophicIndex.L) and the diversity of target species fished (DiversityTargetSpp.L). MeanTrophicLevel.L and MarineTrophicIndex.L were selected to represent the pattern of trophic exploitation across the community targeted by fisheries. Both were selected since MeanTrophicLevel.L provides an index of exploitation across all trophic levels whereas the MarineTrophicIndex.L is focussed on upper trophic levels (larger fish with trophic levels > 3.25) (Pauly and Watson 2005). DiversityTargetSpp.L was selected to track the number of

different species targeted by the commercial fishery and can be considered a measure of expanding fisheries effort (Degnbol and Jarre 2004).

iv. *Total Landings* of the community (Landings.L) and landings per fished group were selected to represent the quantity of fish and invertebrates that is landed onshore: LClupeids.L, LForageFish.L, LGroundfish.L, LGadoids.L, LFinfish.L, LInvertebrates.L, LSkates.L, LFlatfish.L, LLargePelagic.L (DFO 2003, Bundy et al. 2009).

Table 3. Screened indicators (n = 68) that qualitatively meet screening criteria in Step 3. Indicators were derived from fishery-independent RV Survey databases or commercial fisheries landings (denoted with .L). Indicators represent different attributes or pressure (bold), and sub-attributes (italics).

Attribute/ or Pressure	**Sub-attribute**		**Indicator**
Biodiversity	*Species Richness*	1	MargalefRichness
		2	SpeciesRichness
		3	MargalefGroundfish
	Species Diversity	4	ShannonDiversity
		5	HillN1Diversity
		6	KemptonQ
	Species Evenness	7	PielouEvenness
		8	HillN2Dominance
		9	HeipsEvenness
Ecosystem Structure and Functioning	*Ecosystem Structure - Top of the food web*	10	LargeFishIndicator
		11	LargeSpeciesIndicator
		12	PropPredatoryFish
	Ecosystem Structure - Trophic guilds	13	BTGLargeBenthivore (BTG: Biomass per Trophic Guild)
		14	BTGMediumBenthivore
		15	BTGPlanktivore
		16	BTGPiscivore
		17	BTGZoopiscivore
	Size Structure - Fish Community	18	MeanLengthAbundance
		19	MeanLengthBiomass
	Trophic Structure	20	MeanTrophicLevel
	Structural Change	21	BInvertebrateToDemersal
		22	BPelagicToDemersal
	Ecosystem Functioning	23	CommunityCondition (CC)
		24	CCMediumBenthivore
		25	CCPlanktivore
		26	CCPiscivore
		27	CCZoopiscivore
		28	CCLargeBenthivore
Ecosystem Stability and Resistance to Perturbations	*Ecosystem Resistance*	29	MeanLifespan
		30	MMLengthAbundance (MM: Mean Maximum)
		31	MMLengthBiomass
		32	Intrinsicvulnerabilityindex.L
	Stability of the Trophic Community	33	BiomassTL2 (TL: Trophic Level)

Attribute/ or Pressure	Sub-attribute		Indicator
		34	BiomassTL3
		35	BiomassTL4
	Stability of Community Biomass	36	InverseCVBiomass
Resource Potential	*Resource Potential of the Community*	37	Biomass
		38	BiomassFinfish
		39	BiomassInvertebrates
	Resource Potential of Fished Groups	40	BiomassClupeids
		41	BiomassForage
		42	Biomass Gadoids
		43	Biomass Groundfish
		44	Biomass Flatfish
	Resource Potential of Indicator Species	45	BiomassSkates
	Fishing Strategies and System Productivity	46	FishinginBalance.L
Fishing Pressure	*Fishing Pressure on the Community*	47	FishingPressure.L (FP)
		48	FPFinfish.L
		49	FPInvertebrates.L
	Fishing Pressure on Fished Groups	50	FPClupeids.L
		51	FPForageFish.L
		52	FPGroundfish.L
		53	FPGadoids.L
		54	FPSkates.L
		55	FPFlatfish.L
	Distribution of Fishing Pressure	56	MeanTrophicLevel.L
		57	MarineTrophicIndex.L
		58	DiversityTargetSpp.L
	Total Landings	59	Landings.L (L)
		60	LClupeids.L
		61	LForageFish.L
		62	LGroundfish.L
		63	LGadoids.L
		64	LFinfish.L
		65	LInvertebrates.L
		66	LSkates.L
		67	LFlatfish.L
		68	LLargePelagic.L

APPLICATION OF STEP 4: CALCULATE SCREENED INDICATORS

Detailed calculation methods and description for the 68 indicators screened qualitatively in Step 3 are provided in Table S4. Most indicators were calculated over a 46 year-period, from 1970–2015 for the four spatial scales outlined in Figure 1. The indicators were calculated from the most widely available fish and invertebrate data, that is RV Survey data and fisheries landings data.

Fishery-independent data: DFO's summer Research Vessel Survey (RV Survey)

The RV Survey covers the whole Scotian Shelf Bioregion providing data for 46 state indicators at all spatial scales. DFO has conducted this standardised fishery independent bottom trawl survey each summer since 1970[3]. The RV Survey uses a stratified random design, with strata defined by depth (Figure 1). There are a minimum of two stations randomly selected per strata (Simon and Comeau 1994). The number of stations allocated to a stratum is correlated with stratum area, but higher sampling intensity was assigned in the 1980's to strata with higher commercial fish abundance (Chadwick et al 2007). The RV Survey has undergone some changes in the vessel and data collection protocols that are important to highlight:

- The trawl net used and vessel used to conduct the survey were changed in 1982 and 1983. To account for this, conversion factors for net and vessel changes were used in the calculation of indicators in this report (Fanning 1985).

- Invertebrate species (other than lobster and short-fin squid) have only been systematically recorded since 1999 (Tremblay et al. 2007), therefore invertebrate-based indicators were only calculated from 1999 to 2015, comprising 16 years of data. This has consequences for the quantitative screening in Step 5 below.

- Individual fish lengths and weights are routinely collected for each species caught in the RV Survey. However, in the 1980s this protocol was temporarily changed and individual fish weights were only collected for very few species, leading to gaps in the time series for the following two indicators:

    a. CCLargeBenthivore i.e. Atlantic Wolffish (*Anarhichas lupus*) and Barndoor skate (*Dipturus laevis*);
    b. CCPlanktivore e.g. Atlantic herring, Alewife (*Alosa pseudoharengus*), Capelin (*Mallotus villosus*).

[3] http://www.inter.dfo-mpo.gc.ca/Maritimes/SABS/popec/mf/Multi-Species

Atlantic herring on the western Scotian Shelf (WSS, NAFO Division 4X)

In the Scotian Shelf Bioregion, there are four Atlantic herring stocks, southwest Nova, Offshore Scotian Shelf banks, Coastal and Southwest New Brunswick (SWNB) migrant juveniles (Power et al. 2013). The southwest Nova Atlantic herring stock is the only quota managed Atlantic herring stock and the RV Survey is not used as an index of abundance for its assessment. Given this, the RV Survey was not used here as a measure of Atlantic herring abundance in the WSS, 4X and strata therein. In the past, Atlantic herring abundance was estimated using Virtual Population Analysis (VPA), other analytical methods, and acoustic surveys (Power et al. 2008, DFO 2011). However, analytical methods have not been used in stock assessments due to poor model fits and the acoustic survey does not consistently cover the stock in time and space (DFO 2011).

In the absence of a clear indicator of absolute Atlantic herring biomass, we used the estimate of Atlantic herring in WSS, 4X calculated by Araújo and Bundy (2012), which uses the midpoint between the total VPA and the Southwest Nova Scotia/Bay of Fundy spawning acoustic biomass, and with 2009 to 2015 being repeated data (for detailed information, see pages 82 and 83 in Araújo and Bundy 2011).

Details of Atlantic herring on the western Scotian Shelf

Abundance/biomass estimates of Atlantic herring on WSS, 4X, obtained from Araújo and Bundy 2011, were partitioned across the RV summer strata following a stratification/ destratification scheme as described below. From the RV survey data, stratified total numbers of Atlantic herring were obtained following the methods of Cochrane (1977). During this processing of data to obtain stratified estimates, the contribution of individual sets to the total abundance or biomass was determined. The estimated stratified total abundance or biomass of Atlantic herring from the RV survey was substituted with the estimate from Araújo and Bundy (2011), and was destratified using the proportions attributed to the various strata and sets determined above. The same method was used for the length based estimates of Atlantic herring abundance or biomass. However, the length abundances or biomasses were only allocated to sets where that specific length class were observed. In areas other than WSS, 4X, RV Survey stratified mean estimates of Atlantic herring biomass and abundance were used.

Fishery-dependent data - commercial fisheries landings data: pressure indicators

Commercial fishing operators are licensed by DFO to harvest specific species using specific gear in designated areas, and are required to report their activity and retained fishing catches. Commercial landings data is reported for each NAFO division, and managed in the Maritimes Fisheries Information System (MARFIS) database (Gavaris et al. 2010). Twenty four pressure indicators and one state indicator were derived from this database and are denoted by ".L" in Table 3. These indicators were calculated only

at the large spatial scales (SS, ESS, WSS, and NAFO divisions) because data is not readily available at the strata scale.

APPLICATION OF STEP 5: QUANTITATIVE SCREENING

There are five quantitative screening criteria. However, a quantitative assessment of the Sensitivity, Responsiveness and Specificity criteria is beyond the scope of this report, but they were applied qualitatively in Step 3, based on known indicator properties from the literature (Table 1, Table S2). Here we focus on the Measurability Criterion and the Redundancy Analysis.

Measurability

Two properties of the Measurability Criterion were explored:

1. Differences in data due to sampling methods, and
2. Consistency of time series data and missing data.

1. Differences in data due to sampling methods: do differences in catchability affect the signal of ecological indicators?

The Scotian Shelf RV Survey uses a bottom otter trawl. The survey design was based on the North East Fisheries Science Centre surveys, which were managed from Woods Hole Institute of Oceanography and had been covering parts of Canadian waters since 1963 (Halliday and Koeller 1981). These surveys were intended for use on a broad suite of species including groundfish, pelagic fish and invertebrates (Grosslein 1969, Azarovitz 1981, Clark, 1982). Bottom trawls, however, are not effective sampling tools for some pelagic species which are often above the effective sampling height of the trawl. Furthermore, some sizes and species of fish and invertebrate are under-represented in the survey catch due to limited availability to the survey gear, e.g. juvenile fish, forage species including Atlantic herring, American shad (*Alosa sapidissima*), and Atlantic mackerel (*Scomber scombrus*) (Simon and Comeau 1994). Fish size, shape, swimming speed and behaviour can all effect catchability (Harley and Myers 2001) and therefore estimates of abundance and biomass. The effects of differential catchability can impact the estimation and interpretation of ecological indicators that aggregate across species' size, biomass or abundance (such as Mean Length, Large Fish Indicator, or Biomass Finfish), and may bias the indicator signal. A catchability adjustment is required, i.e. the value that scales swept-area abundance to population abundance for each species by length (Harley et al. 2001). Therefore, we explored the effect of catchability on ecological indicators by estimating the RV Survey based indicators with and without an adjustment for catchability for the ESS and WSS, and then compared their trends over time using a Spearman rank correlation test.

Adjusting for catchability

Length-corrected catchability was estimated using the logistic model and species or

functional group parameter estimates (α_i, β_i, γ_i) provided by Harley and Myers (2001) for the following species and species groups: Atlantic cod, Haddock, Pelagic Gadoids, Demersal Gadoids, and Flatfish (Table 4). These corrections were applied annually at the set level, for each species and length class and then stratified estimates of abundance at length were produced for each species at each spatial scale (strata to shelf). Biomass at length was then estimated from the species specific length weight relationships (derived from RV Survey data), then summed over all length classes to give total biomass per species, per area, per year. The predicted length-specific catchability curves and parameters used in our corrections for each species/species groups are presented in Figure 3 and Table 3 in Harley and Myers (2001), and summarised here in Table 4.

Table 4. Catchability (q) corrections applied to the trawlable estimates of biomass and abundance of different species as defined in Figure 3 and Table 3 in Harley and Myers (2001). Note that q corrections were not applied for Atlantic herring on the WSS, 4X: see 'Atlantic herring on the western Scotian Shelf (WSS, NAFO Division 4X)' Section above.

		Length-specific q parameters		
Group	**Species (as per RV Survey code name)**	**α**	**β**	**ϒ**
Cod	Cod(Atlantic)	-5.14	0.141	0.870
Haddock	Haddock	-2.80	0.066	1.500
Pelagic gadoid	Off-Shore_Hake	-4.61	0.079	0.580
Demersal Gadoids	Cunner, Cusk, Fourbeard_Rockling, Gadoids, Longfin_Hake, Longnose_Greeneye, Pollock, Rockling_Unidentified, Short-Nose_Greeneye, Silver_Hake, Spiny_Dogfish, Squirrel_Or_Red_Hake, Tomcod(Atlantic), White_Hake, Atlantic_Wolffish, Redfish_Unseparated, Rosefish(Black_Belly), Spotted_Wolffish	-3.50	0.093	0.968
Flatfish	American_Plaice, Brill/Windowpane, Flounder_Unidentified, Fourspot_Flounder, Greenland_Halibut, Gulf_Stream_Flounder, Halibut(Atlantic), Summer_Flounder, Winter_Flounder, Witch_Flounder, Yellowtail_Flounder, Abyssal_Skate, Little_Skate, Skates_(Ns), Skates_And_Rays_(Ns), Smooth_Skate, Thorny_Skate, Winter_Skate	-4.4	0.11	0.83
		Bulk q corrections		
Forage	Alewife, Argentine(Atlantic), Blueback_Herring, Capelin, Herring(Atlantic), Mackerel(Atlantic), Menhaden(Atlantic), Shad_American, Northern sand lance	0.025		
Barndoor skate	Barndoor_Skate	0.1		
Boa dragonfish	Boa_Dragonfish	0.03		

For species such as Forage fish for which there was no length-specific catchability estimates, bulk (single value) estimates were used (Harley and Myers 2001 and

references therein). This was the case for Atlantic herring in the ESS, and Alewife, Argentine (*Argentina silus*), Blueback herring (*Alosa aestivalis*), Capelin, Mackerel, Menhaden (*Brevoortia tyrannus*), Shad American (*Alosa sapidissima*) in the entire Scotian Shelf. Note that catchability estimates are not yet available for invertebrates, so only trawlable biomass was used for these species (i.e. no catchability corrections were applied). Note that these catchability adjustments were not applied to Atlantic herring in the WSS, 4X since biomass was not estimated from RV Survey data (see above). The biomass of Atlantic herring in the WSS, 4X (and their strata) represents an estimate of total biomass.

Catchability analysis

Three indicators were excluded from the analysis since their calculation either does not use biomass or abundance (SpeciesRichness, Table S4), or there is no adjustment for catchability (BiomassInvertebrates and BiomassTL2). There were four main results from the catchability analysis of the rest of the 41 RV Survey-based indicators based on Spearman rank correlations (r) and subsequent tests of significance (Table 5):

1. No or minimal influence of catchability adjustment on indicator trends ($r \geq 0.7$, $p < 0.05$, Table 5, Figure 3): most indicators fell into this category for both the ESS and WSS, exhibiting similar trends for catchability and non-catchability adjusted data.

2. Low influence of catchability adjustment on indicator trends ($0.5 \leq r < 0.7$, $p < 0.05$): four indicators in the ESS (MeanTrophicLevel, HillN2Dominance, ShannonDiversity, HillN1Diversity, Figure 4) and two in the WSS (BiomassGadoids, BiomassSkates, Figure 5).

3. Medium influence of catchability adjustment on indicator trends ($r < 0.5$, $p < 0.05$): this category applied to only one indicator, InverseCVBiomass for the ESS (Figure 6). The main difference between the catchability and non-catchability adjusted indicators is during the last ten years of the time series. On the WSS, catchability and non-catchability adjusted InverseCVBiomass are completely different (see below, Figure 8), and InverseCVBiomass is also effectively different in the ESS given the low correlation value.

4. Indicator trends are different ($r < 0.5$, $p > 0.05$): Five biomass-based indicators had completely different trends when adjusted for catchability: Biomass, BiomassTL3, and BiomassFinfish for the ESS (
5. Figure 7), BTGLargeBenthivore and InverseCVBiomass in the WSS (Figure 8).

Table 5. Spearman rank correlations (r) of 41 RV Survey-based indicators adjusted and not-adjusted for catchability for the ESS and WSS. Six indicators highlighted in light grey had low influence of catchability adjustment on indicator trends. Catchability adjustments affected the signal of five indicators highlighted in dark grey. Bold text indicates very strong influence of catchability adjustments (r < 0.5, **p > 0.05***).

Indicator	ESS r	WSS r	Indicator (cont'd)	ESS r	WSS r
MargalefRichness	1.00	1.00	MMLengthBiomass	0.87	0.98
MargalefGroundfish	1.00	1.00	LargeSpeciesIndicator	0.87	0.96
BiomassForage	1.00	0.84	PropPredatoryFish	0.86	0.92
BiomassClupeids	1.00	0.99	CCMediumBenthivore	0.80	0.74
BTGPlanktivore	1.00	0.83	HeipsEveness	0.80	0.76
CCPlanktivore	1.00	0.96	CCLargeBenthivore	0.79	0.88
BPelagicToDemersal	0.99	0.87	KemptonQ	0.75	0.73
BTGPiscivore	0.98	1.00	MeanLifespan	0.71	0.85
CCZoopiscivore	0.98	0.98	PielouEvenness	0.70	0.88
BiomassGroundfish	0.97	0.79	BiomassGadoids	0.95	0.63
BiomassTL4	0.95	0.81	BiomassSkates	0.95	0.55
BiomassFlatfish	0.94	0.79	**BTGLargeBenthivore**	0.71	**0.26***
MMLengthAbundance	0.93	0.93	MeanTrophicLevel	0.64	0.80
BInvertebrateToDemersal	0.93	0.91	HillN2Dominance	0.62	0.91
CommunityCondition	0.92	0.90	ShannonDiversity	0.56	0.93
MeanLengthBiomass	0.92	0.94	HillN1Diversity	0.53	0.91
BTGMediumBenthivore	0.91	0.91	**BiomassFinfish**	**-0.39**	0.71
BTGZoopiscivore	0.90	0.97	**Biomass**	**-0.27***	0.74
MeanLengthAbundance	0.90	0.97	**BiomassTL3**	**-0.19***	0.76
LargeFishIndicator	0.90	0.85	**InverseCVBiomass**	0.39	**0.14***
CCPiscivore	0.87	0.96			

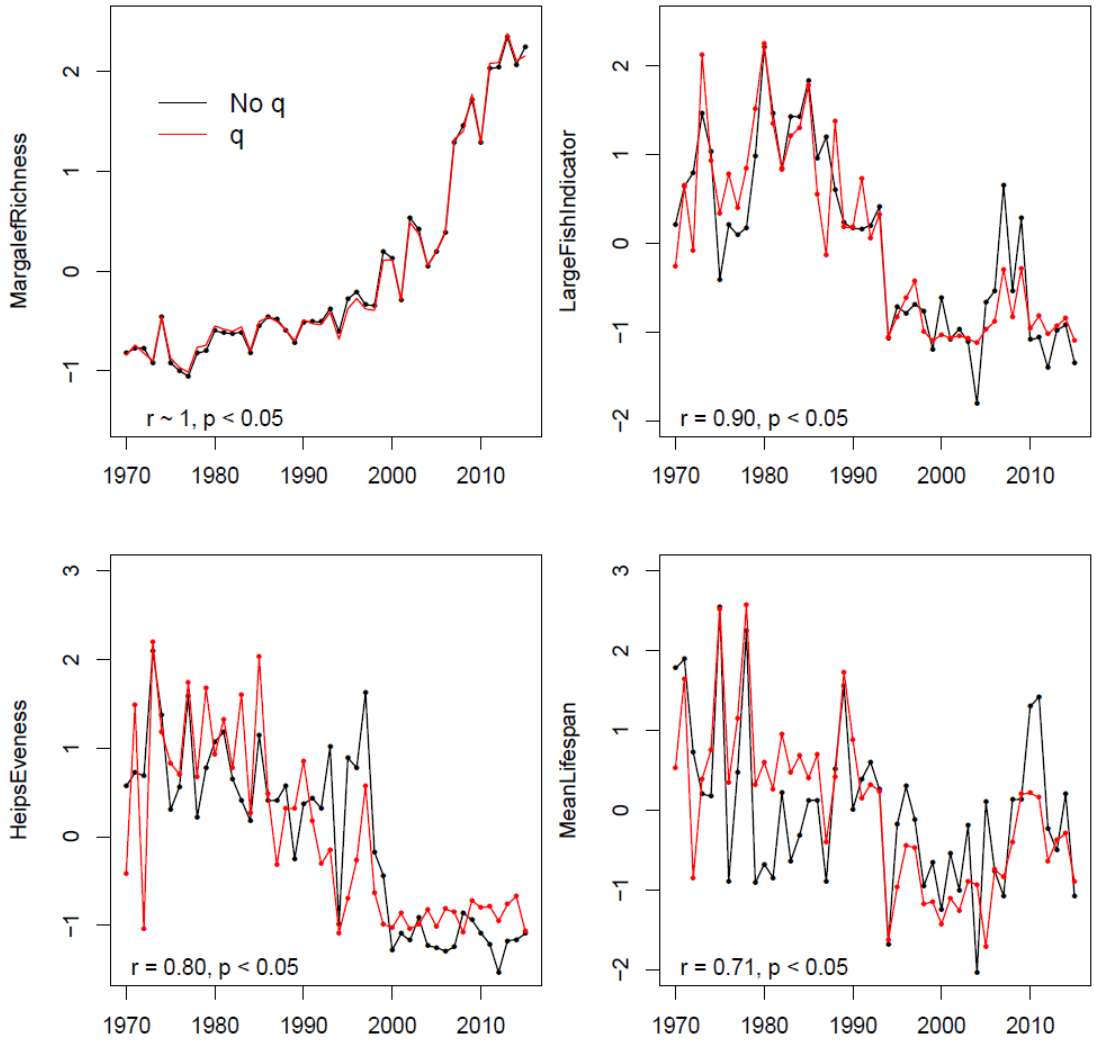

Figure 3. Examples of indicators in the ESS where catchability (q) had no or minimal effect on their trends ($r \geq 0.7$, $p < 0.05$).

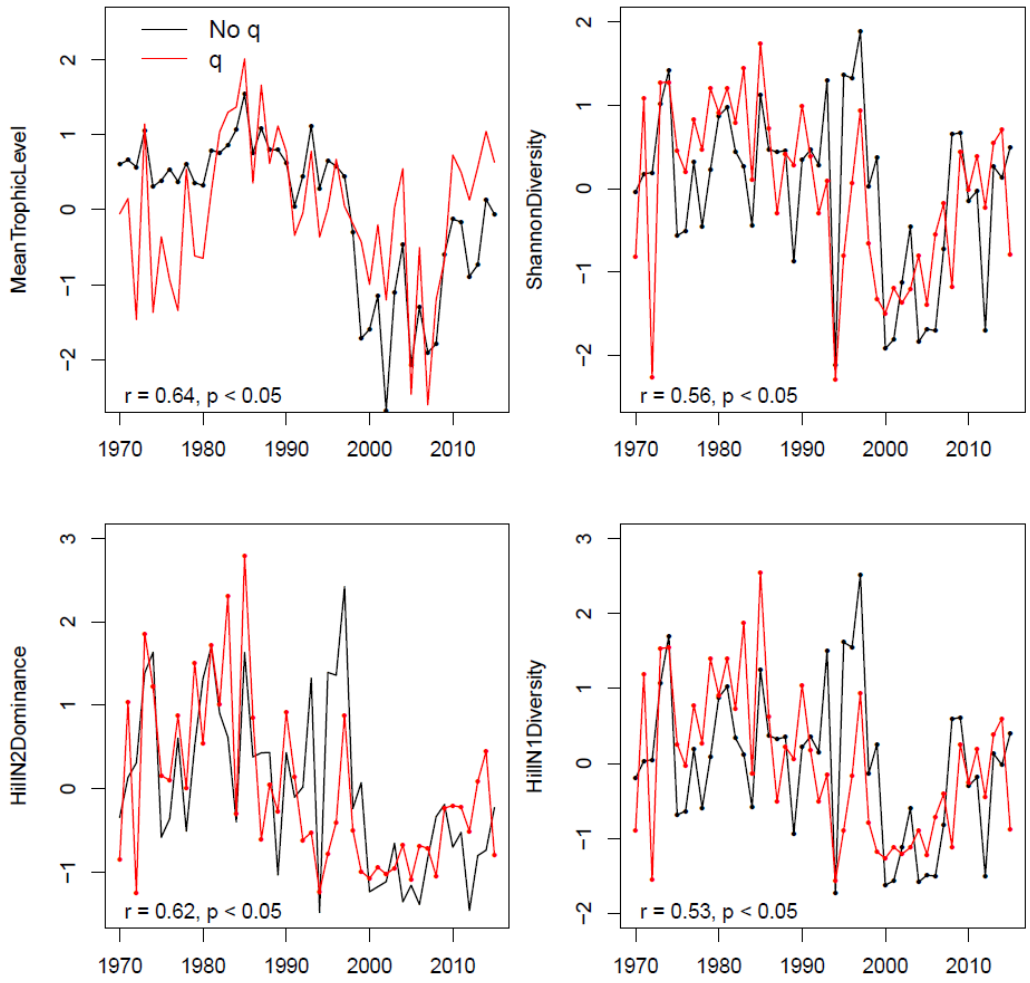

Figure 4. Four indicators in the ESS with low influence of catchability (q) adjustment on their trends (0.5 ≤ r < 0.7, p < 0.05): MeanTrophicLevel, HillN2Dominance and ShannonDiversity, HillN1Diversity.

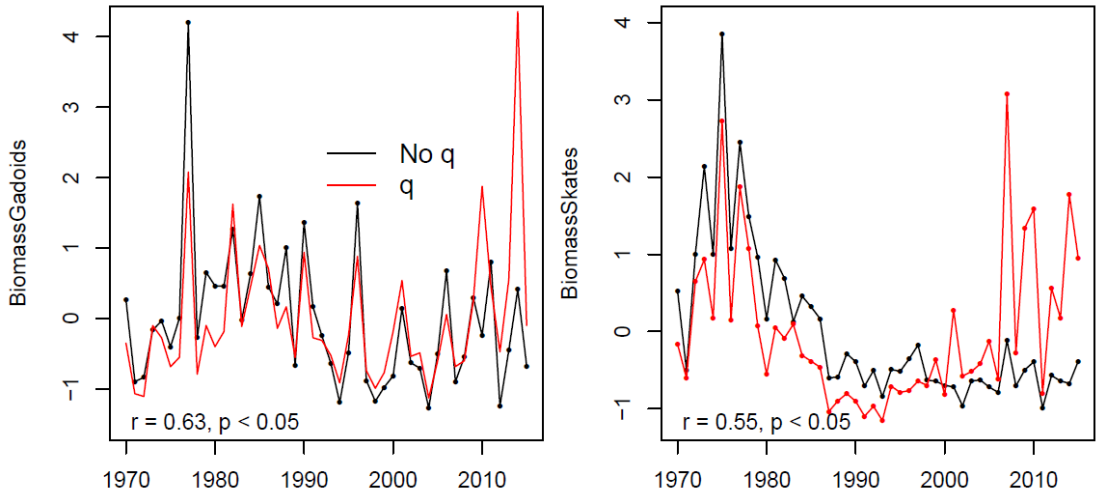

Figure 5. Two indicators in the WSS with low influence of catchability (q) adjustment on their trends (0.5 ≤ r < 0.7, p < 0.05): BiomassGadoids,and BiomassSkates.

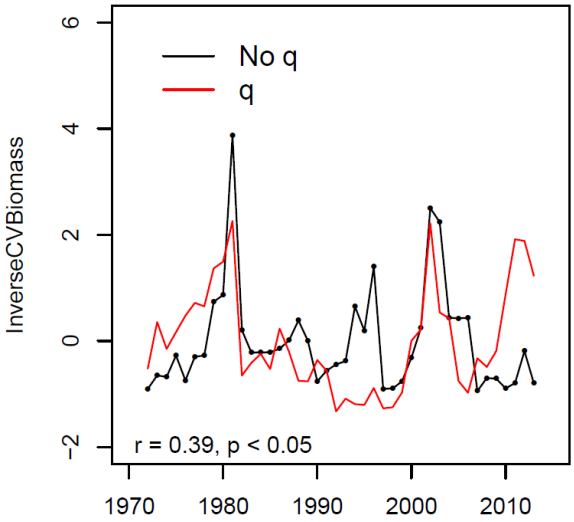

Figure 6. One indicator, InverseCVBiomass, in the ESS with medium influence of catchability (q) adjustment on its trend (r < 0.5, p < 0.05).

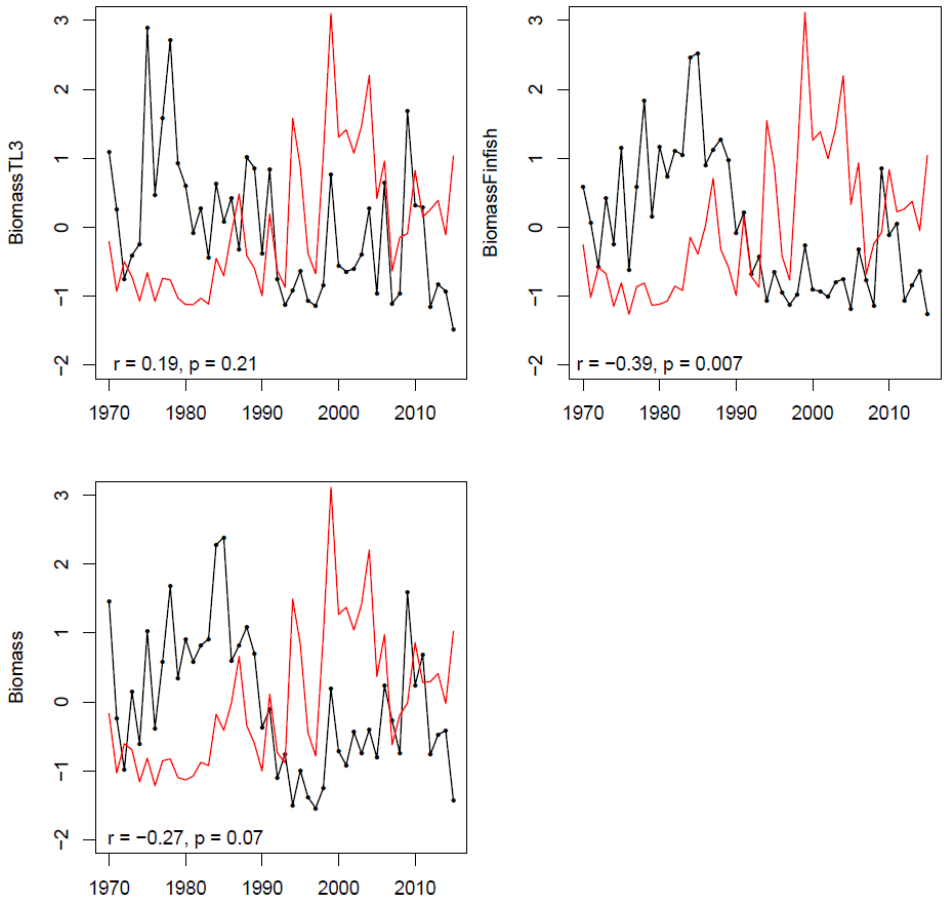

Figure 7. Differences in catchability (q) affected the trend of three indicators in the ESS ($r < 0.5$, $p > 0.05$): Biomass, BiomassTL3, and BiomassFinfish.

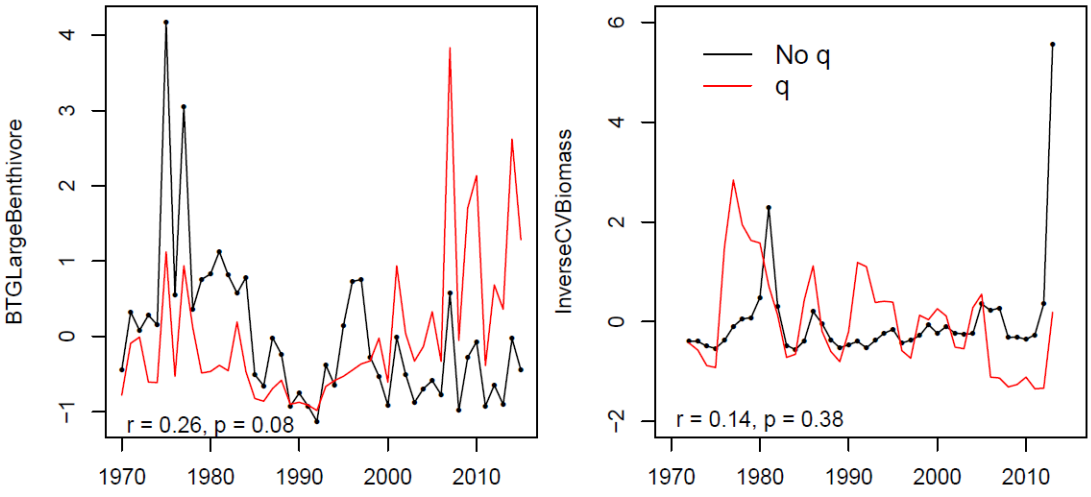

Figure 8. Differences in catchability (q) affected the trend of two indicators in the WSS ($r < 0.5$, $p > 0.05$): BTGLargeBenthivore and InverseCVBiomass.

Reasons for differences in catchability and non-catchability adjusted indicators

For the ESS, when catchability corrections were applied, Biomass and BiomassFinfish were driven primarily by species such as Atlantic herring and Northern sand lance (*Ammodytes dubius*). With no catchability adjustment, their trends were driven largely by Redfish (*Sebastes* sp.), Atlantic cod and Haddock (Figure S1). Similarly, the trend of BiomassTL3 was driven by Atlantic herring when catchability corrections were applied, and Redfish and Haddock when catchability corrections were not applied (Figure S2). The catchability correction for Atlantic herring and Northern sand lance is a bulk correction of 0.025 (Table 4), which has a large impact on catchability adjusted biomass.

For the WSS, the trend in BTGLargeBenthivore was driven primarily by Barndoor Skate (increased since early 2000's) when catchability corrections were applied, but by Striped Atlantic Wolfish (decreasing signal over time) when there was no correction for catchability (Figure S3). The catchability correction for Barndoor Skate is a bulk correction of 0.1, whereas the correction for Atlantic Wolfish is based on the gadoid logistic model (Harley and Myers 2001) and therefore is not very different from 1 for most fish lengths that occur in the RV Survey (Table 5).

InverseCVBiomass had different trends when adjusted for catchability in both the ESS and WSS. For the ESS, the trend of Biomass was different when adjusted for catchability, and thus, we expected that InverseCVBiomass would also be different. However, for the WSS, Biomass corrected and non-corrected for catchability were similar (r = 0.74, Table 5), with the trend driven primarily by Atlantic herring, Redfish, and Argentine when catchability corrections are applied, and by Atlantic herring, Spiny dogfish (*Squalus acanthias*), and Redfish when catchability corrections are not applied (Figure S1). The difference between the catchability corrected and non-catchability corrected InverseCVBiomass in the WSS was largely due to a sharp peak in the catchability-adjusted Biomass around 2010, due to Argentine and Redfish (Figure S1).

Conclusions from Catchability Analysis

Overall, the majority of the RV Survey indicators were not affected by catchability adjustments (Table 5). We therefore selected the catchability adjusted indicators to represent the attributes and sub-attributes defined in Step 1 since these metrics are more likely to reflect relative species composition. Five indicators exhibited different trends when adjusted for catchability, potentially affecting overall understanding of the system (
Figure 7, Figure 8, Figure S1 to Figure S3). Therefore, we recommend that the implications of these differences be considered when determining the final suite of indicators in Step 6. We further recommend testing for the effects of catchability on ecological indicators and where there are effects, exploring the cause of these differences and their impact on ecosystem understanding. Additionally, if there is no consensus on which data to use, both indicators (catchability or non-catchability adjusted) should be used when conducting an ecosystem assessment.

2. Consistency of time series data and missing data

Missing data can compromise statistical analyses and compromise understanding of ecosystem change. To explore the extent of missing data we first calculated the percentage of years with missing data (NAs) for the ten species with the highest biomass in the ESS and WSS, and then for all indicator time series at all spatial scales. At the species level, Atlantic herring was the only main species for which there was missing data. Since Atlantic herring is the main species driving the signal of several composite indicators, all years/areas with missing data for Atlantic herring were replaced with NAs. This applied to the following indicators at all spatial scales on the ESS: Biomass, BiomassForage, BiomassFinfish, BiomassClupeids, BiomassTL3, BTGPlanktivore, BPelagicToDemersal, FishingPressure.L, FPClupeids.L, FPFinfish.L, FPForageFish.L.

The analysis of all indicator time series at all spatial scales revealed that indicators based on invertebrate data have significant gaps in their time series, with more than one quarter of their data missing (>25% NAs), mainly at the beginning of their time series, challenging the criterion of measurability (Table S7). The time series of four invertebrate-based indicators (BInvertebratesToDemersal, BiomassInvertebrates, BiomassTL2, FPInvertebrates.L, Table S7) were too short at all spatial scales to include in statistical analyses with the other 64 indicators. However, they were retained in the final set of indicators and analysed separately since they have 16 years of data, which continues to be collected. Therefore these indicators will provide useful measures of their respective attributes into the future.

The remaining NAs in the indicator time series (<25 % NAs) were replaced using the non-parametric missing value imputation via Random Forest [function missForest ()] (Stekhoven and Buhlmann 2011).This method uses the relationship between all rows of indicators (year) to fill in the NAs given the information from all other indicators (Figure S4). For example, to fill NA's in BiomassClupeids at the NAFO scale, missForest takes the relationships between BiomassClupeids to all other indicators across all NAFO areas (i.e. 4VS,4W, 4X,4VN in data set nafosetq.csv), and then predicts BiomassClupeids using all the indicators for the row (year) where BiomassClupeids is NA. One of the advantages of Random Forest imputations is that it constitutes a regression classification scheme that is scale invariant.

Once missing values were interpolated, all data was standardised using Z-scores, which are normally distributed with a mean of 0 and a standard deviation of 1 (Zuur et al. 2007). As a result of this analysis, only 64 indicators were included in the Redundancy Analysis below (i.e. four invertebrate-based indicators were excluded).

Redundancy Analysis

Methods

The objective of this analysis is to assess then eliminate redundancy among indicators to avoid over representing the same information when synthesizing information and to minimise the number of indicators in the final suite. A Redundancy Analysis was conducted independently at the large and strata scales, and results were compared to evaluate the consistency of results at all spatial scales. Redundancy of indicators was investigated using two complementary analyses: hierarchical cluster analysis (HCA) and non-parametric Spearman rank correlations (hereon referred to as correlations). Once groups of redundant indicators were established across spatial scales, one indicator was selected, using the selection criteria outlined in Step 3, to represent each group.

HCA was used to statistically classify indicators into clusters based on their dissimilarities. Euclidean distance and the complete agglomeration method were used, and results are displayed as a dendrogram. Distance between indicators and the height of the branches in the dendrograms provide information about the dissimilarity among indicators (i.e. the greater the distance between indicators and the height of their branches, the greater the difference between indicators). To assess the uncertainty of the HCA, and to evaluate how strongly the clusters were supported by data, Approximately Unbiased (AU) p-values were calculated via multiscale bootstrap resampling (100,000 replications) (Suzuki and Shimodaira 2013). Distance (y-axis of the dendrograms) and the AU p-values were used to classify indicators into clusters.

The correlation analysis was used to corroborate membership of indicators to each cluster identified by the HCA and in some cases, to add indicators to a cluster if they were highly correlated with all members of the cluster. Indicators that were consistently included in clusters and had significant pairwise correlations were classified as "redundant," and those that were not included in clusters were classified as "singletons."

Large scale Redundancy Analysis

The HCA was conducted using the 64 indicators resulting from the application of the Measurability criterion in Step 5 above at each large spatial scale, i.e. SS, WSS, 4X, ESS, 4W, 4Vn, 4Vs. HCA dendrograms for each scale were visually inspected to identify clusters (Figure S5 to Figure S8), and correlation results were used to either verify membership or assign membership to clusters identified in the HCA (Table S8 to Table S22). Indicators were assigned to the same cluster based on six ranked criteria (Table 6). The first three criteria only include indicators that were grouped on the same branch of the HCA dendrogram (height of the nodes ≤ 6). Clusters defined by criteria 1 in Table 6 are statistically the strongest since they were defined by the HCA at all spatial scales with AU p-values ≥ 95 and had significant high correlation values ($r \geq 0.7$) between all indicators in the cluster. Criteria 4 to 6 in Table 6 include indicators that are not grouped on the same branch of the HCA dendrograms (height of the nodes ≤ 6) at all spatial scales. These criteria were added to allow for the inclusion of indicators that

did not fulfill criteria 1 to 3 in Table 6 but were nonetheless significantly correlated with clusters defined by the HCA. For example, criterion 6 in Table 6, the weakest criterion for cluster membership, includes indicators that have significant ($p < 0.05$) but low correlation values ($r < 0.5$) with at least one of the indicators in the cluster, where the main cluster membership is defined by the HCA.
Indicators that did not fulfill the criteria 1 to 6 in Table 6 were categorised as singletons. In general, singletons have low non-significant correlation values with other indicators in a suite and are not consistently grouped into clusters at most spatial scales.

Table 6. Criteria used to define cluster membership at the large scale: branch height of the nodes in the HCA dendrograms, AU p-values, strength of the correlations (r), and significance of the correlations (p). The criteria are rank ordered: criterion 1 indicates the highest similarity of indicators within a cluster based on the HCA and correlation results, and the shaded criteria represent the strongest support for cluster membership.

Indicators grouped on the same branch of the HCA dendrograms (height of the nodes ≤ 6), with height of the nodes <= 6, and:		
Criteria #	Legend	Description
1	●	AU p-values **>= 95**, high correlation values (r >= 0.7, p < 0.05)
2	[●]	AU p-values **< 95**, high correlation values (r >= 0.7, p < 0.05)
3	○	AU p-values **< 95**, high and moderate correlation values (r >= 0.5, p < 0.05)
Indicators grouped on different branches of the HCA dendrogram, and:		
4	●	High correlation values (r >= 0.7, p < 0.05) with all indicators in the cluster
5	○	High and moderate correlation values (r >= 0.5, p < 0.05) with all indicators in the cluster
6	*	Low correlation values (r < 0.5, p < 0.05), with at least one of the indicators in the cluster

Strata scale Redundancy Analysis

The HCA and correlation analysis were conducted for each of the 48 strata for 38 state indicators. Results were examined independently from the large scale analysis due to the high number of strata and lack of landings based pressure indicators at the strata scale.

Strata scale HCA results were summarised in a matrix consisting of the number of times a pair of indicators was found in the same cluster with AU p-values ≥ 0.95 ($N_{cluster}$) for all strata, and the total number of strata in which the indicator occurred (N_{total}). Clusters were considered consistent across strata based on the ratio of $N_{cluster}$ / N_{total}, and the strength and significance of correlations. Consistent clusters were those for which:

- r ≥ 0.5 for >40% of the correlations of indicators within the cluster, and
- > 75% of the pairwise correlations of indicators within the cluster were significant ($p < 0.05$).

Consistent clusters with strong support were those for which the average $N_{cluster} / N_{total} \geq 0.4$; clusters with moderate support where $0.2 \leq$ average $N_{cluster}/N_{total} < 0.4$. Indicators that did not meet these criteria were classified as singletons (Table 7, Table S23 to Table S73).

Table 7. Criteria used to define clusters at the strata scale. Support was defined by the ratio between the number of times a pair of indicators was found in the same cluster ($N_{cluster}$, i.e. AU p-values in the dendrograms >=0.95), and the total number of strata in which the indicator occurred (N_{total}). Cluster membership was also supported by correlations (r), and significance of the correlations (p). Indicators that did not meet these criteria were not further considered as part of a cluster and were classified as singletons.

↑	Strong support	average $N_{cluster}/ N_{total} > 0.4$	$p < 0.05$ (for > 75% of correlations, for each indicator in cluster); and $r > 0.5$ (for > 40% correlations for each indicator in cluster)
↔	Moderate support	$0.2 \leq$ average $N_{cluster}/ N_{total} < 0.4$	
S	Singleton	Does not fulfill the two criteria above, i.e. does not consistently grouped with other indicators with have high or moderate support	

Results

The patterns of redundancy and complementarity among indicators were generally consistent at all spatial scales. At the large scale, 49 indicators were grouped into 15 clusters (Cluster 1 to Cluster 15, Table 8 to Table 22, Figure 9 to Figure 23), 14 indicators were classified as singletons because they were either inconsistently, or never clustered with other indicators at all scales, and one indicator exhibited both redundant and singleton properties at different large spatial scales.

At the strata scale, 30 indicators were grouped into eight clusters (Cluster a to Cluster h) and eight indicators were singletons (Table S23 to Table S25). The first six clusters (Cluster a to Cluster f) had high and moderate support and were consistent with clusters identified at the large scales. In particular, Cluster 5 ≈ Cluster e, Cluster 6 ≈ Cluster b, Cluster 8 ≈ Cluster d, Cluster 9 ≈ Cluster f, Cluster 11 ≈ Cluster a, Cluster 13 ≈ Cluster c. The remaining two clusters identified at the strata scale (Cluster g and Cluster h) each grouped two indicators but did not have analog clusters at the large scales. Cluster g was poorly supported by the data.

-

Table 8 to Table 23 provide a summary of the Redundancy Analysis results at all spatial scales. Time series plots of indicators per cluster at the large spatial scales are presented in Figure 9 to Figure 23. The HCA dendograms and detailed correlation results are provided in Figure S5 to Figure S8, and Table S8 to Table S22. For the strata scale a summary of the HCA results and detailed correlation results are provided in Table S23 to Table S74. Indicators per cluster at all scales can be further visualised in: https://incorporatingecosystemapproach.shinyapps.io/indiapp/ (the repository is in https://github.com/gomezcatalina/Indicators).

The section below provides a description of each cluster and a rationale for the selection of one indicator from each cluster, based on screening criteria (Table 24).

Cluster 1

Cluster 1 consists of eight pressure indicators: six landings indicators and two fishing pressure indicators. It is a strong cluster, with almost all indicators grouped on the same branch of the HCA dendrograms and with high correlations at most spatial scales (Table 8). This strong cluster would suggest that landings are driven by all the fished groups included in this cluster. However, Cluster 1 was not as strong in 4Vs and 4Vn. In 4Vn, LClupeids.L, LForageFish.L and FPGadoids were not located on the same branch of the HCA dendograms, but are all significantly correlated with the rest of the indicators in Cluster 1 with moderate to high correlation values ($r >= 0.66$, $p < 0.05$, Figure 9, Table S8). In 4Vs however, LClupeids.L and LForageFish.L were not significantly correlated with all indicators in Cluster 1.

Herring form the bulk of the landings of LClupeids.L and LForageFish.L. The fishery for Atlantic herring in 4Vs, part of the offshore Scotian Shelf banks component, has been minimal since the mid-1970s. Therefore it is unlikely that either LClupeids.L or LForageFish.L would be used as indicators in 4Vs, and are excluded from Cluster 1 in this area.

Landings.L was selected to represent Cluster 1 for the following reasons:

- It encompasses all landings and therefore gives a measure of pressure at the ecosystem scale (Theoretical basis, Concreteness)
- Including all species ensures that changes in species composition and relative abundance, which are likely to occur as a result of changing pressures, e.g., climate change or fishing patterns, are captured (Theoretical basis, Concreteness)
- It is consistent with the selection of two indicators additional indicators below: Biomass and FishingPressure.L, thus supporting the criteria of Coordination and tractability.
- It is simple to understand (Public awareness).
- Landings indicators are preferred over fishing pressure indicators, which are ratios (Theoretical basis, Concreteness)
- Landings are simpler to understand than ratios (Public awareness).

Table 8. Cluster 1: see Table 6 for explanation of symbols. Indicator in bold was selected to represent this Cluster

	Large scales							Strata scale
Indicator	SS	WSS, 4X	ESS	4W	4Vs	4Vn	Results	Results
LClupeids.L	●	●	●	●	–	○		
LForageFish.L	●	●	●	●	–	○		
LGroundfish.L	[●]	[●]	●	○	●	●		
LGadoids.L	[●]	[●]	●	○	●	●	**Cluster 1**	*na*
LFinfish.L	[●]	●	●	●	[●]	[●]		
Landings.L	[●]	●	●	●	[●]	[●]		
FPGroundfish.L	[●]	[●]	●	●	[●]	[●]		
FPGadoids.L	[●]	[●]	●	●	○	○		

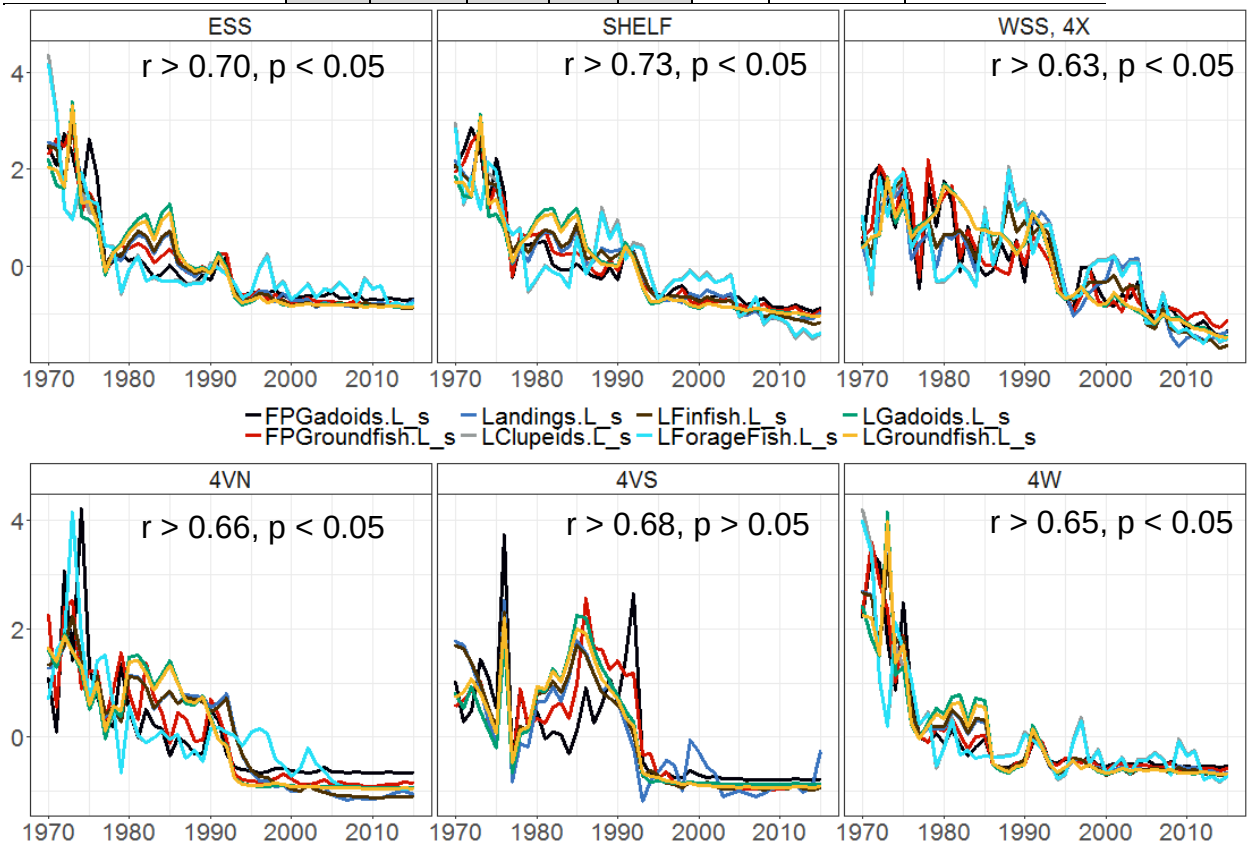

Figure 9. Time series of standardised indicators grouped in Cluster 1 at large scales (Shelf, ESS, WSS and NAFO Divisions). Minimum correlation values (r) for indicators in this cluster are provided at each spatial scale. Correlations (r) are also presented in Table S8, Table S24 to Table S73.

Cluster 2

The HCA and correlation analysis consistently grouped FishingPressure.L and FPFinfish.L in cluster 2 at all large spatial scales (Table 9, Figure 10). These pressure indicators were not available for 4Vs due to significant gaps in the time series data

(Table S5). Herring forms the bulk of the landings of these pressure indicators (biomass/landings) and therefore the same considerations apply as those discussed for Cluster 1 in 4Vs.

FishingPressure.L was selected to represent Cluster 2 since it encompasses all commercial species with estimates of biomass, and has been used in previous assessments (e.g. Shin et al. 2010) meeting the public awareness and coordination and tractability criteria.

Table 9. Cluster 2: see Table 6 for explanation of symbols. Indicator in bold was selected to represent this Cluster

	Large scales							Strata scale
Indicator	SS	WSS, 4X	ESS	4W	4Vs	4Vn	Results	Results
FishingPressure.L	●	●	●	●	*na*	●	**Cluster 2**	*na*
FPFinfish.L	●	●	●	●		●		

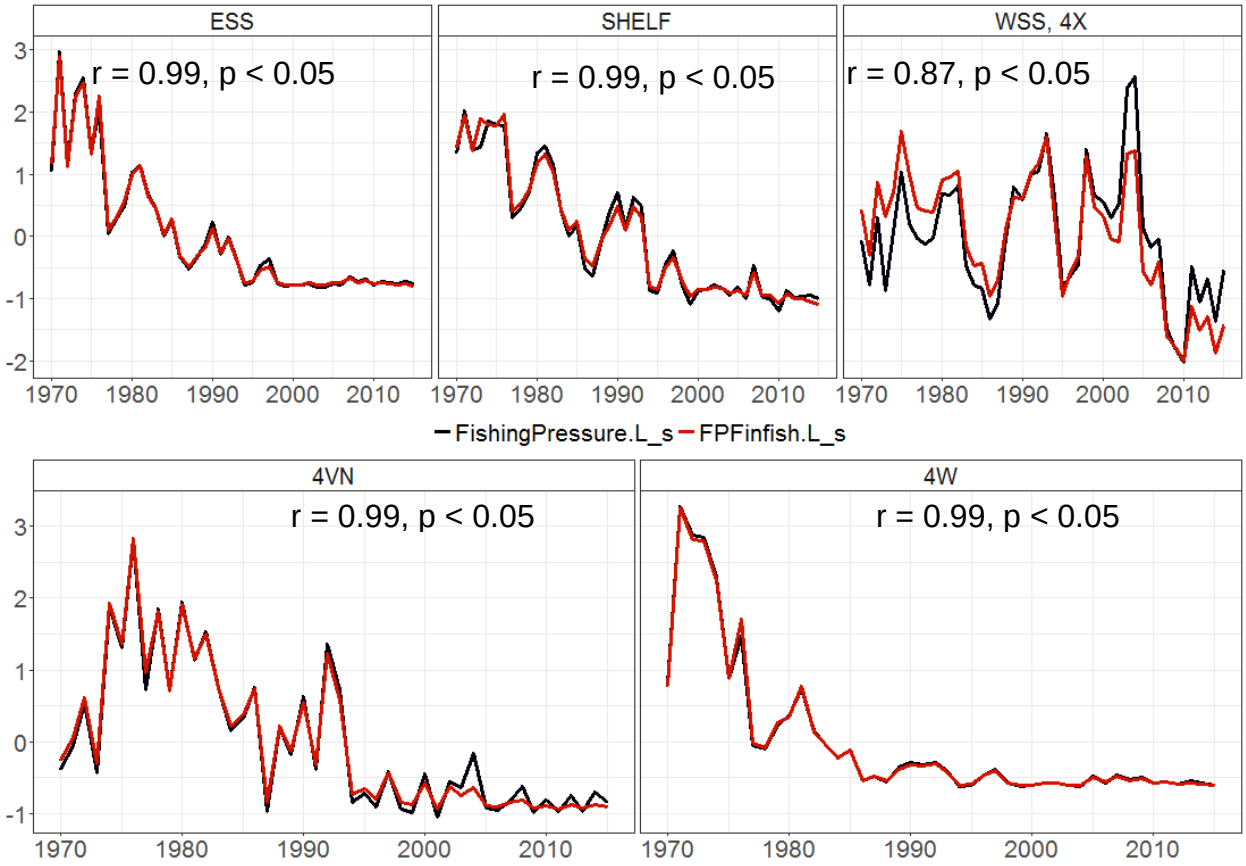

Figure 10. Time series of standardised indicators grouped in Cluster 2 at large scales (Shelf, ESS, WSS and NAFO Divisions). Correlations (r) are also presented in Table S9, Table S24 to Table S73.

Cluster 3

FishinginBalance.L and MeanTrophicLevel.L were consistently grouped in Cluster 3 by the HCA and correlation analysis at all large scales (
Table 10, Figure 12, Table S10). MeanTrophicLevel.L, was selected since it is easier to interpret and communicate than FishinginBalance.L, and allows coordination with an analogue state indicator (MeanTrophicLevel) selected in "*Trophic Structure*" below in Step 6.

Table 10. Cluster 3: see Table 6 for explanation of symbols. Indicator in bold was selected to represent this Cluster

	Large scales							**Strata scale**
Indicator	SS	WSS, 4X	ESS	4W	4Vs	4Vn	Results	Results
FishinginBalance.L	●	●	●	●	●	●	**Cluster 3**	*na*
MeanTrophicLevel.L	●	●	●	●	●	●		

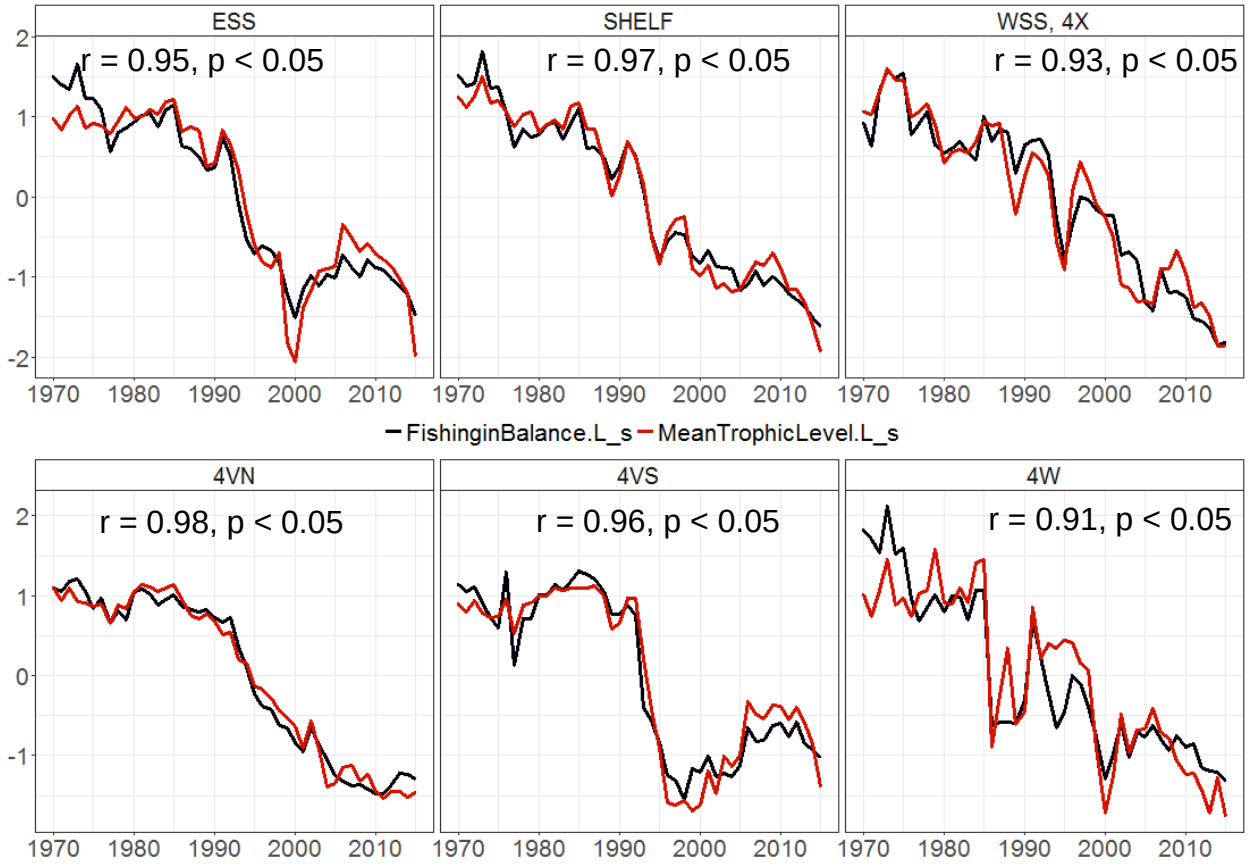

Figure 11. Time series of standardised indicators grouped in Cluster 3 at large scales (Shelf, ESS, WSS and NAFO Divisions). Correlations (r) are also presented in Table S10, Table S24 to Table S73.

Cluster 4

CommunityCondition and CCPlanktivore were grouped consistently in Cluster 4 by the HCA and correlation analysis at SS, 4X, ESS and 4W (Table 11, Figure 13). This cluster was only supported by the correlation analysis in the WSS (Table S11). CCPlanktivore was not included in the Redundancy Analysis in 4Vs and 4Vn due to lack of available data (Table S5). At the strata scale this cluster was not supported: Community condition was clustered with CCZoopiscivore in Cluster h with moderate support (Table S23), and CCPlanktivore was classified as a singleton. Since CCPlanktivore data were only available for 12 strata, it is not surprising that it was not included in the cluster at the strata level. However, Community condition and CCPlanktivore were significantly correlated in 83% of the 12 strata where they co-occur, with an average correlation of r=0.59, thus lending some support to Cluster 4 at the strata scale. CommunityCondition was selected to represent Cluster 4 because it integrates fish condition over the whole sampled fish community data (Theoretical basis, Concreteness).

Table 11. Cluster 4: see Table 6 and Table 7 for explanation of symbols. Indicator in bold was selected to represent this Cluster

	Large scales							**Strata scale**	
Indicator	SS	WSS, 4X	ESS	4W	4Vs	4Vn	Results	Results	Level of support
CommunityCondition	●	[●]	●	●	*na*	*na*	**Cluster 4**	**Cluster h S**	*None*
CCPlanktivore	●	[●]	●	●					

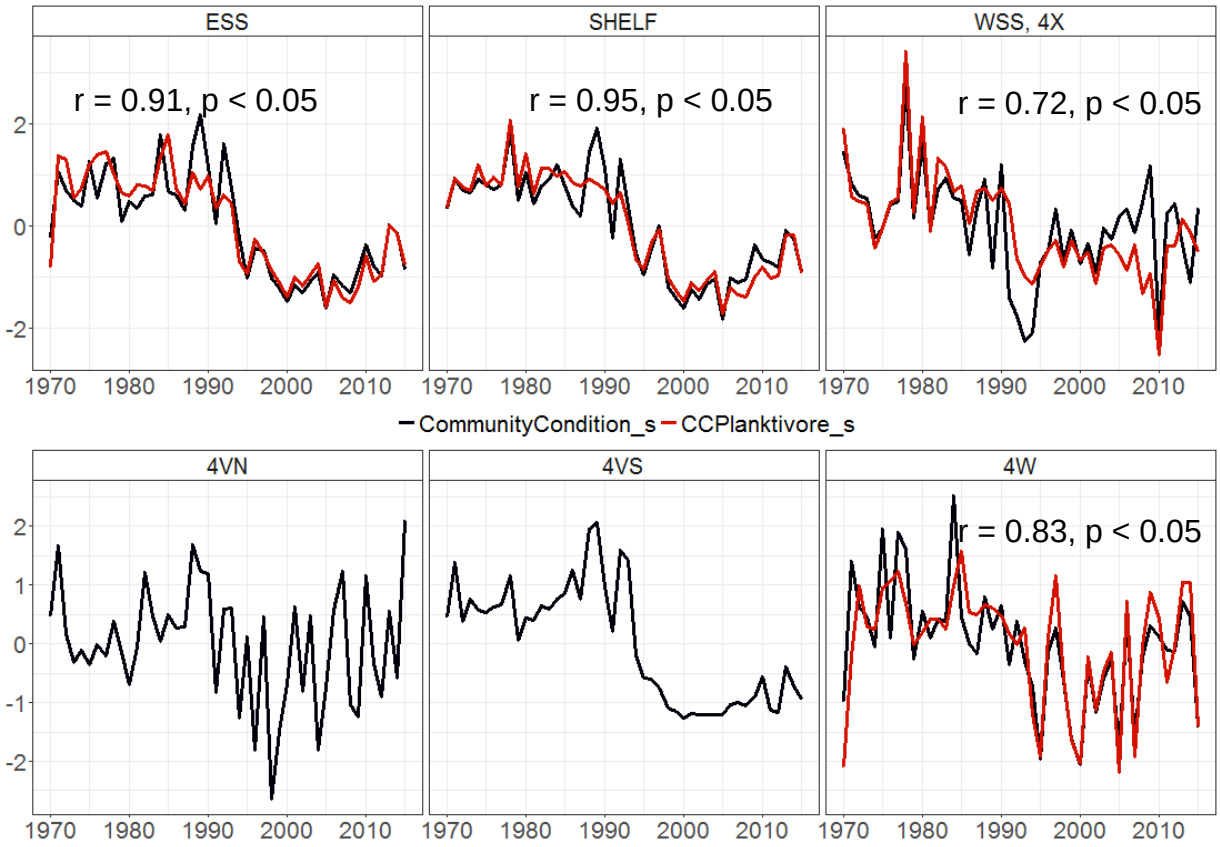

Figure 12. Time series of standardised indicators grouped in Cluster 4 at large scales (Shelf, ESS, WSS and NAFO Divisions). Correlations (r) are also presented in Table S11, Table S24 to Table S73.

Cluster 5 (≈ Cluster e, at the strata scale)

The redundancy results from the large scale analysis produced a cluster consisting of 5 indicators grouped consistently at all spatial scales (
Table 12, Figure 13), although LargeSpeciesIndicator was only supported by the correlation analysis in 4W and 4Vs (Table S12) At the strata scale, this cluster consisted of 6 indicators (Table S23), with the addition of MMLengthAbundance and had moderate support. At the large scale, MMLengthAbundance had strong support in the ESS, 4Vs, 4Vn and 4W, but had low support in SS, WSS, 4X. Given that MMLengthAbundance meets the criteria in Table 6, it was included as a member of Cluster 5 at all spatial scales (Table S23).

Cluster 5 encompasses three sub-attributes: *Ecosystem Structure - Top of the Food Web* (LargeFishIndicator, LargeSpeciesIndicator and PropPredatoryFish), *Size Structure - Fish Community* (MeanLengthBiomass) and: Ecosystem Stability and Resistance to Perturbations (MMLengthBiomass and MMLengthAbundance).

The **LargeFishIndicator**, which monitors change in the size composition of “large" fish in the community (fish > 35 cm), was selected to represent all indicators in Cluster 5 because it meets the selection criterion Public Awareness and the following aspects of the selection criterion Coordination and tractability:

- It has been evaluated in great detail by ICES
- It is the basis for the Ecological Quality Objective of the North Sea fish community
- It has been used as a national performance indicator in Canada
- It is considered reliable and meaningful to policy makers and non-scientists, and it is sensitive to both the direct and indirect effects of fishing by capturing decreases in large fish biomass caused by size selective fishing as well as increases in small fish biomass caused by release from predation by large fish that have been exploited (Greenstreet and Rogers 2006, Greenstreet et al. 2011, Shephard et al. 2011, 2012, Fung et al. 2012, Houle et al. 2012, ICES 2011, 2012).

Table 12. Cluster 5: see Table 6 and Table 7 for explanation of symbols. Indicator in bold was selected to represent this Cluster

	Large scales							**Strata scale**	
Indicator	SS	WSS, 4X	ESS	4W	4Vs	4Vn	Results	Results	Level of support
LargeFishIndicator	●	●	●	[●]	[●]	[●]	**Cluster 5**	**Cluster e**	↔
MeanLengthBiomass	●	●	●	[●]	[●]	[●]			
MMLengthBiomass	[●]	●	●	●	[●]	[●]			
PropPredatoryFish	[●]	●	●	●	[●]	[●]			
LargeSpeciesIndicator	[●]	●	●	●	●	[●]			
MMLengthAbundance	*	*	●	●	●	●	**S**		

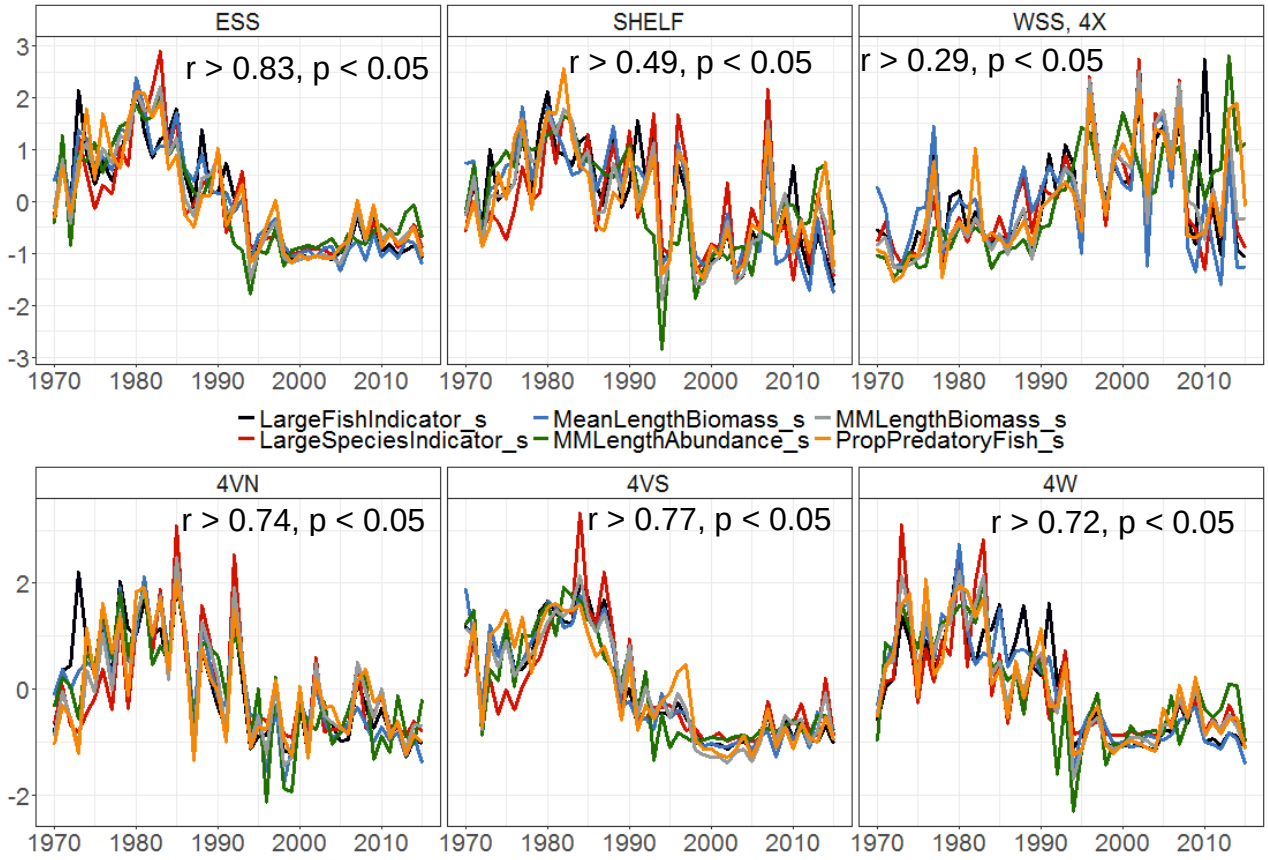

Figure 13. Time series of standardised indicators grouped in Cluster 5 at large scales (Shelf, ESS, WSS and NAFO Divisions). Minimum correlation values (r) for indicators in this cluster are provided at each spatial scale. Correlations are presented in Table S12, Table S24 to Table S73.

Cluster 6 (≈ Cluster b, at the strata scale)

BiomassGroundfish, BiomassGadoids, and BiomassTL4 were grouped consistently into Cluster 6 by the HCA and correlation analysis at all large scales, with the exception of BiomassGroundfish which was only supported by the correlation analysis in 4Vs (Table 13, Figure 14, Table S13). The strata analysis also clustered BiomassGroundfish, BiomassGadoids, and BiomassTL4 together in Cluster b with strong support (Table S23). BTGPiscivore was also grouped as part of Cluster 6, but less strongly, in SS, ESS, 4W, 4Vs 4Vn, and was moderately to highly correlated with other cluster members in less than 50% of strata. There was no support to include BTGPiscivore as part of Cluster 6 in WSS, 4X.

Spiny dogfish, which are included in BTGPiscivore, BiomassGroundfish and BiomassTL4, but not BiomassGadoids, are responsible for the different signals between the ESS and WSS. In the ESS, the trend of all indicators in Cluster 6, including BTGPiscivore, is largely driven by Atlantic cod, whereas on the WSS, the main signal of BTGPiscivore is driven by Spiny dogfish. Their abundance has declined in the ESS since the mid-1980s and has not shown a strong signal in this region since then

(Shackell and Frank 2007). In contrast, Spiny dogfish are the strongest drivers of BTGPiscivore's signal in the WSS, 4X, with sharp increases in some years (Figure S9), a trend which is attributed to migration rather than to population abundance increase (Fowler and Campana 2015). BTGPiscivore also excludes other commercially important species such as Haddock and Silver hake (*Merluccius bilinearis*), which are important components of other indicators in this cluster. In this context, although there was some clustering of BTGPiscivore with BiomassGroundfish, BiomassGadoids and BiomassTL4 especially in the east, BTGPiscivore was considered a singleton since it has a different trend due to the influence of Spiny dogfish.

Despite some differences in the species composition of these indicators (Table S5 and Table S6), their main trends are driven by similar species, including Silver hake, Haddock, and Atlantic cod. BiomassGadoids was selected in addition to BTGPiscivore to represent all the attributes conveyed by indicators in Cluster 6 for the following reasons:

- Its smaller number of species may be simpler to interpret than BiomassGroundfish, which is a more diffuse group of species (Table S5);
- The term gadoid is simpler to communicate and more easily understandable by policy-makers and other non-scientists compared with "Trophic Level 4" (BiomassT4) which theoretically should include seals and other marine mammals at the top of the food web but this information is not available from the databases used;
- Selecting BiomassGadoids allows coordination with other indicators selected in our suite (e.g. Biomass was selected over BiomassTL3 in Cluster 9 (see below), LGadoids.L was selected in Cluster 1, see above).

Table 13. Cluster 6: see Table 6 and 7 for explanation of symbols. Indicator in bold was selected to represent this Cluster. Indicator highlighted in italics was only included in final cluster for ESS and associated divisions.

	Large scales							**Strata scale**	
Indicator	SS	WSS, 4X	ESS	4W	4Vs	4Vn	Results	Results	Level of support
BiomassGroundfish	[●]	●	●	●	●	●			
BiomassGadoids	[●]	●	●	●	●	●	**Cluster 6**	**Cluster b**	↑
BiomassTL4	[●]	○	●	●	●	●			
BTGPiscivore	○	–	●	○	●	●	**S**	**S**	

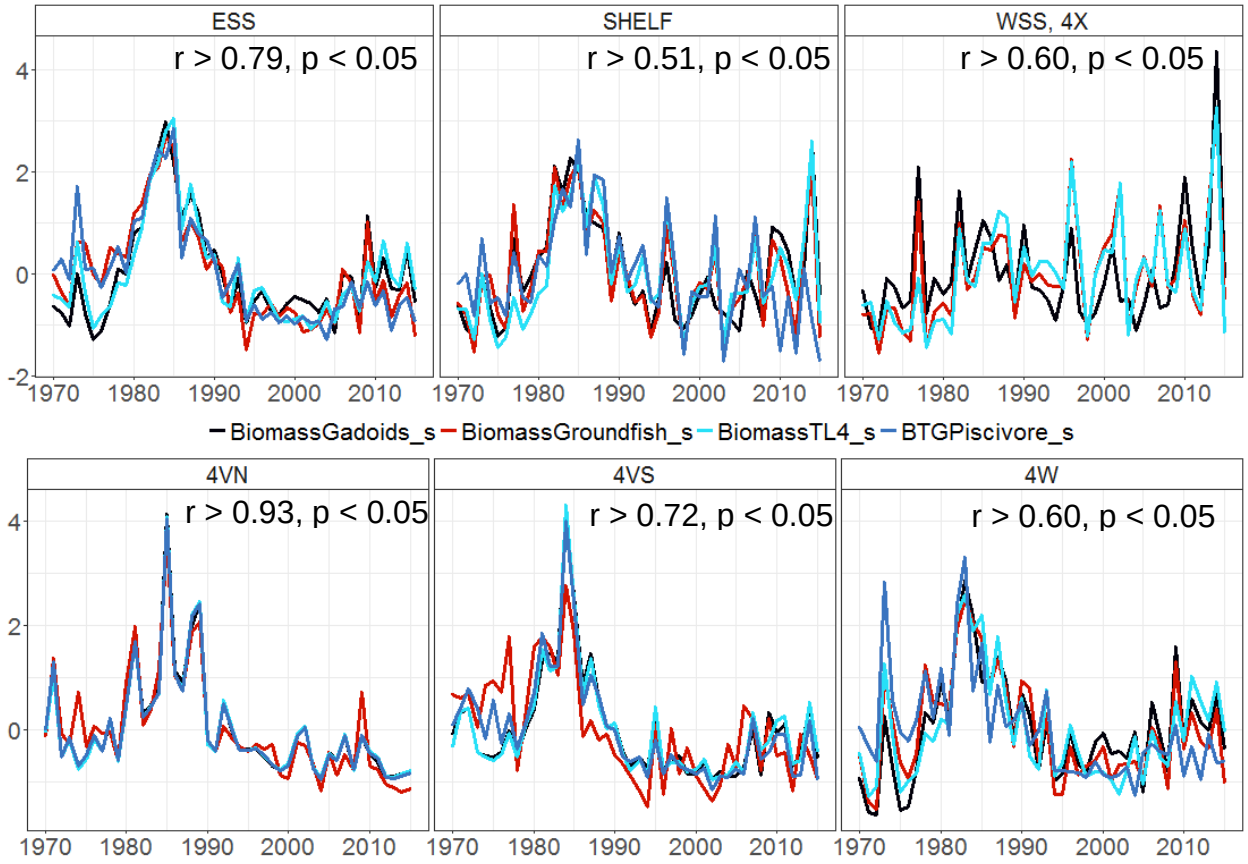

Figure 14. Time series of standardised indicators grouped in Cluster 6 at large scales (Shelf, ESS, WSS and NAFO Divisions). Minimum correlation values (r) for indicators in this cluster are provided at each spatial scale. Correlations (r) are also presented in Table S13, Table S24 to Table S73.

Cluster 7

FPSkates.L and LSkates.L were grouped consistently by the HCA and correlation analysis in Cluster 7 at all large scales (
Table 14, Figure 15, Table S14). LSkates.L was selected from Cluster 7 since landings indicators are easier to interpret and communicate than fishing pressure indicators, and allows coordination with other indicators selected in the suite (Landings.L selected in Cluster 1).

Table 14. Cluster 7: see Table 6 for explanation of symbols. Indicator in bold was selected to represent this Cluster

	Large scales							**Strata scale**
Indicator	SS	WSS, 4X	ESS	4W	4Vs	4Vn	Results	Results
FPSkates.L	●	●	●	[●]	●	●	**Cluster 7**	*na*
LSkates.L	●	●	●	[●]	●	●		

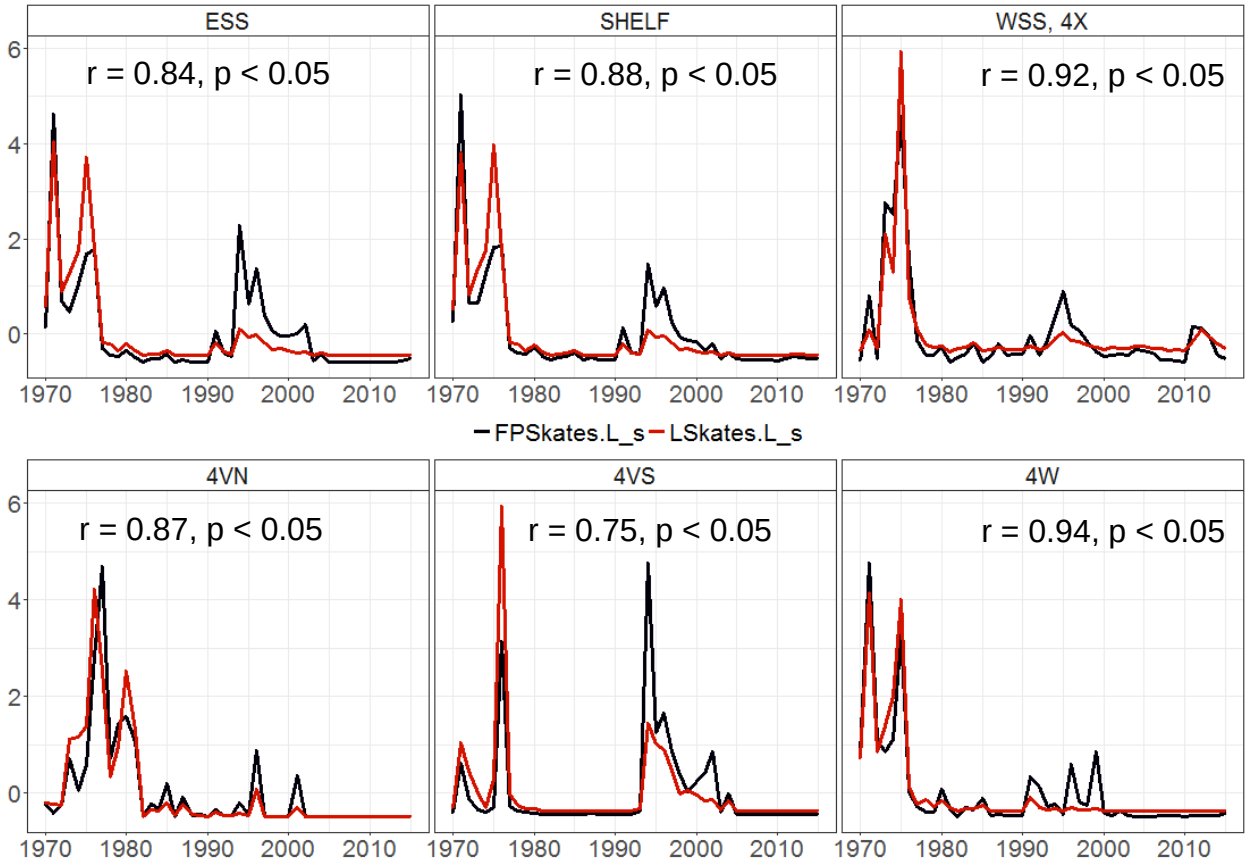

Figure 15. Time series of standardised indicators grouped in Cluster 7 at large scales (Shelf, ESS, WSS and NAFO Divisions). Correlations (r) are also presented in Table S14, Table S24 to Table S73.

Cluster 8 (≈ Cluster d, at the strata scale)

Cluster 8 grouped five of the diversity indicators consistently by the HCA and correlation analysis at all spatial scales (Table 15, Figure 16), which is consistent with other studies that have shown high correlations among biodiversity indices (Gallardo et al. 2017). PielouEvenness and HeipsEvenness have higher correlations with each other compared with HillN1Diversity, HillN2Dominance and ShannonDiversity (Table S15). HeipsEvenness shows slightly different signals particularly in the WSS, 4X (Figure 16, Table S15). The strata analysis exhibited strong support for this cluster composition (Table S23, Table 15).

HeipsEvenness was selected to represent Cluster 8 because it was recently recommended for use in the Ecosystem Approach to oceans management (Kenchington and Kenchington 2013) thus meeting the criteria of coordination and tractability. Note that differences in catchability do not affect the calculation of MargalefRichness or HeipsEvenness.

Table 15. Cluster 8: see Table 6 and 7 for explanation of symbols. Indicator in bold was selected to represent this Cluster.

	Large scales						Strata scale		
Indicator	SS	WSS, 4X	ESS	4W	4Vs	4Vn	Results	Results	Level of support
HillN1Diversity	●	●	●	[●]	●	●	**Cluster 8**	**Cluster d**	↑
HillN2Dominance	●	●	●	[●]	●	●			
ShannonDiversity	●	●	●	[●]	[●]	●			
PielouEvenness	●	●	[●]	[●]	[●]	●			
HeipsEvenness	●	●	[●]	[●]	[●]	○			

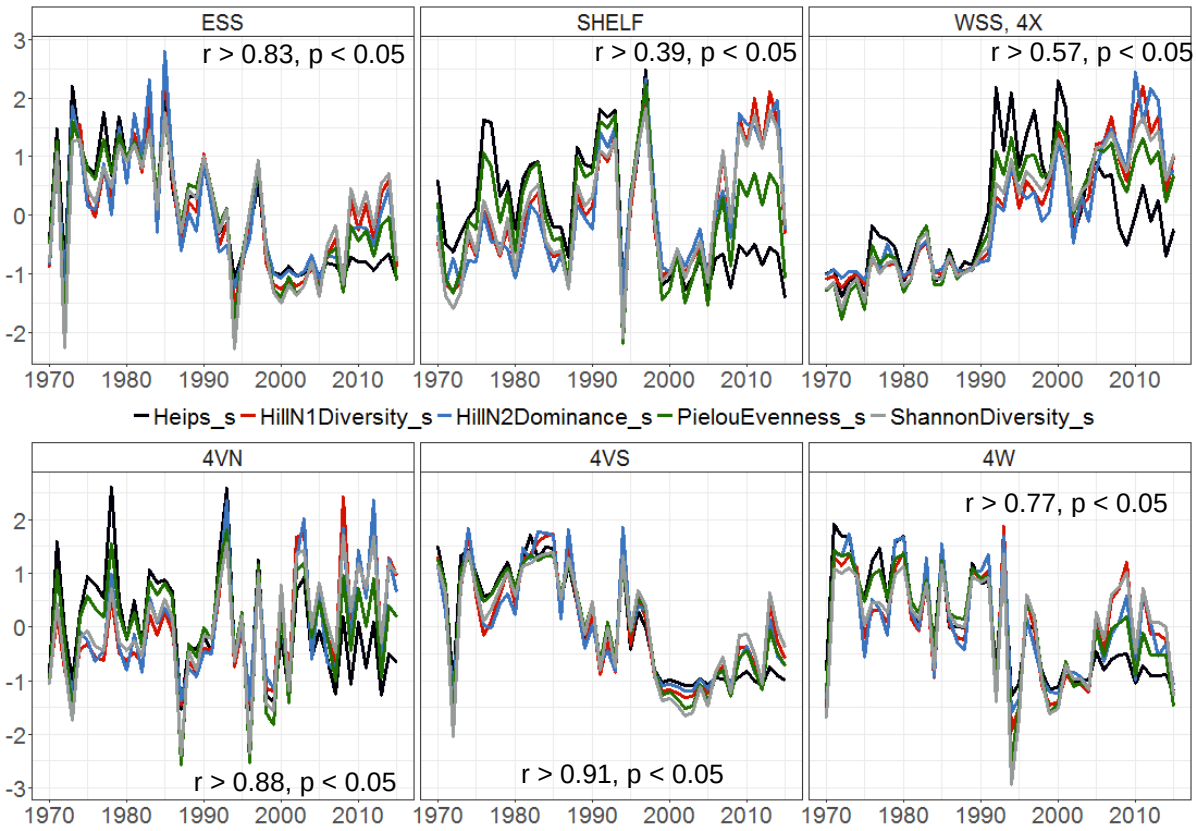

Figure 16. Time series of standardised indicators grouped in Cluster 8 at large scales (Shelf, ESS, WSS and NAFO Divisions). Minimum correlation values (r) for indicators in this cluster are provided at each spatial scale. Correlations (r) are also presented in Table S15, Table S24 to Table S73.

Cluster 9 (≈ Cluster f, at the strata scale)

Seven indicators in Cluster 9 were grouped consistently by the HCA and correlation analysis at all scales, with the exception of BPelagicToDemersal which was only supported by the correlation analysis in WSS, 4X. In addition to selecting Biomass to represent the five sub-attributes encompassed by this large cluster (Table 25), we recommend monitoring the indicators not selected to ensure that Biomass remains

representative, especially for BiomassForage and BiomassClupeids, which are likely to be more variable over time (Table 16, Figure 18, Table S16). The strata analysis showed strong support for this cluster composition, although note that due to data gaps, indicators were only available for 13 strata (Table S5, Table S23). Redundancy Analysis was not conducted in 4Vs due to missing data (Table S5).

Although these seven indicators are comprised of different numbers of species (Table S5 and Table S6), their signal is driven primarily by Atlantic herring. Biomass was selected to represent Cluster 9 (Table 24) for the following reasons:

- It encompasses all species caught in the trawl survey and provides an ecosystem level measure of resource potential (Theoretical basis, Concreteness)
- It is a straightforward indicator (Public awareness)
- The term “biomass” is simple to understand (Public awareness)
- It allows coordination with other indicators selected in the suite (e.g. Landings.L was selected in Cluster 1, see above) (Coordination and tractability)
- Including all species ensures that changes in species composition and relative abundance that are likely to occur as a result of changing pressures, e.g., climate change or fishing patterns, are captured (Theoretical basis, Concreteness).

In addition to selecting Biomass to represent the five sub-attributes encompassed by this large cluster (Table 25), we recommend monitoring the indicators not selected to ensure that Biomass remains representative, especially for BiomassForage and BiomassClupeids, which are likely to be more variable over time.

Table 16. Cluster 9: see Table 6 and 7 for explanation of symbols. Indicator in bold was selected to represent this Cluster.

	Large scales							**Strata scale**	
Indicator	SS	WSS, 4X	ESS	4W	4Vs	4Vn	Results	Results	Level of support
BiomassTL3	●	[●]	●	●		●			
BPelagicToDemersal	●	o	●	●		●			
Biomass	●	[●]	●	●	*na*	●	**Cluster 9**	**Cluster f**	↑
BiomassClupeids	●	[●]	●	●		●			
BiomassFinfish	●	[●]	●	●		●			
BiomassForage	●	●	●	●		●			
BTGPlanktivore	●	●	●	●		●			

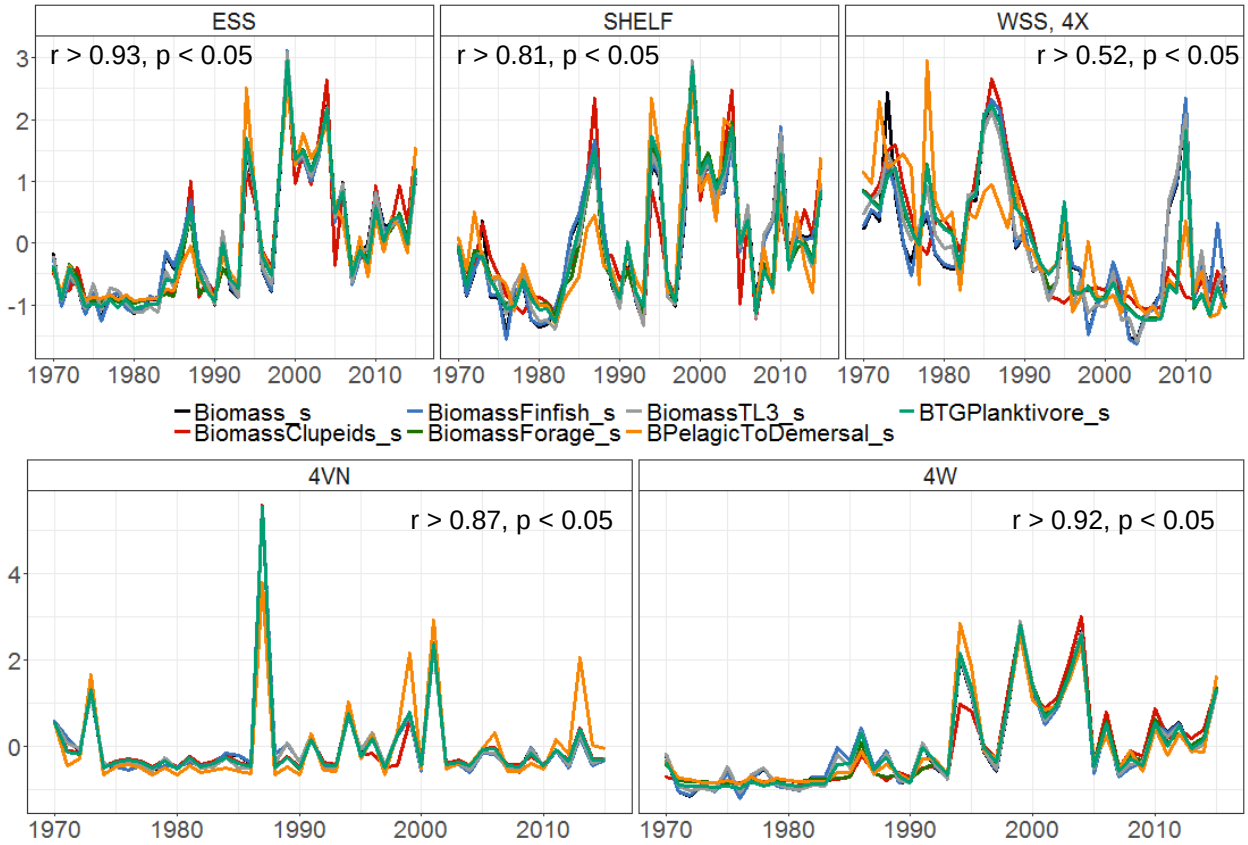

Figure 17. Time series of standardised indicators grouped in Cluster 9 at large scales (Shelf, ESS, WSS and NAFO Divisions). Minimum correlation values (r) for indicators in this cluster are provided at each spatial scale. Correlations (r) are also presented in Table S16, Table S24 to Table S73.

Cluster 10

FPFlatfish.L and LFlatfish.L were grouped consistently by the HCA and correlation analysis in cluster 10 at all scales with the exception of 4Vn, which was only supported by the correlation analysis (Figure 19, Table 17, Table S17). LFlatfish.L was selected from Cluster 7 since landings indicators are easier to interpret and communicate than fishing pressure indicators, and allows coordination with indicators selected in Cluster 1 and Cluster 7.

Table 17. Cluster 10: see Table 6 for explanation of symbols. Indicator in bold was selected to represent this Cluster.

	Large scales							**Strata scale**
Indicator	SS	WSS, 4X	ESS	4W	4Vs	4Vn	Results	Results
FPFlatfish.L	[●]	●	[●]	[●]	[●]	●	**Cluster 10**	*na*
LFlatfish.L	[●]	●	[●]	[●]	[●]	●		

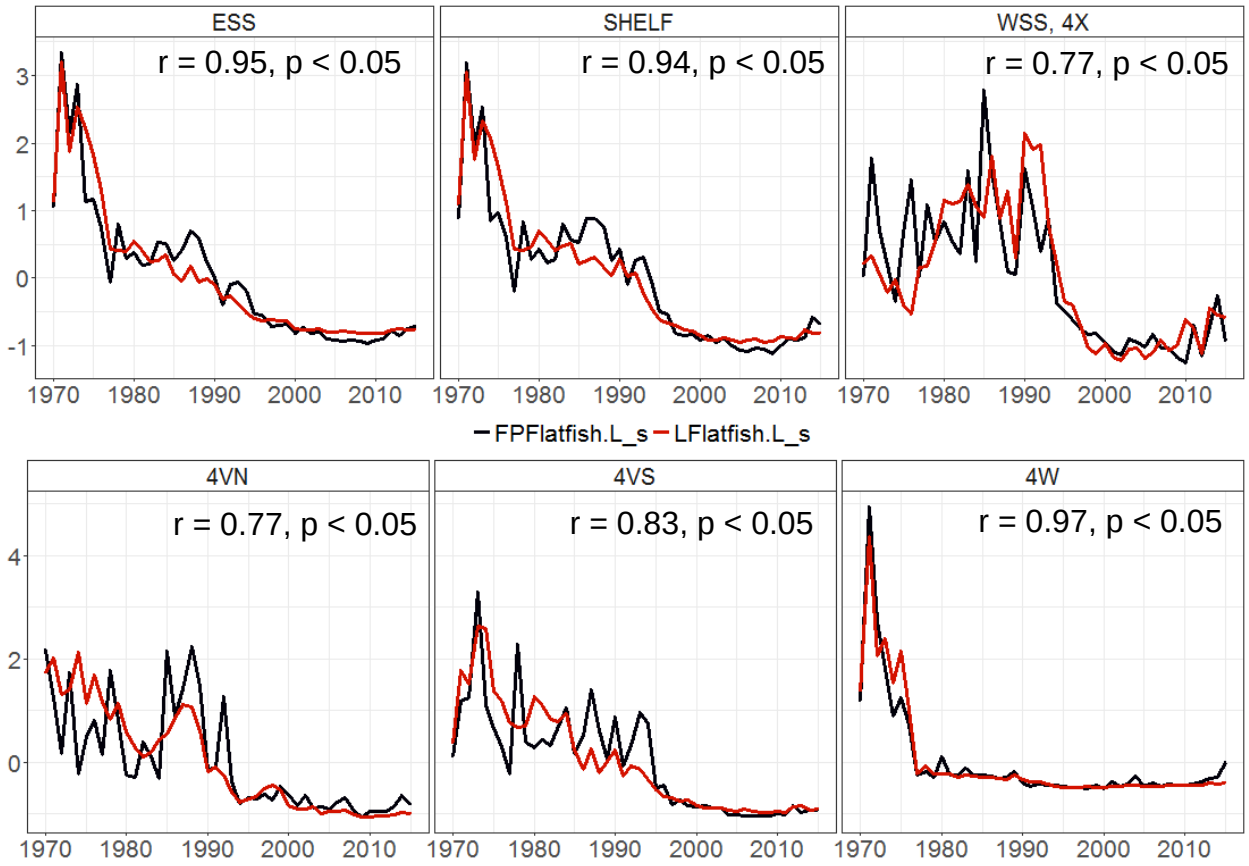

Figure 18.Time series of standardised indicators grouped in Cluster 10 at large scales (Shelf, ESS, WSS and NAFO Divisions). Correlations (r) are also presented in Table S17, Table S24 to Table S73.

Cluster 11 (≈ Cluster a, at the strata scale)

At the Shelf scale, MargalefRichness, SpeciesRichness, MargalefGroundfish and KemptonQ were clustered with strong support (
Table 18). At other spatial scales, the HCA consistently clustered MargalefRichness and SpeciesRichness at all spatial scales (Figure 19) while MargalefGroundfish and KemptonQ were also grouped in this cluster at the large scales but with a lower level of support in ESS, 4W, 4Vn, and 4Vs (
Table 18, Table S18).

There was strong support from the strata analysis to include MargalefGroundfish in this cluster, but KemptonQ was classified as a singleton (
Table 18, Table S23). Cluster 11 thus includes MargalefRichness, SpeciesRichness, MargalefGroundfish and KemptonQ at the large spatial scale, but excludes KemptonQ at the strata scale.

MargalefRichness was selected from Cluster 11. It was very highly correlated with SpeciesRichness, which is a simple count of number of species, but MargalefRichness

takes into consideration sample size when estimating richness (Theoretical basis, Concreteness). Note that a recent meta-analysis showed that there is little relationship between SpeciesRichness and the impacts of fishing (Nash et al. 2016). MargalefGroundfish was not selected for this suite as it is specific to Groundfish, and our main goal is to reflect biodiversity of the community. This indicator could be useful if richness of Groundfish becomes a specific management or conservation goal. KemptonQ is a singleton at the strata scale.

Table 18. Cluster 11: see Table 6 and 7 for explanation of symbols. Indicator in bold was selected to represent this Cluster.

	Large scales							**Strata scale**	
Indicator	SS	WSS, 4X	ESS	4W	4Vs	4Vn	Results	Results	Level of support
MargalefRichness	●	●	●	●	●	●	**Cluster 11**	**Cluster a**	↑
SpeciesRichness	●	●	●	●	●	●			
MargalefGroundfish	[●]	[●]	○	○	*	○			
KemptonQ	[●]	○	○	○	*	○		**Singleton**	

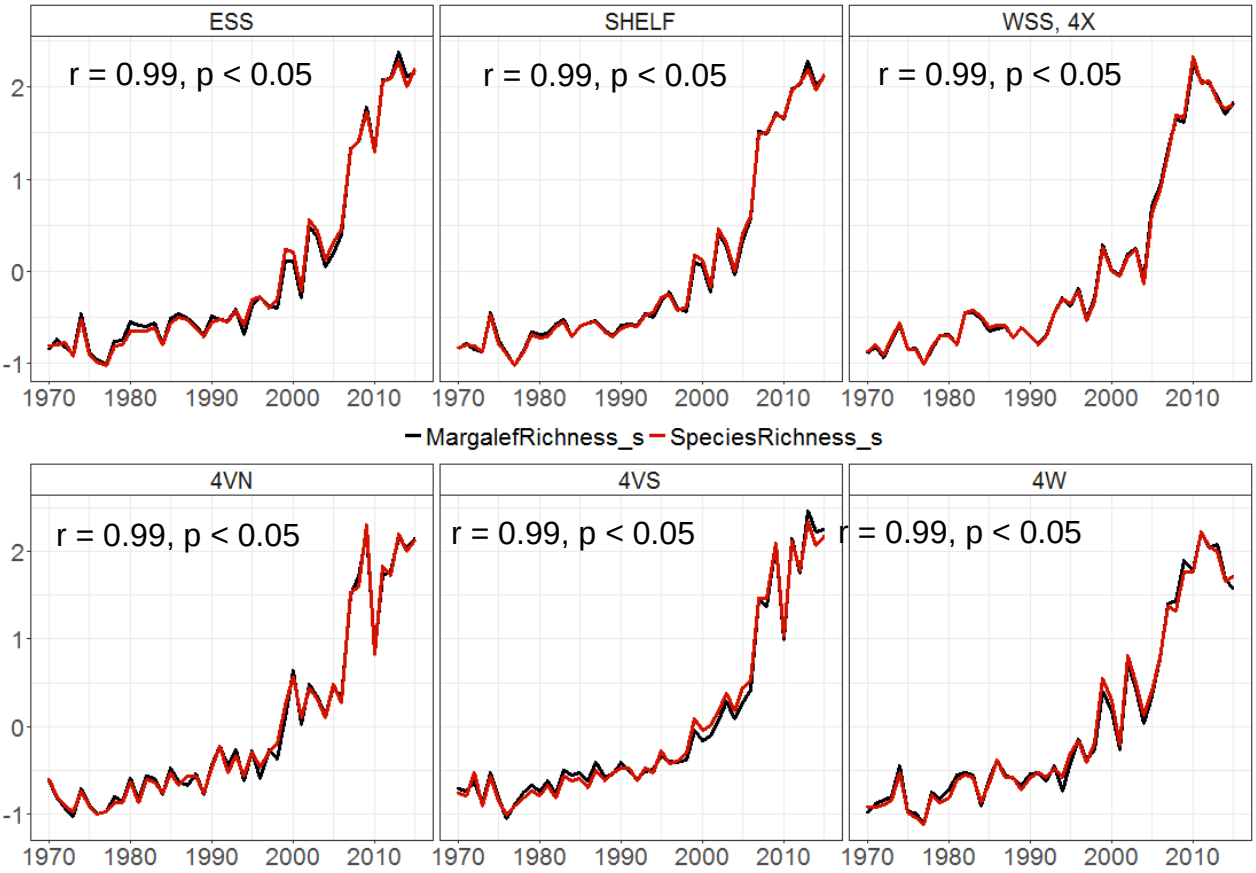

Figure 19.Time series of standardised indicators grouped in Cluster 11 at large scales (Shelf, ESS, WSS and NAFO Divisions). Correlations (r) are also presented in Table S18, Table S24 to Table S73.

Cluster 12

DiversityTargetSpp.L and LInvertebrates.L were grouped consistently into cluster 12 by the HCA and correlation analysis in SS, ESS, 4W and 4Vs, and were only supported by the correlation analysis in WSS, 4X (Table 19, Figure 20). There was no support for this cluster in 4Vn. Intrinsicvulnerabilityindex.L was strongly grouped in this cluster in WSS, 4X, but was classified as a singleton due to low support at other spatial scales. DiversityTargetSpp.L captures the number of target species recorded in the fishery and was selected to represent Cluster 12 since it captures both the increase in diversity and increase in invertebrate landings.

Table 19. Cluster 12: see Table 6 for explanation of symbols. Indicator in bold was selected to represent this Cluster. Indicator in italics was not included in final cluster.

	Large scales							Strata scale
Indicator	SS	WSS, 4X	ESS	4W	4Vs	4Vn	Results	Results
DiversityTargetSpp.L	[●]	●	[●]	[●]	●	*	**Cluster 12**	*na*
LInvertebrates.L	[●]	●	[●]	[●]	●	*		
Intrinsicvulnerabilityindex.L	[●]	●	○	*	-	-	**Singleton**	

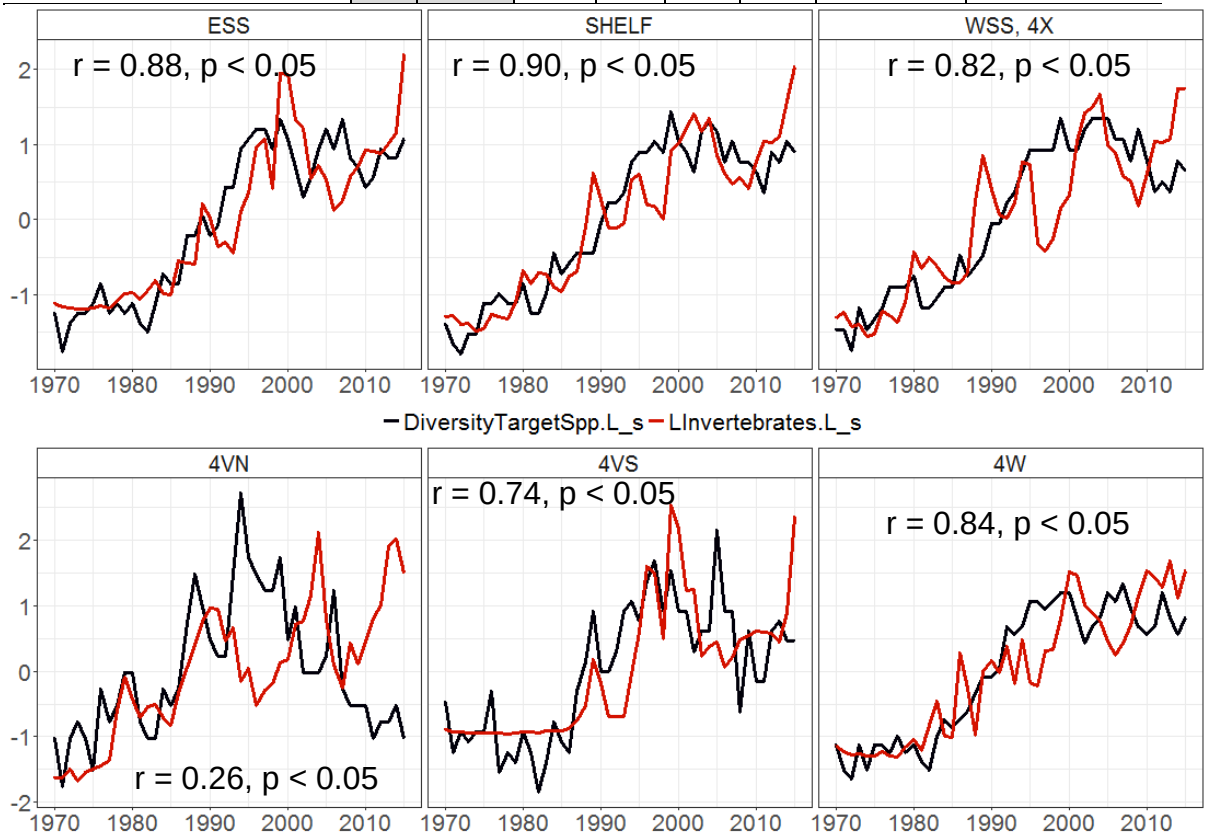

Figure 20.Time series of standardised indicators grouped in Cluster 12 at large scales (Shelf, ESS, WSS and NAFO Divisions). Correlations (r) are also presented in Table S19, Table S24 to Table S73.

Cluster 13 (≈ Cluster c, at the strata scale)

BTGMediumBenthivore and BiomassFlatfish were grouped consistently into cluster 13 by the HCA and correlation analysis in SS, ESS, 4Vs and 4Vn (Figure 21, Table 20). This is because American plaice (*Hippoglossoides platessoides*) and Haddock dominate the signal in those areas. However, the support for this cluster was much weaker in WSS, 4X and 4W because two different species dominate the signal: Winter flounder in BiomassFlatfish and Haddock in BTGMediumBenthivore. The strata analysis showed strong support for this cluster composition overall (Table S23 and Table S25), but in several strata in WSS, 4X and 4W there was no significant correlation between BTGMediumBenthivore and BiomassFlatfish (Table S24 to Table S73).

BiomassFlatfish was selected for the following reasons:

- Although the species composition of BiomassFlatfish and BTGMediumBenthivore is similar (Table S5), the main signals of the time series are driven by different species: The signal of medium benthivores is driven by Haddock in the WSS, and by Haddock, American plaice and Yellowtail flounder (*Limanda ferruginea*) in the WSS. Haddock's signal is already captured by BiomassGadoids (Theoretical basis, Concreteness)
- The term flatfish is simpler to communicate and more easily understandable by policy-makers and other non-scientists compared with medium benthivores (Public awareness)
- It allows coordination with indicators selected in the suite (BiomassGadoids, Biomass, LFlatfish.L) (Coordination and tractability).

Table 20. Cluster 13: see Table 6 and Table 7 for explanation of symbols. Indicator in bold was selected to represent this Cluster.

	Large scales								**Strata scale**	
Indicator	SS	WSS	4X	ESS	4W	4Vs	4Vn	Results	Results	Level of support
BTGMediumBenthivore	[●]	*	*	[●]	*	●	●	**Cluster 13**	**Cluster c**	↑
BiomassFlatfish	[●]	*	*	[●]	*	●	●			

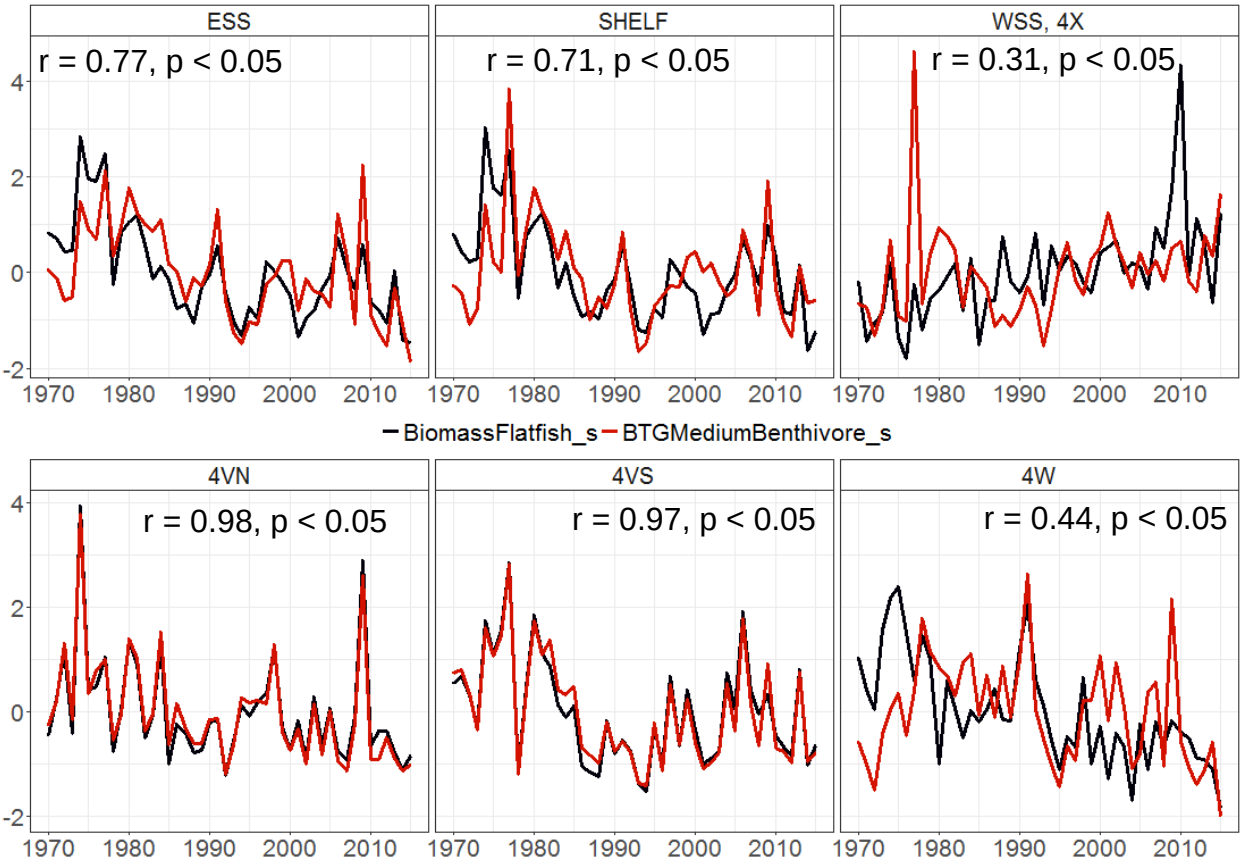

Figure 21.Time series of standardised indicators grouped in Cluster 13 at large scales (Shelf, ESS, WSS and NAFO Divisions). Correlations (r) are also presented in Table S20, Table S24 to Table S73.

Cluster 14

BTGLargeBenthivores and BiomassSkates were only strongly grouped by the HCA and correlation analysis in WSS, 4X and 4W (Table 21, Figure 22, Table S21). In the WSS, Barndoor Skate drives the main signal of both BTGLargeBenthivores and BiomassSkates. In the ESS, this cluster was not strongly supported because indicator's signal is driven by different species: Thorny skate (*Amblyraja radiata*) drives the main signal of BiomassSkates (Figure S9), whereas Barndoor skate and Atlantic Wolfish drive the main signal of BTGLargeBenthivores (Figure S3). Consequently, there was only moderate support for this cluster in ESS, and low support in 4Vs, 4Vn, and SS. At the strata scale, there was no support for this cluster since these indicators were only available for eight strata (Table S5).

BiomassSkates was selected from Cluster 14 because the term skates is simpler to communicate and more easily understandable by policy-makers and other non-scientists compared with large benthivore (Public awareness), and because it allows coordination with other indicators selected in the suite (BiomassGadoids, Biomass, BiomassFlatfish, and LSkates.L), thus meeting the coordination and tractability criterion.

Table 21. Cluster 14: see Table 6 for explanation of symbols. Indicator in bold was selected to represent this Cluster

	Large scales							Strata scale
Indicator	SS	WSS, 4X	ESS	4W	4Vs	4Vn	Results	Results
BTGLargeBenthivores	*	●	○	[●]	*	*	**Cluster 14**	*No support*
BiomassSkates	*	●	○	[●]	*	*		

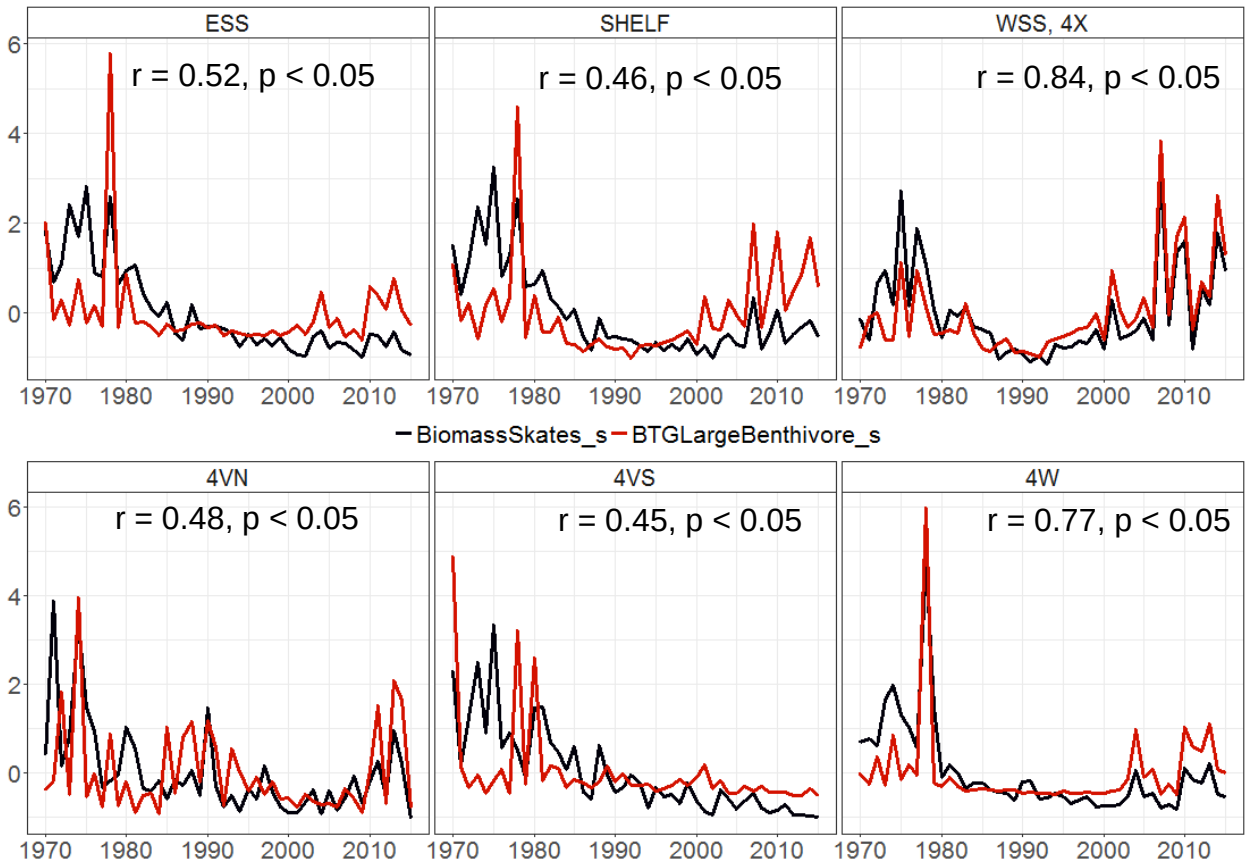

Figure 22.Time series of standardised indicators grouped in Cluster 14 at large scales (Shelf, ESS, WSS and NAFO Divisions. Correlations (r) are also presented in Table S21, Table S24 to Table S73.

Cluster 15

FPClupeids.L and FPForageFish.L were grouped together by the HCA and correlation analysis in SS, ESS, WSS, 4X, 4W and 4Vn (Figure 24, Table S22). Atlantic herring forms the bulk of the landings of these pressure indicators and therefore same considerations apply as those discussed for Clusters 1 and 2: as noted above, Atlantic herring abundance has been very low in 4Vs since the mid-1970s, and therefore these indicators are not useful at this spatial scale (Table S5).

FPClupeids.L was selected instead of FPForageFish.L since it is specific to Atlantic herring, which is the main Forage species fished on the Scotian Shelf and constitutes a significant fishery in the WSS (Theoretical basis, Concreteness).

Table 22. Cluster 15: see Table 6 for explanation of symbols. Indicator in bold was selected to represent this Cluster

	Large scales							Strata scale
Indicator	SS	WSS, 4X	ESS	4W	4Vs	4Vn	Results	Results
FPClupeids.L	[●]	[●]	○	○	*na*	●	**Cluster 15**	*na*
FPForageFish.L	[●]	[●]	○	○		●		

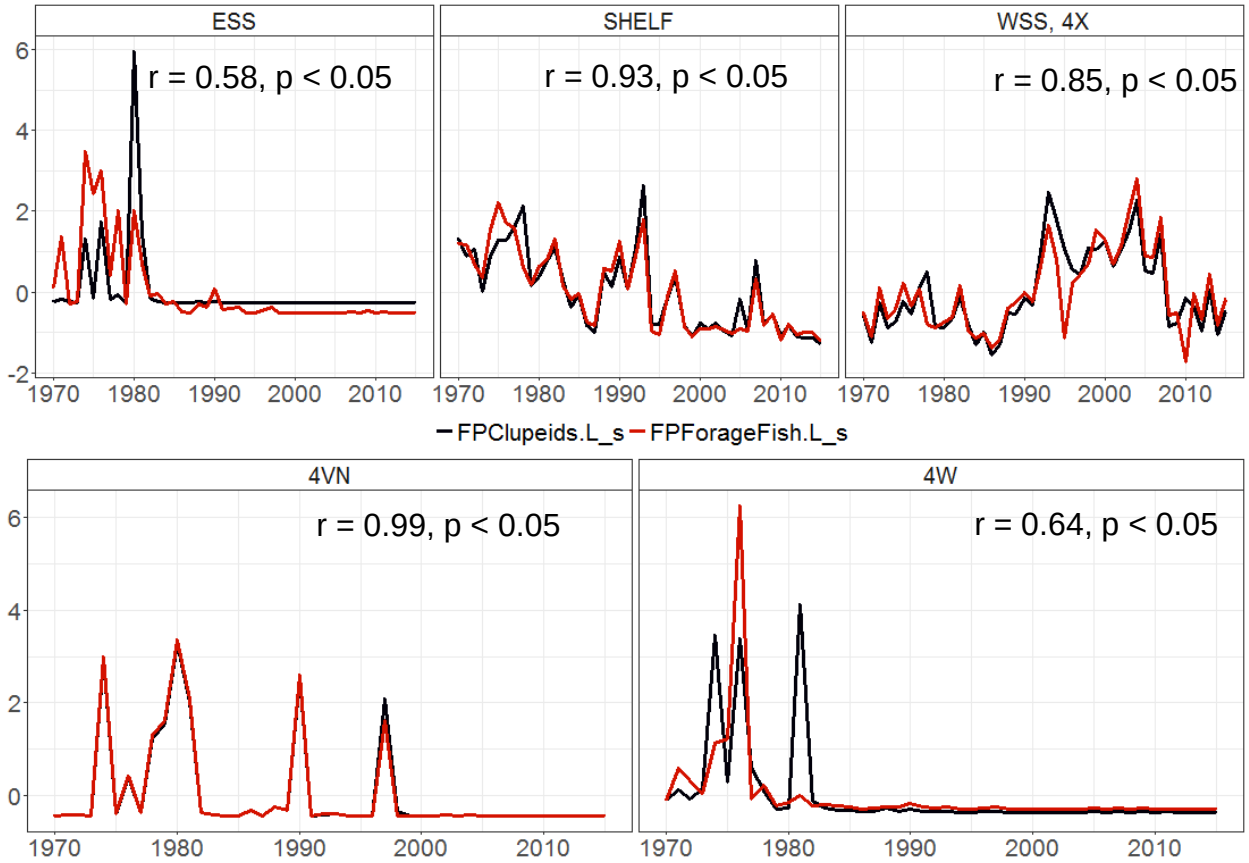

Figure 23.Time series of standardised indicators grouped in Cluster 15 at large scales (Shelf, ESS, WSS and NAFO Division. Correlations (r) are also presented in Table S22, Table S24 to Table S73.

Singletons

Fifteen indicators did not meet the criteria for cluster membership outlined in Table 6 and Table 7: 13 were classified as singletons at all large scales and eight at the strata scale (Table 23). Two indicators (KemptonQ and CCPlanktivore) were clustered at the large scales but classified as a singleton at the strata scales. Three indicators

(BTGZoopiscivore, MeanLifespan, CCZoopiscivore) were clustered at the strata scales but classified as a singleton at the large scales.

Table 23. Indicators identified as singletons (S) at different large and strata scales (see criteria in Table 6 and Table 7). Data was not available (*na*) at some spatial scales (Table S5).

Indicator	**Large scale results** WSS/ESS	**Small scale results**
CCMediumBenthivore	S	S
CCPiscivore	S	S
InverseCVBiomass	S	S
MeanLengthAbundance	S	S
MeanTrophicLevel	S	S
KemptonQ	C11	S
CCPlanktivore	C4	S
BTGPiscivore	S	S
BTGZoopiscivore	S	Cg
MeanLifespan	S	Cg
CCZoopiscivore	S	Ch
Intrinsicvulnerabilityindex.L	S	*na*
LLargePelagic.L	S	*na*
MarineTrophicIndex.L	S	*na*
CCLargeBenthivore	S	*na*

Invertebrate-based indicators

The four invertebrate-based indicators (BiomassTL2, BiomassInvertebrates, BInvertebrateToDemersal and FPInvertebrates.L) were not included in the Redundancy Analysis above due to missing data from 1970-1998 (Table S5). However, there are continuous data for years from 1999-2017, creating the basis of a useful time series. Since these data will continued to be collected during the RV Survey, and invertebrates have been considered in previous assessments (e.g., Choi et al. 2005, Bundy et al. 2009) these indicators do provide useful information and will be considered for the final suite. To this end, a separate correlation analysis for these four invertebrate-based indicators (1999-2015) was conducted at the large scale to explore potential patterns of redundancy with the following results (Figure 24, Table S74):

- BiomassTL2 was classified as a singleton since it was not consistently correlated with the other indicators);

- BInvertebratesToDemersal and BiomassInvertebrates were redundant since they were significantly correlated at all large spatial scales (r >0.7: WSS, 4X, ESS, 4W and r >0.6: Shelf, 4Vs and 4Vn);

- FPInvertebrates.L was significantly negatively correlated with BiomassInvertebrates and BInvertebratesToDemersal at all large spatial scales (Table S74).

Biomass TL2 was selected since it is a singleton. BiomassInvertebrates was selected for the final suite because:

- It is simpler to understand and calculate than the other two invertebrate indicators (Public awareness)
- BInvertebratesToDemersal and FPInvertebrates are both ratio indicators and should be used with caution (Bundy et al. 2009)
- The term invertebrates is simpler to communicate and more easily understandable by policy-makers and other non-scientists (Public awareness)
- It allows coordination with indicators already selected in the suite (BiomassGadoids, Biomass, BiomassFlatfish, BiomassSkates, LInvertebrates.L), Coordination and tractability.

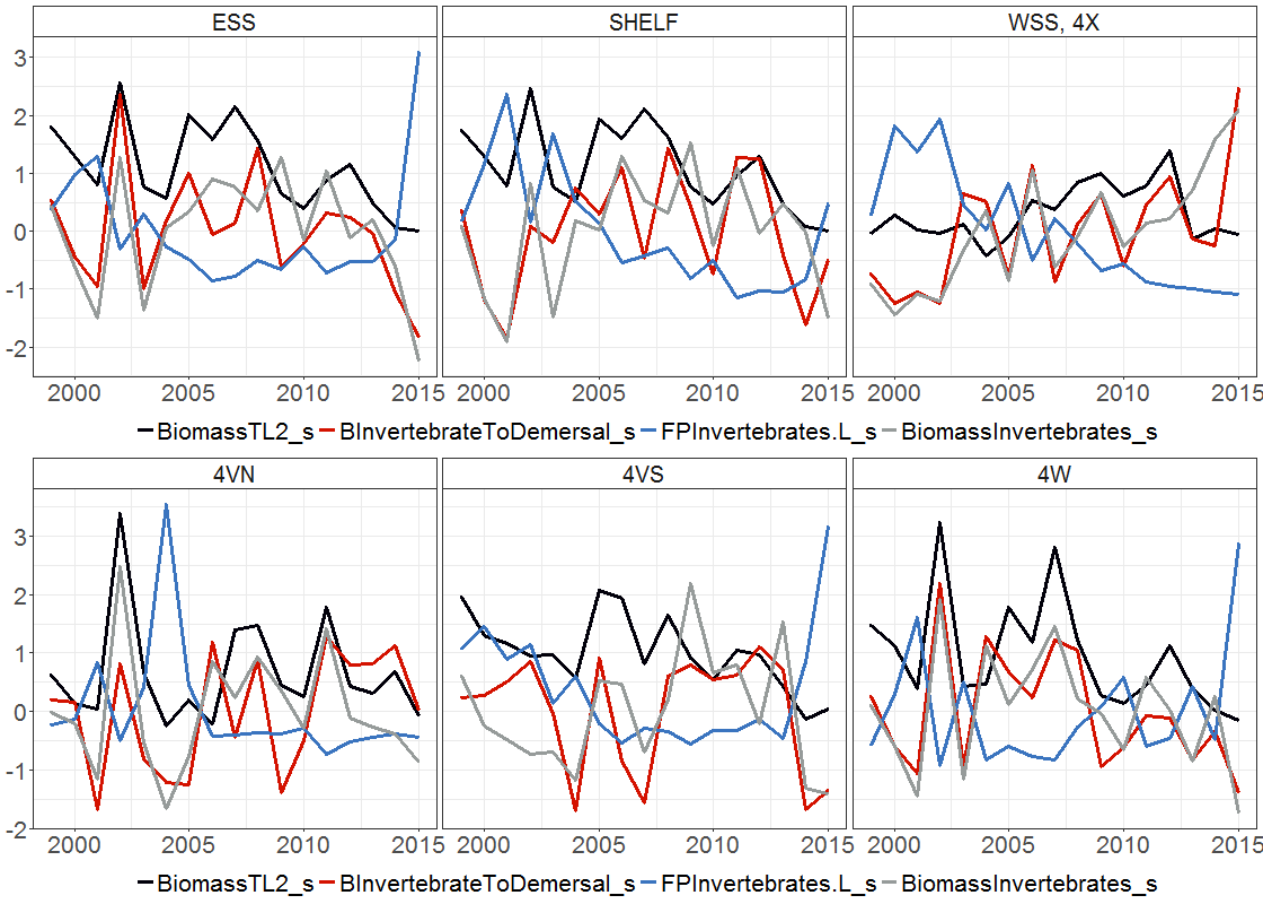

Figure 24. Time series of standardised invertebrate-based indicators at large scales (Shelf, ESS, WSS and NAFO Divisions). Correlations are presented in Table S74.

APPLICATION OF STEP 6: FINAL SUITE OF INDICATORS

The final step in the selection of the suite of indicators is to ensure that all sub-attributes defined in Step 1 have been assigned an indicator. The 68 indicators defined above were grouped into their clusters or listed as singletons and assigned to the attributes and sub-attributes identified in Table 24. The table highlights that clusters may encompass more than one attribute or sub-attribute and that indicators representing the same sub-attribute can occur in different clusters. For instance, indicators grouped in Cluster 9 represent three different attributes: Ecosystem Structure and Functioning, Resource Potential, Sand Ecosystem Stability and Resistance to Perturbations (Table 25). Alternatively, indicators representing '*Ecosystem Structure - Trophic Guilds*' occur in Clusters 6, 9, 13 and 14 (Table 24). In this context, the selection of the final suite of indicators must take all clusters, singletons, attributes and sub-attributes into consideration to ensure that there are no redundant indicators in the final suite and that each sub-attribute is represented. Therefore, the final suite of indicators includes indicators that represent more than one sub-attribute (Table 25). The selection of the final suite of indicators is described below and was completed by further applying the screening criteria from Step 3 in Figure 1. Indicators selected in the suite are highlighted in bold.

1. Biodiversity

Two indicators were selected to represent the three biodiversity sub-attributes (Table 24).

i. Species Richness: MargalefRichness

Species richness indicators were grouped into Cluster 11, represented by **MargalefRichness**

ii. Species Diversity: HeipsEvenness

Two of the three indicators proposed for this sub-tribute are represented by **HeipsEvenness** (see below), indicating that diversity and evenness are highly correlated at all spatial scales. The third indicator of species diversity, KemptonsQ, represented by *MargalefRichness* at the large scale, should be used at the strata scale to represent since it was classified as a singleton at this scale.

iii. Species Evenness: HeipsEvenness

Species evenness indicators are represented by **HeipsEvenness**.

Table 24. Summary of Redundancy Analysis showing redundant indicators (●) in 15 clusters (C) or singletons (S). Invertebrate-based indicators (*) were analysed separately. Thirty indicators (in bold) were selected in the final suite.

					Clusters														
Attribute	**Sub-attribute**	**#**	**Indicator**	**S**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**
Biodiversity	*Species Richness*	**1**	**MargalefRichness**												●				
			SpeciesRichness												●				
			MargalefGroundfish												●				
	Species Diversity		ShannonDiversity									●							
			HillN1Diversity									●							
			KemptonQ												●				
	Species Evenness		PielouEvenness									●							
			HillN2Dominance									●							
		2	**HeipsEvenness**									●							
Ecosystem Structure and Functioning	*Ecosystem Structure - Top of the Food Web*	**3**	**LargeFishIndicator**						●										
			LargeSpeciesIndicator						●										
			PropPredatoryFish						●										
	Ecosystem Structure - Trophic Guilds		BTGLargeBenthivore															●	
			BTGMediumBenthivore														●		
			BTGPlanktivore										●						
		4	BTGPiscivore	S															
		5	**BTGZoopiscivore**	S															
	Size Structure - Fish Community	**6**	**MeanLengthAbundance**	S															
			MeanLengthBiomass						●										
	Trophic Structure	**7**	**MeanTrophicLevel**	S															
	Structural Change		BInvertebrateToDemersal*																
			BPelagicToDemersal										●						
	Ecosystem Functioning	**8**	**CommunityCondition**					●											
		9	**CCMediumBenthivore**	S															
			CCPlanktivore					●											
		10	**CCPiscivore**	S															
		11	**CCZoopiscivore**	S															
		12	**CCLargeBenthivore**	S															
Ecosystem Stability and Resistance to Perturbations	*Ecosystem Resistance*	**13**	**MeanLifespan**	S															
			MMLengthAbundance						●										
			MMLengthBiomass						●										
		14	**IntrinsicvulnerabilityindexL**	S															
	Stability of the Trophic Community	**15**	**BiomassTL2***	S															
			BiomassTL3										●						
			BiomassTL4							●									
	Stability of Community Biomass	**16**	**InverseCVBiomass**	S															

Table 24. (cont).

					Clusters													
Attributes	**Sub-attribute**	**#**	**Indicator**	**S**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**
Resource Potential	*Resource Potential of the Community*	**17**	**Biomass**										●						
			BiomassFinfish										●						
		18	**BiomassInvertebrates***																
	Resource Potential of Fished Groups		BiomassClupeids										●						
			BiomassForage										●						
		19	**BiomassGadoids**							●									
			BiomassGroundfish							●									
		20	**BiomassFlatfish**														●		
	Resource Potential of Indicator Species	**21**	**BiomassSkates**															●	
	Fishing Strategies and System Productivity		FishinginBalance.L				●												
Fishing Pressure	*Fishing Pressure on the Community*	**22**	**FishingPressure.L**			●													
			FPFinfish.L			●													
			FPInvertebrates.L*																
	Fishing Pressure on Fished Groups	**23**	**FPClupeids.L**																●
			FPForageFish.L																●
			FPGroundfish.L		●														
			FPGadoids.L		●														
			FPSkates.L								●								
			FPFlatfish.L											●					
	Distribution of Fishing Pressure	**24**	**MeanTrophicLevel.L**				●												
		25	**MarineTrophicIndex.L**	S															
		26	**DiversityTargetSpp.L**													●			
	Total Landings	**27**	**Landings.L**		●														
			LClupeids.L		●														
			LForageFish.L		●														
			LGroundfish.L		●														
			LGadoids.L		●														
			LFinfish.L		●														
			LInvertebrates.L													●			
		28	**LSkates.L**								●								
		29	**LFlatfish.L**											●					
		30	**LLargePelagic.L**	S															

2. Ecosystem Structure and Functioning

Ten of the nineteen indicators proposed for the six sub-attributes of Ecosystem Structure and Functioning were distributed across five clusters and nine were singletons (Table 24). This indicates that Ecosystem Structure and Functioning is a complex attribute with a range of properties and ten indicators were selected in the final suite.

i. Ecosystem Structure - Top of the Food Web: LargeFishIndicator

LargeFishIndicator, one of three indicators proposed to represent this sub-attribute was selected from Cluster 5

ii. Ecosystem Structure – Trophic Guilds: BTGZoopiscivores, BTGPiscivore

The five trophic guild indicators assigned to this sub-attribute were either grouped as singletons or into separate clusters by the Redundancy Analysis (Table 24), indicating that the trophic guilds each have different trends over time. Therefore they all provide different information about trophic structure.

BTGZoopiscivores, classified as a singleton, was included in the suite of indicators as it represents a unique time series driven primarily by Silver hake and Redfish. Redfish is one of the top five species driving important trends of Biomass in the community (Figure S1). **BTGPiscivore** was a singleton in WSS, 4X, and was selected to complement the final suite of indicators particularly for that region.

The three other proposed indicators for this sub-attribute are represented by BiomassSkates (BTGLargeBenthivore, Cluster 14), BiomassFlatfish (BTGMediumBenthivore,Cluster 13) and Biomass (BTGPlanktivore, Cluster 9)..

iii. Size Structure - Fish Community: MeanLengthAbundance

Two indicators were proposed for this sub-attribute (Table 24). **MeanLengthAbundance** was classified as a singleton and included in the final suite. MeanLengthBiomass, is represented by LargeFishIndicator (Cluster 5).

iv. Trophic Structure: MeanTrophicLevel

MeanTrophicLevel, the only indicator assigned to this sub-attribute, was classified as a singleton and was selected to represent changes in the *Trophic Structure* of the community (Table 24).

v. Structural Change

The two indicators proposed for this sub-attribute were not selected in the final suite, since, Biomass (Cluster 9) was used as a proxy for BPelagicToDemersal, and BiomassInvertebrates was used as a proxy for BInvertebratesToDemersal (Table

S74). Therefore by proxy, both Biomass and BiomassInvertebrates are considered indicators of *Structural Change*.

vi. Ecosystem Functioning: Community condition, CCMediumBenthivore, CCPiscivore, CCZoopiscivore and CCLargeBenthivore

Five indicators were proposed for *Ecosystem Functioning*. **CommunityCondition** was selected in preference to CCPlanktivore (see Redundancy Analysis).However, we recommend considering CCPlanktivore in future indicator selection processes since data were not available for all years or all scales to calculate CCPlanktivore (Table S7) and more data will become available over time and trends may subsequently differ. The four singletons were selected to represent condition of different sub-components of the fish community: **CCMediumBenthivore, CCPiscivore, CCZoopiscivore** and **CCLargeBenthivore**. Note that at the strata scale, CCLargeBenthivore and CCZoopiscivore had significant data gaps (Table S7), compromising their utility at the strata scale.

3. Ecosystem Stability and Resistance to Perturbation

Four indicators in this attribute were grouped into three clusters and four were singletons (Table 24). This suggests that there are multiple dimensions to this attribute, which may be challenging to integrate. Four indicators were selected in the final suite.

i. Ecosystem Resistance: MeanLifespan and Intrinsicvulnerabilityindex.L

MeanLifespan (maximum longevity observed per each species) and **Intrinsicvulnerabilityindex.L** (intrinsic vulnerability index of fishes in the catch) were singletons and thus selected to represent *Ecosystem Resistance* in the final suite (Table 24). Two other indicators in this sub-attribute (MMLengthBiomass and MMLengthAbundance) were represented by proxy of the LargeFishIndicator (see Cluster 5 above).

ii. Stability of the Trophic Community: BiomassTL2

BiomassTL2, although not included in the Redundancy Analysis due to its short time series (1999-2015), was classified as a singleton in Table S74, and selected in the final suite. BiomassTL3 and BiomassTL4 were represented by Biomass (Cluster 9), and BiomassGadoids (Cluster 6) respectively.

iii. Stability of Community Biomass: InverseCVBiomass

InverseCVBiomass, classified as a singleton, was selected to represent *Stability of Community Biomass*.

4. Resource Potential

Four sub-attributes of Resource Potential were captured by ten indicators, distributed across five clusters, with one singleton (Table 24). Five indicators were selected for the final suite.

i. Resource Potential of the Community: Biomass and BiomassInvertebrates

Three indicators were proposed for this sub-attribute. **Biomass** was selected from Cluster 9 and **BiomassInvertebrates** was selected from the invertebrate indicators (see Invertebrate-based indicators above).

ii. Resource Potential of Fished Groups: BiomassGadoids and BiomassFlatfish

Two of the five indicators proposed for this sub-attribute were selected: **BiomassGadoids** was selected from Cluster 6 and **BiomassFlatfish** was selected from Cluster 13).

iii. Resource Potential of Indicator Species: BiomassSkates

BiomassSkates was selected from Cluster 14

iv. Fishing Strategies and System Productivity

FishinginBalance.L, the sole indicator assigned to this sub-attribute, is represented by proxy by **MeanTrophicLevel.L** (Cluster 3).

5. Fishing Pressure Indicators

This attribute included 22 proposed indicators from 4 different sub-attributes (Table 24). Ten unique indicators were selected that allow coordination and tractability with the state indicators already selected

i. Fishing Pressure on the Community: FishingPressure.L

FishingPressure.L was selected from Cluster 2 in preference to FPFinfish and **BiomassInvertebrates** is a proxy for FPInvertebrates.L (see *Invertebrate-based indicators* above).

ii. Fishing Pressure on Fished Groups: FPClupeids.L

FPClupeids.L was selected from Cluster 15. Note that FPGroundfish.L and FPGadoids.L are represented by Landings.L (Cluster 1), FPSkates.L is represented by LSkates.L (Cluster 7) and FPFlatfish.L by LFlatfish.L (Cluster 10).

iii. Distribution of Fishing Pressure: MeanTrophicLevel.L, MarineTrophicIndex.L and DiversityTargetSpp.L

Distribution of Fishing Pressure was represented by all three indicators proposed for this sub-attribute, indicating that these indicators capture different aspects of fishing pressure. **MeanTrophicLevel.L** was selected from Cluster 3, **DiversityTargetSpp.L** was selected from Cluster 12 and **MarineTrophicIndex.L**, which describes changes in the relative abundance of the catch of the more threatened high trophic level fishes and has been endorsed by the Convention on Biological Diversity was classified as a singleton (Table 24).

iv. Total Landings: Landings.L, LSkates.L, LFlatfish.L and LargePelagic.L

The ten indicators of landings that were proposed for this sub-attribute were grouped into four separate clusters, with one singleton (LLargePelagic.L).

LLargePelagic.L had a unique signal and thus was selected in the final suite.

Landings.L was selected from Cluster 1, LSkates.L from Cluster 7 and LFlatfish.L (Cluster 10). LInvertebrates.L is represented by proxy by DiversityTargetSpp.L. from Cluster 12.

The Final Suite

The final suite of indicators consists of 30 complementary indicators (Table 25, Table S75), 15 of which were derived from clusters resulting from the Redundancy Analysis and 15 of which were singletons. This suite applies to all the spatial scales considered here, with the exception of the strata scale, where there were no landings-based indicators and thus only 19 indicators apply at this scale. These indicators are non-redundant when all spatial scales are considered, that is, they are complementary and do not duplicate information.

Several indicators provide measures for two or more attributes, which are noted below:

- HeipsEvenness represents both *Species Evenness and Species Diversity*
- LargeFishIndicator characterises three sub-attributes: *Ecosystem Structure - Top of the Food Web, Size Structure - Fish Community, and Ecosystem Resistance.*
- Biomass characterises five sub-attributes: *Ecosystem Structure - Trophic Guilds, Structural Change, Stability of the Trophic Community, Resource Potential of the Community* and *Resource Potential of Fished Groups*
- MeanTrophicLevel.L represents two sub-attributes: *Distribution of Fishing Pressure* and *Fishing Strategies and System Productivity.*
- DiversityTargetSpp.L represents two sub-attributes: *Distribution of Fishing Pressure* and *Total Landings (Invertebrates)*.
- BiomassSkates represents *Ecosystem Structure - Trophic Guilds* and *Resource Potential of Indicator Species*
- BiomassFlatish represents *Ecosystem Structure - Trophic Guilds* and *Resource Potential of Fished Groups*

- BiomassGadoids characterises *Stability of the Trophic Community* and *Resource Potential of Fished Groups*
- BiomassInvertebrates characterises *Structural Change, Resource Potential of the Community* and *Fishing Pressure on the Community*
- MeanTrophicLevel.L represents both *Fishing Strategies and System Productivity* and *Distribution of Fishing Pressure*
- DiversityTargetSpp.L characterises *Distribution of Fishing Pressure* and *Total Landings* (Invertebrates)
- Landings.L, LSkates.L and LFlatfish.L each characterise *Fishing Pressure on Fished Groups* and *Total Landings*

Caveats

It is important to reiterate that although indicator time series are available since 1970, invertebrates were only recorded systematically since 1999, and the number of invertebrate species identified (e.g. starfish) has expanded since 2007. Therefore, since 2007, biodiversity indicators are mainly capturing information related to changes in RV survey practices (i.e. number of species recorded in the RV survey has increased, Figure 20) rather than changes in the diversity of the system.

Fishing pressure is expressed as the quotient of total landings and the total biomass. However, caution should be used when interpreting fishing pressure because changes in biomass or landings are not solely caused by fisheries exploitation, but may also be affected by management strategies. In addition, reported landings data might have inconsistencies due to unreported catches, changes in the fishing effort, and changes in management regulations, among others (See Table 5 in Bundy et al. 2010).

Table 25. Suite of 30 non-redundant, complementary indicators representing ecosystem attributes, sub-attributes and fishing pressure of the eastern and western Scotian Shelf (Table S75). Note that some indicators represent multiple attributes and sub-attributes.

		Biodiversity			Ecosystem Structure and Functioning						Ecosystem Stability and Resistance to Perturbations			Resource Potential				Fishing Pressure			
	Indicator	Species Richness	Species Eveness	Species Diversity	Ecosystem Structure - Top of the Food Web	Ecosystem Structure - Trophic Guilds	Size Structure - Fish Community	Trophic Structure	Structural Change	Ecosystem Functioning	Ecosystem Resistance	Stability of the Trophic Community	Stability of Community Biomass	Resource Potential of the Community	Resource Potential of Fished Groups	Resource Potential of Indicator Species	Fishing Strategies and System Productivity	Fishing Pressure on the Community	Fishing Pressure on Fished Groups	Distribution of Fishing Pressure	Total Landings
1	MargalefRichness	■																			
2	HeipsEvenness		■	■																	
3	LargeFishIndicator				■		■				■										
4	BTGZoopiscivore					■															
5	BTGPiscivore (WSS, 4X)					■															
6	Biomass					■			■			■		■	■						
7	BiomassSkates					■										■					
8	BiomassFlatfish					■									■						
9	MeanLengthAbundance						■														
10	MeanTrophicLevel							■													
11	BiomassGadoids											■			■						
12	BiomassInvertebrates								■					■				■			
13	CommunityCondition									■											
14	CCMediumBenthivore									■											
15	CCPiscivore									■											
16	CCZoopiscivore									■											
17	CCLargeBenthivore									■											
18	MeanLifespan										■										
19	Intrinsicvulnerabilityindex.L										■										
20	BiomassTL2											■									
21	InverseCVBiomass												■								
22	MeanTrophicLevel.L																■			■	
23	MarineTrophicIndex.L																			■	
24	DiversityTargetSpp.L																			■	■
25	FishingPressure.L																	■			
26	FPClupeids.L																		■		
27	Landings.L																		■		■
28	LSkates.L																		■		■
29	LFlatfish.L																		■		■
30	LLargePelagic.L																				■

DISCUSSION

There are few examples in the literature of the application of a rigorous framework to guide the selection of indicators for ecosystem-based management. We have achieved this by developing an Indicator Selection Guidance Framework (Figure 1) that was then successfully tested for the Scotian Shelf Bioregion at multiple spatial scales. The steps of the framework were followed logically: once the ecosystem goals, attributes and potential indicators were selected in Steps 1 and 2, the selection criteria defined in Step 3 were applied qualitatively, resulting in the reduction of the 385 indicators selected in Step 2 to 68 indicators (Figure 2). These 68 indicators were then calculated for all spatial scales in Step 4 and the quantitative criteria, measurability and redundancy, applied in Step 5. The selection of the final suite in Step 6 reduced the number of indicators to 30. The final suite provides measures for the 20 ecosystem sub-attributes defined in Step 1. We note that indicators can address more than one sub-attribute and that some sub-attributes have more than one indicator (Table 25).

Testing the Indicator Selection Guidance Framework

Redundancy Analysis

This was one of a few attempts to use Redundancy Analysis to formally and quantitatively reduce the number of indicators to a parsimonious suite and reduce the likelihood of bias when using the indicators for management purposes. We used two methods to explore redundancy, HCA and Spearman correlation analysis, and defined six ranked criteria for cluster membership based on their results. The “cut-off” point for cluster membership is essentially a trade-off between parsimony in the number of indicators selected and cluster coherence. To enable consistency in cluster membership across spatial scales, the lowest selection criterion used was the requirement that the indicator under consideration be significantly correlated ($p \leq 0.05$) with all other indicators in the cluster. Although statistically based, this criterion resulted in some weaker cluster membership where indicator correlation was low but significant, and temporal trends were only similar for part of the time series (e.g. MMLengthAbundance in Cluster 5 for the SS and WSS, 4X, or Cluster 12, DiversityTargetSpp.L and LInvertebrates.L in 4Vn). In such cases, care is required in the selection of the appropriate indictor to represent the cluster. In the case of Cluster 5, MMLengthAbundance was not selected. These results speak to some spatial difference in results, which we address below.

The redundancy analysis was conducted with the intent to define a common suite of indicators for all spatial scales. With the exception of the landings-based indicators that were available at the large scale only, six of the other eight clusters were defined consistently at all spatial scales, underscoring that there is broad and consistent change occurring across the Scotian Shelf. However, two clusters were not supported at the strata level (Clusters 4 and 14), mainly due to lack of data for all strata and possibly due to spatial differences. In these cases, the indicator selected from these clusters for the

final suite would also be use at the strata scale but may not represent the other indicators that were part of these clusters.

Similar types of indicators were often found clustered together (e.g., landings-based indicators in Cluster 1, biomass-based indicators in Cluster 9, biodiversity indicators in Cluster 8, trophic indicators in Cluster 3, size-based indicators in Cluster 5), indicating that there is a lot of similarity in the information provided by these indicators. In the case of the landings and biomass-based indicators, the similar trends were often attributable to one or two key species, such as Atlantic herring. This underscores the value of the redundancy analysis.

Correlations within the final suite

Despite the steps taken above to avoid redundancy between indicators, at some spatial scales this did occur (see Tables S27 and S28 for the correlations between indicators in the suite in ESS and WSS respectively). The frequency of correlation is higher in the ESS, reflecting the dramatic changes in ecosystem structure that have occurred there (Choi et al. 2005, Bundy 2005, Bundy et al. 2009). Here, LargeFishIndicator (which is an indicator for several sub-attributes: *Ecosystem Structure - Top of the Food Web, Size Structure - Fish Community and Ecosystem Resistance*) is positively correlated ($r > 0.7$) with Heips, BTGPiscivore, MeanLengthAbundance, CommunityCondition and MeanTrophicLevel.L and negatively correlated with Biomass and DiversityTargetSpp.L. This indicates that the decrease in the LargeFishIndicator from the 1980s to 2000s on the ESS was accompanied by a decrease in Species Evenness and Diversity, Community Condition, Fishing Strategies and System Productivity and Distribution of Fishing Pressure and an increase in biomass and a broader Distribution of Fishing Pressure. There has been no substantial recovery in the indicators that decreased since the early 2000s. These relationships were not evident for the WSS where there were very few strong correlations among the indicators included in the final suite.

Exploring redundancy at different spatial scales

The redundancy analysis confirmed that broad patterns of change are observed across the Scotian Shelf Bioregion that can be identified using a common suite of indicators. However, it also demonstrated that the nature of this change varies with location. A general pattern of eastern and western Scotian Shelf differences were observed, reflecting their different environmental properties and fishing histories (Shackell and Frank 2007, Hebert et al. 2016). In some cases, spatial differences in indicators trends were sufficient to weaken or negate cluster membership. A clear example of this was provided by BTGPiscivore, which was classified as both a singleton and as part of Cluster 5 at different spatial scales.

The final suite of indicators was selected to be applied at the fourspatial scales considered here (Scotian Shelf, eastern and western Scotian Shelf, NAFO Division and Strata). However, the differences in the redundancy patterns across spatial scales should be considered and the selection of a suite of indicators should be customised

depending on the spatial scale at which an ecosystem assessment will be performed and the goals of the assessment.

Correlations do not last forever

Several of the time series plots show that within clusters, correlations between some indicators appeared weaker in recent years. Examples include indicators from Cluster 5 in WSS, 4X, Cluster 6 in ESS and 4W, Cluster 8 and Cluster 12. This has implications for monitoring and assessment purposes if one indicator is selected to represent the whole cluster, and possibly more than one attribute, as we recommend here. For example, although highly correlated in Cluster 12, over the last few years of time series, DiversityTargetSpp.L and LInvertebrates.L have different signals in 4Vn and 4X. Therefore, in addition to the selection criteria used in the Guidance Framework, we further recommend examination of trends in each cluster in recent years. If trends are not consistent within the cluster, then it may be necessary to check secondary and perhaps tertiary indicators belonging to the cluster, to ensure that the correct information is being used to measure each sub-attribute.

In the example above for Cluster 12, DiversityTargetSpp.L was selected to represent two sub-attributes, Distribution of Fishing Pressure and Total Landings. At the Shelf, ESS and 4W spatial scales, this correlation holds across the whole time series. However, if the focus was on 4Vn for example, then both indicators should be used since DiversityTargetSpp.L has decreased since 1990 whereas LInvertebrates.L has increased.

The further implication of using statistical relationships that may change over time to determine cluster membership is that the Redundancy Analysis should be repeated every 5 years or so to ensure that the clusters are still strong and that the indicator selected to represent the cluster is still the optimal selection.

Singletons

Fifteen indicators were classified as singletons at the large scale, strata scale, or both. All are aggregate indicators that synthesise data over a large number of species and very few are correlated with $-0.6 < r < 0.6$ at more than one spatial scale. Notably, with the exception of BTGPiscivore and BTGZoopiscivore, none are primarily biomass-based and only LLargePelagic.L is primarily landings based. Their results indicate that these synthetic indicators are providing information about emergent ecosystem properties, such as Ecosystem Functioning, Trophic Structure, Stability of Community Biomass, Ecosystem resistance and Distribution of Fishing Pressure that is not available from simple biomass or landings-based indicators.

Estimate reference points and target directions for indicators (Step 7)

This step was not included in this report, but future work should focus on evaluating and

applying available approaches to investigate reference points and thresholds for the final suite of indicators (e.g., Tam et al. 2017).

Measurability

The impact of adjusting for catchability on indicator trends was assessed in Step 5, and except for a few indicators, this had minimal effect. However, there were five exceptions: Biomass, BiomassTL3, and BiomassFinfish for the ESS, and BTGLargeBenthivore and InverseCVBiomass in the WSS (
Figure 7, Figure 8). Given these differences, we recommend that the unadjusted trends of these indicators are also monitored since these exceptions are caused by species for which the catchability is poorly known (i.e. Atlantic herring, Redfish, Barndoor Skate and Argentine).

Our knowledge and understanding of the biomass of the major forage species on the Scotian Shelf is very poorly known (Bundy 2005, McQuinn 2009, Frank et al. 2013), despite the existence of a major fishery in southwest Nova Scotia for Atlantic herring for the following reasons:

- forage species are not sampled well by the RV Survey,
- their catchability has likely changed over time (Bundy 2005, McQuinn 2009),
- there is no accepted analytical stock assessment model for Atlantic herring (Power et al. 2011),
- the acoustic estimates of herring biomass are under revision, and neither the acoustic survey or the RV Survey consistently cover the stock in time and space (DFO 2011).

This uncertainty over the abundance of Atlantic herring is particularly pertinent when its influence on the selected indicator, Biomass, and its many sub-attributes is considered (*Ecosystem Structure - Trophic Guilds, Biomass, Structural Change, Stability of the Trophic Community, Resource Potential of the Community and Resource Potential of Fished Groups*). As a consequence of this important data gap, our understanding of ecosystem change, ecosystem functioning and ecosystem limits and the role of Atlantic herring is seriously compromised across the Scotian Shelf. At the same time, herring make up approximately 50% of total landings (by weight) in WSS, 4X (Figure S10).

Dominant Species

Following the point made above concerning the dominance of Atlantic herring biomass on total biomass, it is worth noting that most of the selected indicators are aggregate indicators that encompass many species. However, the overall trends of Biomass (Figure S1) and Landings.L (Figure S10), and other biomass or landings based indicators, are dominated by very few species.

Climate Change

This analysis was conducted with respect to the impacts of fishing on the Scotian Shelf

Bioregion. However, climate change is also projected to impact species productivity and distribution (Shackell et al. 2014, Stortini et al. 2015), resulting in ecosystem change. Since 2010, temperatures on the Scotian Shelf have been warmer than average (Hebert et al. 2016), and this has been accompanied by changes in the phytoplankton and zooplankton communities (Johnson et al. 2017). These recent years have also been accompanied by late phytoplankton bloom initiation, short bloom duration, low bloom magnitude, and lower than average abundance of diatoms (Johnson et al. 2017). These conditions, continued declines in large phytoplankton cells, as well as declines of large, energy rich copepods (e.g., *Calanus finmarchicus*), reflect less productive conditions for many species, including planktivorous fish such as Atlantic herring and mackerel (Johnson et al. 2017). In addition, stratification of the near surface ocean layer, driven by warmer temperatures and lower salinity, has in general increased since the 1950s: increased stratification can lead to an increased tendency for more primary production to be recycled within the upper mixed layer, making it less accessible for the deeper layers (Hebert et al. 2016). At the ecosystem level, a reduction in general biomass and fisheries catches is expected in addition to changes in predator and prey interactions (Chabot et al. 2013, Guenette et al. 2014).

Many of the indicators proposed here may also respond to the some of the effects of climate change such as increasing water temperature on the Scotian Shelf (Hebert et al. 2016). The quantitative application of specificity criterion described in Step 3 will help elucidate the extent to which indicators may respond to climate change in addition to fishing (see for example, Fu et al. 2015, Travers et al. 2014). However, other effects of climate change such as acidification or changes in oxygen level (Brennan et al. 2016, Stortini et al. 2016) may require the development of additional indictors to detect effects.

Broader Application of the Indicator Selection Guidance Framework

The guidance framework was designed to select indicators for all aspect of ecosystem-based management. We focussed on fishing pressure and ecosystem state indicators derived from fisheries and RV survey data, but the framework can be extended to other system goals and attributes and other data sources. Future work will extend this framework to include social, economic and governing response indicators and additional environmental pressure indicators.
The final suite of indicators is applicable at all scales from strata to Bioregion, although care should be taken in applying some of these indicators at the bioregion scale given the noted differences between the eastern and western Scotian Shelves.

Within Fisheries and Oceans Canada, there are two priority areas that require ecological indicators such as we have developed here: the SOTO program and the MPA program. The scale of each is quite different, with SOTO operating at the regional scale and the MPA program at much smaller scales. The results of this work will be valuable to both. Further, this suite of indicators can help DFO move to an ecosystem approach to fisheries through its potential contribution to stock assessment. Tailored indicator summaries, showing the ecosystem state and trends for a given species at a

relevant spatial scale, will provide information with which to make informed ecosystem-based fisheries management decision.

CONCLUSIONS

The two objectives of this work were achieved: (i) an Indicator Selection Guidance Framework was developed to select and evaluate potential indicators for ecosystem monitoring and assessment at different spatial scales using established selection criteria (Figure 1) and (ii) the framework was successfully tested for the Scotian Shelf Bioregion, where a final suite of 30 ecological indicators, derived from fisheries dependent and independent data, was selected.

A comprehensive evaluation and selection of robust ecological indicators is one of the key steps in the process of implementing Ecosystem Approach and to track progress towards meeting ecosystem goals. Within DFO, practical implementation of an Ecosystem Approach is still in its early stages, and methodological developments are required to realign ocean policy with ocean science in the context of an Ecosystem Approach (Bailey et al. 2016). The application of our guidance framework represents a step in that direction.

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SUPPLEMENTARY MATERIAL

Bundy A, Gomez C, Cook AM. 2017. Guidance framework for the selection and evaluation of ecological indicators. Can. Tech. Rep. Fish. Aquat. Sci. 3232: xii + 90 p

Table of contents

Table S1. Summary of ecosystem attributes gathered from relevant publications. For the proposed framework, we selected ecosystem attributes that best represent broad key features of ecosystems (Shin et al. 2010), and these four attributes were used to define sub-attributes to further structure the selection of indicators. MSFD: Marine Strategy Framework Directive. ICES: International Council for the Exploration of the Sea.

Shin et al. 2010	MSFD - ICES	Fulton et al. 2005	Constanza 1992 in Jorgensen et al. 2005	Kershner et al. 2011	Samhouri et al. 2009	Greenstreet et al. 2012
Biodiversity	Proportion of selected species at the top of food webs	Diversity	Diversity or complexity		Diversity	Species richness
	Abundance/ distribution of key trophic groups/species					Species evenness
	Habitat condition					
Ecosystem Stability & Resistance to Perturbations	Reproductive capacity of the stock		Vigor or scope for growth	Population condition	Resilience: relative change biomass	Life-history-traits
						Composition
	Population condition		Stability or resilience			
			Homeostasis			
Ecosystem Structure & Functioning	Population age & size distribution	Size structure	Balance between system components	Energy & material flows		Size composition
	Ecosystem structure	Trophic level	Balance between system components	Community composition	Mean trophic level	
		Food-web structure	Absence of disease			
		Spatial structure				
		Throughput				
		Consumption			Consumption	
		Production			Net primary production/biomass	
		Nutrient cycling			Finn's cycling index	
		Respiration			Respiration	
		Maturity			Net primary production & respiration	
					Respiration & biomass	
					Path length	
					Predator cycling index	
Resource Potential	Population size	Biomass		Population size	Total biomass	Abundance
		Groups representing 80% of biomass			Target group biomass	Biomass

Shin et al. 2010	MSFD - ICES	Fulton et al. 2005	Constanza 1992 in Jorgensen et al. 2005	Kershner et al. 2011	Samhouri et al. 2009	Greenstreet et al. 2012
					Net primary production	Productivity

Table S2. Summary of selection criteria gathered from relevant publications.

Rice and Rochet 2005	Degnbol and Jarre 2004	ICES 2005	Jorgensen et al. 2005	Niemeijer and deGroot 2008
Public awareness	Reflecting features in accordance with stakeholders perception. Suitability for communication among stakeholders. Transparency of the observation process to stakeholders. Management action and response closely linked in time. Transparency of the observation process to stakeholders.	Relatively easy to understan by non-scientists and those who will decide on their use		Comprehensible: Simply and easily understood by target audience. Relevance: Relevance for the issue and target audience at hand. User-driven to be relevant to target-audience. Links with management: Well established links with specific management practise or interventions.
Coordination and tractability	Usufulness for local/large scale management		Applicability in extensive geographical areas/communities or ecological environments	International compatibility: Be compatible with indicators developed and used in other regions,Universality: Applicable to many areas, situations, and scales,Linkable to societal dimension: Linkable to socio-economic developments and societal indicators,Spatial and temporal scales of applicability: Provide information at the right spatial and temporal scales.
Theoretical basis, Concreteness	Research-based substance and refecting analytical soundness. Unambiguity of analytical results			Scientific dimension: analytically soundness (strong scientific and conceptual basis), credible (scientifically credible), integrative (The full suit of indicators should cover key aspects/components/gradients), general importance (Bear on a fundamental process or widespread change). Progress towards targets: Links to quantitative or qualitative targets set in policy documents. Anticipatory: Signify an impending change in key characteristics of the system
Measurement	Data-based substance, Relevant to management measures	Easily and accurately measured, low error rate. Based on existing body or time-series of data to allow a realistic setting ob objectives.	Possible quantification. Ease of handling. Independence of refeence states	Reliability: Proven track record. Existing historical record of comparative data. Measurable in qualitative or quantitative terms,Be repeatable and reproducible in different contexts. Data requirements and availability: Manageable data requirements (collection) or good availability of existing data. Not require excessive data collection skills. Operationally simplicity: Simple to measure, manage and analyse. Resource demand: Achievable in terms of the available resources. Time demand: Achievable in the available time. Thresholds that can be used to determine when to take action. Quantified: Information should be quantified in such a way that it significance is apparent. Costs, benefits and cost-effectiveness: Benefits of the information provided by the indicator should outweigh,the costs of usage.Statistical properties: Have excellent statistical properties that allow unambiguous interpretation.
Specificity	Indicator responding to management actions in spite of environmental fluctuations	Sensitive to manageable human activity	Sensibility to small variations of environmental stress	Specificity: Clearly and unambiguously defined
Responsiveness		Responsive primarily to a human activity, with low responsiveness to other causes of change		Predictable: Respond in a predictable manner to changes and stresses
Sensitivity				Robustness: Be relatively insensitive to expected source of interference. Sensitive to changes in space. Sensitive to changes within policy time frames. Sensitive to stresses on the system

Table S2 (cont'd). Summary of selection criteria gathered from relevant publications.

Kershner et al. 2011	ICES 2012	Shin et al. 2010, 2012	Rombouts et al. 2013	ICES 2015
Relevant to management concerns. Understood by the public and policy makers. History of public reporting.	Relevant to management measures	Public awareness: Meaning of indicators and their link to fishing should be intuitively understood by the public		Comprehensible: Indicators should be interpretable in a way that is easily understandable by policy-makers and other non-scientists.
Regionally/nationally/internationally compatible	Cross-application	Coordination and tractability,Linked to international framework and projects,Tractable for a range of ecosystems,Small in number	Distributed over a broad geographical area or otherwise widely applicable	Relevant to management measures,Established indicators: indicators will have a record of use and strong scientific evidence to support their should be on record.
Theoretically sound	Theoretically sound and conceptual basis	Theoretical basis reflecting well-defined ecological processes and underlying fishing pressures		Scientific credibility: Scientific, peer-reviewed findings should underpin the assertion that the indicator provides a true representation of variation in the ecosystem attribute in question.
Historical data/information available.Operational simple. Numerical. Continuous time-series. Broad spatial coverage. Cost-effective. Spatial/temporal variation understood. Linkable to scientifically- defined reference points and progress targets.	Quality of underlying data, Metrics should be tangible, Quantitative/qualitative, Existing and ongoing data, Relevent spatial coverage, Cost-effectiveness	Measurability, routinely measurable and have historical time-series available	Independent of sample size, Capable of providing a continuous assessment over wide range of stress. Easy and cost-effective to measure, collect, calculate	Data quality. Suitable data time-series must be available. Survaillance indicators do not need data to support or calculate reference points, but time-series should be useful for identifying upper and lower bounds that may represent acceptable state. Easily and accurately determined using feasible and quality assured methods. They should monitor meaningful ecosystem attributes. Quantitative measurements are preferred over qualitative, categorical measurements, which in turn are preferred over expert opinions and professional judgments. Relevant spatial coverage which can be related to corresponding operational indicator, e.g. a fish population range. Reflects ecosystem change caused by variation in manageable pressure(s). Cost-effectiveness: Sampling, measuring, processing, analysing indicator data, and reporting assessment outcomes, should make effective use of limited financial resources.
	Responds to changes in specific pressures	Specificity		
Responds predictably and is sufficiently sensitive to chnages in specific action(s)/pressure(s)	Responds to change in ecosystem attributes	Responsiveness (e.g. responsive to fishing pressure)	Able to differentiate natural cycles or trends from those indiced by anthropogenic stress	

Table S3. List of 186 indicators gathered from the literature review. The first 68 indicators listed met the selection criteria qualitatively (Indicator screened qualitatively). A rationale is provided for the indicators that did not fulfill the qualitative screening criteria (see also Table 3 in manuscript).

#	Indicator gathered from literature review	Reference	Indicator # (also see Table 4)	Indicator screened qualitatively	Rational for indicator rejection – see Table 3 in manuscript
1	Margalef's species richness	Greenstreet et al. 2012, Greenstreet and Rogers 2006	1	MargalefRichness	-
2	Species richness	Degnbol and Jarre 2004, DFO 2003, Fulton et al. 2005, Greenstreet et al. 2012, Greenstreet and Rogers 2006, ICES 2005, Link 2005, Link et al. 2002, Rochet and Rice 2005, Shin et al. 2010	2	SpeciesRichness	-
3	Margalef's groundfish species richness	Choi et al. 2005	3	MargalefGroundfish	-
4	Shannon Index of diversity	Choi et al. 2005, DFO 2003, Shin et al. 2010	4	ShannonDiversity	-
5	Hill's index of diversity	Greenstreet et al. 2012, Greenstreet and Rogers 2006, ICES 2005, Shin et al. 2010	5	HillN1Diversity	-
6	Kemptons Biodiversity Index (Q)	Shannon et al. 2009	6	KemptonQ	-
7	Pielou's species evenness	Greenstreet et al. 2012, Greenstreet and Rogers 2006	7	PielouEvenness	-
8	Hill's species dominance	Greenstreet et al. 2012	8	HillN2Dominance	-
9	Heips Index	Kenchington and Kenchington 2013	9	Heips	
10	Large Fish Indicator	Fung et al. 2012, Greenstreet et al. 2012, Greenstreet and Rogers 2006, Houle et al. 2012, ICES 2010, 2011, 2012, Sheppard et al. 2011, 2012	10	LargeFishIndicator	-
11	Large Species	Houle et al. 2012, Sheppard et	11	LargeSpeciesIndicator	-

#	Indicator gathered from literature review	Reference	Indicator # (also see Table 4)	Indicator screened qualitatively	Rational for indicator rejection – see Table 3 in manuscript
	Indicator	al. 2012			
12	Proportion of predatory fish in community	Fu et al. 2012, Shin et al. 2010	12	PropPredatoryFish	-
13	Biomass of Trophic Guilds	ICES 2012	13	BTGLargeBenthivore (BTG: Biomass per Trophic Guild)	-
			14	BTGMediumBenthivore	
			15	BTGPlanktivore	
			16	BTGPiscivore	
			17	BTGZoopiscivore	
14	Mean length in community	Choi and Zisserson 2012, Greenstreet and Rogers 2006, Link 2005, Link et al. 2002, Rochet and Rice 2005, Rochet et al. 2005, Shin et al. 2010, Houle et al. 2012	18	MeanLengthAbundance	-
			19	MeanLengthBiomass	
15	Mean Trophic Level of community	Fu et al. 2012, Fulton et al. 2004, Fulton et al. 2005, Houle et al. 2012, Rochet and Trenkel 2003 in Shanon et al. 2010, Shin et al. 2010	20	MeanTrophicLevel (TL)	-
16	Biomass ratio invertebrate to demersal	Bundy et al. 2009	21	BInvertebrateToDemersal	-
17	Biomass ratio pelagic to demersal fish	Choi et al. 2005, DFO 2003, Fu et al. 2012, Fulton et al. 2005, Shin et al. 2010	22	BPelagicToDemersal	-
18	Fulton's condition index	Rochet and Rice 2005, Shin et al. 2005	23	CommunityCondition (CC)	-
			24	CCMediumBenthivore	
			25	CCPlanktivore	
			26	CCPiscivore	
			27	CCZoopiscivore	
			28	CCLargeBenthivore	

#	Indicator gathered from literature review	Reference	Indicator # (also see Table 4)	Indicator screened qualitatively	Rational for indicator rejection – see Table 3 in manuscript
19	Mean lifespan	Shin et al. 2010	29	MeanLifespan	-
20	Mean maximum length in community	ICES 2005, 2010, 2012, Borja et al. 2011, Cardoso et al. 2010, Rochet and Rice 2005, Shin et al. 2005, 2010, Houle et al. 2012	30	MMLengthAbundance (MM: Mean Maximum)	-
			31	MMLengthBiomass	
21	Intrinsic vulnerability index of the catch	Cheung et al. 2007, Shin et al. 2012	32	Intrinsicvulnerabilityindex.L	-
22	Biomass per Trophic Level	Coll et al. 2006a in Shannon et al. 2010	33	BiomassTL2	-
			34	BiomassTL3	
			35	BiomassTL4	
23	Coefficient variation in biomass	Blanchard and Boucher 2001, Fulton et al. 2004, 2005, Fulton et al. 2005, Shin et al. 2010	36	InverseCVBiomass	-
24	Biomass	Degnbol and Jarre 2004, Fu et al. 2012, Fulton et al. 2004, Greenstreet et al. 2012, Houle et al. 2012, ICES 2005, Link 2005, Rochet et al. 2005, Shin et al. 2010, ICES 2010, Borja et al. 2011, Cardoso et al. 2010, Link et al. 2002	37	Biomass	-
25	Biomass finfish	Bundy et al. 2009	38	BiomassFinfish	-
26	Biomass invertebrates	Bundy et al. 2009, Choi et al. 2005	39	BiomassInvertebrates	-
27	Biomass clupeids	Fu et al. 2012	40	BiomassClupeids	-
28	Biomass pelagic	Choi et al. 2005, DFO 2003	41	BiomassForage	-
29	Biomass gadoid	Fu et al. 2012	42	BiomassGadoids	-
30	Biomass groundfish	Choi et al. 2005, DFO 2003	43	BiomassGroundfish	-
31	Biomass flatfish	Bundy et al. 2009	44	BiomassFlatfish	-

#	Indicator gathered from literature review	Reference	Indicator # (also see Table 4)	Indicator screened qualitatively	Rational for indicator rejection – see Table 3 in manuscript
32	Abundance or population trends of indicator species	Degnbol and Jarre 2004	45	BiomassSkates	-
33	Fishing-in-Balance (FiB) index	Cury et al. 2005, Degnbol and Jarre 2004, Fu et al. 2012, Fulton et al. 2004, 2005, Houle et al. 2012, Pauly et al. 2000, Rochet and Rice 2005, Shin et al. 2010	46	FishinginBalance.L	-
34	Fishing pressure [biomass/landings]	Fu et al. 2012, Fulton et al. 2005, Houle et al. 2012, ICES 2010, Borja et al. 2011, Cardoso et al. 2010, Rochet and Rice 2005, Shin et al. 2010	47	FishingPressure.L (FP)	-
			48	FPClupeids.L	
			49	FPForageFish.L	
			50	FPFinfish.L	
			51	FPGroundfish.L	
			52	FPGadoids.L	
			53	FPSkates.L	
			54	FPFlatfish.L	
			55	FPInvertebrates.L	
35	Trophic Level of fisheries landings	Cury et al. 2005, Fu et al. 2012, Houle et al. 2012, Pauly et al. 1998, Shin et al. 2010	56	MeanTrophicLevel.L	-
36	Marine Trophic Index	Pauly and Watson 2005, Shin et al. 2012	57	MarineTrophicIndex.L	-
37	Diversity of target species	Degnbol and Jarre 2004	58	DiversityTargetSpp.L	-
38	Landings	Bundy et al. 2009, Coll et al. 2010, Link 2005, Link et al. 2010, Choi et al. 2005, DFO 2003	59	Landings.L (L)	-
			60	LClupeids.L	

#	Indicator gathered from literature review	Reference	Indicator # (also see Table 4)	Indicator screened qualitatively	Rational for indicator rejection – see Table 3 in manuscript
			61	LForageFish.L	
			64	LFinfish.L	
			66	LSkates.L	
			63	LGadoids.L	
			67	LFlatfish.L	
39	Landings of groundfish		62	LGroundfish.L	-
41	Landings of pelagic fish	Choi et al. 2005, DFO 2003	68	LLargePelagic.L	-
40	Landings of invertebrates		65	LInvertebrates.L	-
42	95 % percentile of the fish length distribution	ICES 2010, Borja et al. 2011, Cardoso et al. 2010			Coordination & Tractability
43	Abundance	Bundy et al. 2009, Degnbol and Jarre 2004, Greenstreet et al. 2012, Rochet et al. 2005, ICES 2010, Borja et al. 2011, Cardoso et al. 2010			Sensitivity
44	Abundance community	Rochet et al. 2005			Sensitivity
45	Abundance exotic species	Degnbol and Jarre 2004			Measurability
46	Abundance groundfish	DFO 2003			Sensitivity
47	Abundance keystone species	Degnbol and Jarre 2004			Sensitivity
48	Abundance pelagic fish	DFO 2003			Sensitivity
49	Abundance scavengers	Link 2005			Sensitivity
50	Abundance trends of functionally important selected groups/species (Biomass of functionally important selected	ICES 2010, Borja et al. 2011, Cardoso et al. 2010, EC 2010			Coordination & Tractability

#	Indicator gathered from literature review	Reference	Indicator # (also see Table 4)	Indicator screened qualitatively	Rational for indicator rejection – see Table 3 in manuscript
	groups/species)				
51	Age or length of specimens at first capture	Degnbol and Jarre 2004			Measurability
52	Age structure	Fulton et al. 2004			Measurability
53	Age-at-maturity	Degnbol and Jarre 2004			Measurability
54	Amount target species removed	Link 2005			Coordination & Tractability
55	Average weight in catch	Degnbol and Jarre 2004			Specificity
56	Biomass consumers	Rochet and Trenkel 2003 in Shanon et al. 2010			Coordination & Tractability
57	Biomass demersal fish	Bundy et al. 2009			Coordination & Tractability
58	Biomass flagship species	Shin et al. 2012			Theoretical Basis
59	Biomass indices	ICES 2010, Borja et al. 2011, Cardoso et al. 2010, EC 2010			Coordination & Tractability
60	Biomass ratio or catch	Cury et al. 2005			Coordination & Tractability
61	Biomass ratio piscivorous to zooplanktivorous fish	Fulton et al. 2005, Shin et al. 2010			Coordination & Tractability
62	Planktivorous biomass + capelin	Bundy et al. 2009			Coordination & Tractability
63	Body condition	ICES 2005			Coordination & Tractability
64	Bycatch amount	Degnbol and Jarre 2004			Measurability
65	Bycatch mortality rate	Degnbol and Jarre 2004			Measurability
66	Bycatch-catch ratio	Degnbol and Jarre 2004			Measurability

#	Indicator gathered from literature review	Reference	Indicator # (also see Table 4)	Indicator screened qualitatively	Rational for indicator rejection – see Table 3 in manuscript
67	Catch per Unit Effort (CpUE)	Degnbol and Jarre 2004, Fulton et al. 2004, Shin et al. 2010			Theoretical Basis
68	Catch ratios	Rochet and Rice 2005			Theoretical Basis
69	Community condition (based on predicted weight at length)	DFO 2003			Coordination & Tractability
70	Community condition index (based on residuals from population length-weight relationships)	DFO 2003			Coordination & Tractability
71	Condition of the typical species and communities	ICES 2010, Borja et al. 2011, Cardoso et al. 2010, EC 2010			Coordination & Tractability
72	Condition or size at maturity	Fulton et al. 2005			Measurability
73	Conservation status of fish species	ICES 2012			Measurability
74	Cumulative biomass−TL (cumB–TL) curves	Pranovi et al. 2012			Public Awareness
75	Discard rate	Fulton et al. 2004, 2005, Shin et al. 2010, 2012			Measurability
76	Discard-bycatch ratio	Degnbol and Jarre 2004			Measurability
77	Discard-catch ratio	Degnbol and Jarre 2004			Measurability
78	Discarding rates of commercially exploited species	ICES 2012			Measurability
79	Diversity Index	Fulton et al. 2004			Coordination & Tractability
80	Early vs. late maturation schedules	Degnbol and Jarre 2004			Measurability

#	Indicator gathered from literature review	Reference	Indicator # (also see Table 4)	Indicator screened qualitatively	Rational for indicator rejection – see Table 3 in manuscript
81	Fish community similarity index (Bray-Curtis)	DFO 2003			Public Awareness
82	Fishing mortality	Degnbol and Jarre 2004, ICES 2010, Borja et al. 2011, Cardoso et al. 2010, Rochet and Trenkel 2003 in Shanon et al. 2010, Shin et al. 2010			Measurability
83	Fishing population	Degnbol and Jarre 2004			Measurability
84	Fraction of stocks outside safe biological limits	Degnbol and Jarre 2004			Sensitivity
85	Index of declining or increasing species	ICES 2005			Responsiveness/sensitivity/specificity
86	Index of Spatial Biodiversity	Freon et al. 2005			Responsiveness/sensitivity/specificity
87	Intercept of size spectrum	Rochet et al. 2005			Public Awareness
88	k-dominance curves	Degnbol and Jarre 2004			Public Awareness
89	K-dominance,Abundance Biomass Comparions (ABC) curves, W-statistic	Degnbol and Jarre 2004, Fulton et al. 2004, ICES 2005, Shin et al. 2010, Yemane et al. 2005			Public Awareness
90	Large fish (by weight)	ICES 2010, Borja et al. 2011, Cardoso et al. 2010			Specificity
91	Length/age distribution	Degnbol and Jarre 2004			Measurability
92	Length-at-age 6 of cod	Choi et al. 2005			Measurability
93	Length-at-age 6 of haddock	Choi et al. 2005			Measurability
94	Length-at-age 6 of pollock	Choi et al. 2005			Measurability
95	Length-at-age 6 of silver hake	Choi et al. 2005			Measurability

#	Indicator gathered from literature review	Reference	Indicator # (also see Table 4)	Indicator screened qualitatively	Rational for indicator rejection – see Table 3 in manuscript
96	Length-at-age of haddock, cod, pollock, silver hake	DFO 2003			Measurability
97	Life-history composition	ICES 2005			Measurability
98	Maximum length (full geographic distribution of stock)	Degnbol and Jarre 2004			Coordination & Tractability
99	Maximum length in catch	Degnbol and Jarre 2004, Fulton et al. 2004, Fulton et al. 2005			Theoretical Basis
100	Maximum length in population	Rochet and Rice 2005, Shin et al. 2005			Coordination & Tractability
101	Mean age-at-maturity	Greenstreet et al. 2012			Measurability
102	Mean distance of catches from the coast	Shin et al. 2010			Measurability
103	Mean growth rate	Greenstreet and Rogers 2006			Measurability
104	Mean length in catches weighted by biomass	Houle et al. 2012			Theoretical Basis
105	Mean length/age-at-maturity	Greenstreet and Rogers 2006			Measurability
106	Mean length/weight in community	Degnbol and Jarre 2004, Rochet et al. 2005, Shin et al. 2005, 2010			Specificity
107	Mean length/weight in population	Rochet and Rice 2005, Rochet et al. 2005, Shin et al. 2005			Specificity
108	Mean length/weightwithin specified limits	ICES 2005			Coordination & Tractability
109	Mean length-at-age	Rochet and Rice 2005			Measurability
110	Mean length-at-age in population	Shin et al. 2005			Measurability
111	Mean length-at-	Greenstreet et al. 2012			Measurability

#	Indicator gathered from literature review	Reference	Indicator # (also see Table 4)	Indicator screened qualitatively	Rational for indicator rejection – see Table 3 in manuscript
	maturity				
112	Mean length-at-maturity in assemblage	Rochet and Rice 2005			Measurability
113	Mean length-at-maturity in population	Rochet and Rice 2005, Shin et al. 2005			Measurability
114	Mean size of predators	Shackell et al. 2010			Coordination & Tractability
115	Mean ultimate body length	Greenstreet et al. 2012			Coordination & Tractability
116	Mean weight	Choi et al. 2005, DFO 2003, Greenstreet et al. 2012, Greenstreet and Rogers 2006, Link et al. 2002			Specificity
117	Metabolic rate (body size frequency distributions and summer bottom temperatures)	Choi et al. 2005			Measurability
118	Mortality of endangered or protected species	Degnbol and Jarre 2004			Measurability
119	Number of charismatic animals caught	Fulton et al. 2005			Theoretical Basis
120	Number of mature individuals in catch	Degnbol and Jarre 2004			Theoretical Basis
121	Number of non-target species caught by method, area and season or year	Degnbol and Jarre 2004			Theoretical Basis
122	Number of sensitive species or species at risk	Degnbol and Jarre 2004			Coordination & Tractability
123	Numbers of exotic	Degnbol and Jarre 2004			Measurability

#	Indicator gathered from literature review	Reference	Indicator # (also see Table 4)	Indicator screened qualitatively	Rational for indicator rejection – see Table 3 in manuscript
	species				
124	Percent of fish mature at age-1 and age-2	Link et al. 2002			Measurability
125	Physiological condition (species-specific length-weight regression relationships)	Choi et al. 2005			Coordination & Tractability
126	Population size of sensitive species or species at risk	Degnbol and Jarre 2004			Theoretical basis
127	Presence of indicator, charismatic, sensitive species	Degnbol and Jarre 2004, ICES 2005			Theoretical basis
128	Presence of particularly sensitive and/or tolerant species	ICES 2010, Borja et al. 2011, Cardoso et al. 2010, EC 2010			Theoretical basis
129	Productivity of key predator species (hake)	ICES 2010, Borja et al. 2011, Cardoso et al. 2010, EC 2010			Coordination & Tractability
130	Proportion of biomass or number of individuals in the macrobenthos above specified length/size	ICES 2010, Borja et al. 2011, Cardoso et al. 2010, EC 2010			Measurability
131	Proportion of endangered/protected species/stocks	Degnbol and Jarre 2004			Sensitivity
132	Proportion of exploited species with declining biomass	Shin et al. 2012			Responsiveness/sensitivity/specificity
133	Proportion of fish larger than the mean size of first sexual	ICES 2010, Borja et al. 2011, Cardoso et al. 2010, EC 2010			Measurability

#	Indicator gathered from literature review	Reference	Indicator # (also see Table 4)	Indicator screened qualitatively	Rational for indicator rejection – see Table 3 in manuscript
	maturation				
134	Proportion of large fish	ICES 2012, Shin et al. 2010			Coordination & Tractability
135	Proportion of large species	Rochet and Rice 2005, Shin et al. 2010			Coordination & Tractability
136	Proportion of stocks fully and/or sustainably exploited	Degnbol and Jarre 2004			Sensitivity
137	Proportion of the stock that are juveniles	Fulton et al. 2005			Theoretical Basis
138	Proportion of under and moderately exploited stocks	Shin et al. 2010			Responsiveness/sensitivity/specificity
139	Proportional and relative stock density	Shin et al. 2005			Coordination & Tractability
140	Rare species index	ICES 2005			Measurability
141	Ratio current biomass to target biomass	Degnbol and Jarre 2004			Measurability
142	Ratio of endangered to unendangered species	Degnbol and Jarre 2004, Rochet and Rice 2005, Shin et al. 2010			Coordination & Tractability
143	Ratio of number collected to total size of reproducing population	Degnbol and Jarre 2004			Measurability
144	Ratio of target to non-target species	Degnbol and Jarre 2004, Rochet and Rice 2005, Shin et al. 2010			Coordination & Tractability
145	Ratios of trophic levels	ICES 2005			Coordination & Tractability
146	Recruitment	Degnbol and Jarre 2004			Measurability
147	Relative abundance	Link et al. 2002, Rochet and			Coordination & Tractability

#	Indicator gathered from literature review	Reference	Indicator # (also see Table 4)	Indicator screened qualitatively	Rational for indicator rejection – see Table 3 in manuscript
		Rice 2005			
148	Relative catch/biomass of groundfish	DFO 2003			Coordination & Tractability
149	Richness of species assemblages	Degnbol and Jarre 2004			Coordination & Tractability
150	Richness of species in catch	Degnbol and Jarre 2004			Theoretical Basis
151	Size at first sexual maturation	ICES 2010, Borja et al. 2011, Cardoso et al. 2010, EC 2010			Measurability
152	Size at maturation of exploited fish species	ICES 2012			Measurability
153	Size class composition	ICES 2005			Coordination & Tractability
154	Size distribution in stock (full geographic distribution)	Degnbol and Jarre 2004			Measurability
155	Size distribution of species	Rochet and Rice 2005			Coordination & Tractability
156	Size spectrum of the benthic community	ICES 2010, Borja et al. 2011, Cardoso et al. 2010, EC 2010			Public Awareness
157	Size structure	Fulton et al. 2004			Coordination & Tractability
158	Size-abundance intercept	Choi et al. 2005			Public Awareness
159	Size-abundance slope	Choi et al. 2005			Public Awareness
160	Slope and height of size spectrum	Rochet and Rice 2005			Public Awareness
161	Slope and intercept of diversity size spectrum	Shin et al. 2005			Public Awareness
162	Slope and intercept of size diversity spectrum	Rochet and Rice 2005			Public Awareness

#	Indicator gathered from literature review	Reference	Indicator # (also see Table 4)	Indicator screened qualitatively	Rational for indicator rejection – see Table 3 in manuscript
163	Slope and intercept of size spectrum	Shin et al. 2005			Public Awareness
164	Slope and intercept of weight spectrum	Shin et al. 2005			Public Awareness
165	Slope of diversity size spectrum	Shin et al. 2010			Public Awareness
166	Slope of size spectrum	Degnbol and Jarre 2004, Fulton et al. 2004, ICES 2005, Link 2005, Rochet et al. 2005, Shin et al. 2010			Public Awareness
167	Species composition	ICES 2005			Responsiveness/sensitivity/specificity
168	Species composition 1	Choi et al. 2005			Responsiveness/sensitivity/specificity
169	Species composition 2	Choi et al. 2005			Responsiveness/sensitivity/specificity
170	Species distribution	Rochet and Rice 2005			Measurability
171	Species effort index	Degnbol and Jarre 2004			Measurability
172	Species evenness	Link et al. 2002			Coordination & Tractability
173	Species Richness Index (SRI)	Bundy et al. 2005			Coordination & Tractability
174	Species richness predicted	Choi et al. 2005			Coordination & Tractability
175	Species turnover/loss rates	ICES 2005			Measurability
176	Species-area intercept	Choi et al. 2005			Public Awareness
177	Species-area slope	Choi et al. 2005			Public Awareness
178	Species-effort Index	ICES 2005			Measurability
179	Specific metabolic rate	Choi et al. 2005			Measurability
180	Stock density indices	Rochet and Rice 2005			Theoretical Basis
181	Taxonomic Diversity Indices	ICES 2005			Coordination & Tractability

#	Indicator gathered from literature review	Reference	Indicator # (also see Table 4)	Indicator screened qualitatively	Rational for indicator rejection – see Table 3 in manuscript
182	Total biomass variability of demersal fish	Blanchard and Boucher 2001			Theoretical Basis
183	Total catch per exploited area per fishery	Freon et al. 2005			Theoretical Basis
184	Total catch size frequency distribution	Degnbol and Jarre 2004			Theoretical Basis
185	Trophic Balance Index (TBI)	Bundy et al. 2005			Responsiveness/sensitivity/specificity
186	Trophic spectrum analysis	Fulton et al. 2004, Gascuel et al. 2005			Public Awareness

Table S4. Definition and calculation of screened indicators. Indicators are derived from DFO's summer Research Vessel survey, and commercial fisheries landings (.L) data bases. Indicators are listed by the ecosystem attribute/pressure that they represent.

Indicator	Definition/Calculation	References
Ecosystem attribute: Biodiversity		
Margalef's species richness (MargalefRichness)	$S_{M\arg} = \frac{S_y - 1}{\log F_y}$ S is the count of the number of species recorded in all trawl catches collected in any one year (y). F is the total count of all individuals caught in all trawl catches in any one year (y). *Data used*: Fishery independent surveys, fish and invertebrates.	Greenstreet et al. 2012
Species richness (SpeciesRichness)	S_y S is the count of the number of species recorded in all trawl catches collected in any one year (y).. *Data used*: Fishery independent surveys, fish and invertebrates.	Greenstreet et al. 2012
Margalef's groundfish species richness (MargalefGroundfish)	$\frac{S_{groundfish} - 1}{\ln N}$ S is the number of species of groundfish, N is the total number of individuals in the sample. *Data used*: Fishery independent surveys, fish.	Greenstreet and Rogers 2006
Shannon Index of Diversity or H' (ShannonDiversity)	$-\sum p_i \ln p_i$ pi is the proportionof the total sample contributed by the i(th) species and S is the number of species recorded in the sample. *Data used*: Fishery independent surveys, fish and invertebrates.	Greenstreet and Rogers 2006
Hill's index of diversity (HillN1Diversity)	$e^{-\sum p_i \ln p_i}$ Hill's N1 diversity index is the exponential of the Shannon-Weiner index. pi is the proportion of the total sample contributed by the i(th) species and S is the number of species recorded in	Greenstreet and Rogers 2006

Indicator	Definition/Calculation	References
	the sample. This index is sensitive to the number of species recorded in the sample. *Data used*: Fishery independent surveys, fish and invertebrates.	
Pielou's Species Evenness (PielouEvenness)	$-\sum p_i \ln p_i \Big/ \ln(S)$ pi is the proportion of the total sample contributed by the i(th) species (Magurran 1988), and S is the number of species recorded in the sample. Pielou's index is the Shannon-Weiner index computed for the sample S and represent a measure of eveness of the community. *Data used*: Fishery independent surveys, fish and invertebrates.	Greenstreet and Rogers 2006
Hill's Species Dominance (HillN2Dominance)	$1 \Big/ \sum p_i^{\,2}$ pi is the proportion of the total sample contributed by the i(th) species. Hill's N2 is the inverse of the Simpson's index. This index is sensitive to the evenness of the distribution of individuals between species. *Data used*: Fishery independent surveys, fish and invertebrates.	Greenstreet and Rogers 2006
Kempton's Biodiversity Index (Q) **(KemptonQ)**	$Q = S/2 \ \log R_2/R_1$ S is the total number of species or functional groups, R1 and R2 are the lower and upper quartiles of the species abundance distribution. Q is a relative index of biomass diversity calculated from the Kempton's Q75 index developed for expressing species diversity. This index includes those species or functional groups with a trophic level (TL) of three or higher. *Data used*: Fishery independent surveys, fish and invertebrates. R1 and R2 are defaulted to .25 and .75	Ainsworth et al. 2006, Kempton and Taylor 1976
Heip'sEveness	$\frac{e^{H'}-1}{S-1}$ S is species richness and H' is Shannon Index of Diversity calculated above. This index ranges from 0 to 1 and measures how equally the species richness contributes to the total	Kenchington and Kenchington 2013

Indicator	Definition/Calculation	References
	abundance of the community.	
Ecosystem attribute: *Structure and functioning*		
Large Fish Indicator	$$LFI = \frac{\sum_m B_m(L > 50cm)}{\sum_m B_m}$$ Bm is biomass of individuals in a body size class centred at mass m, L is the length (cm) of an individual. This indicator describes the proportion (by weight) of the fish community that is larger than some length threshold (35cm): the proportion of biomass occupying the top predator trophic level. *Data used*: Fishery independent surveys, fish.	Greenstreet et al. 2012, Houle et al. 2012
Large Species Indicator	$$LSI = \frac{\sum_i B_i(L_{\max} > 85cm)}{\sum_i B_i}$$ Bi is biomass of individuals of species i, Lmax is the maximum asymptotic length (cm). *Data used*: Fishery independent surveys, fish	Shepard et al. 2012, Houle et al. 2012
Proportion of predatory fish in the community **(PropPredatoryFish)**	Biomass predatory fish surveyed/Biomass surveyed $\in$ [0,1] Biomass surveyed = biomass (demersal fish + pelagic fish + commercially important invertebrates) Predatory fish species are defined as all surveyed fish species that are not largely planktivorous (i.e. phytoplankton and zooplankton feeders should be excluded, Shin et al. 2010). A fish species is classified as predatory if it is piscivorous, or if it feeds on invertebrates that are larger than the macrozooplankton category (.2 cm). Detritivores should not be classified as predatory fish. This indicator captures changes in the trophic structure and changes in the functional diversity of fish in the ecosystem. *Data used*: Fishery independent surveys, predatory fish.	Shin et al. 2010

Indicator	Definition/Calculation	References
Mean length of fish in the community weighted by abundance (MeanLengthAbundance)	$\sum \frac{L_v}{N}$ Units: cm L is length (cm) for each individual v, N is the abundance of the community *Data used*: Fishery independent surveys, fish	Shin et al. 2010
Mean length of fish in the community weighted by biomass (MeanLengthBiomass)	$\frac{\sum_m \left(L_m \bullet B_i\right)}{\sum B}$ Units: cm Lm is the length (cm) of an individual in size class m, B is the total biomass of the community, Bi is biomass of individuals of species i. *Data used*: Fishery independent surveys, fish	Houle et al. 2012
Fulton's Condition Index (CommunityCondition)	This indicator is calculated from the abundance (*A*) weighted mean weight (*W*) at length (*L*) by species (*j*) information from the survey as: $\frac{\sum_{j=1}^{l} \left(K_j \bullet A_j\right)}{\sum_{j=1}^{l} A_j}$ *where* $K_j = \frac{W_j}{L_j^3} \times 100$ Community condition per tropic guild subdivided the species into their trophic guilds as define above. *Data used*: Fishery independent surveys, fish.	DFO 2003, Choi et al. 2005, Rochet and Rice 2005
Mean Trophic Level of the community (MeanTrophicLevel)	$\overline{TL} = \frac{\sum_i TL_i \cdot B_i}{\sum B}$ TL i is trophic level of individuals of species i, B is biomass of individuals of species i, B is the total biomass of the community. This indicator is based on trophic levels (TL) of all species with available biomass time series, weighted by annual species-	Christensen 1998, Shannon et al. 2014

Indicator	Definition/Calculation	References
	specific biomass, to reflect the structure of the community. *Data used*: Fishery independent surveys, fish and invertebrates.	
Biomass ratio invertebrates to demersal fish (BInvertebrateToDemersal)	$B_{invertebrates} / B_{demersal}$ *Data used*: Fishery independent surveys, fish and invertebrates. Biomass of invertebrates only includes data collected during routine, annual surveys (1999-2012).	Bundy et al. 2009
Biomass ratio pelagic to demersal fish (BPelagicToDemersal)	$B_{pelagic} / B_{demersal}$ *Data used*: Fishery independent surveys, pelagic and demersal fish.	Bundy et al. 2009
Biomass per Trophic Guilds (BTG)	$B_{Trophic\ Guilds}$ Units: tonnes This indicator allows for the identification of trends in the community structure according to five trophic guilds: medium (<80 cm maximum body size) and large (≥80 cm maximum body size) benthivores (primarily consumers of bottom dwellers), piscivores (primarily consumers of fish, i.e. consumers of planktivores and other smaller fish), zoopiscivores (consumers of amphipods, euphausiids,and small fish), planktivores (consumers of zooplankton). *Data used*: Fishery independent surveys, fish.	ICES 2012, Shackell et al. 2012
Ecosystem attribute: Stability and resistance to perturbations		
Mean Lifespan	$\sum_i (age_{\max,i} B_i) / \sum_i B_i$ Units: years. B is the biomass of species i. The mean lifespan or longevity is considered to be a fixed parameter per species. Lifespan may vary under fishing pressure, so IndiSeas adopted the maximum longevity observed for each species. The variation of this indicator captures changes in species composition. *Data used*: Fishery independent surveys, fish.	Shin et al. 2010

Indicator	Definition/Calculation	References
Mean maximum length in community weighted by abundance (MMLengthAbundance)	$\sum_i N_i \overline{L_{\max,\ i}} \Big/ N$ Units: cm. N is abundance of the community, i is population index, L is length (cm). Lmax,i, or alternatively, L,inf, is fixed. *Data used*: Fishery independent surveys, fish.	Shin et al. 2005
Mean maximum length in community weighted by biomass (MMLengthBiomass)	$\overline{L_{\max}} = \frac{\sum_i \left(L_{\max,\ i} \bullet B_i\right)\cdot}{\sum B_i}$ Units: cm Lmax,i is the maximum asymptotic length (cm) of species i, Bi is biomass of individuals of species i, B is the total biomass of the community (the trawlable fish community excluding invertebrates). *Data used*: Fishery independent surveys, fish.	Houle et al. 2012
Intrinsic vulnerability index of the catch (Intrinsicvulnerabilityindex.L)	Weighted intrinsic vulnerability index (IVI) of species (j=1,2,…,l) in the catch (Cj) was estimated as $\frac{\sum_{j=1}^{l}\left(IVI_j \bullet C_j\right)\cdot}{\sum C_j}$ The vulnerability for each species (j) was determined by considering several traits including maximum length, age at first maturity, longevity, von Bertalanffy growth parameter, natural mortality, fecundity, spatial behaviour and geographic range (e.g. species with larger body size, higher longevity, higher age at maturity, and lower growth rates have higher vulnerability to fishing have higher vulnerability indexes and should be less able to sustain high fishing mortality, see Cheung et al. 2005). The index values ranges from 1 to 100, with 100 being the most vulnerable: http://www.int-res.com/articles/suppl/m333p001_app.pdf This indicator reflects the differences in life history resulting in structural changes in the exploited fish community. *Data used*: Commercial fisheries landings, fish	Cheung et al. 2007
Biomass per Trophic Level 2, 3 and 4	B*Discrete Trophic Level Spectrum*	Coll et al. 2006

Indicator	Definition/Calculation	References
(BiomassTL2, BiomassTL3, BiomassTL4)	Total biomass per each discrete Trophic Level (TL) 2, 3 and 4. Units: tonnes *Data used*: Fishery independent surveys, fish and invertebrates. Biomass per TL 2 (invertebrates) only includes data collected during routine, annual surveys (1999-2012).	
w1/Coefficient variation in biomass (InverseCVBiomass)	InverseCVBiomass was estimated as a five year moving average of the in year j as: $\frac{1}{\frac{1}{n}\sum_{j=i}^{i+n-1}\left(\frac{SD_j}{\overline{X}_j}\right)}.$ Where SD is the standard deviation of the mean biomass and X is the mean biomass. As this was a five year moving average n=5. *Data used*: Fishery independent surveys, fish and invertebrates.	Shin et al. 2010, Blanchard and Boucher 2001
Ecosystem attribute: Resource potential		
Biomass	B Units: tonnes Total biomass of surveyed species. *Data used*: Fishery independent surveys, fish and invertebrates	Shin et al. 2010
Biomass per fished group	B *per Fished Group* Units: tonnes This indicator reflect temporal dynamics of seven fished groups: Clupeids, Finfish, Flatfish, Gadoids, Groundfish, Invertebrates and Forage fish *Data used*: Fishery independent surveys, fish. Biomass of invertebrates only includes data collected during routine, annual surveys (1999-2012).	Bundy et al. 2009, Choi et al. 2005, Fu et al. 2012
Biomass of Skates	B*skates* Units: tonnes Total biomass of skates. Skates have long-life span and are caught in every fishery. *Data used*: Fishery independent surveys, fish (skates).	Degnbol and Jarre 2004

Indicator	Definition/Calculation	References
Fishing-in-Balance (FiB) Index (FishinginBalance.L)	$FiB = \log\left(Y_k \cdot (1/TE)^{TL_k}\right) - \log\left(Y_0 \cdot (1/TE)^{TL_0}\right)$ Y is the catch, TL the mean trophic level in the catch, TE the transfer efficiency, k is any year and 0 refers to any year used as a baseline (i.e. 1968 – 1970). TE=0.10 (Pauly and Christensen 1995). This indicator captures changes in fishing strategies and their impact on system productivity: a positive FIB index indicates that the fishery has expanded and/or bottom-up effects are occurring, and there is more catch than expected, a negative FIB index indicates it is likely that the fishing impact is so high that the ecosystem function is impaired and the ecosystem is less productive owing to excessive fishery removals (Christensen 2000 in Fu et al. 2012). *Data used*: Commercial fisheries landings, fish and invertebrates.	Pauly et al. 2000
Attribute: Fishing Pressure		
Fishing Pressure [landings/biomass (FishingPressure.L)	Y/B B is the Biomass of the community and Y is the landed catch. This indicator measures the level of exploitation or total fishing pressure at the ecosystem level. Change in this indicator can result from change in B, Y or both. If B and Y change in the same direction, exploitation rate may not change. *Data used*: landed catch - commercial fisheries landings, fish and invertebrates, biomass of the community – fishery independent surveys, fish and invertebrates.	Shin et al. 2010
Fishing Pressure per fished group	Y_{FG}/B_{FG} This indicator measures the Fishing Pressure (FP) of seven fished groups: Skates, Clupeids, Finfish, Flatfish, Gadoids, Groundfish, Invertebrates and Forage fish. *Data used*: landed catch - commercial fisheries landings, fish and invertebrates, biomass from fishery independent surveys, fish and invertebrates .	

Indicator	Definition/Calculation	References
Mean Trophic Level of fisheries landings (MeanTrophicLevel.L)	$\sum_i (TL_i \cdot Y_i)/Y$ TL i is trophic level of individuals of species i, Y is the total catch. Trophic Level (TL) of individual species is estimated either through Ecopath modell or dietary analysis, or taken from a global database such as Fishbase. Data comes from commercial catch. This indicator captures the average trophic level of the species exploited in the fishery. In general, this indicator reflects a gradual transition in landings from long-lived, high trophic level, piscivorous bottom fish toward short-lived, low trophic level invertebrates and planktivorous pelagic fish. *Data used*: Commercial fisheries landings, fish and invertebrates	Pauly et al. 1998
Marine Trophic Index MTI (MarineTrophicIndex.L)	$mTL_k = \sum(Y_{ik} \cdot TL_i)/\sum(Y_{ik})$ Yik is the catch of species i in year k, TLi is the Trophic Level of species (or group) i which is often obtained from the diet composition studies in FishBase. This indicator should be used with an explicitly stated cut-off TL chosen. For instance, Pauly and Watson 2005 adopted a cutMTI = 3.25 to emphasize changes in the relative abundance of the more threatened high-TL fishes. If used is this way, this indicator highlights changes in the relative abundance of the more threatened high-TL fishes. *Data used*: Commercial fisheries landings, high TL fishes.	Pauly and Watson 2005
Diversity of Target Species (TS) (DiversityTargetSpp.L)	TS_y S is the count of the number of target species recorded in all trawl catches collected in any one year (y). *Data used*: Commercial fisheries landings, fish and invertebrates	Degnbol and Jarre 2004
Landings (Landings.L)	Y Units: tonnes Y is the landed catch from commercial fisheries that is put ashore. *Data used*: commercial fisheries landings, fish and	Shin et al. 2010

Indicator	Definition/Calculation	References
	invertebrates.	
Landings (L) per fished group	Y_{FG} Units: tonnes Catch from commercial fisheries that is landed ashore. Includes nine fished groups: Finfish, Skates, Clupeids, Flatfish, Gadoid, Groundfish, Invertebrates, Forage fish and Large pelagic fish. *Data used*: commercial fisheries landings.	Bundy et al. 2009

Table S5. Common names (as provided by DFO's RV survey) of species grouped in five trophic guilds and six fished groups. Trophic guilds are planktivores (consumers of zooplankton), piscivores (primarily consumers of fish, i.e. consumers of planktivores and other smaller fish), zoopiscivores (consumers of amphipods, euphausiids and small fish), medium (<80 cm maximum body size) and large (≥80 cm maximum body size) benthivores (primarily consumers of bottom dwellers). Fished groups are Clupeids, Forage, Skates, Flatfish, Gadoids, and Groundfish.

Trophic guilds		**Fished groups**					
Piscivores	**Medium Benthivores**	**Clupeids**	**Flatfish**	**Gadoids**	**Groundfish**		
Cod(Atlantic)	Haddock	Herring(Atlantic)	Halibut(Atlantic)	Cod(Atlantic)	Cod(atlantic)	Striped mullet	Brier skate
White Hake	American Plaice	Shad American	Turbot,Greenland Halibu	Haddock	Haddock	Flounder unidentified	Round skate
Cusk	Witch Flounder	Alewife	American Plaice	White hake	White hake	Striped atlantic wolffisl	Soft skate
Pollock	Yellowtail Flounder	Smelt	Witch Flounder	Squirrel or red hake	Squirrel or red hake	Spotted wolffish	Shorttail skate
Halibut(Atlantic)	Winter Flounder		Yellowtail Flounder	Silver hake	Silver hake	Northern wolffish	Arctic skate
Turbot,Greenland Halibu	Rosefish(Black Belly)	**Forage**	Winter Flounder	Cusk	Cusk	Tautog	Skates
Longfin Hake	Fourspot Flounder	Herring (Atlantic)	Gulf Stream Flounder	Pollock	Pollock	Molva_molva	Spiny dogfish
Thorny Skate	Brill/Windowpane	Shad (American)	Eyed flounder	Tomcod(Atlantic)	Tomcod(atlantic)	Phycinae s	Black dogfish
Winter Skate	Smooth Skate	Alewife	Flounder unidentified	Hake (ns)	Hake (ns)	Wolffish,unident	Longhorn sculpin
Spiny Dogfish	Little Skate	Smelt	Smooth Flounder	Off-shore hake	Off-shore hake	Smooth flounder	Shorthorn sculpin
Longhorn Sculpin	Shorthorn Sculpin	Capelin	Summer Flounder	Arctic cod	Redfish	Summer flounder	Mailed sculpin
Sea Raven	Mailed Sculpin	Northern Sand Lanc	Fourspot Flounder	Spotted hake	Redfish, deep water	Fourspot flounder	Sculpin
Monkfish,Goosefish,Ang	Rock Grenadier(Roundnose)	Argentine (Atlantic)	Brill/Windowpane	Longfin hake	Striped bass	Brill/windowpane	Sea raven
Zoopiscivores	Lumpfish		**Skates**	Blue antimora/hake	Tile fish	Arctic cod	Alligatorfish
Squirrel Or Red Hake	Seasnail,Gelatinous		Barndoor Skate	Fourbeard rockling	Halibut(atlantic)	Spotted hake	Atlantic sea poacher
Silver Hake	Fourbeard Rockling		Thorny Skate	Threebeard rockling	Turbot,greenland halib	Longfin hake	Monkfish,goosefish
Off-Shore Hake	Threebeard Rockling		Smooth Skate	Silver rockling	Hake	Fourbeard rockling	Laval's eelpout
Redfish Unseparated	Northern Hagfish		Little Skate	Blue whiting	Wrasses	Threebeard rockling	Fawn cusk eel
Planktivores	Ocean Pout(Common)		Winter Skate	Greenland cod	American plaice	Silver rockling	
Herring (Atlantic)	**Large Benthivores**		Spinytail Skate		Witch flounder	Greenland cod	
Shad American	Striped Atlantic Wolffish		Brier Skate		Yellowtail flounder	Barndoor skate	
Alewife	Barndoor Skate		Round Skate		Winter flounder	Thorny skate	
Mackerel(Atlantic)			Soft Skate		Gulf stream flounder	Smooth skate	
Argentine(Atlantic)			Shorttail Skate		Eyed flounder	Little skate	
Northern Sand Lance			Arctic Skate		Northern sennet	Winter skate	
Butterfish			Skates		White mullet	Spinytail skate	
Capelin							

Table S6. Species sampled by DFO's RV survey assigned to each trophic (TL). TLs for each species are defined in Araújo and Bundy (2011): TL2 are species with TL < 3, TL 3 are for species with 3 < TL < 4, and TL is for species with TL ≥ 4.

TL 2	TL 3	TL 4
Aeginina__Longicornis	Alewife	Albacore_Tuna
Amphipoda_O_	Alligator_Fish__Ns_	American_John_Dory
Anomia	Alligatorfish	Bigeye_Tuna
Aphrodita_Sp_	American_Eel	Black_Dogfish
Argis_Dentata	American_Lobster	Blue_Marlin
Astarte_Sp_	American_Plaice	Blue_Shark
Asteroidea_S_C_	Arctic_Eelpout	Bluefin_Tuna
Axius_Serratus	Arctic_Hookear_Sculpin	Cephalopoda_C_
Barnacles	Arctic_Sculpin	Cod_Atlantic_
Basket_Stars	Argentine_Atlantic_	Cusk
Bivalvia_C_	Atlantic_Batfish	Dolphin_Common_
Blood_Worms	Atlantic_Rock_Crab	Dusky_Shark
Blook_Ark	Atlantic_Saury_Needlefish	Halibut_Atlantic_
Bristle_Worms	Atlantic_Sea_Poacher	Illex_Sp_
Brittle_Star	Atlantic_Silver_Hatchfish	Large_Sharks
Bryozoans_P_	Atlantic_Soft_Pout	Monkfish_Goosefish_Angler
Cancer_Crab__Ns_	Atlantic_Spiny_Lumpsucker	Octopus
Cancer_Sp_	Atlantic_Whitefish	Off-Shore_Hake
Caprella_Sp_	Barndoor_Skate	Pollock
Caprellidae_F_	Beardfish	Porbeagle_Mackerel_Shark
Cerianthusborealis	Blueback_Herring	Sea_Raven
Chitons	Boa_Dragonfish	Sepiolidae_F_
Chone_Sp_	Brill/Windowpane	Short-Fin_Squid
Clams__Ns_	Butterfish	Silver_Hake
Copepoda_S_C_	Capelin	Skipjack_Tuna
Crab	Coelenterata_P_	Spiny_Dogfish
Crab_Anomura_	Comb_Jellies	Squid__Ns_
Crangon_Septemspinosa	Ctenop_Coelente_Porif	Squid_Beaks
Crangon_Sp_	Cunner	Swordfish
Crangonidae___F_	Daubed_Shanny	Thresher_Shark
Crustacea_C_	Dragonets	Tiger_Shark
Crustacean_Remains	Ectreposebastes_Imus	Tuna_Ns
Cumacea_O_	Eelpout_Newfoundland	Turbot_Greenland_Halibut
Dichelopandalus_Sp_	Eelpouts__Ns_	White_Hake
Echinarachnius_Parma	Eel-Unidentified	White_Marlin
Echinoderm_Remains	Flounders_Ns	Yellowfin_Tuna
Eualus_Sp_	Fourbeard_Rockling	
Filament_Tube_Worm	Fourspot_Flounder	
Gammaridae_F_	Grenadiers__Ns_	
Gammarus_Sp_	Gulf_Stream_Flounder	
Giant_Canoe_Bubble	Haddock	
Green_Crab	Hagfish	
Hard_Clam	Herring/Capelin_Like	
Heart_Shell	Herring_Atlantic_	
Hermit_Crabs	Hookear_Sculpin__Ns_	
Hippolytidae_F_	Hookear_Sculpin_Atl_	
Horse_Mussels	Inquiline_Seasnail	
Hyas_Coarctatus	Jellyfishes	
Hydrozoac	Lanternfish__Ns_	
Hyperiidae_F_	Little_Skate	
Iceland_Cockle	Longfin_Hake	
Iceland_Scallop	Longhorn_Sculpin	
Isopoda_O_	Longnose_Greeneye	
Jonah_Crab	Lumpfish	
Krill_Shrimp	Mackerel_Atlantic_	
Lebbeus_Groenlandicus	Mailed_Sculpin	
Lebbeus_Polaris	Marlin-Spike_Grenadier	
Lebbeus_Sp_	Menhaden_Atlantic_	
Lepidonotus_Squamatus	Myctophiformes	
Limpet__Ns_	Northern_Pipefish	
M_Norvegica	Northern_Sand_Lance	

TL 2	TL 3	TL 4
Mollusc_Remains	Northern_Wolffish	
Mollusca_P_	Ocean_Pout_Common_	
Mud_Shrimp	Pelagic_Fish__Ns_	
Mud_Star	Pelagic_Sea_Snail	
Munida_Iris	Pteropoda	
Munida_Valida	Radiated_Shanny	
Mysid_Shrimp	Red_Crab	
Mytilus_Edulis	Redfish_Unseparated	
Nereis_Pelagica	Rock_Grenadier_Roundnose_	
Nereis_Sp_	Rock_Gunnel_Eel_	
Northern_Moonsnail	Rockling_Unidentified	
Northern_Stone_Crab	Rosefish_Black_Belly_	
Nut_Shells	Roughhead_Grenadier	
P_Gaudichaudi	Roughnose_Grenadier	
Paddle_Worms	Sculpin_Unidentified	
Paguroidea_S_F_	Sculpins	
Pagurus_Acadianus	Scup	
Pandalidae_F_	Seasnail_Dusky	
Pandalus_Borealis	Seasnail_Gelatinous	
Pandalus_Montagui	Seasnail_Unidentified	
Pandalus_Sp_	Shad_American	
Pasiphaea_Multidentata	Shorthorn_Sculpin	
Pectinaria_Sp_	Short-Nose_Greeneye	
Periwinkles	Shorttailed_Eelpout_Vahl_	
Platyhelminthes	Skates__Ns_	
Priapulus	Skates_And_Rays__Ns_	
Purple_Sunstar	Smooth_Skate	
Razor_Shell_Clam	Snake_Blenny	
S_Droebachiensis	Snake_Eel	
Sand_Dollars	Snipe_Eel	
Sand_Tube	Snow_Crab__Queen_	
Scallops	Snubnose_Eel__Slime_Eel	
Sea_Corals__Ns_	Spatulate_Sculpin	
Sea_Cucumbers	Spotted_Wolffish	
Sea_Lilies	Squirrel_Or_Red_Hake	
Sea_Mouse	Stout_Sawpalate	
Sea_Peach	Striped_Atlantic_Wolffish	
Sea_Pen	Striped_Seasnail	
Sea_Pill_Bug	Summer_Flounder	
Sea_Potato	Thorny_Skate	
Sea_Scallop	Tile_Fish	
Sea_Slugs	Toad_Crab	
Sea_Spider	Tomcod_Atlantic_	
Sea_Urchins	Unid_Wolffish	
Seaanemone	White_Barracudina	
Segmented_Worms	Winter_Flounder	
Shrimp-Like	Winter_Skate	
Shrimps	Witch_Flounder	
Snails_And_Slugs	Wolf_Eelpout	
Spider_Crab__Ns_	Wrymouth	
Spiny_Skinned_Animals	Yellowtail_Flounder	
Spirontocaris		
Spirontocaris_Liljeborgii		
Spirontocaris_Spinus		
Sponges		
Sti_Surf_Clam		
Toad_Crab_Unident_		
Trumpet_Worm		
Tunicata_S_P_		
Tusk_Or_Toothshells		
Wave_Whelk		
Whelks		
Worm_Cast		
Yoldia_Sp_		

Table S7. Proportion of years with missing data. Indicators that have more than one quarter of the time series missing (>25% NAs) challenge the criterion of measurability due to significant gaps in their time series and were therefore excluded from the redundancy analysis. For the remaining NAs in the indicator time-series (<25 % NAs), NAs were interpolated (Figure S1). See text for further details.

	BInvertebrateToDemersal	BiomassClupeids	BiomassInvertebrates	BiomassTL2	CCPlanktivore	FPInvertebrates.L	BiomassSkates	BPelagicToDemersal	BTGLargeBenthivore	BTGPlanktivore	BTGZoopiscivore	CCLargeBenthivore	CCZoopiscivore	BiomassForage	BiomassFlatfish
SHELF	0.63		0.63			0.65									
ESS	0.63		0.63			0.65									
4VN	0.63		0.63	0.33	0.30	0.65									
4VS	0.63	0.30	0.63		0.26	0.50									
4W	0.63		0.63			0.65									
WSS/4X	0.63		0.63			0.65									
Strata ID															
440	0.63	0.74	0.63	0.50	0.48			0.37	0.48	0.37		0.54		0.37	
441	0.63	0.37	0.63	0.54	0.41			0.28		0.28		0.26		0.28	
442	0.63	0.26	0.63	0.46	0.37				0.33		0.46	0.48	0.50		
443	0.63	0.80	0.63	0.57	0.50			0.33		0.30	0.28	0.39	0.39	0.33	
444	0.63	0.48	0.63	0.46	0.50			0.28		0.28				0.28	
445	0.63	0.48	0.63	0.28	0.50				0.48			0.72			
446	0.63	0.78	0.63	0.50	0.54			0.41	0.65	0.41		0.76		0.41	
447	0.63	0.85	0.63	0.61	0.46			0.28	0.37	0.28	0.37	0.57	0.39	0.30	
448	0.63	0.76	0.63	0.61	0.50				0.50		0.35	0.61	0.35		
449	0.63	0.87	0.63	0.63	0.63			0.50	0.65	0.50	0.30	0.74	0.33	0.50	
450	0.63	0.59	0.63	0.59	0.48			0.39	0.48	0.39		0.67		0.39	
451	0.63	0.91	0.63	0.57	0.33				0.48			0.67			
452	0.63	0.48	0.63	0.52	0.48			0.30	0.67	0.30		0.80		0.33	
453	0.63	0.96	0.63	0.43	0.41		0.35	0.30	0.98	0.30		0.98		0.30	
454	0.63	0.83	0.63	0.59	0.67			0.54	0.91	0.50		0.91		0.57	
455	0.63	0.46	0.63	0.59	0.26				0.80			0.80			
456	0.63		0.63	0.50	0.30				0.63			0.70			
457	0.63	0.30	0.63	0.52	0.46				0.61			0.70			
458	0.63	0.52	0.63	0.57	0.46				0.72			0.78			
459	0.63		0.63	0.33	0.33							0.43			
460	0.63		0.63	0.52	0.26		0.28		0.59			0.63			
461	0.63	0.39	0.63	0.48			0.59		0.85			0.85			
462	0.63		0.63	0.43			0.39		0.72			0.76			
463	0.63	0.41	0.63	0.65	0.46		0.48	0.28	0.76	0.28	0.26	0.83	0.33	0.28	
464	0.63	0.28	0.63	0.59	0.35				0.46			0.59			
465	0.63	0.37	0.63	0.52					0.50			0.59			
466	0.63	0.93	0.63	0.57	0.48		0.46	0.35	0.89	0.30		0.91		0.35	
470	0.63		0.63	0.59	0.30				0.70			0.74			
471	0.63	0.30	0.63	0.57			0.54		0.91			0.91			
472	0.63	0.35	0.63	0.63	0.26		0.37		0.41			0.46			
473	0.65	0.63	0.65	0.65	0.67		0.63	0.63	0.26	0.63	0.48	0.39	0.54	0.63	0.33
474	0.62	0.69	0.62	0.60	0.67		0.40	0.64	0.42	0.64	0.40	0.60	0.49	0.64	
475	0.65	0.54	0.65	0.63	0.61		0.37	0.52		0.50	0.26	0.37	0.37	0.54	
476	0.63	0.30	0.63	0.54	0.46			0.30	0.30	0.30		0.48		0.30	
477	0.63	0.52	0.63	0.59	0.41			0.28	0.33	0.28		0.43		0.28	
478	0.63	0.89	0.63	0.54	0.33		0.28		0.93			0.93			
480	0.63	0.41	0.63	0.61	0.48			0.30		0.30	0.26		0.30	0.30	
481	0.63	0.33	0.63	0.57	0.28							0.30			
482	0.63	0.41	0.63	0.59					0.85			0.91			0.33
483	0.63	0.43	0.63	0.48					0.72			0.72			
484	0.63		0.63	0.50					0.65			0.70			
485	0.63		0.63	0.50					0.30			0.48			
490	0.63		0.63	0.46								0.43			
491	0.63		0.63	0.46	0.26				0.50			0.61			
492	0.63		0.63	0.41					0.63			0.67			
493	0.63		0.63	0.43					0.80			0.87			
494	0.63		0.63	0.61					0.83			0.87			
495	0.63		0.63	0.57	0.26				0.78			0.85	0.33		

Table S8. Spearman rank correlation coefficients for indicators grouped in Cluster 1 at the large scale (Shelf, WSS, ESS and NAFO divisions). Correlations < 0.7 are highlighted in grey.

		r values								p values							
SHELF		LClupeids.L_s	LForageFish.L_s	LGroundfish.L_s	LGadoids.L_s	LFinfish.L_s	Landings.L_s	FPGroundfish.L_s	FPGadoids.L_s	LClupeids.L_s	LForageFish.L_s	LGroundfish.L_s	LGadoids.L_s	LFinfish.L_s	Landings.L_s	FPGroundfish.L_s	FPGadoids.L_s
	FPGadoids.L_s	0.81	0.82	0.89	0.86	0.93	0.93	0.98	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NA
	FPGroundfish.L_s	0.80	0.81	0.95	0.93	0.96	0.96	1.00	0.98	0.00	0.00	0.00	0.00	0.00	0.00	NA	0.00
	Landings.L_s	0.87	0.88	0.97	0.95	1.00	1.00	0.96	0.93	0.00	0.00	0.00	0.00	0.00	NA	0.00	0.00
	LClupeids.L_s	1.00	1.00	0.75	0.73	0.87	0.87	0.80	0.81	NA	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	LFinfish.L_s	0.87	0.88	0.98	0.96	1.00	1.00	0.96	0.93	0.00	0.00	0.00	0.00	NA	0.00	0.00	0.00
	LForageFish.L_s	1.00	1.00	0.76	0.73	0.88	0.88	0.81	0.82	0.00	NA	0.00	0.00	0.00	0.00	0.00	0.00
	LGadoids.L_s	0.73	0.73	1.00	1.00	0.96	0.95	0.93	0.86	0.00	0.00	0.00	NA	0.00	0.00	0.00	0.00
	LGroundfish.L_s	0.75	0.76	1.00	1.00	0.98	0.97	0.95	0.89	0.00	0.00	NA	0.00	0.00	0.00	0.00	0.00
WSS																	
	FPGadoids.L_s	*0.64*	*0.65*	0.85	0.85	0.82	0.73	0.95	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NA
	FPGroundfish.L_s	*0.63*	*0.65*	0.87	0.87	0.82	0.72	1.00	0.95	0.00	0.00	0.00	0.00	0.00	0.00	NA	0.00
	Landings.L_s	0.94	0.94	0.82	0.81	0.96	1.00	0.72	0.73	0.00	0.00	0.00	0.00	0.00	NA	0.00	0.00
	LClupeids.L_s	1.00	1.00	*0.67*	*0.66*	0.92	0.94	*0.63*	*0.64*	NA	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	LFinfish.L_s	0.92	0.92	0.91	0.90	1.00	0.96	0.82	0.82	0.00	0.00	0.00	0.00	NA	0.00	0.00	0.00
	LForageFish.L_s	1.00	1.00	*0.68*	*0.67*	0.92	0.94	*0.65*	*0.65*	0.00	NA	0.00	0.00	0.00	0.00	0.00	0.00
	LGadoids.L_s	*0.66*	*0.67*	1.00	1.00	0.90	0.81	0.87	0.85	0.00	0.00	0.00	NA	0.00	0.00	0.00	0.00
	LGroundfish.L_s	*0.67*	*0.68*	1.00	1.00	0.91	0.82	0.87	0.85	0.00	0.00	NA	0.00	0.00	0.00	0.00	0.00
4X																	
	FPGadoids.L_s	*0.64*	*0.65*	0.85	0.85	0.82	0.73	0.95	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NA
	FPGroundfish.L_s	*0.63*	*0.65*	0.87	0.87	0.82	0.72	1.00	0.95	0.00	0.00	0.00	0.00	0.00	0.00	NA	0.00
	Landings.L_s	0.94	0.94	0.82	0.81	0.96	1.00	0.72	0.73	0.00	0.00	0.00	0.00	0.00	NA	0.00	0.00
	LClupeids.L_s	1.00	1.00	*0.67*	*0.66*	0.92	0.94	*0.63*	*0.64*	NA	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	LFinfish.L_s	0.92	0.92	0.91	0.90	1.00	0.96	0.82	0.82	0.00	0.00	0.00	0.00	NA	0.00	0.00	0.00
	LForageFish.L_s	1.00	1.00	*0.68*	*0.67*	0.92	0.94	*0.65*	*0.65*	0.00	NA	0.00	0.00	0.00	0.00	0.00	0.00
	LGadoids.L_s	*0.66*	*0.67*	1.00	1.00	0.90	0.81	0.87	0.85	0.00	0.00	0.00	NA	0.00	0.00	0.00	0.00
	LGroundfish.L_s	*0.67*	*0.68*	1.00	1.00	0.91	0.82	0.87	0.85	0.00	0.00	NA	0.00	0.00	0.00	0.00	0.00
ESS																	
	FPGadoids.L_s	0.83	0.85	0.88	0.84	0.93	0.93	0.96	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NA
	FPGroundfish.L_s	0.82	0.82	0.96	0.94	0.98	0.98	1.00	0.96	0.00	0.00	0.00	0.00	0.00	0.00	NA	0.00
	Landings.L_s	0.83	0.84	0.98	0.96	1.00	1.00	0.98	0.93	0.00	0.00	0.00	0.00	0.00	NA	0.00	0.00
	LClupeids.L_s	1.00	1.00	0.73	*0.70*	0.83	0.83	0.82	0.83	NA	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	LFinfish.L_s	0.83	0.83	0.99	0.97	1.00	1.00	0.98	0.93	0.00	0.00	0.00	0.00	NA	0.00	0.00	0.00
	LForageFish.L_s	1.00	1.00	0.74	*0.70*	0.83	0.84	0.82	0.85	0.00	NA	0.00	0.00	0.00	0.00	0.00	0.00
	LGadoids.L_s	*0.70*	*0.70*	0.99	1.00	0.97	0.96	0.94	0.84	0.00	0.00	0.00	NA	0.00	0.00	0.00	0.00
	LGroundfish.L_s	0.73	0.74	1.00	0.99	0.99	0.98	0.96	0.88	0.00	0.00	NA	0.00	0.00	0.00	0.00	0.00
4W																	
	FPGadoids.L_s	0.81	0.82	0.85	0.81	0.90	0.90	0.99	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NA
	FPGroundfish.L_s	0.82	0.82	0.91	0.87	0.94	0.94	1.00	0.99	0.00	0.00	0.00	0.00	0.00	0.00	NA	0.00
	Landings.L_s	0.80	0.81	0.98	0.96	1.00	1.00	0.94	0.90	0.00	0.00	0.00	0.00	0.00	NA	0.00	0.00
	LClupeids.L_s	1.00	1.00	*0.69*	*0.65*	0.80	0.80	0.82	0.81	NA	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	LFinfish.L_s	0.80	0.81	0.98	0.97	1.00	1.00	0.94	0.90	0.00	0.00	0.00	0.00	NA	0.00	0.00	0.00
	LForageFish.L_s	1.00	1.00	*0.70*	*0.66*	0.81	0.81	0.82	0.82	0.00	NA	0.00	0.00	0.00	0.00	0.00	0.00
	LGadoids.L_s	*0.65*	*0.66*	0.99	1.00	0.97	0.96	0.87	0.81	0.00	0.00	0.00	NA	0.00	0.00	0.00	0.00
	LGroundfish.L_s	*0.69*	*0.70*	1.00	0.99	0.98	0.98	0.91	0.85	0.00	0.00	NA	0.00	0.00	0.00	0.00	0.00
4VS																	
	FPGadoids.L_s	*0.25*	*0.33*	0.72	*0.68*	0.74	0.70	0.82	1.00	0.09	0.03	0.00	0.00	0.00	0.00	0.00	NA
	FPGroundfish.L_s	*0.15*	*0.20*	0.91	0.91	0.88	0.84	1.00	0.82	0.30	0.19	0.00	0.00	0.00	0.00	NA	0.00
	Landings.L_s	*0.38*	*0.43*	0.94	0.92	0.97	1.00	0.84	0.70	0.01	0.00	0.00	0.00	0.00	NA	0.00	0.00
	LClupeids.L_s	1.00	0.99	*0.19*	*0.18*	*0.37*	*0.38*	*0.15*	*0.25*	NA	0.00	0.19	0.24	0.01	0.01	0.30	0.09
	LFinfish.L_s	*0.37*	*0.42*	0.97	0.95	1.00	0.97	0.88	0.74	0.01	0.00	0.00	0.00	NA	0.00	0.00	0.00
	LForageFish.L_s	0.99	1.00	*0.24*	*0.22*	*0.42*	*0.43*	*0.20*	*0.33*	0.00	NA	0.11	0.15	0.00	0.00	0.19	0.03
	LGadoids.L_s	*0.18*	*0.22*	0.99	1.00	0.95	0.92	0.91	*0.68*	0.24	0.15	0.00	NA	0.00	0.00	0.00	0.00
	LGroundfish.L_s	*0.19*	*0.24*	1.00	0.99	0.97	0.94	0.91	0.72	0.19	0.11	NA	0.00	0.00	0.00	0.00	0.00
4VN																	
	FPGadoids.L_s	*0.69*	*0.69*	0.71	*0.69*	0.72	0.71	0.80	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NA
	FPGroundfish.L_s	0.75	0.75	0.89	0.88	0.89	0.88	1.00	0.80	0.00	0.00	0.00	0.00	0.00	0.00	NA	0.00
	Landings.L_s	0.78	0.78	0.95	0.94	1.00	1.00	0.88	0.71	0.00	0.00	0.00	0.00	0.00	NA	0.00	0.00
	LClupeids.L_s	1.00	1.00	*0.68*	*0.66*	0.79	0.78	0.75	*0.69*	NA	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	LFinfish.L_s	0.79	0.80	0.95	0.95	1.00	1.00	0.89	0.72	0.00	0.00	0.00	0.00	NA	0.00	0.00	0.00
	LForageFish.L_s	1.00	1.00	*0.68*	*0.66*	0.80	0.78	0.75	*0.69*	0.00	NA	0.00	0.00	0.00	0.00	0.00	0.00
	LGadoids.L_s	*0.66*	*0.66*	1.00	1.00	0.95	0.94	0.88	*0.69*	0.00	0.00	0.00	NA	0.00	0.00	0.00	0.00
	LGroundfish.L_s	*0.68*	*0.68*	1.00	1.00	0.95	0.95	0.89	0.71	0.00	0.00	NA	0.00	0.00	0.00	0.00	0.00

Table S9. Spearman rank correlations for indicators grouped in Cluster 2 at the large scale (Shelf, WSS, ESS and NAFO divisions).

		r values			p values	
SHELF		FishingPressure.L_s	FPFinfish.L_s		FishingPressure.L_s	FPFinfish.L_s
	FishingPressure.L_s	1.00	0.99		NA	0.00
	FPFinfish.L_s	0.99	1.00		0.00	NA
WSS						
	FishingPressure.L_s	1.00	0.87		NA	0.00
	FPFinfish.L_s	0.87	1.00		0.00	NA
4X						
	FishingPressure.L_s	1.00	0.87		NA	0.00
	FPFinfish.L_s	0.87	1.00		0.00	NA
ESS						
	FishingPressure.L_s	1.00	1.00		NA	0.00
	FPFinfish.L_s	1.00	1.00		0.00	NA
4W						
	FishingPressure.L_s	1.00	1.00		NA	0.00
	FPFinfish.L_s	1.00	1.00		0.00	NA
4VS		NA				
4VN						
	FishingPressure.L_s	1.00	0.99		NA	0.00
	FPFinfish.L_s	0.99	1.00		0.00	NA

Table S 10. Spearman rank correlations for indicators grouped in Cluster 3 at the large scale (Shelf, WSS, ESS and NAFO divisions).

		r values			p values	
SHELF	X	FishinginBalance.L_s	MeanTrophicLevel.L_s		FishinginBalance.L_s	MeanTrophicLevel.L_s
	FishinginBalance.L_s	1.00	0.98		NA	0.00
	MeanTrophicLevel.L_s	0.98	1.00		0.00	NA
WSS						
	FishinginBalance.L_s	1.00	0.97		NA	0.00
	MeanTrophicLevel.L_s	0.97	1.00		0.00	NA
4X						
	FishinginBalance.L_s	1.00	0.97		NA	0.00
	MeanTrophicLevel.L_s	0.97	1.00		0.00	NA
ESS						
	FishinginBalance.L_s	1.00	0.96		NA	0.00
	MeanTrophicLevel.L_s	0.96	1.00		0.00	NA
4W						
	FishinginBalance.L_s	1.00	0.90		NA	0.00
	MeanTrophicLevel.L_s	0.90	1.00		0.00	NA
4VS						
	FishinginBalance.L_s	1.00	0.97		NA	0.00
	MeanTrophicLevel.L_s	0.97	1.00		0.00	NA
4VN						
	FishinginBalance.L_s	1.00	0.99		NA	0.00
	MeanTrophicLevel.L_s	0.99	1.00		0.00	NA

Table S11. Spearman rank correlations for indicators grouped in Cluster 4 at the large scale (Shelf, WSS, ESS and NAFO divisions). Correlations < 0.7 are highlighted in italics.

		r values			p values	
SHELF	X	CCPlanktivore_s	CommunityCondition_s		CCPlanktivore_s	CommunityCondition_s
	CCPlanktivore_s	1.00	0.95		NA	0.00
	CommunityCondition_s	0.95	1.00		0.00	NA
WSS						
	CCPlanktivore_s	1.00	0.72		NA	0.00
	CommunityCondition_s	0.72	1.00		0.00	NA
4X						
	CCPlanktivore_s	1.00	0.75		NA	0.00
	CommunityCondition_s	0.75	1.00		0.00	NA
ESS						
	CCPlanktivore_s	1.00	0.91		NA	0.00
	CommunityCondition_s	0.91	1.00		0.00	NA
4W						
	CCPlanktivore_s	1.00	0.83		NA	0.00
	CommunityCondition_s	0.83	1.00		0.00	NA
4VS		NA				
4VN		NA				

Table S12. Spearman rank correlations for indicators grouped in Cluster 5 at the large scale (Shelf, WSS, ESS and NAFO divisions). Correlations < 0.7 are highlighted in grey.

		r values						p values					
SHELF	×	LargeFishIndicator_s	MeanLengthBiomass_s	MMLengthBiomass_s	MMLengthAbundance_s	PropPredatoryFish_s	LargeSpeciesIndicator_s	LargeFishIndicator_s	MeanLengthBiomass_s	MMLengthBiomass_s	MMLengthAbundance_s	PropPredatoryFish_s	LargeSpeciesIndicator_s
	LargeFishIndicator_s	1.00	0.90	0.85	*0.65*	0.75	0.74	NA	0.00	0.00	0.00	0.00	0.00
	LargeSpeciesIndicator_	0.74	0.78	0.90	*0.49*	0.83	1.00	0.00	0.00	0.00	0.00	0.00	NA
	MeanLengthBiomass_s	0.90	1.00	0.86	*0.67*	0.79	0.78	0.00	NA	0.00	0.00	0.00	0.00
	MMLengthAbundance_s	*0.65*	*0.67*	0.75	1.00	0.71	*0.49*	0.00	0.00	0.00	NA	0.00	0.00
	MMLengthBiomass_s	0.85	0.86	1.00	0.75	0.93	0.90	0.00	0.00	NA	0.00	0.00	0.00
	PropPredatoryFish_s	0.75	0.79	0.93	0.71	1.00	0.83	0.00	0.00	0.00	0.00	NA	0.00
WSS													
	LargeFishIndicator_s	1.00	0.84	0.79	*0.47*	*0.70*	0.74	NA	0.00	0.00	0.00	0.00	0.00
	LargeSpeciesIndicator_	0.74	0.85	0.96	*0.57*	0.83	1.00	0.00	0.00	0.00	0.00	0.00	NA
	MeanLengthBiomass_s	0.84	1.00	0.80	*0.29*	0.70	0.85	0.00	NA	0.00	0.05	0.00	0.00
	MMLengthAbundance_s	*0.47*	*0.29*	0.73	1.00	0.71	*0.57*	0.00	0.05	0.00	NA	0.00	0.00
	MMLengthBiomass_s	0.79	0.80	1.00	0.73	0.88	0.96	0.00	0.00	NA	0.00	0.00	0.00
	PropPredatoryFish_s	*0.70*	0.70	0.88	0.71	1.00	0.83	0.00	0.00	0.00	0.00	NA	0.00
4X													
	LargeFishIndicator_s	1.00	0.84	0.79	*0.47*	*0.70*	0.74	NA	0.00	0.00	0.00	0.00	0.00
	LargeSpeciesIndicator_	0.74	0.85	0.96	*0.57*	0.83	1.00	0.00	0.00	0.00	0.00	0.00	NA
	MeanLengthBiomass_s	0.84	1.00	0.80	*0.29*	0.70	0.85	0.00	NA	0.00	0.05	0.00	0.00
	MMLengthAbundance_s	*0.47*	*0.29*	0.73	1.00	0.71	*0.57*	0.00	0.05	0.00	NA	0.00	0.00
	MMLengthBiomass_s	0.79	0.80	1.00	0.73	0.88	0.96	0.00	0.00	NA	0.00	0.00	0.00
	PropPredatoryFish_s	*0.70*	0.70	0.88	0.71	1.00	0.83	0.00	0.00	0.00	0.00	NA	0.00
ESS													
	LargeFishIndicator_s	1.00	0.96	0.91	0.83	0.86	0.87	NA	0.00	0.00	0.00	0.00	0.00
	LargeSpeciesIndicator_	0.87	0.87	0.95	0.87	0.89	1.00	0.00	0.00	0.00	0.00	0.00	NA
	MeanLengthBiomass_s	0.96	1.00	0.93	0.88	0.88	0.87	0.00	NA	0.00	0.00	0.00	0.00
	MMLengthAbundance_s	0.83	0.88	0.93	1.00	0.87	0.87	0.00	0.00	0.00	NA	0.00	0.00
	MMLengthBiomass_s	0.91	0.93	1.00	0.93	0.97	0.95	0.00	0.00	NA	0.00	0.00	0.00
	PropPredatoryFish_s	0.86	0.88	0.97	0.87	1.00	0.89	0.00	0.00	0.00	0.00	NA	0.00
4W													
	LargeFishIndicator_s	1.00	0.94	0.84	0.73	0.80	0.74	NA	0.00	0.00	0.00	0.00	0.00
	LargeSpeciesIndicator_	0.74	0.78	0.94	0.80	0.87	1.00	0.00	0.00	0.00	0.00	0.00	NA
	MeanLengthBiomass_s	0.94	1.00	0.90	0.82	0.86	0.78	0.00	NA	0.00	0.00	0.00	0.00
	MMLengthAbundance_s	0.73	0.82	0.92	1.00	0.87	0.80	0.00	0.00	0.00	NA	0.00	0.00
	MMLengthBiomass_s	0.84	0.90	1.00	0.92	0.96	0.94	0.00	0.00	NA	0.00	0.00	0.00
	PropPredatoryFish_s	0.80	0.86	0.96	0.87	1.00	0.87	0.00	0.00	0.00	0.00	NA	0.00
4VS													
	LargeFishIndicator_s	1.00	0.98	0.97	0.91	0.93	0.89	NA	0.00	0.00	0.00	0.00	0.00
	LargeSpeciesIndicator_	0.89	0.84	0.91	0.82	0.78	1.00	0.00	0.00	0.00	0.00	0.00	NA
	MeanLengthBiomass_s	0.98	1.00	0.95	0.90	0.90	0.84	0.00	NA	0.00	0.00	0.00	0.00
	MMLengthAbundance_s	0.91	0.90	0.92	1.00	0.86	0.82	0.00	0.00	0.00	NA	0.00	0.00
	MMLengthBiomass_s	0.97	0.95	1.00	0.92	0.93	0.91	0.00	0.00	NA	0.00	0.00	0.00
	PropPredatoryFish_s	0.93	0.90	0.93	0.86	1.00	0.78	0.00	0.00	0.00	0.00	NA	0.00
4VN													
	LargeFishIndicator_s	1.00	0.90	0.81	0.79	0.79	0.75	NA	0.00	0.00	0.00	0.00	0.00
	LargeSpeciesIndicator_	0.75	0.85	0.95	0.75	0.85	1.00	0.00	0.00	0.00	0.00	0.00	NA
	MeanLengthBiomass_s	0.90	1.00	0.90	0.89	0.85	0.85	0.00	NA	0.00	0.00	0.00	0.00
	MMLengthAbundance_s	0.79	0.89	0.86	1.00	0.83	0.75	0.00	0.00	0.00	NA	0.00	0.00
	MMLengthBiomass_s	0.81	0.90	1.00	0.86	0.95	0.95	0.00	0.00	NA	0.00	0.00	0.00
	PropPredatoryFish_s	0.79	0.85	0.95	0.83	1.00	0.85	0.00	0.00	0.00	0.00	NA	0.00

Table S13. Spearman rank correlations for indicators grouped in Cluster 6 at the large scale (Shelf, WSS, ESS and NAFO divisions). Correlations < 0.7 are highlighted in grey.

		r values					p values			
SHELF		BiomassGroundfish_s	BiomassGadoids_s	BiomassTL4_s	*BTGPiscivore_s*		BiomassGroundfish_s	BiomassGadoids_s	BiomassTL4_s	*BTGPiscivore_s*
	BiomassGadoids_s	0.89	1.00	0.83	*0.51*		0.00	NA	0.00	0.00
	BiomassGroundfish_s	1.00	0.89	0.88	0.73		NA	0.00	0.00	0.00
	BiomassTL4_s	0.88	0.83	1.00	0.71		0.00	0.00	NA	0.00
	BTGPiscivore_s	0.73	*0.51*	0.71	1.00		0.00	0.00	0.00	NA
WSS										
	BiomassGadoids_s	*0.70*	1.00	*0.60*	*0.02*		0.00	NA	0.00	0.91
	BiomassGroundfish_s	1.00	*0.70*	0.95	*0.63*		NA	0.00	0.00	0.00
	BiomassTL4_s	0.95	*0.60*	1.00	*0.68*		0.00	0.00	NA	0.00
	BTGPiscivore_s	*0.63*	*0.02*	*0.68*	1.00		0.00	0.91	0.00	NA
4X										
	BiomassGadoids_s	*0.70*	1.00	*0.60*	*0.02*		0.00	NA	0.00	0.91
	BiomassGroundfish_s	1.00	*0.70*	0.95	*0.63*		NA	0.00	0.00	0.00
	BiomassTL4_s	0.95	*0.60*	1.00	*0.68*		0.00	0.00	NA	0.00
	BTGPiscivore_s	*0.63*	*0.02*	*0.68*	1.00		0.00	0.91	0.00	NA
ESS										
	BiomassGadoids_s	0.87	1.00	0.95	0.79		0.00	NA	0.00	0.00
	BiomassGroundfish_s	1.00	0.87	0.86	0.91		NA	0.00	0.00	0.00
	BiomassTL4_s	0.86	0.95	1.00	0.86		0.00	0.00	NA	0.00
	BTGPiscivore_s	0.91	0.79	0.86	1.00		0.00	0.00	0.00	NA
4W										
	BiomassGadoids_s	0.91	1.00	0.88	*0.60*		0.00	NA	0.00	0.00
	BiomassGroundfish_s	1.00	0.91	0.88	0.77		NA	0.00	0.00	0.00
	BiomassTL4_s	0.88	0.88	1.00	0.72		0.00	0.00	NA	0.00
	BTGPiscivore_s	0.77	*0.60*	0.72	1.00		0.00	0.00	0.00	NA
4VS										
	BiomassGadoids_s	0.73	1.00	0.99	0.95		0.00	NA	0.00	0.00
	BiomassGroundfish_s	1.00	0.73	0.72	0.82		NA	0.00	0.00	0.00
	BiomassTL4_s	0.72	0.99	1.00	0.95		0.00	0.00	NA	0.00
	BTGPiscivore_s	0.82	0.95	0.95	1.00		0.00	0.00	0.00	NA
4VN										
	BiomassGadoids_s	0.94	1.00	1.00	1.00		0.00	NA	0.00	0.00
	BiomassGroundfish_s	1.00	0.94	0.93	0.94		NA	0.00	0.00	0.00
	BiomassTL4_s	0.93	1.00	1.00	1.00		0.00	0.00	NA	0.00
	BTGPiscivore_s	0.94	1.00	1.00	1.00		0.00	0.00	0.00	NA

Table S14. Spearman rank correlations for indicators grouped in Cluster 7 at the large scale (Shelf, WSS, ESS and NAFO divisions). Correlations < 0.7 are highlighted in italics.

		r values		p values	
SHELF		FPSkates.L_s	LSkates.L_s	FPSkates.L_s	LSkates.L_s
	FPSkates.L_s	1.00	0.88	NA	0.00
	LSkates.L_s	0.88	1.00	0.00	NA
WSS					
	FPSkates.L_s	1.00	0.92	NA	0.00
	LSkates.L_s	0.92	1.00	0.00	NA
4X					
	FPSkates.L_s	1.00	0.92	NA	0.00
	LSkates.L_s	0.92	1.00	0.00	NA
ESS					
	FPSkates.L_s	1.00	0.84	NA	0.00
	LSkates.L_s	0.84	1.00	0.00	NA
4W					
	FPSkates.L_s	1.00	0.94	NA	0.00
	LSkates.L_s	0.94	1.00	0.00	NA
4VS					
	FPSkates.L_s	1.00	0.75	NA	0.00
	LSkates.L_s	0.75	1.00	0.00	NA
4VN					
	FPSkates.L_s	1.00	0.87	NA	0.00
	LSkates.L_s	0.87	1.00	0.00	NA

Table S15. Spearman rank correlations for indicators grouped in Cluster 8 at the large scale (Shelf, WSS, ESS and NAFO divisions). Correlations < 0.7 are highlighted in grey.

		r values					p values				
SHELF		PielouEvenness_s	Heips_s	HillN1Diversity_s	HillN2Dominance_s	ShannonDiversity_s	PielouEvenness_s	Heips_s	HillN1Diversity_s	HillN2Dominance_s	ShannonDiversity_s
	Heips_s	0.85	1.00	*0.40*	*0.39*	*0.45*	0.00	NA	0.01	0.01	0.00
	HillN1Diversity_s	0.80	*0.40*	1.00	0.96	0.99	0.00	0.01	NA	0.00	0.00
	HillN2Dominance_s	0.77	*0.39*	0.96	1.00	0.94	0.00	0.01	0.00	NA	0.00
	PielouEvenness_s	1.00	0.85	0.80	0.77	0.85	NA	0.00	0.00	0.00	0.00
	ShannonDiversity_s	0.85	*0.45*	0.99	0.94	1.00	0.00	0.00	0.00	0.00	NA
WSS											
	Heips_s	0.86	1.00	*0.67*	*0.57*	0.73	0.00	NA	0.00	0.00	0.00
	HillN1Diversity_s	0.93	*0.67*	1.00	0.97	0.98	0.00	0.00	NA	0.00	0.00
	HillN2Dominance_s	0.87	*0.57*	0.97	1.00	0.94	0.00	0.00	0.00	NA	0.00
	PielouEvenness_s	1.00	0.86	0.93	0.87	0.97	NA	0.00	0.00	0.00	0.00
	ShannonDiversity_s	0.97	0.73	0.98	0.94	1.00	0.00	0.00	0.00	0.00	NA
4X											
	Heips_s	0.86	1.00	*0.67*	*0.57*	0.73	0.00	NA	0.00	0.00	0.00
	HillN1Diversity_s	0.93	*0.67*	1.00	0.97	0.98	0.00	0.00	NA	0.00	0.00
	HillN2Dominance_s	0.87	*0.57*	0.97	1.00	0.94	0.00	0.00	0.00	NA	0.00
	PielouEvenness_s	1.00	0.86	0.93	0.87	0.97	NA	0.00	0.00	0.00	0.00
	ShannonDiversity_s	0.97	0.73	0.98	0.94	1.00	0.00	0.00	0.00	0.00	NA
ESS											
	Heips_s	0.95	1.00	0.89	0.90	0.83	0.00	NA	0.00	0.00	0.00
	HillN1Diversity_s	0.94	0.89	1.00	0.97	0.96	0.00	0.00	NA	0.00	0.00
	HillN2Dominance_s	0.91	0.90	0.97	1.00	0.90	0.00	0.00	0.00	NA	0.00
	PielouEvenness_s	1.00	0.95	0.94	0.91	0.96	NA	0.00	0.00	0.00	0.00
	ShannonDiversity_s	0.96	0.83	0.96	0.90	1.00	0.00	0.00	0.00	0.00	NA
4W											
	Heips_s	0.93	1.00	0.82	0.87	0.77	0.00	NA	0.00	0.00	0.00
	HillN1Diversity_s	0.93	0.82	1.00	0.96	0.97	0.00	0.00	NA	0.00	0.00
	HillN2Dominance_s	0.92	0.87	0.96	1.00	0.91	0.00	0.00	0.00	NA	0.00
	PielouEvenness_s	1.00	0.93	0.93	0.92	0.93	NA	0.00	0.00	0.00	0.00
	ShannonDiversity_s	0.93	0.77	0.97	0.91	1.00	0.00	0.00	0.00	0.00	NA
4VS											
	Heips_s	0.97	1.00	0.94	0.94	0.91	0.00	NA	0.00	0.00	0.00
	HillN1Diversity_s	0.96	0.94	1.00	0.99	0.97	0.00	0.00	NA	0.00	0.00
	HillN2Dominance_s	0.95	0.94	0.99	1.00	0.94	0.00	0.00	0.00	NA	0.00
	PielouEvenness_s	1.00	0.97	0.96	0.95	0.98	NA	0.00	0.00	0.00	0.00
	ShannonDiversity_s	0.98	0.91	0.97	0.94	1.00	0.00	0.00	0.00	0.00	NA
4VN											
	Heips_s	0.88	1.00	*0.53*	*0.64*	*0.61*	0.00	NA	0.00	0.00	0.00
	HillN1Diversity_s	0.78	*0.53*	1.00	0.97	0.95	0.00	0.00	NA	0.00	0.00
	HillN2Dominance_s	0.82	*0.64*	0.97	1.00	0.92	0.00	0.00	0.00	NA	0.00
	PielouEvenness_s	1.00	0.88	0.78	0.82	0.90	NA	0.00	0.00	0.00	0.00
	ShannonDiversity_s	0.90	*0.61*	0.95	0.92	1.00	0.00	0.00	0.00	0.00	NA

Table S16. Spearman rank correlations for indicators grouped in Cluster 9 at the large scale (Shelf, WSS, ESS and NAFO divisions). Correlations < 0.7 are highlighted in italics.

		r values							p values						
SHELF		Biomass_s	BiomassClupeids_s	BiomassFinfish_s	BiomassForage_s	BiomassTL3_s	BPelagicToDemersal_s	BTGPlanktivore_s	Biomass_s	BiomassClupeids_s	BiomassFinfish_s	BiomassForage_s	BiomassTL3_s	BPelagicToDemersal_s	BTGPlanktivore_s
	Biomass_s	1.00	0.89	1.00	0.94	0.98	0.81	0.95	NA	0.00	0.00	0.00	0.00	0.00	0.00
	BiomassClupeids_s	0.89	1.00	0.89	0.92	0.89	0.82	0.92	0.00	NA	0.00	0.00	0.00	0.00	0.00
	BiomassFinfish_s	1.00	0.89	1.00	0.95	0.98	0.82	0.96	0.00	0.00	NA	0.00	0.00	0.00	0.00
	BiomassForage_s	0.94	0.92	0.95	1.00	0.96	0.92	0.99	0.00	0.00	0.00	NA	0.00	0.00	0.00
	BiomassTL3_s	0.98	0.89	0.98	0.96	1.00	0.89	0.97	0.00	0.00	0.00	0.00	NA	0.00	0.00
	BPelagicToDemersal_s	0.81	0.82	0.82	0.92	0.89	1.00	0.92	0.00	0.00	0.00	0.00	0.00	NA	0.00
	BTGPlanktivore_s	0.95	0.92	0.96	0.99	0.97	0.92	1.00	0	0	0	0	0	0	NA
WSS															
	Biomass_s	1.00	0.72	0.98	0.85	0.94	*0.53*	0.84	NA	0.00	0.00	0.00	0.00	0.00	0.00
	BiomassClupeids_s	0.72	1.00	0.72	0.84	0.76	*0.68*	0.84	0.00	NA	0.00	0.00	0.00	0.00	0.00
	BiomassFinfish_s	0.98	0.72	1.00	0.87	0.95	*0.52*	0.86	0.00	0.00	NA	0.00	0.00	0.00	0.00
	BiomassForage_s	0.85	0.84	0.87	1.00	0.90	0.79	1.00	0.00	0.00	0.00	NA	0.00	0.00	0.00
	BiomassTL3_s	0.94	0.76	0.95	0.90	1.00	*0.69*	0.90	0.00	0.00	0.00	0.00	NA	0.00	0.00
	BPelagicToDemersal_s	*0.53*	*0.68*	*0.52*	0.79	*0.69*	1.00	0.79	0.00	0.00	0.00	0.00	0.00	NA	0.00
	BTGPlanktivore_s	0.84	0.84	0.86	1.00	0.90	0.79	1.00	0.00	0.00	0.00	0.00	0.00	0.00	NA
4X															
	Biomass_s	1.00	0.72	0.98	0.85	0.94	*0.53*	0.84	NA	0	0.00	0.00	0.00	0.00	0
	BiomassClupeids_s	0.72	1.00	0.72	0.84	0.76	*0.68*	0.84	0.00	NA	0.00	0.00	0.00	0.00	0
	BiomassFinfish_s	0.98	0.72	1.00	0.87	0.95	*0.52*	0.86	0.00	0	NA	0.00	0.00	0.00	0
	BiomassForage_s	0.85	0.84	0.87	1.00	0.90	0.79	1.00	0.00	0	0.00	NA	0.00	0.00	0
	BiomassTL3_s	0.94	0.76	0.95	0.90	1.00	*0.69*	0.90	0.00	0	0.00	0.00	NA	0.00	0
	BPelagicToDemersal_s	*0.53*	*0.68*	*0.52*	0.79	*0.69*	1.00	0.79	0.00	0	0.00	0.00	0.00	NA	0
	BTGPlanktivore_s	0.84	0.84	0.86	1.00	0.90	0.79	1.00	0.00	0	0.00	0.00	0.00	0.00	NA
ESS															
	Biomass_s	1.00	0.95	1.00	0.98	0.99	0.94	0.99	NA	0.00	0.00	0.00	0.00	0.00	0.00
	BiomassClupeids_s	0.95	1.00	0.95	0.97	0.96	0.93	0.96	0.00	NA	0.00	0.00	0.00	0.00	0.00
	BiomassFinfish_s	1.00	0.95	1.00	0.97	0.99	0.94	0.99	0.00	0.00	NA	0.00	0.00	0.00	0.00
	BiomassForage_s	0.98	0.97	0.97	1.00	0.98	0.98	0.99	0.00	0.00	0.00	NA	0.00	0.00	0.00
	BiomassTL3_s	0.99	0.96	0.99	0.98	1.00	0.96	0.99	0.00	0.00	0.00	0.00	NA	0.00	0.00
	BPelagicToDemersal_s	0.94	0.93	0.94	0.98	0.96	1.00	0.97	0.00	0.00	0.00	0.00	0.00	NA	0.00
	BTGPlanktivore_s	0.99	0.96	0.99	0.99	0.99	0.97	1.00	0	0	0	0	0	0	NA
4W															
	Biomass_s	1.00	0.94	1.00	0.97	1.00	0.95	0.99	NA	0.00	0.00	0.00	0.00	0.00	0.00
	BiomassClupeids_s	0.94	1.00	0.94	0.97	0.94	0.92	0.96	0.00	NA	0.00	0.00	0.00	0.00	0.00
	BiomassFinfish_s	1.00	0.94	1.00	0.97	1.00	0.95	0.99	0.00	0.00	NA	0.00	0.00	0.00	0.00
	BiomassForage_s	0.97	0.97	0.97	1.00	0.98	0.98	0.99	0.00	0.00	0.00	NA	0.00	0.00	0.00
	BiomassTL3_s	1.00	0.94	1.00	0.98	1.00	0.96	0.99	0.00	0.00	0.00	0.00	NA	0.00	0.00
	BPelagicToDemersal_s	0.95	0.92	0.95	0.98	0.96	1.00	0.98	0.00	0.00	0.00	0.00	0.00	NA	0.00
	BTGPlanktivore_s	0.99	0.96	0.99	0.99	0.99	0.98	1.00	0.00	0.00	0.00	0.00	0.00	0.00	NA
4VS	NA														
4VN															
	Biomass_s	1.00	0.98	1.00	0.99	1.00	0.87	0.99	NA	0.00	0.00	0.00	0.00	0.00	0.00
	BiomassClupeids_s	0.98	1.00	0.98	0.99	0.99	0.88	0.99	0.00	NA	0.00	0.00	0.00	0.00	0.00
	BiomassFinfish_s	1.00	0.98	1.00	0.99	1.00	0.87	0.99	0.00	0.00	NA	0.00	0.00	0.00	0.00
	BiomassForage_s	0.99	0.99	0.99	1.00	1.00	0.90	1.00	0.00	0.00	0.00	NA	0.00	0.00	0.00
	BiomassTL3_s	1.00	0.99	1.00	1.00	1.00	0.88	1.00	0.00	0.00	0.00	0.00	NA	0.00	0.00
	BPelagicToDemersal_s	0.87	0.88	0.87	0.90	0.88	1.00	0.90	0.00	0.00	0.00	0.00	0.00	NA	0.00
	BTGPlanktivore_s	0.99	0.99	0.99	1.00	1.00	0.90	1.00	0.00	0.00	0.00	0.00	0.00	0.00	NA

Table S17. Spearman rank correlations for indicators grouped in Cluster 10 at the large scale (Shelf, WSS, ESS and NAFO divisions).

		r values			p values	
SHELF		FPFlatfish.L_s	LFlatfish.L_s		FPFlatfish.L_s	LFlatfish.L_s
	FPFlatfish.L_s	1.00	0.94		NA	0.00
	LFlatfish.L_s	0.94	1.00		0.00	NA
WSS						
	FPFlatfish.L_s	1.00	0.77		NA	0.00
	LFlatfish.L_s	0.77	1.00		0.00	NA
4X						
	FPFlatfish.L_s	1.00	0.77		NA	0.00
	LFlatfish.L_s	0.77	1.00		0.00	NA
ESS						
	FPFlatfish.L_s	1.00	0.95		NA	0.00
	LFlatfish.L_s	0.95	1.00		0.00	NA
4W						
	FPFlatfish.L_s	1.00	0.97		NA	0.00
	LFlatfish.L_s	0.97	1.00		0.00	NA
4VS						
	FPFlatfish.L_s	1.00	0.83		NA	0.00
	LFlatfish.L_s	0.83	1.00		0.00	NA
4VN						
	FPFlatfish.L_s	1.00	0.77		NA	0.00
	LFlatfish.L_s	0.77	1.00		0.00	NA

Table S18. Spearman rank correlations for indicators grouped in Cluster 11 at the large scale (Shelf, WSS, ESS and NAFO divisions). Correlations < 0.7 are highlighted in grey.

		r values				p values			
SHELF		MargalefRichness_s	SpeciesRichness_s	MargalefGroundfish_s	KemptonQ_s	MargalefRichness_s	SpeciesRichness_s	MargalefGroundfish_s	KemptonQ_s
	KemptonQ_s	0.80	0.81	0.71	1.00	0.00	0.00	0.00	NA
	MargalefGroundfish_s	0.76	0.77	1.00	0.71	0.00	0.00	NA	0.00
	MargalefRichness_s	1.00	1.00	0.76	0.80	NA	0.00	0.00	0.00
	SpeciesRichness_s	1.00	1.00	0.77	0.81	0.00	NA	0.00	0.00
WSS									
	KemptonQ_s	0.71	0.71	*0.65*	1.00	0.00	0.00	0.00	NA
	MargalefGroundfish_s	0.79	0.78	1.00	*0.65*	0.00	0.00	NA	0.00
	MargalefRichness_s	1.00	1.00	0.79	0.71	NA	0.00	0.00	0.00
	SpeciesRichness_s	1.00	1.00	0.78	0.71	0.00	NA	0.00	0.00
4X									
	KemptonQ_s	0.71	0.71	*0.65*	1.00	0.00	0.00	0.00	NA
	MargalefGroundfish_s	0.79	0.78	1.00	*0.65*	0.00	0.00	NA	0.00
	MargalefRichness_s	1.00	1.00	0.79	0.71	NA	0.00	0.00	0.00
	SpeciesRichness_s	1.00	1.00	0.78	0.71	0.00	NA	0.00	0.00
ESS									
	KemptonQ_s	*0.64*	*0.65*	*0.54*	1.00	0.00	0.00	0.00	NA
	MargalefGroundfish_s	*0.58*	*0.59*	1.00	*0.54*	0.00	0.00	NA	0.00
	MargalefRichness_s	1.00	1.00	*0.58*	*0.64*	NA	0.00	0.00	0.00
	SpeciesRichness_s	1.00	1.00	*0.59*	*0.65*	0.00	NA	0.00	0.00
4W									
	KemptonQ_s	*0.64*	*0.66*	0.78	1.00	0.00	0.00	0.00	NA
	MargalefGroundfish_s	*0.62*	*0.63*	1.00	0.78	0.00	0.00	NA	0.00
	MargalefRichness_s	1.00	1.00	*0.62*	*0.64*	NA	0.00	0.00	0.00
	SpeciesRichness_s	1.00	1.00	*0.63*	*0.66*	0.00	NA	0.00	0.00
4VS									
	KemptonQ_s	*0.59*	*0.61*	*0.40*	1.00	0.00	0.00	0.01	NA
	MargalefGroundfish_s	*0.39*	*0.40*	1.00	*0.40*	0.01	0.01	NA	0.01
	MargalefRichness_s	1.00	1.00	*0.39*	*0.59*	NA	0.00	0.01	0.00
	SpeciesRichness_s	1.00	1.00	*0.40*	*0.61*	0.00	NA	0.01	0.00
4VN									
	KemptonQ_s	*0.70*	*0.69*	0.74	1.00	0.00	0.00	0.00	NA
	MargalefGroundfish_s	*0.61*	*0.62*	1.00	0.74	0.00	0.00	NA	0.00
	MargalefRichness_s	1.00	1.00	*0.61*	*0.70*	NA	0.00	0.00	0.00
	SpeciesRichness_s	1.00	1.00	*0.62*	*0.69*	0.00	NA	0.00	0.00

Table S19. Spearman rank correlations for indicators grouped in Cluster 12 at the large scale (Shelf, WSS, ESS and NAFO divisions). Correlations < 0.7 are highlighted in grey.

SHELF		DiversityTargetSpp.L_s	LInvertebrates.L_s	*Intrinsicvulnerabilityindex.L_s*		DiversityTargetSpp.L_s	LInvertebrates.L_s	*Intrinsicvulnerabilityindex.L_s*
	DiversityTargetSpp.L_s	1.00	0.90	0.83		NA	0.00	0.00
	Intrinsicvulnerabilityinde	0.83	0.86	1.00		0.00	0.00	NA
	LInvertebrates.L_s	0.90	1.00	0.86		0.00	NA	0.00
WSS								
	DiversityTargetSpp.L_s	1.00	0.82	0.74		NA	0.00	0.00
	Intrinsicvulnerabilityinde	0.74	0.79	1.00		0.00	0.00	NA
	LInvertebrates.L_s	0.82	1.00	0.79		0.00	NA	0.00
4X								
	DiversityTargetSpp.L_s	1.00	0.82	0.74		NA	0.00	0.00
	Intrinsicvulnerabilityinde	0.74	0.79	1.00		0.00	0.00	NA
	LInvertebrates.L_s	0.82	1.00	0.79		0.00	NA	0.00
ESS								
	DiversityTargetSpp.L_s	1.00	0.88	*0.58*		NA	0.00	0.00
	Intrinsicvulnerabilityinde	*0.58*	*0.58*	1.00		0.00	0.00	NA
	LInvertebrates.L_s	0.88	1.00	*0.58*		0.00	NA	0.00
4W								
	DiversityTargetSpp.L_s	1.00	0.84	*0.31*		NA	0.00	0.03
	Intrinsicvulnerabilityinde	*0.31*	*0.44*	1.00		0.03	0.00	NA
	LInvertebrates.L_s	0.84	1.00	*0.44*		0.00	NA	0.00
4VS								
	DiversityTargetSpp.L_s	1.00	0.74	*0.26*		NA	0.00	0.09
	Intrinsicvulnerabilityinde	*0.26*	*0.41*	1.00		0.09	0.00	NA
	LInvertebrates.L_s	0.74	1.00	*0.41*		0.00	NA	0.00
4VN								
	DiversityTargetSpp.L_s	1.00	*0.26*	*-0.02*		NA	0.08	0.89
	Intrinsicvulnerabilityinde	*-0.02*	*0.70*	1.00		0.89	0.00	NA
	LInvertebrates.L_s	*0.26*	1.00	*0.70*		0.08	NA	0.00

Table S20. Spearman rank correlations for indicators grouped in Cluster 13 at the large scale (Shelf, WSS, ESS and NAFO divisions). Correlations < 0.7 are highlighted in grey.

		r values			p values	
SHELF		BiomassFlatfish_s	BTGMediumBenthivore_s		BiomassFlatfish_s	BTGMediumBenthivore_s
	BiomassFlatfish_s	1.00	0.71		NA	0.00
	BTGMediumBenthivore_s	0.71	1.00		0.00	NA
WSS						
	BiomassFlatfish_s	1.00	*0.31*		NA	0.03
	BTGMediumBenthivore_s	*0.31*	1.00		0.03	NA
4X						
	BiomassFlatfish_s	1.00	*0.31*		NA	0.03
	BTGMediumBenthivore_s	*0.31*	1.00		0.03	NA
ESS						
	BiomassFlatfish_s	1.00	0.77		NA	0.00
	BTGMediumBenthivore_s	0.77	1.00		0.00	NA
4W						
	BiomassFlatfish_s	1.00	*0.44*		NA	0.00
	BTGMediumBenthivore_s	*0.44*	1.00		0.00	NA
4VS						
	BiomassFlatfish_s	1.00	0.97		NA	0.00
	BTGMediumBenthivore_s	0.97	1.00		0.00	NA
4VN						
	BiomassFlatfish_s	1.00	0.98		NA	0.00
	BTGMediumBenthivore_s	0.98	1.00		0.00	NA

Table S21. Spearman rank correlations for indicators grouped in Cluster 14 at the large scale (Shelf, WSS, ESS and NAFO divisions). Correlations < 0.7 are highlighted in grey.

		r values			p values	
SHELF	X	BiomassSkates_s	BTGLargeBenthivore_s		BiomassSkates_s	BTGLargeBenthivore_s
	BiomassSkates_s	1.00	*0.46*		NA	0.00
	BTGLargeBenthivore_s	*0.46*	1.00		0.00	NA
WSS						
	BiomassSkates_s	1.00	0.84		NA	0.00
	BTGLargeBenthivore_s	0.84	1.00		0.00	NA
4X						
	BiomassSkates_s	1.00	0.84		NA	0.00
	BTGLargeBenthivore_s	0.84	1.00		0.00	NA
ESS						
	BiomassSkates_s	1.00	*0.52*		NA	0.00
	BTGLargeBenthivore_s	*0.52*	1.00		0.00	NA
4W						
	BiomassSkates_s	1.00	0.77		NA	0.00
	BTGLargeBenthivore_s	0.77	1.00		0.00	NA
4VS						
	BiomassSkates_s	1.00	*0.45*		NA	0.00
	BTGLargeBenthivore_s	*0.45*	1.00		0.00	NA
4VN						
	BiomassSkates_s	1.00	*0.48*		NA	0.00
	BTGLargeBenthivore_s	*0.48*	1.00		0.00	NA

Table S22. Spearman rank correlations for indicators grouped in Cluster 15 at the large scale (Shelf, WSS, ESS and NAFO divisions). Correlations < 0.7 are highlighted in grey.

		r values			p values	
SHELF		FPClupeids.L_s	FPForageFish.L_s		FPClupeids.L_s	FPForageFish.L_s
	FPClupeids.L_s	1.00	0.93		NA	0.00
	FPForageFish.L_s	0.93	1.00		0.00	NA
WSS						
	FPClupeids.L_s	1.00	0.85		NA	0.00
	FPForageFish.L_s	0.85	1.00		0.00	NA
4X						
	FPClupeids.L_s	1.00	0.85		NA	0.00
	FPForageFish.L_s	0.85	1.00		0.00	NA
ESS						
	FPClupeids.L_s	1.00	*0.58*		NA	0.00
	FPForageFish.L_s	*0.58*	1.00		0.00	NA
4W						
	FPClupeids.L_s	1.00	*0.64*		NA	0.00
	FPForageFish.L_s	*0.64*	1.00		0.00	NA
4VS	NA					
4VN	FPClupeids.L_s	1.00	1.00		NA	0.00
	FPForageFish.L_s	1.00	1.00		0.00	NA

Table S23. Summary of the hierarchical Cluster analysis at the strata scale: N_{total} is the number of strata in which the indicators occurred, and $N_{Cluster}$ is the number of times a pair of indicators was found in the same Cluster with AU p-values ≥ 0.95. Clusters (C) were assembled based on the ratio of $N_{Cluster}/N_{total}$ (and based on the strength and significance of correlations, see Table S24). 32 indicators were grouped in Clusters; 8 were classified as singletons (S).

	Indicators	N_{total}	average $N_{cluster}/N_{total}$	Level of support	Notes
Ca	MargalefRichness_s	48	0.41	↑ (without Kempton Q)	Cluster a has Ncluster/Ntotal > 0.4 (suggesting strong support) but does not fulfill the 75%/40% criterion due to Kempton
	SpeciesRichness_s				
	KemptonQ_s				
	MargalefGroundfish_s				
Cb	BiomassTL4_s	48	0.53	↑ (without BTGPiscivore)	Cluster b has Ncluster/Ntotal > 0.4 (suggesting strong support) but does not fulfill the 75%/40% criterion due to BiomassGadoids_s*BTGPiscivore
	BiomassGadoids_s				
	BTGPiscivore_s				
	BiomassGroundfish_s				
Cc	BTGMediumBenthivore_s	46	0.43	↑	
	BiomassFlatfish_s				
Cd	HillN1Diversity_s	48	0.63	↑	
	HillN2Dominance_s				
	ShannonDiversity_s				
	Heips_s				
	PielouEvenness_s				
Ce	MMLengthBiomass_s	48	0.20	↔	
	PropPredatoryFish_s				
	MMLengthAbundance_s				
	LargeFishIndicator_s				
	LargeSpeciesIndicator_s				
	MeanLengthBiomass_s				
Cf	BiomassTL3_s	13	0.94	↑	
	BPelagicToDemersal_s				
	Biomass_s				
	BiomassClupeids_s				
	BiomassFinfish_s				
	BiomassForage_s				
	BTGPlanktivore_s				
Cg	*MeanLifespan_s*	38	0.24	Poor support	Cluster g has Ncluster/Ntotal = 0.24 suggesting moderate support however it does not fulfill the 75%/40% criterion d
	BTGZoopiscivore_s				
Ch	CommunityCondition_s	37	0.35	↔	
	CCZoopiscivore_s				
S	CCMediumBenthivore_s			*na*	
S	MeanTrophicLevel_s			*na*	
S	MeanLengthAbundance_s				
S	InverseCVBiomass_s			*na*	
S	BiomassSkates_s			*na*	
S	CCPiscivore_s			*na*	
S	BTGLargeBenthivore_s			*na*	
S	CCPlanktivore_s			*na*	

Table S24. Summary of Spearman rank correlations results for indicators within each Cluster identified at the strata scale. Prop p > 0.5 is the proportion of strata in which the significance (p) of pairwise correlations in a given Cluster (e.g. Ca) was ≥ 0.5 (i.e. not significant). Prop r ≥ 0.5 is the proportion of strata in which the strength (r) of pairwise correlations in a given Cluster was ≥ 0.5. Indicators with low support in a Cluster (highlighted in grey) are those for which < 75% (i.e. ≥25%) of the pairwise correlations of indicators within the Cluster were significant (p < 0.05); and those for which <50% of the pairwise correlations of indicators within the Cluster were r ≥ 0.5.

cluster			Prop p > 0.5	Prop r ≥ 0.5
Ca	KemptonQ_s	MargalefGroundfish_s	0.13	0.42
	MargalefRichness_s	MargalefGroundfish_s	0.19	0.48
	KemptonQ_s	MargalefRichness_s	0.25	0.27
	KemptonQ_s	SpeciesRichness_s	0.23	0.27
	MargalefGroundfish_s	SpeciesRichness_s	0.23	0.50
	MargalefRichness_s	SpeciesRichness_s	0.00	1.00
Cb	BiomassTL4_s	BiomassGadoids_s	0.13	0.77
	BiomassGadoids_s	BiomassGroundfish_s	0.04	0.83
	BiomassTL4_s	BiomassGroundfish_s	0.00	0.94
	BiomassGadoids_s	BTGPiscivore_s	0.25	0.58
	BiomassGroundfish_s	BTGPiscivore_s	0.04	0.90
	BiomassTL4_s	BTGPiscivore_s	0.04	0.90
Cc	BiomassFlatfish_s	BTGMediumBenthivore_s	0.20	0.57
Cd	Heips_s	HillN1Diversity_s	0.00	0.90
	Heips_s	HillN2Dominance_s	0.00	0.98
	HillN1Diversity_s	HillN2Dominance_s	0.00	1.00
	Heips_s	PielouEvenness_s	0.00	1.00
	HillN1Diversity_s	PielouEvenness_s	0.00	1.00
	HillN2Dominance_s	PielouEvenness_s	0.00	1.00
	Heips_s	ShannonDiversity_s	0.00	0.98
	HillN1Diversity_s	ShannonDiversity_s	0.00	1.00
	HillN2Dominance_s	ShannonDiversity_s	0.00	1.00
	PielouEvenness_s	ShannonDiversity_s	0.00	1.00
Ce	LargeFishIndicator_s	LargeSpeciesIndicator_s	0.02	0.88
	LargeFishIndicator_s	MeanLengthBiomass_s	0.00	1.00
	LargeSpeciesIndicator_s	MeanLengthBiomass_s	0.02	0.90
	LargeFishIndicator_s	MMLengthAbundance_s	0.04	0.81
	LargeSpeciesIndicator_s	MMLengthAbundance_s	0.08	0.73
	MeanLengthBiomass_s	MMLengthAbundance_s	0.02	0.81
	LargeFishIndicator_s	MMLengthBiomass_s	0.00	0.98
	LargeSpeciesIndicator_s	MMLengthBiomass_s	0.00	1.00
	MeanLengthBiomass_s	MMLengthBiomass_s	0.00	1.00
	MMLengthAbundance_s	MMLengthBiomass_s	0.02	0.96
	LargeFishIndicator_s	PropPredatoryFish_s	0.08	0.77
	LargeSpeciesIndicator_s	PropPredatoryFish_s	0.06	0.73
	MeanLengthBiomass_s	PropPredatoryFish_s	0.10	0.79
	MMLengthAbundance_s	PropPredatoryFish_s	0.08	0.85
	MMLengthBiomass_s	PropPredatoryFish_s	0.00	0.98
Cf	BiomassTL3_s	Biomass_s	0.00	1.00
	BPelagicToDemersal_s	Biomass_s	0.00	1.00
	Biomass_s	BiomassClupeids_s	0.08	0.92
	BiomassTL3_s	BiomassClupeids_s	0.08	0.92
	BPelagicToDemersal_s	BiomassClupeids_s	0.08	0.85
	Biomass_s	BiomassForage_s	0.00	1.00
	BiomassClupeids_s	BiomassForage_s	0.08	0.92
	BiomassTL3_s	BiomassForage_s	0.00	1.00
	BPelagicToDemersal_s	BiomassForage_s	0.00	1.00
	BiomassTL3_s	BPelagicToDemersal_s	0.00	1.00
	Biomass_s	BTGPlanktivore_s	0.00	1.00
	BiomassClupeids_s	BTGPlanktivore_s	0.08	0.92
	BiomassForage_s	BTGPlanktivore_s	0.00	1.00
	BiomassTL3_s	BTGPlanktivore_s	0.00	1.00
	BPelagicToDemersal_s	BTGPlanktivore_s	0.00	1.00
Cg	MeanLifespan_s	BTGZoopiscivore_s	0.26	0.42
Ch	CommunityCondition_s	CCZoopiscivore_s	0.11	0.65

Table S25. Summary of Spearman rank correlations results for indicators within each Cluster identified at the strata scale: Mean, median, standard deviation (SD), minimum and maximum correlations (r) and p-values.

	Mean		Median		Standard deviation		min		max	
Cluster	r	p	r	p	r	p	r	p	r	p
Ca	0.52	0.06	0.49	0.00	0.27	0.15	-0.15	0.00	1.00	0.92
Cb	0.75	0.04	0.87	0.00	0.27	0.16	-0.16	0.00	1.00	0.99
Cc	0.57	0.09	0.57	0.00	0.33	0.22	-0.11	0.00	0.99	0.89
Cd	0.87	0.00	0.91	0.00	0.11	0.00	0.37	0.00	0.99	0.01
Ce	0.72	0.01	0.77	0.00	0.19	0.08	-0.22	0.00	0.98	1.00
Cf	0.91	0.01	0.96	0.00	0.15	0.05	0.05	0.00	1.00	0.75
Cg	0.28	0.11	0.43	0.00	0.36	0.25	-0.50	0.00	0.64	0.88
Ch	0.57	0.02	0.61	0.00	0.21	0.05	0.18	0.00	0.89	0.23

Table S26. Spearman rank correlation coefficients (r) for indicators in strata 440. The upper triangle of the matrix represents p-values (p ≤ 0.05 highlighted in blue italics). The lower triangle of the matrix represents the r values (r ≥ 0.7 highlighted in red).

Indicator	BiomassTL4_s	CommunityCondition_s	CCMediumBenthivore_s	CCPiscivore_s	CCZoopiscivore_s	Heips_s	HillN1Diversity_s	HillN2Dominance_s	InverseCVBiomass_s	KemptonQ_s	LargeFishIndicator_s	LargeSpeciesIndicator_s	MargalefRichness_s	MargalefGroundfish_s	MeanLengthAbundance_s	MeanLengthBiomass_s	MeanLifespan_s	MMLengthAbundance_s	MMLengthBiomass_s	MeanTrophicLevel_s	PielouEvenness_s	PropPredatoryFish_s	BiomassFlatfish_s	BiomassGadoids_s	BiomassGroundfish_s	BTGMediumBenthivore_s	BTGPiscivore_s	BiomassSkates_s	BTGZoopiscivore_s	ShannonDiversity_s	SpeciesRichness_s
BiomassTL4_s	1.00	*0.05*	0.38	0.69	0.18	*0.00*	*0.00*	0.64	0.25	0.16	*0.04*	0.30	0.87	0.79	*0.01*	0.75	0.94	0.87	0.92	0.79	0.26	*0.00*	0.18	0.21	0.95	0.16	0.82	0.39	0.43	*0.00*	0.74
CommunityCondition_s	0.29	1.00	*0.02*	0.52	0.48	0.13	*0.00*	*0.00*	0.13	0.88	0.70	*0.01*	0.42	0.33	0.08	*0.01*	0.23	0.29	*0.00*	0.15	0.06	*0.00*	0.08	*0.00*	0.68	0.12	0.14	*0.01*	*0.00*	0.78	0.80
CCMediumBenthivore_s	0.13	0.36	1.00	0.19	0.11	0.68	*0.00*	*0.00*	*0.02*	0.44	0.05	*0.00*	0.12	0.29	0.59	*0.02*	*0.02*	0.97	*0.00*	*0.01*	0.36	0.06	0.05	*0.01*	*0.00*	0.87	0.74	*0.01*	*0.00*	0.57	*0.00*
CCPiscivore_s	0.35	0.22	0.38	1.00	*0.04*	0.15	*0.00*	0.59	0.15	0.62	*0.00*	*0.03*	0.89	0.91	*0.03*	0.74	0.61	0.23	0.71	*0.01*	*0.00*	0.97	0.15	0.65	*0.00*	0.77	0.09	0.43	0.37	0.15	0.59
CCZoopiscivore_s	0.06	0.35	-0.05	-0.35	1.00	*0.01*	0.43	*0.00*	*0.02*	*0.02*	0.30	*0.01*	0.20	0.33	*0.04*	*0.02*	0.36	*0.00*	0.58	0.23	0.68	0.19	0.29	*0.02*	0.08	0.06	*0.02*	*0.01*	*0.00*	*0.00*	*0.00*
Heips_s	-0.10	-0.36	0.11	-0.12	0.14	1.00	*0.00*	0.31	*0.01*	0.80	0.60	0.75	0.62	0.52	*0.03*	0.99	0.73	*0.00*	0.49	0.08	0.23	0.06	*0.00*	*0.01*	*0.00*	0.10	0.82	*0.04*	0.49	0.75	0.27
HillN1Diversity_s	-0.20	-0.55	-0.10	-0.26	-0.05	0.70	1.00	0.84	*0.00*	0.24	*0.04*	0.46	0.58	0.85	0.13	0.15	0.67	0.97	0.60	0.26	*0.01*	0.94	0.60	*0.00*	0.27	0.48	*0.00*	*0.00*	0.46	0.44	0.77
HillN2Dominance_s	-0.20	-0.58	-0.11	-0.23	-0.05	0.69	**0.98**	1.00	*0.00*	0.21	0.27	0.52	0.15	0.48	0.63	*0.05*	0.61	0.74	0.46	*0.00*	*0.01*	*0.00*	*0.00*	*0.00*	0.40	0.07	0.70	*0.00*	0.40	0.40	0.20
InverseCVBiomass_s	0.11	-0.21	-0.24	-0.39	0.20	0.01	0.16	0.09	1.00	0.25	0.64	0.46	0.55	0.10	0.21	*0.04*	0.65	*0.00*	0.94	*0.04*	0.24	0.30	0.05	*0.00*	*0.00*	0.64	0.56	0.39	*0.04*	0.59	0.06
KemptonQ_s	-0.24	-0.02	0.20	-0.26	0.13	-0.05	0.23	0.17	0.28	1.00	*0.04*	0.11	0.88	*0.02*	0.10	0.37	0.51	0.46	*0.00*	0.84	0.08	0.42	0.57	*0.00*	0.85	0.09	0.85	*0.01*	*0.01*	0.36	*0.00*
LargeFishIndicator_s	0.31	-0.12	0.02	-0.08	0.28	0.44	0.26	0.28	0.01	-0.21	1.00	0.18	0.93	0.44	0.21	0.74	0.48	1.00	*0.00*	0.13	0.12	*0.02*	*0.02*	0.33	*0.00*	*0.00*	0.49	*0.00*	*0.02*	0.97	*0.00*
LargeSpeciesIndicator_s	0.60	0.07	0.12	0.32	0.01	0.11	0.11	0.14	-0.20	-0.16	0.38	1.00	0.59	0.08	0.33	0.74	0.48	*0.03*	0.78	0.22	*0.00*	0.73	0.32	*0.00*	*0.00*	*0.00*	0.56	*0.03*	*0.00*	*0.00*	*0.00*
MargalefRichness_s	-0.23	-0.33	-0.23	-0.30	-0.18	0.00	0.62	0.56	0.28	0.43	-0.07	0.02	1.00	0.12	0.15	0.18	0.76	0.29	*0.00*	0.55	*0.03*	0.08	0.36	*0.00*	0.89	0.34	0.11	*0.00*	0.50	*0.00*	0.90
MargalefGroundfish_s	0.06	0.04	-0.02	0.33	-0.35	-0.32	-0.04	-0.06	0.01	0.08	-0.34	-0.01	0.25	1.00	0.26	0.40	0.53	*0.00*	0.28	0.13	0.96	0.29	0.85	0.29	*0.00*	0.23	0.10	*0.00*	*0.00*	0.21	0.23
MeanLengthAbundance_s	0.22	0.18	0.19	0.23	0.08	0.16	-0.21	-0.18	-0.47	-0.49	0.38	0.06	-0.55	-0.14	1.00	0.06	0.41	*0.00*	0.12	0.30	0.13	0.71	0.24	*0.04*	0.37	0.92	0.43	0.27	*0.00*	*0.05*	0.11
MeanLengthBiomass_s	0.36	-0.19	0.07	0.07	0.14	0.48	0.36	0.40	-0.16	-0.29	**0.79**	0.68	-0.09	-0.18	0.36	1.00	0.68	0.45	0.08	*0.00*	0.33	0.42	0.96	*0.02*	0.10	0.13	0.11	*0.00*	0.65	*0.00*	0.79
MeanLifespan_s	-0.56	0.17	-0.08	-0.19	-0.05	-0.41	-0.39	-0.39	-0.12	0.09	-0.65	-0.61	-0.15	0.02	-0.03	-0.71	1.00	0.06	0.45	*0.00*	0.77	0.58	0.06	0.38	0.48	0.60	0.80	*0.00*	*0.00*	*0.00*	*0.00*
MMLengthAbundance_s	0.50	0.31	0.22	0.24	0.07	0.11	-0.18	-0.18	-0.34	-0.35	0.48	0.26	-0.30	-0.23	0.68	0.38	-0.41	1.00	*0.00*	*0.00*	0.13	0.68	0.14	*0.03*	0.97	0.64	0.46	0.37	0.16	0.07	0.96
MMLengthBiomass_s	0.67	-0.06	0.09	0.19	0.08	0.28	0.26	0.26	0.05	-0.15	0.64	**0.74**	0.08	-0.08	0.06	**0.78**	-0.91	0.49	1.00	0.55	0.14	0.33	0.79	0.19	0.09	0.18	0.22	*0.00*	*0.00*	*0.00*	0.50
MeanTrophicLevel_s	**0.72**	0.29	0.02	0.15	0.07	0.02	-0.17	-0.23	0.26	-0.14	0.15	0.17	-0.21	0.07	0.09	0.08	-0.31	0.32	0.40	1.00	*0.00*	0.52	0.06	*0.00*	*0.00*	0.39	*0.00*	0.17	*0.04*	*0.03*	0.51
PielouEvenness_s	-0.12	-0.49	-0.01	-0.22	0.10	**0.94**	**0.81**	**0.77**	0.16	0.03	0.45	0.13	0.24	-0.20	0.03	0.51	-0.48	0.03	0.34	-0.01	1.00	*0.05*	0.95	*0.02*	0.55	0.95	*0.00*	*0.00*	0.70	*0.00*	0.47
PropPredatoryFish_s	0.53	-0.16	0.08	0.17	0.11	0.42	0.30	0.31	0.06	-0.18	**0.71**	0.61	0.03	-0.13	0.11	**0.76**	-0.96	0.49	**0.93**	0.23	0.46	1.00	0.39	0.52	0.33	0.60	*0.01*	*0.00*	0.96	*0.01*	0.70
BiomassFlatfish_s	-0.07	-0.08	0.04	0.05	0.11	-0.06	-0.03	0.01	-0.12	-0.01	0.16	0.03	-0.04	-0.01	0.09	0.13	-0.17	0.12	0.10	-0.52	-0.05	0.30	1.00	0.91	*0.05*	0.71	*0.00*	0.44	0.12	1.00	0.17
BiomassGadoids_s	**0.99**	0.31	0.15	0.37	0.05	-0.08	-0.23	-0.22	0.08	-0.28	0.31	0.60	-0.28	0.08	0.24	0.37	-0.56	0.51	0.64	**0.70**	-0.12	0.53	*-0.09*	1.00	0.59	0.92	0.62	*0.00*	*0.00*	0.57	0.07
BiomassGroundfish_s	0.67	0.17	0.16	0.33	0.09	-0.10	-0.18	-0.15	-0.06	-0.22	0.35	0.48	-0.24	0.06	0.25	0.39	-0.54	0.47	0.56	0.12	-0.13	0.61	0.68	0.67	1.00	0.77	*0.00*	*0.03*	*0.00*	*0.00*	0.75
BTGMediumBenthivore_s	-0.08	-0.07	0.02	0.05	0.12	-0.08	-0.09	-0.04	-0.15	-0.04	0.13	0.02	-0.11	-0.02	0.12	0.12	-0.13	0.13	0.07	-0.53	-0.08	0.27	**0.99**	-0.08	0.67	1.00	*0.00*	0.87	0.43	*0.00*	0.72
BTGPiscivore_s	**0.99**	0.30	0.15	0.34	0.06	-0.11	-0.23	-0.23	0.10	-0.28	0.32	0.57	-0.27	0.05	0.24	0.36	-0.55	0.51	0.65	**0.70**	-0.14	0.53	-0.03	**0.99**	**0.70**	-0.04	1.00	*0.00*	*0.00*	0.84	0.65
BiomassSkates_s	-0.15	-0.16	0.10	0.00	-0.02	-0.01	0.16	0.22	-0.29	-0.01	0.20	0.14	0.07	-0.04	0.04	0.31	-0.21	0.10	0.21	-0.59	0.01	0.32	**0.84**	-0.17	0.53	**0.83**	-0.11	1.00	*0.00*	*0.00*	*0.00*
BTGZoopiscivore_s	0.03	0.40	0.03	0.22	-0.16	-0.67	-0.54	-0.51	-0.20	-0.13	-0.58	-0.24	-0.25	0.22	0.11	-0.52	0.62	-0.11	-0.52	-0.04	-0.76	-0.63	-0.03	0.05	0.02	0.01	0.06	-0.05	1.00	0.85	0.15
ShannonDiversity_s	-0.17	-0.57	-0.11	-0.29	0.01	**0.79**	**0.94**	**0.89**	0.26	0.19	0.33	0.11	0.55	-0.05	-0.18	0.41	-0.45	-0.13	0.31	-0.09	**0.93**	0.38	-0.05	-0.19	-0.18	-0.10	-0.20	0.05	-0.70	1.00	*0.00*
SpeciesRichness_s	-0.22	-0.32	-0.24	-0.30	-0.18	-0.04	0.58	0.53	0.29	0.43	-0.10	0.01	**1.00**	0.25	-0.57	-0.13	-0.12	-0.31	0.06	-0.21	0.19	0.00	-0.04	-0.28	-0.24	-0.10	-0.27	0.07	-0.22	0.51	1.00

Table S27. Spearman rank correlation coefficients (r) for indicators in strata 441. The upper triangle of the matrix represents p-values (p ≤ 0.05 highlighted in blue italics). The lower triangle of the matrix represents the r values (r ≥ 0.7 highlighted in red).

Indicator	BiomassTL4_s	CommunityCondition_s	CCMediumBenthivore_s	CCPiscivore_s	CCZoopiscivore_s	Heips_s	HillN1Diversity_s	HillN2Dominance_s	InverseCVBiomass_s	KemptonQ_s	LargeFishIndicator_s	LargeSpeciesIndicator_s	MargalefRichness_s	MargalefGroundfish_s	MeanLengthAbundance_s	MeanLengthBiomass_s	MeanLifespan_s	MMLengthAbundance_s	MMLengthBiomass_s	MeanTrophicLevel_s	PielouEvenness_s	PropPredatoryFish_s	BiomassFlatfish_s	BiomassGadoids_s	BiomassGroundfish_s	BTGLargeBenthivore_s	BTGMediumBenthivore_s	BTGPiscivore_s	BiomassSkates_s	BTGZoopiscivore_s	ShannonDiversity_s	SpeciesRichness_s
BiomassTL4_s	1.00	*0.04*	*0.05*	0.14	0.65	*0.00*	0.54	0.23	0.24	0.13	*0.01*	*0.04*	0.37	0.63	0.13	0.62	0.56	0.14	*0.02*	*0.00*	*0.01*	*0.01*	0.80	0.51	*0.02*	*0.01*	*0.01*	*0.00*	0.29	*0.00*	*0.00*	0.27
CommunityCondition_s	0.31	1.00	0.70	*0.02*	0.82	0.10	*0.00*	*0.00*	0.44	0.67	0.18	*0.03*	0.10	0.19	0.59	0.47	0.37	0.39	*0.00*	0.32	0.89	0.73	*0.03*	0.34	*0.00*	*0.00*	0.05	*0.00*	*0.00*	*0.00*	*0.05*	0.49
CCMediumBenthivore_s	0.29	0.44	1.00	0.87	0.62	0.40	*0.00*	*0.00*	0.08	0.47	0.14	0.28	0.05	0.86	0.40	0.35	0.94	0.48	*0.01*	0.15	0.73	0.50	0.99	0.36	*0.00*	0.66	*0.05*	0.63	*0.00*	0.06	0.27	0.06
CCPiscivore_s	0.06	-0.03	0.13	1.00	*0.00*	*0.00*	*0.00*	0.57	*0.00*	0.09	*0.00*	*0.00*	0.23	*0.04*	0.19	0.25	0.08	0.27	*0.00*	0.38	0.41	0.78	0.75	0.65	*0.02*	0.71	*0.00*	0.35	0.39	*0.00*	0.30	0.39
CCZoopiscivore_s	0.22	0.22	0.09	0.09	1.00	*0.00*	0.05	0.37	0.84	0.11	*0.01*	*0.03*	*0.00*	*0.03*	0.37	0.70	*0.04*	0.16	*0.00*	0.18	*0.00*	*0.01*	0.72	0.98	*0.05*	*0.05*	0.06	*0.00*	0.53	*0.00*	*0.00*	*0.04*
Heips_s	0.34	0.28	0.21	0.23	0.10	1.00	*0.03*	*0.00*	0.14	0.51	0.57	0.60	*0.00*	0.24	0.17	0.97	0.80	0.29	*0.00*	*0.00*	*0.00*	0.66	0.87	0.28	*0.00*	*0.00*	0.71	0.49	0.75	0.07	0.86	*0.00*
HillN1Diversity_s	0.02	0.21	-0.27	0.08	0.06	0.53	1.00	0.34	0.06	0.86	*0.02*	0.39	0.29	0.86	0.12	0.35	0.62	0.57	*0.00*	*0.00*	0.26	0.94	0.83	0.31	0.39	*0.00*	0.63	0.95	0.70	0.10	0.84	0.09
HillN2Dominance_s	0.07	0.23	-0.25	0.13	0.09	0.61	**0.98**	1.00	0.16	0.07	*0.03*	0.57	*0.04*	*0.03*	0.54	0.25	0.54	0.52	*0.00*	0.82	0.27	0.36	0.77	0.70	0.65	0.16	*0.00*	0.55	0.39	*0.00*	*0.03*	0.46
InverseCVBiomass_s	0.03	-0.06	0.14	0.20	0.13	0.07	-0.15	-0.17	1.00	*0.02*	0.26	0.15	0.06	*0.00*	0.57	0.62	0.07	0.74	*0.00*	0.45	0.19	*0.00*	0.13	*0.01*	0.12	*0.00*	0.37	0.12	0.50	0.32	*0.02*	0.68
KemptonQ_s	0.08	-0.11	-0.24	-0.13	-0.01	-0.04	0.22	0.17	-0.32	1.00	0.67	0.06	*0.05*	*0.02*	0.71	*0.01*	0.92	*0.00*	*0.02*	0.10	0.08	*0.02*	0.95	0.25	*0.00*	0.48	0.35	*0.01*	0.11	0.64	*0.02*	0.06
LargeFishIndicator_s	0.65	0.25	0.29	0.21	0.26	0.70	0.13	0.20	0.27	-0.01	1.00	0.09	0.13	0.25	0.24	0.32	0.53	*0.00*	0.23	0.51	*0.01*	*0.03*	0.58	0.10	*0.01*	*0.00*	0.16	*0.00*	*0.00*	*0.03*	0.68	0.78
LargeSpeciesIndicator_s	**0.72**	0.24	0.18	0.23	0.31	0.67	0.20	0.26	0.19	0.10	**0.96**	1.00	0.26	*0.00*	0.18	0.88	0.12	0.65	0.11	0.18	*0.01*	0.07	0.13	*0.05*	0.36	*0.00*	0.42	*0.00*	*0.01*	*0.00*	*0.03*	0.56
MargalefRichness_s	-0.25	0.10	-0.42	-0.09	-0.04	-0.34	0.50	0.40	-0.22	0.30	-0.53	-0.39	1.00	0.53	0.41	0.52	*0.03*	0.77	*0.01*	0.09	0.98	0.20	0.93	*0.00*	*0.01*	0.52	0.27	*0.00*	0.33	*0.00*	0.16	0.62
MargalefGroundfish_s	-0.13	-0.03	-0.42	-0.09	0.07	-0.13	0.44	0.38	-0.29	0.49	-0.24	-0.14	0.56	1.00	0.24	0.50	0.43	*0.00*	*0.02*	*0.00*	0.27	0.15	0.52	*0.00*	*0.00*	0.85	0.34	*0.00*	*0.00*	0.24	0.11	0.58
MeanLengthAbundance_s	0.52	0.27	0.16	0.06	-0.09	0.35	-0.03	0.00	0.24	-0.18	0.41	0.40	-0.21	-0.40	1.00	0.71	0.47	*0.00*	*0.03*	0.97	0.11	0.05	*0.05*	0.11	0.08	*0.00*	*0.01*	*0.00*	*0.00*	*0.00*	0.68	0.32
MeanLengthBiomass_s	0.61	0.34	0.31	0.18	0.27	0.67	0.11	0.17	0.35	-0.01	**0.95**	**0.91**	-0.48	-0.29	0.52	1.00	0.22	*0.02*	0.62	*0.02*	0.36	0.10	*0.00*	*0.01*	*0.00*	0.86	0.88	*0.01*	*0.00*	*0.00*	*0.00*	*0.01*
MeanLifespan_s	0.09	0.38	0.28	-0.20	-0.02	0.37	0.24	0.24	0.17	-0.15	0.33	0.26	-0.11	-0.30	0.19	0.39	1.00	0.39	*0.00*	0.96	0.09	*0.02*	0.24	*0.00*	*0.00*	0.07	*0.01*	*0.00*	*0.00*	*0.00*	0.20	0.40
MMLengthAbundance_s	0.56	0.20	0.29	0.12	0.10	0.62	0.10	0.14	0.28	-0.17	**0.77**	**0.73**	-0.42	-0.53	0.70	**0.79**	0.51	1.00	*0.01*	0.35	*0.05*	0.25	0.96	*0.02*	*0.00*	0.06	*0.00*	*0.00*	0.36	0.82	0.10	0.29
MMLengthBiomass_s	0.59	0.22	0.23	0.18	0.23	0.70	0.20	0.25	0.27	-0.01	**0.96**	**0.94**	-0.45	-0.28	0.40	**0.92**	0.47	**0.85**	1.00	0.51	*0.00*	0.06	0.31	*0.00*	*0.00*	*0.01*	*0.00*	*0.01*	*0.00*	*0.00*	0.93	0.27
MeanTrophicLevel_s	**0.70**	0.58	0.17	0.07	0.33	0.54	0.26	0.29	0.04	0.14	0.68	**0.75**	-0.10	0.06	0.52	**0.71**	0.16	0.49	0.61	1.00	0.77	0.07	0.26	*0.00*	*0.00*	0.75	0.21	*0.03*	*0.00*	*0.00*	*0.00*	*0.00*
PielouEvenness_s	0.29	0.37	0.07	0.11	0.12	**0.88**	**0.78**	**0.80**	0.04	0.10	0.55	0.56	0.03	0.07	0.28	0.57	0.49	0.54	0.61	0.56	1.00	0.77	0.93	*0.00*	*0.00*	0.08	*0.00*	*0.00*	0.30	0.62	0.25	0.89
PropPredatoryFish_s	0.32	-0.09	0.20	0.14	0.11	0.52	0.01	0.05	0.32	-0.14	**0.79**	0.70	-0.59	-0.42	0.20	**0.72**	0.44	**0.77**	**0.87**	0.18	0.37	1.00	0.34	*0.00*	*0.00*	0.06	*0.01*	0.55	0.45	0.26	0.32	0.22
BiomassFlatfish_s	-0.18	-0.35	-0.03	-0.17	-0.18	-0.42	-0.34	-0.36	0.00	-0.14	-0.35	-0.41	0.03	-0.13	-0.15	-0.37	-0.13	-0.14	-0.28	-0.59	-0.44	0.03	1.00	*0.00*	*0.00*	0.48	*0.00*	0.64	*0.00*	*0.01*	0.30	0.21
BiomassGadoids_s	**1.00**	0.32	0.31	0.06	0.22	0.34	0.01	0.05	0.05	0.07	0.66	**0.73**	-0.27	-0.14	0.51	0.63	0.10	0.57	0.60	**0.71**	0.28	0.33	*-0.19*	1.00	0.09	*0.00*	0.05	0.08	*0.05*	0.42	*0.01*	0.45
BiomassGroundfish_s	**0.90**	0.17	0.32	0.01	0.13	0.18	-0.14	-0.10	0.05	0.00	0.51	0.55	-0.28	-0.21	0.44	0.46	0.05	0.51	0.48	0.43	0.10	0.35	0.25	**0.90**	1.00	*0.00*	0.18	*0.00*	0.83	*0.01*	0.72	0.07
BTGLargeBenthivore_s	0.09	-0.06	0.18	0.14	-0.11	0.24	-0.10	-0.04	0.02	0.16	0.35	0.26	-0.40	-0.12	0.07	0.36	0.06	0.16	0.27	-0.03	0.01	0.34	0.01	0.10	0.13	1.00	0.33	*0.00*	0.12	*0.00*	*0.00*	*0.01*
BTGMediumBenthivore_s	-0.13	-0.31	0.03	-0.17	-0.17	-0.41	-0.38	-0.40	0.03	-0.15	-0.29	-0.37	-0.05	-0.16	-0.14	-0.32	-0.13	-0.11	-0.24	-0.55	-0.44	0.06	**0.99**	-0.13	0.30	0.04	1.00	*0.00*	*0.00*	0.05	0.52	0.84
BTGPiscivore_s	**1.00**	0.31	0.32	0.08	0.21	0.35	0.02	0.07	0.04	0.06	0.65	**0.72**	-0.26	-0.14	0.52	0.61	0.10	0.57	0.60	0.69	0.29	0.33	-0.17	**1.00**	**0.91**	0.09	-0.13	1.00	*0.00*	0.51	0.37	0.06
BiomassSkates_s	0.14	0.16	0.62	0.40	-0.16	0.32	-0.05	-0.01	0.23	-0.36	0.13	0.07	-0.28	-0.36	0.10	0.09	0.24	0.30	0.15	-0.08	0.17	0.21	0.15	0.14	0.25	0.07	0.16	0.19	1.00	0.94	*0.00*	0.23
BTGZoopiscivore_s	0.18	0.46	0.35	-0.15	0.09	0.07	0.12	0.14	0.01	-0.17	-0.07	-0.06	0.11	-0.02	-0.01	-0.07	0.52	-0.03	-0.07	0.17	0.16	-0.24	-0.16	0.17	0.11	-0.08	-0.17	0.19	0.39	1.00	0.35	0.47
ShannonDiversity_s	0.12	0.33	-0.17	0.02	0.10	0.60	**0.95**	**0.92**	-0.08	0.24	0.23	0.29	0.45	0.37	0.09	0.26	0.39	0.23	0.32	0.41	**0.89**	0.06	-0.37	0.10	-0.06	-0.15	-0.41	0.12	-0.03	0.18	1.00	*0.01*
SpeciesRichness_s	-0.26	0.08	-0.42	-0.1	-0.05	-0.38	0.45	0.36	-0.23	0.29	-0.57	-0.42	1	0.56	-0.23	-0.52	-0.15	-0.46	-0.5	-0.12	-0.03	-0.63	0.05	-0.28	-0.28	-0.4	-0.02	-0.27	-0.28	0.11	0.4	1.00

Table S28. Spearman rank correlation coefficients (r) for indicators in strata 442. The upper triangle of the matrix represents p-values (p ≤ 0.05 highlighted in blue italics). The lower triangle of the matrix represents the r values (r ≥ 0.7 highlighted in red).

Indicator	BiomassTL4_s	CommunityCondition_s	CCMediumBenthivore_s	CCPiscivore_s	Heips_s	HillN1Diversity_s	HillN2Dominance_s	InverseCVBiomass_s	KemptonQ_s	LargeFishIndicator_s	LargeSpeciesIndicator_s	MargalefRichness_s	MargalefGroundfish_s	MeanLengthAbundance_s	MeanLengthBiomass_s	MeanLifespan_s	MMLengthAbundance_s	MMLengthBiomass_s	MeanTrophicLevel_s	PielouEvenness_s	PropPredatoryFish_s	BiomassFlatfish_s	BiomassGadoids_s	BiomassGroundfish_s	BTGMediumBenthivore_s	BTGPiscivore_s	BiomassSkates_s	ShannonDiversity_s	SpeciesRichness_s
BiomassTL4_s	1.00	0.83	0.72	0.88	0.74	*0.02*	*0.00*	*0.00*	0.31	0.97	0.44	0.91	0.33	0.65	0.63	0.13	*0.00*	*0.00*	0.93	0.11	0.75	*0.02*	*0.00*	*0.00*	0.56	*0.00*	*0.04*	0.35	0.45
CommunityCondition_s	-0.03	1.00	0.82	0.07	0.08	*0.04*	*0.00*	*0.00*	0.80	0.06	0.80	0.83	0.84	0.50	0.46	*0.00*	*0.00*	*0.00*	*0.01*	0.40	0.96	*0.01*	0.07	*0.00*	0.14	*0.00*	0.14	0.10	*0.01*
CCMediumBenthivore_s	0.05	0.15	1.00	0.12	*0.00*	*0.00*	*0.00*	0.35	0.84	0.97	0.12	0.44	0.68	0.79	0.47	*0.00*	0.74	0.06	0.23	*0.00*	0.77	0.07	0.20	*0.00*	0.83	*0.00*	*0.01*	0.47	*0.00*
CCPiscivore_s	0.03	-0.04	-0.02	1.00	*0.00*	*0.00*	0.43	*0.00*	*0.03*	0.27	0.84	0.30	0.86	0.26	0.41	0.15	0.93	0.39	0.87	*0.02*	0.23	*0.01*	*0.00*	*0.02*	*0.04*	*0.00*	*0.00*	*0.00*	0.39
Heips_s	0.02	0.03	-0.03	-0.17	1.00	0.10	*0.01*	0.49	0.11	0.65	0.52	0.43	0.10	0.82	0.75	0.10	0.94	0.53	*0.01*	0.49	0.60	*0.00*	*0.00*	*0.00*	*0.04*	*0.00*	*0.00*	*0.00*	*0.00*
HillN1Diversity_s	-0.27	0.32	-0.12	-0.03	0.45	1.00	0.45	0.07	0.76	*0.05*	0.13	0.22	0.63	0.90	0.43	*0.00*	0.86	0.81	*0.01*	0.14	0.74	*0.00*	*0.01*	*0.00*	0.41	0.07	*0.02*	0.26	0.14
HillN2Dominance_s	-0.23	0.24	-0.16	-0.02	0.55	**0.98**	1.00	*0.02*	0.67	0.68	0.80	0.30	0.46	0.87	0.26	*0.00*	0.86	0.25	*0.00*	0.16	*0.00*	*0.00*	*0.00*	*0.00*	*0.04*	*0.00*	*0.00*	*0.00*	*0.03*
InverseCVBiomass_s	-0.05	0.05	0.12	0.03	0.21	0.01	-0.01	1.00	0.90	0.48	0.36	0.80	0.17	0.42	0.80	*0.02*	0.38	*0.00*	0.22	0.78	*0.02*	*0.00*	*0.00*	0.81	*0.04*	0.46	0.30	0.22	*0.00*
KemptonQ_s	-0.26	0.06	-0.18	0.12	-0.25	0.45	0.36	-0.10	1.00	0.10	0.13	0.80	0.70	0.73	0.82	0.09	*0.00*	0.15	0.27	0.28	*0.00*	*0.00*	*0.00*	*0.01*	*0.00*	*0.00*	*0.00*	0.47	0.34
LargeFishIndicator_s	0.57	-0.02	0.16	-0.05	0.51	-0.26	-0.18	0.22	-0.56	1.00	0.07	0.06	0.97	0.55	0.78	0.15	*0.01*	0.10	0.85	0.55	*0.00*	*0.00*	*0.00*	*0.02*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
LargeSpeciesIndicator_s	0.66	0.00	0.04	-0.09	0.63	-0.05	0.03	0.21	-0.36	**0.84**	1.00	0.14	0.33	0.20	0.81	*0.00*	*0.00*	0.07	0.51	0.09	*0.00*	*0.00*	*0.00*	*0.02*	*0.00*	0.20	0.15	*0.00*	0.51
MargalefRichness_s	-0.34	0.28	0.04	0.19	-0.35	0.50	0.38	-0.04	**0.75**	-0.64	-0.47	1.00	0.74	0.34	0.83	*0.00*	0.97	*0.03*	0.58	0.29	*0.00*	*0.00*	*0.00*	*0.00*	0.11	*0.00*	*0.00*	0.46	0.06
MargalefGroundfish_s	-0.30	-0.01	-0.28	0.15	-0.25	0.47	0.40	-0.16	0.63	-0.66	-0.39	0.66	1.00	0.94	0.79	*0.00*	*0.00*	*0.04*	*0.00*	0.10	*0.03*	*0.00*	*0.00*	*0.00*	*0.00*	0.06	*0.02*	0.39	*0.02*
MeanLengthAbundance_s	0.63	-0.17	0.22	0.01	0.22	-0.50	-0.43	0.09	-0.52	**0.75**	0.59	-0.70	-0.68	1.00	0.84	*0.00*	0.08	0.07	0.08	0.12	*0.01*	*0.00*	*0.00*	*0.02*	*0.00*	0.23	0.95	0.36	*0.01*
MeanLengthBiomass_s	0.52	-0.07	0.15	-0.07	0.58	-0.28	-0.18	0.25	-0.60	**0.89**	**0.87**	-0.68	-0.63	**0.75**	1.00	*0.04*	0.73	0.28	0.13	0.52	*0.02*	*0.00*	0.73	*0.01*	*0.00*	*0.00*	*0.00*	0.37	*0.00*
MeanLifespan_s	0.24	0.29	-0.03	-0.11	0.52	0.13	0.16	0.16	-0.32	0.58	0.61	-0.35	-0.28	0.24	0.58	1.00	*0.00*	*0.00*	0.10	0.19	*0.01*	0.15	*0.00*	*0.00*	0.38	*0.00*	0.06	0.44	0.10
MMLengthAbundance_s	0.64	-0.06	0.06	-0.11	0.56	-0.09	-0.03	0.24	-0.36	**0.81**	**0.90**	-0.52	-0.43	0.70	**0.84**	0.62	1.00	*0.00*	0.06	0.12	0.66	*0.00*	*0.00*	*0.00*	*0.04*	*0.00*	*0.00*	0.68	*0.04*
MMLengthBiomass_s	0.55	0.11	-0.03	-0.13	0.66	0.04	0.10	0.23	-0.34	**0.82**	**0.94**	-0.46	-0.37	0.47	**0.82**	**0.77**	**0.89**	1.00	0.06	0.81	0.09	0.72	0.52	*0.00*	0.47	0.35	*0.00*	*0.00*	*0.00*
MeanTrophicLevel_s	0.43	-0.25	0.25	0.05	0.31	-0.17	-0.08	0.10	-0.37	0.45	0.49	-0.49	-0.30	0.66	0.57	0.14	0.50	0.28	1.00	0.78	*0.04*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	0.55	0.92	0.29
PielouEvenness_s	-0.12	0.12	-0.07	-0.12	**0.88**	**0.76**	**0.81**	0.20	0.07	0.21	0.42	0.04	0.09	-0.13	0.27	0.47	0.36	0.48	0.14	1.00	0.08	*0.00*	0.14	0.06	*0.00*	*0.00*	*0.00*	0.17	*0.00*
PropPredatoryFish_s	0.38	0.04	-0.11	-0.17	**0.74**	0.21	0.26	0.23	-0.25	0.69	**0.83**	-0.40	-0.22	0.30	0.67	**0.74**	**0.82**	**0.91**	0.25	0.62	1.00	0.35	0.75	*0.00*	0.18	0.22	*0.00*	*0.01*	0.05
BiomassFlatfish_s	0.11	-0.23	-0.20	0.04	-0.05	-0.25	-0.23	-0.04	-0.30	0.05	0.05	-0.34	-0.03	0.11	0.11	0.18	0.16	0.09	0.11	-0.11	0.20	1.00	*0.00*	*0.01*	*0.00*	0.11	0.39	*0.00*	*0.00*
BiomassGadoids_s	**1.00**	-0.03	0.06	0.04	0.01	-0.27	-0.24	-0.04	-0.26	0.56	0.65	-0.34	-0.31	0.63	0.51	0.24	0.64	0.54	0.43	-0.13	0.37	0.11	1.00	*0.04*	0.18	0.06	*0.00*	0.13	0.35
BiomassGroundfish_s	**0.96**	-0.10	-0.01	0.04	0.01	-0.32	-0.28	-0.05	-0.33	0.55	0.63	-0.41	-0.30	0.62	0.52	0.28	0.65	0.54	0.43	-0.14	0.41	0.38	**0.96**	1.00	*0.00*	0.17	*0.04*	*0.01*	0.07
BTGMediumBenthivore_s	0.14	-0.23	-0.15	0.04	-0.03	-0.31	-0.28	-0.01	-0.37	0.14	0.10	-0.42	-0.12	0.20	0.19	0.21	0.22	0.13	0.17	-0.13	0.23	**0.99**	0.14	0.41	1.00	0.09	0.41	*0.02*	*0.02*
BTGPiscivore_s	**1.00**	-0.04	0.05	0.03	0.03	-0.27	-0.24	-0.04	-0.27	0.58	0.66	-0.35	-0.31	0.63	0.52	0.25	0.65	0.55	0.43	-0.12	0.39	0.13	**1.00**	**0.97**	0.16	1.00	*0.00*	*0.04*	0.48
BiomassSkates_s	0.10	-0.14	-0.07	-0.04	0.13	-0.16	-0.13	0.18	-0.39	0.27	0.22	-0.37	-0.30	0.20	0.27	0.31	0.35	0.30	0.18	0.06	0.34	0.45	0.10	0.25	0.47	0.14	1.00	*0.00*	*0.01*
ShannonDiversity_s	-0.27	0.23	-0.10	-0.03	0.53	**0.96**	**0.94**	0.08	0.42	-0.19	0.05	0.48	0.46	-0.49	-0.18	0.22	-0.01	0.12	-0.11	**0.86**	0.30	-0.22	-0.28	-0.31	-0.29	-0.27	-0.11	1.00	*0.00*
SpeciesRichness_s	-0.34	0.27	0.04	0.22	-0.39	0.45	0.34	-0.05	**0.74**	-0.65	-0.49	**1.00**	0.65	-0.69	-0.69	-0.39	-0.55	-0.49	-0.49	-0.01	-0.45	-0.33	-0.34	-0.41	-0.41	-0.35	-0.38	0.43	1.00

Table S29. Spearman rank correlation coefficients (r) for indicators in strata 443. The upper triangle of the matrix represents p-values (p ≤ 0.05 highlighted in blue italics). The lower triangle of the matrix represents the r values (r ≥ 0.7 highlighted in red).

Indicator	BiomassTL4_s	CommunityCondition_s	CCMediumBenthivore_s	CCPiscivore_s	Heips_s	HillN1Diversity_s	HillN2Dominance_s	InverseCVBiomass_s	KemptonQ_s	LargeFishIndicator_s	LargeSpeciesIndicator_s	MargalefRichness_s	MargalefGroundfish_s	MeanLengthAbundance_s	MeanLengthBiomass_s	MeanLifespan_s	MMLengthAbundance_s	MMLengthBiomass_s	MeanTrophicLevel_s	PielouEvenness_s	PropPredatoryFish_s	BiomassFlatfish_s	BiomassGadoids_s	BiomassGroundfish_s	BTGLargeBenthivore_s	BTGMediumBenthivore_s	BTGPiscivore_s	BiomassSkates_s	ShannonDiversity_s	SpeciesRichness_s
BiomassTL4_s	1.00	0.08	0.53	0.07	0.36	0.21	*0.00*	*0.00*	0.17	*0.00*	*0.00*	*0.00*	*0.00*	*0.04*	0.75	0.23	*0.00*	0.11	0.14	*0.00*	0.51	*0.00*	*0.00*	*0.00*	*0.03*	*0.00*	0.28	*0.00*	*0.00*	0.52
CommunityCondition_s	0.26	1.00	0.42	0.08	0.50	0.86	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	0.26	0.55	0.47	*0.00*	*0.03*	0.73	*0.00*	0.21	*0.00*	*0.00*	*0.00*	0.53	*0.00*	*0.00*	0.50	*0.00*	*0.00*
CCMediumBenthivore_s	0.09	**0.83**	1.00	*0.04*	*0.00*	*0.00*	*0.00*	0.91	0.39	*0.00*	*0.00*	0.12	*0.00*	0.42	0.56	0.31	*0.00*	*0.00*	0.08	0.76	0.92	*0.00*	*0.00*	0.45	0.16	*0.00*	*0.00*	*0.00*	*0.00*	0.90
CCPiscivore_s	-0.12	0.13	0.23	1.00	*0.00*	*0.00*	*0.05*	0.94	*0.00*	*0.00*	0.29	*0.00*	*0.00*	*0.01*	0.58	0.45	*0.00*	*0.00*	0.42	*0.04*	0.09	0.12	*0.00*	*0.00*	*0.01*	*0.00*	*0.00*	*0.01*	0.84	0.94
Heips_s	0.27	**0.75**	0.58	-0.05	1.00	0.09	*0.03*	*0.00*	*0.00*	*0.00*	0.08	*0.00*	*0.00*	*0.00*	0.86	0.84	*0.00*	*0.03*	*0.00*	0.15	0.09	*0.00*	*0.00*	*0.00*	*0.02*	*0.00*	*0.00*	*0.00*	*0.05*	*0.00*
HillN1Diversity_s	0.26	0.66	0.50	0.05	**0.89**	1.00	0.98	0.08	*0.00*	*0.00*	*0.03*	*0.00*	*0.00*	*0.00*	0.55	*0.00*	*0.00*	0.92	*0.01*	0.21	0.11	*0.00*	0.48	0.10	*0.00*	*0.00*	*0.00*	*0.00*	0.08	0.08
HillN2Dominance_s	0.30	0.65	0.49	-0.01	**0.90**	**0.97**	1.00	0.06	*0.03*	*0.00*	*0.01*	0.27	*0.02*	0.72	0.67	*0.00*	0.52	*0.01*	0.25	0.81	0.36	0.27	*0.00*	0.49	*0.01*	0.52	*0.00*	*0.00*	0.07	0.06
InverseCVBiomass_s	-0.14	-0.32	-0.17	-0.04	-0.15	-0.24	-0.17	1.00	*0.00*	*0.00*	0.21	*0.00*	*0.00*	0.77	0.20	0.33	0.07	*0.00*	*0.02*	*0.04*	0.08	0.50	*0.00*	*0.00*	*0.04*	*0.00*	*0.01*	*0.00*	0.73	0.17
KemptonQ_s	-0.10	-0.53	-0.44	0.10	-0.50	-0.32	-0.35	0.06	1.00	*0.00*	0.05	*0.00*	*0.00*	0.94	0.72	*0.00*	0.29	*0.00*	*0.00*	0.59	0.36	0.22	*0.00*	0.44	*0.01*	*0.00*	*0.00*	*0.00*	*0.04*	0.16
LargeFishIndicator_s	0.45	**0.82**	0.67	-0.04	**0.84**	0.67	0.66	-0.18	-0.50	1.00	*0.00*	*0.00*	0.36	0.77	0.86	*0.00*	0.06	*0.00*	*0.00*	*0.00*	0.12	0.55	0.39	*0.00*	*0.03*	*0.00*	*0.00*	0.54	0.11	*0.00*
LargeSpeciesIndicator_s	**0.73**	0.59	0.44	-0.16	**0.75**	0.70	**0.75**	-0.09	-0.30	**0.79**	1.00	*0.00*	0.53	0.51	0.24	*0.00*	0.62	*0.00*	*0.01*	*0.00*	0.31	0.20	*0.00*	*0.00*	*0.05*	0.44	0.14	*0.00*	*0.00*	*0.00*
MargalefRichness_s	-0.19	-0.65	-0.50	0.05	-0.56	-0.31	-0.36	0.14	0.54	-0.59	-0.39	1.00	0.24	0.81	0.42	*0.00*	0.07	*0.00*	0.82	0.67	*0.05*	0.44	*0.00*	*0.00*	0.51	*0.00*	0.09	*0.00*	*0.00*	*0.00*
MargalefGroundfish_s	-0.03	-0.45	-0.43	0.09	-0.33	-0.02	-0.04	-0.12	0.51	-0.37	-0.13	0.62	1.00	0.28	0.91	*0.02*	0.32	*0.00*	*0.01*	0.22	*0.04*	0.11	*0.00*	*0.00*	0.11	*0.02*	*0.02*	*0.01*	0.08	0.05
MeanLengthAbundance_s	0.49	0.54	0.47	-0.09	0.63	0.39	0.39	-0.06	-0.39	**0.86**	**0.74**	-0.49	-0.36	1.00	0.28	*0.00*	*0.00*	*0.00*	*0.00*	0.57	0.25	*0.02*	*0.00*	*0.00*	*0.01*	*0.00*	*0.00*	0.46	*0.03*	0.41
MeanLengthBiomass_s	0.51	**0.80**	0.64	-0.08	**0.82**	0.69	0.70	-0.16	-0.49	**0.98**	**0.84**	-0.58	-0.30	**0.86**	1.00	*0.00*	*0.00*	0.80	*0.00*	0.36	*0.00*	*0.00*	*0.01*	*0.00*	0.48	*0.00*	0.11	*0.00*	*0.00*	0.05
MeanLifespan_s	0.25	**0.86**	0.66	0.03	**0.81**	**0.70**	0.66	-0.25	-0.55	**0.91**	0.58	-0.60	-0.38	0.65	**0.88**	1.00	*0.00*	0.08	*0.00*	0.43	*0.04*	*0.00*	0.39	*0.00*	0.85	*0.00*	0.06	*0.01*	*0.00*	0.73
MMLengthAbundance_s	0.54	**0.70**	0.53	-0.09	**0.79**	0.64	0.63	-0.10	-0.43	**0.95**	**0.84**	-0.52	-0.32	**0.89**	**0.95**	**0.84**	1.00	0.12	*0.00*	0.68	*0.00*	*0.00*	*0.00*	*0.00*	0.84	*0.00*	*0.00*	*0.00*	0.06	*0.00*
MMLengthBiomass_s	0.55	**0.81**	0.62	-0.06	**0.87**	**0.79**	**0.78**	-0.19	-0.48	**0.95**	**0.88**	-0.54	-0.29	**0.79**	**0.97**	**0.89**	**0.95**	1.00	*0.00*	0.28	*0.00*	*0.01*	*0.00*	*0.01*	0.28	*0.00*	*0.00*	*0.00*	*0.02*	0.14
MeanTrophicLevel_s	**0.72**	0.45	0.34	-0.19	0.64	0.55	0.65	-0.01	-0.23	0.65	**0.94**	-0.39	-0.10	0.66	**0.72**	0.40	**0.72**	**0.74**	1.00	0.09	*0.01*	*0.00*	*0.00*	*0.00*	0.60	*0.00*	*0.00*	*0.00*	*0.00*	*0.02*
PielouEvenness_s	0.29	**0.80**	0.61	0.05	**0.96**	**0.93**	**0.90**	-0.25	-0.46	**0.83**	**0.71**	-0.51	-0.24	0.56	**0.82**	**0.86**	**0.77**	**0.88**	0.55	1.00	*0.00*	*0.00*	*0.00*	*0.00*	0.77	*0.00*	*0.00*	*0.00*	*0.00*	0.74
PropPredatoryFish_s	0.32	**0.85**	0.65	0.03	**0.83**	**0.74**	0.69	-0.26	-0.55	**0.92**	0.64	-0.58	-0.36	0.68	**0.89**	**0.99**	**0.87**	**0.92**	0.44	**0.89**	1.00	*0.00*	*0.00*	0.43	0.07	*0.00*	*0.00*	*0.05*	*0.00*	*0.00*
BiomassFlatfish_s	0.00	0.16	0.14	0.18	-0.10	0.04	-0.05	-0.24	-0.16	0.11	-0.11	0.12	0.11	0.10	0.14	0.22	0.08	0.09	-0.29	0.03	0.26	1.00	*0.00*	0.20	0.74	0.36	*0.00*	*0.00*	0.98	0.41
BiomassGadoids_s	**1.00**	0.26	0.09	-0.12	0.27	0.26	0.30	-0.14	-0.10	0.45	**0.73**	-0.19	-0.03	0.49	0.51	0.25	0.54	0.55	**0.73**	0.29	0.32	0.00	1.00	0.51	*0.00*	*0.00*	*0.00*	*0.01*	*0.00*	0.63
BiomassGroundfish_s	**0.79**	0.32	0.18	0.02	0.16	0.23	0.21	-0.26	-0.18	0.44	0.51	-0.10	0.03	0.46	0.50	0.35	0.49	0.50	0.40	0.26	0.43	0.61	**0.79**	1.00	*0.00*	*0.00*	0.59	0.24	0.06	*0.02*
BTGLargeBenthivore_s	0.02	0.37	0.30	0.16	0.28	0.22	0.19	-0.14	-0.09	0.45	0.24	-0.33	-0.16	0.44	0.47	0.43	0.41	0.39	0.18	0.27	0.42	0.28	0.02	0.21	1.00	*0.00*	*0.00*	0.06	*0.00*	0.06
BTGMediumBenthivore_s	0.01	0.19	0.17	0.18	-0.07	0.05	-0.04	-0.23	-0.19	0.13	-0.10	0.10	0.08	0.12	0.16	0.24	0.10	0.11	-0.28	0.05	0.28	**0.99**	0.01	0.61	0.29	1.00	*0.00*	*0.00*	0.78	0.13
BTGPiscivore_s	**1.00**	0.29	0.12	-0.11	0.27	0.26	0.30	-0.15	-0.12	0.47	**0.72**	-0.21	-0.04	0.51	0.53	0.28	0.56	0.56	**0.71**	0.30	0.35	0.04	**1.00**	**0.82**	0.05	0.05	1.00	0.69	*0.00*	0.16
BiomassSkates_s	0.26	0.50	0.38	0.15	0.15	0.12	0.08	-0.29	-0.24	0.42	0.12	-0.39	-0.27	0.34	0.43	0.48	0.38	0.37	0.06	0.24	0.47	0.47	0.26	0.54	0.47	0.50	0.33	1.00	0.47	*0.01*
ShannonDiversity_s	0.28	**0.73**	0.54	0.11	**0.87**	**0.97**	**0.92**	-0.30	-0.34	**0.72**	0.66	-0.34	-0.05	0.42	**0.72**	**0.78**	0.67	**0.81**	0.48	**0.96**	**0.81**	0.11	0.28	0.29	0.22	0.12	0.28	0.21	1.00	*0.00*
SpeciesRichness_s	-0.21	-0.71	-0.55	0.03	-0.62	-0.39	-0.43	0.17	0.55	-0.65	-0.43	**0.99**	0.60	-0.52	-0.63	-0.66	-0.57	-0.60	-0.41	-0.58	-0.64	0.10	-0.21	-0.13	-0.34	0.07	-0.23	-0.40	-0.42	1.00

Table S30. Spearman rank correlation coefficients (r) for indicators in strata 444. The upper triangle of the matrix represents p-values (p ≤ 0.05 highlighted in blue italics). The lower triangle of the matrix represents the r values (r ≥ 0.7 highlighted in red).

Indicator	BiomassTL4_s	CommunityCondition_s	CCLargeBenthivore_s	CCMediumBenthivore_s	CCPiscivore_s	CCZoopiscivore_s	Heips_s	HillN1Diversity_s	HillN2Dominance_s	InverseCVBiomass_s	KemptonQ_s	LargeFishIndicator_s	LargeSpeciesIndicator_s	MargalefRichness_s	MargalefGroundfish_s	MeanLengthAbundance_s	MeanLengthBiomass_s	MeanLifespan_s	MMLengthAbundance_s	MMLengthBiomass_s	MeanTrophicLevel_s	PielouEvenness_s	PropPredatoryFish_s	BiomassFlatfish_s	BiomassGadoids_s	BiomassGroundfish_s	BTGLargeBenthivore_s	BTGMediumBenthivore_s	BTGPiscivore_s	BiomassSkates_s	BTGZoopiscivore_s	ShannonDiversity_s	SpeciesRichness_s
BiomassTL4_s	1.00	*0.02*	0.13	0.51	0.31	*0.00*	*0.00*	*0.00*	*0.02*	*0.02*	*0.00*	*0.05*	0.68	*0.01*	0.42	*0.00*	0.11	0.32	0.33	0.16	*0.00*	0.11	0.86	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	0.56	0.49	0.32	*0.02*
CommunityCondition_s	0.33	1.00	*0.01*	0.05	0.53	*0.00*	0.20	0.34	0.71	0.33	*0.00*	0.52	0.40	0.06	0.17	*0.01*	*0.00*	0.63	*0.04*	*0.04*	*0.00*	0.43	0.25	*0.00*	*0.00*	*0.00*	*0.02*	*0.00*	*0.00*	*0.00*	*0.00*	0.78	0.83
CCLargeBenthivore_s	0.23	0.38	1.00	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	0.45	0.60	*0.00*	0.45	0.48	*0.03*	*0.01*	*0.00*	*0.00*	*0.04*	*0.01*	0.09	*0.00*	0.81	0.24	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	0.42	*0.00*	*0.00*	0.89	0.42
CCMediumBenthivore_s	0.40	0.60	0.41	1.00	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.03*	*0.00*	*0.02*	*0.05*	1.00	*0.00*	*0.00*	0.63	0.32	0.06	0.40	0.92	0.40	0.32	*0.00*	*0.00*	*0.00*	0.94	0.35	0.12	*0.00*	*0.00*	0.11	*0.00*
CCPiscivore_s	0.10	0.14	0.33	0.38	1.00	*0.00*	*0.00*	0.36	*0.01*	*0.00*	*0.00*	0.11	0.31	0.14	*0.04*	*0.00*	*0.00*	0.47	*0.02*	0.10	*0.00*	0.84	0.80	*0.05*	*0.00*	*0.00*	*0.00*	0.08	0.05	*0.02*	*0.00*	0.62	0.51
CCZoopiscivore_s	0.29	0.40	0.15	0.50	0.47	1.00	0.10	0.19	*0.00*	*0.00*	*0.00*	*0.00*	0.08	0.75	0.09	0.47	*0.00*	0.39	*0.02*	*0.02*	*0.03*	0.48	0.68	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.02*	0.20	0.54	*0.00*
Heips_s	0.42	0.34	0.06	0.31	-0.07	0.18	1.00	*0.00*	0.35	*0.01*	0.16	0.42	0.10	0.06	0.25	*0.00*	0.14	0.19	*0.01*	*0.00*	0.86	*0.00*	0.71	0.11	*0.00*	*0.01*	0.85	*0.00*	*0.00*	*0.01*	*0.00*	*0.00*	*0.00*
HillN1Diversity_s	-0.15	-0.15	-0.13	-0.25	-0.47	-0.25	0.45	1.00	*0.01*	*0.00*	0.10	*0.00*	0.19	0.12	*0.00*	0.05	0.27	0.52	*0.01*	*0.00*	0.70	0.86	0.86	*0.00*	*0.00*	*0.00*	0.74	*0.00*	0.76	0.53	*0.00*	*0.02*	*0.00*
HillN2Dominance_s	-0.09	-0.08	-0.11	-0.17	-0.42	-0.20	0.56	**0.97**	1.00	*0.00*	0.75	*0.00*	0.06	0.56	*0.00*	*0.00*	0.07	0.27	0.05	0.15	*0.00*	0.32	0.91	*0.00*	*0.01*	0.13	*0.00*	*0.00*	*0.02*	0.15	0.18	*0.00*	0.38
InverseCVBiomass_s	0.43	0.33	0.30	0.44	0.22	0.15	0.22	-0.29	-0.24	1.00	*0.01*	*0.03*	*0.04*	0.41	*0.00*	*0.00*	0.51	0.27	*0.03*	*0.00*	0.08	0.28	*0.00*	*0.04*	0.08	*0.00*	0.05	*0.00*	*0.00*	0.14	0.09	*0.00*	0.15
KemptonQ_s	-0.42	-0.51	-0.15	-0.45	-0.17	-0.31	-0.44	0.13	0.08	-0.24	1.00	0.32	*0.04*	0.09	*0.00*	0.63	0.20	*0.00*	*0.05*	*0.00*	0.61	0.14	0.71	0.75	*0.00*	*0.00*	0.39	*0.00*	*0.01*	0.11	*0.00*	*0.00*	*0.00*
LargeFishIndicator_s	**0.76**	0.47	0.26	0.64	0.27	0.40	0.62	-0.15	-0.07	0.52	-0.66	1.00	0.24	0.09	*0.00*	*0.02*	*0.01*	0.94	0.15	*0.00*	*0.00*	0.47	0.35	*0.00*	*0.01*	0.18	0.68	*0.00*	0.62	0.37	*0.00*	*0.03*	0.07
LargeSpeciesIndicator_s	**0.89**	0.38	0.24	0.48	0.10	0.28	0.56	-0.10	-0.03	0.42	-0.50	**0.88**	1.00	0.13	*0.00*	*0.00*	*0.02*	*0.00*	0.92	*0.00*	*0.00*	0.24	0.50	*0.01*	*0.00*	*0.04*	*0.00*	0.29	0.14	0.15	0.36	*0.00*	0.48
MargalefRichness_s	-0.47	-0.51	-0.20	-0.52	-0.19	-0.35	-0.58	0.28	0.17	-0.57	0.67	-0.78	-0.58	1.00	*0.00*	*0.00*	0.05	0.22	0.17	*0.00*	*0.00*	0.24	0.25	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.01*	0.11	0.98	*0.00*	0.34
MargalefGroundfish_s	-0.52	-0.56	-0.28	-0.50	-0.40	-0.34	-0.45	0.30	0.17	-0.55	0.58	-0.63	-0.49	0.70	1.00	0.96	0.87	0.22	0.30	*0.04*	0.05	0.15	0.40	*0.00*	*0.04*	*0.00*	*0.01*	*0.03*	*0.00*	*0.00*	*0.00*	*0.00*	0.62
MeanLengthAbundance_s	0.59	0.49	0.31	0.58	0.35	0.36	0.31	-0.24	-0.15	0.29	-0.59	0.58	0.52	-0.37	-0.62	1.00	*0.04*	0.10	*0.03*	*0.00*	0.38	0.48	0.29	0.37	*0.00*	0.27	*0.00*	*0.00*	*0.00*	0.69	0.09	*0.01*	0.40
MeanLengthBiomass_s	**0.75**	0.51	0.31	0.68	0.29	0.39	0.58	-0.12	-0.04	0.51	-0.68	**0.96**	**0.85**	-0.70	-0.64	0.69	1.00	0.19	*0.03*	*0.00*	0.32	*0.00*	0.43	*0.00*	*0.00*	0.43	*0.00*	*0.00*	*0.00*	*0.00*	0.39	0.87	*0.05*
MeanLifespan_s	0.19	**0.80**	0.18	0.38	0.02	0.29	0.42	0.04	0.06	0.24	-0.57	0.45	0.27	-0.49	-0.43	0.29	0.42	1.00	0.92	*0.00*	0.50	0.10	0.17	*0.00*	*0.00*	*0.00*	*0.00*	0.98	*0.00*	*0.00*	0.41	*0.00*	0.07
MMLengthAbundance_s	**0.70**	0.55	0.39	0.62	0.31	0.32	0.50	-0.13	-0.06	0.48	-0.72	**0.81**	**0.72**	-0.61	-0.67	**0.80**	**0.84**	0.53	1.00	*0.00*	0.06	0.11	0.46	*0.01*	0.62	*0.00*	*0.00*	*0.01*	*0.01*	*0.00*	*0.00*	0.40	*0.00*
MMLengthBiomass_s	**0.75**	0.47	0.28	0.55	0.15	0.30	0.62	-0.03	0.03	0.48	-0.68	**0.94**	**0.90**	-0.73	-0.56	0.48	**0.91**	0.50	**0.83**	1.00	*0.04*	0.59	*0.00*	0.48	0.33	*0.00*	*0.02*	*0.00*	*0.00*	*0.03*	*0.00*	*0.00*	0.34
MeanTrophicLevel_s	**0.70**	0.66	0.32	0.44	0.07	0.22	0.42	-0.11	-0.02	0.31	-0.37	0.55	**0.71**	-0.35	-0.55	0.63	0.62	0.35	0.56	0.53	1.00	0.64	0.35	0.06	*0.00*	*0.00*	*0.04*	*0.00*	0.11	*0.00*	0.11	0.08	0.16
PielouEvenness_s	0.24	0.21	0.00	0.11	-0.30	0.02	**0.90**	**0.76**	**0.81**	0.05	-0.26	0.39	0.35	-0.31	-0.16	0.12	0.38	0.35	0.32	0.45	0.25	1.00	0.10	*0.00*	*0.00*	*0.00*	*0.00*	0.89	*0.00*	*0.01*	0.69	*0.00*	*0.00*
PropPredatoryFish_s	0.46	0.24	0.22	0.45	0.15	0.21	0.53	0.03	0.06	0.50	-0.60	**0.79**	0.61	-0.76	-0.45	0.23	**0.72**	0.39	0.67	**0.86**	0.13	0.41	1.00	*0.00*	*0.00*	0.07	*0.01*	*0.02*	*0.00*	*0.00*	*0.00*	0.17	*0.00*
BiomassFlatfish_s	0.14	0.05	0.05	0.29	0.11	0.16	0.01	-0.15	-0.14	0.39	-0.39	0.22	-0.01	-0.37	-0.32	0.29	0.24	0.09	0.39	0.19	-0.13	-0.04	0.42	1.00	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	0.32	*0.00*	0.24	*0.00*	0.64
BiomassGadoids_s	**1.00**	0.37	0.28	0.42	0.13	0.32	0.43	-0.16	-0.10	0.44	-0.43	**0.78**	**0.89**	-0.49	-0.54	0.61	**0.77**	0.21	**0.72**	**0.76**	**0.72**	0.25	0.46	0.13	1.00	*0.00*	*0.00*	*0.00*	*0.00*	*0.03*	0.64	*0.03*	0.28	0.35
BiomassGroundfish_s	**0.78**	0.29	0.23	0.50	0.20	0.32	0.32	-0.22	-0.17	0.55	-0.56	**0.71**	0.61	-0.60	-0.59	0.60	**0.70**	0.22	**0.75**	0.67	0.41	0.15	0.61	**0.73**	**0.77**	1.00	0.05	*0.05*	*0.00*	*0.00*	0.64	0.21	*0.00*
BTGLargeBenthivore_s	-0.14	0.10	0.09	0.07	0.10	-0.02	-0.03	-0.11	-0.13	0.14	-0.31	0.20	0.03	-0.29	0.00	-0.05	0.15	0.24	0.07	0.20	-0.24	-0.04	0.32	0.26	-0.13	0.10	1.00	*0.00*	*0.00*	*0.00*	*0.01*	*0.01*	0.38
BTGMediumBenthivore_s	0.20	0.11	0.13	0.36	0.17	0.21	0.06	-0.18	-0.16	0.43	-0.43	0.30	0.05	-0.43	-0.37	0.35	0.32	0.14	0.46	0.26	-0.06	-0.02	0.46	**0.99**	0.19	**0.77**	0.27	1.00	0.25	*0.00*	*0.00*	*0.00*	0.12
BTGPiscivore_s	**0.99**	0.35	0.25	0.44	0.17	0.31	0.43	-0.17	-0.12	0.46	-0.45	**0.80**	**0.88**	-0.52	-0.57	0.61	**0.78**	0.22	**0.74**	**0.78**	0.69	0.24	0.51	0.21	**0.99**	**0.82**	-0.11	0.27	1.00	0.76	0.78	0.40	*0.00*
BiomassSkates_s	0.33	0.24	0.26	0.49	0.51	0.26	0.26	-0.22	-0.21	0.39	-0.41	0.58	0.29	-0.50	-0.52	0.36	0.55	0.24	0.51	0.47	0.18	0.07	0.52	0.50	0.34	0.62	0.14	0.54	0.46	1.00	0.09	0.20	0.65
BTGZoopiscivore_s	-0.06	0.52	0.23	-0.01	0.01	0.13	-0.08	-0.11	-0.11	-0.11	-0.07	-0.17	-0.13	0.14	-0.02	0.07	-0.17	0.55	0.05	-0.14	0.31	-0.09	-0.36	-0.16	-0.03	-0.13	-0.08	-0.14	-0.07	-0.13	1.00	*0.00*	0.35
ShannonDiversity_s	-0.11	-0.12	-0.12	-0.24	-0.50	-0.25	0.48	**0.98**	**0.94**	-0.28	0.15	-0.12	-0.06	0.26	0.34	-0.22	-0.09	0.06	-0.10	0.00	-0.07	**0.81**	0.02	-0.19	-0.12	-0.22	-0.13	-0.21	-0.14	-0.23	-0.07	1	0.13
SpeciesRichness_s	-0.47	-0.53	-0.21	-0.53	-0.19	-0.35	-0.59	0.25	0.14	-0.57	0.68	-0.79	-0.59	**1.00**	0.70	-0.37	-0.72	-0.52	-0.62	-0.75	-0.36	-0.34	-0.78	-0.37	-0.49	-0.60	-0.29	-0.42	-0.52	-0.50	0.14	0.23	1

Table S 31. Spearman rank correlation coefficients (r) for indicators in strata 445. The upper triangle of the matrix represents p-values (p ≤ 0.05 highlighted in blue italics). The lower triangle of the matrix represents the r values (r ≥ 0.7 highlighted in red).

Indicator	BiomassTL4_s	CommunityCondition_s	CCMediumBenthivore_s	CCPiscivore_s	CCZoopiscivore_s	Heips_s	HillN1Diversity_s	HillN2Dominance_s	InverseCVBiomass_s	KemptonQ_s	LargeFishIndicator_s	LargeSpeciesIndicator_s	MargalefRichness_s	MargalefGroundfish_s	MeanLengthAbundance_s	MeanLengthBiomass_s	MeanLifespan_s	MMLengthAbundance_s	MMLengthBiomass_s	MeanTrophicLevel_s	PielouEvenness_s	PropPredatoryFish_s	BiomassFlatfish_s	BiomassGadoids_s	BiomassGroundfish_s	BTGMediumBenthivore_s	BTGPiscivore_s	BiomassSkates_s	BTGZoopiscivore_s	ShannonDiversity_s	SpeciesRichness_s
BiomassTL4_s	1.00	0.72	0.64	0.95	0.35	*0.00*	0.69	0.24	0.51	*0.00*	*0.00*	0.28	*0.05*	*0.04*	0.93	0.16	*0.03*	0.07	*0.00*	0.36	0.59	*0.00*	0.25	0.91	0.63	*0.00*	0.92	*0.05*	0.17	0.08	*0.01*
CommunityCondition_s	0.05	1.00	0.80	0.38	0.50	0.44	0.40	*0.00*	0.43	0.54	*0.03*	*0.00*	*0.00*	0.11	0.75	0.11	*0.04*	0.32	*0.00*	*0.04*	0.28	0.06	*0.00*	0.89	*0.00*	*0.00*	0.96	*0.00*	*0.01*	*0.01*	*0.00*
CCMediumBenthivore_s	-0.07	0.60	1.00	0.42	0.92	0.26	*0.00*	*0.00*	*0.00*	0.47	*0.00*	*0.00*	*0.03*	0.46	0.23	0.90	0.51	*0.01*	0.07	0.14	0.11	0.71	0.08	*0.00*	*0.00*	0.47	0.36	0.40	0.68	*0.00*	*0.01*
CCPiscivore_s	-0.04	0.32	0.34	1.00	*0.00*	0.10	*0.00*	0.24	*0.03*	*0.00*	*0.00*	*0.00*	0.17	0.59	*0.05*	0.93	0.06	*0.02*	*0.00*	*0.00*	0.18	0.27	0.22	0.66	0.11	*0.00*	*0.01*	0.08	0.80	*0.00*	0.14
CCZoopiscivore_s	0.01	0.53	0.49	0.35	1.00	*0.00*	0.44	*0.00*	*0.00*	*0.00*	0.17	*0.02*	*0.00*	0.53	0.07	0.99	0.06	*0.00*	*0.02*	*0.03*	0.54	*0.00*	0.20	0.69	*0.00*	0.10	*0.00*	*0.01*	0.45	0.12	*0.00*
Heips_s	-0.13	0.55	0.53	0.33	0.41	1.00	0.41	0.24	*0.00*	0.54	*0.00*	*0.00*	*0.00*	0.83	0.29	0.07	*0.00*	*0.00*	0.14	0.16	0.07	0.22	0.76	*0.00*	*0.00*	0.06	*0.00*	0.38	0.91	*0.00*	0.79
HillN1Diversity_s	-0.12	0.38	0.43	0.19	0.35	**0.87**	1.00	0.47	*0.01*	*0.00*	*0.00*	*0.00*	*0.01*	0.57	0.32	0.27	0.11	*0.00*	0.13	*0.00*	0.24	0.79	*0.00*	*0.00*	*0.00*	0.05	*0.00*	0.27	0.47	*0.01*	0.10
HillN2Dominance_s	-0.14	0.34	0.38	0.18	0.35	**0.86**	**0.97**	1.00	*0.02*	*0.02*	0.15	*0.00*	*0.00*	*0.00*	0.11	0.11	0.19	0.45	0.39	*0.00*	*0.00*	0.05	0.30	0.63	*0.00*	0.38	*0.00*	0.09	*0.03*	0.28	*0.02*
InverseCVBiomass_s	0.10	-0.42	-0.26	-0.01	-0.21	-0.45	-0.48	-0.43	1.00	*0.00*	*0.02*	*0.01*	*0.00*	*0.01*	0.25	0.06	*0.02*	0.10	0.43	0.10	*0.04*	*0.05*	*0.01*	*0.00*	*0.02*	0.94	*0.00*	0.09	0.23	0.28	*0.05*
KemptonQ_s	0.02	0.09	0.41	-0.05	0.16	-0.11	-0.05	-0.08	-0.06	1.00	0.90	0.08	*0.01*	*0.02*	*0.05*	*0.00*	*0.00*	*0.00*	0.97	*0.02*	0.26	*0.04*	0.99	*0.00*	*0.00*	0.63	*0.01*	*0.00*	*0.01*	0.49	*0.00*
LargeFishIndicator_s	0.44	0.11	0.30	0.18	0.20	0.25	0.20	0.16	-0.17	0.18	1.00	*0.00*	*0.00*	*0.03*	0.06	*0.02*	0.76	*0.00*	*0.00*	0.07	*0.01*	0.05	0.62	0.09	*0.00*	0.14	0.57	0.39	*0.04*	0.31	*0.00*
LargeSpeciesIndicator_s	0.45	0.55	0.45	0.29	0.31	0.47	0.29	0.24	-0.43	0.19	0.63	1.00	0.10	0.20	0.34	*0.02*	0.12	0.60	*0.00*	0.62	*0.00*	0.06	0.22	0.13	0.54	*0.00*	0.17	*0.00*	*0.00*	0.54	*0.00*
MargalefRichness_s	0.12	-0.45	-0.32	-0.27	-0.31	-0.56	-0.19	-0.20	0.18	0.05	-0.07	-0.44	1.00	0.22	*0.03*	0.16	*0.03*	*0.01*	*0.00*	0.76	0.15	*0.00*	0.83	*0.00*	*0.01*	0.50	*0.00*	*0.00*	0.12	*0.00*	0.78
MargalefGroundfish_s	0.17	0.09	0.20	-0.16	0.10	-0.08	0.14	0.09	-0.04	0.43	0.06	0.07	0.44	1.00	0.19	0.30	0.65	*0.04*	*0.00*	0.51	*0.03*	*0.00*	0.74	0.47	*0.00*	0.52	0.25	*0.01*	*0.00*	*0.00*	0.62
MeanLengthAbundance_s	0.25	0.62	0.41	0.15	0.28	0.38	0.31	0.27	-0.29	0.15	0.50	0.50	-0.12	0.10	1.00	0.18	0.95	*0.00*	0.75	0.22	0.15	0.51	0.91	*0.00*	0.88	0.84	0.90	*0.01*	0.24	0.21	*0.04*
MeanLengthBiomass_s	0.41	0.35	0.46	0.24	0.28	0.31	0.22	0.18	-0.29	0.36	**0.86**	**0.80**	-0.20	0.10	0.62	1.00	0.73	*0.00*	0.18	0.55	0.52	*0.00*	0.19	0.11	0.96	0.93	0.10	*0.03*	0.08	0.68	0.61
MeanLifespan_s	-0.06	**0.77**	0.37	0.17	0.43	0.50	0.47	0.45	-0.31	0.00	0.07	0.24	-0.22	0.03	0.64	0.22	1.00	*0.02*	*0.05*	*0.00*	0.75	*0.03*	0.33	0.32	*0.02*	0.90	0.79	0.38	*0.00*	0.07	*0.00*
MMLengthAbundance_s	0.13	0.59	0.41	0.29	0.24	0.43	0.33	0.30	-0.29	0.07	0.51	0.48	-0.11	-0.01	**0.87**	0.61	0.58	1.00	0.21	0.06	0.44	*0.05*	0.60	*0.00*	*0.00*	0.89	0.08	0.49	0.54	0.23	0.41
MMLengthBiomass_s	0.47	0.33	0.43	0.28	0.20	0.34	0.21	0.17	-0.28	0.18	**0.81**	**0.82**	-0.22	0.02	0.52	**0.91**	0.13	0.61	1.00	*0.00*	0.25	0.07	0.43	0.26	*0.00*	0.94	*0.03*	0.65	0.14	0.31	0.66
MeanTrophicLevel_s	0.42	0.70	0.36	0.14	0.35	0.55	0.42	0.37	-0.46	0.03	0.25	0.69	-0.50	0.02	0.43	0.42	0.51	0.34	0.40	1.00	0.53	0.31	0.97	*0.02*	0.43	0.63	0.21	0.55	0.11	*0.04*	*0.03*
PielouEvenness_s	-0.12	0.54	0.51	0.32	0.42	**0.95**	**0.93**	**0.90**	-0.50	-0.05	0.23	0.45	-0.44	0.01	0.36	0.31	0.56	0.39	0.31	0.57	1.00	0.28	0.95	0.19	0.19	0.80	0.15	*0.00*	0.08	*0.00*	0.87
PropPredatoryFish_s	0.12	-0.21	0.25	0.20	-0.05	0.27	0.25	0.22	-0.10	-0.02	0.50	0.34	-0.11	-0.07	0.09	0.46	-0.37	0.26	0.63	-0.09	0.23	1.00	0.95	0.46	0.14	0.16	*0.00*	*0.00*	*0.00*	0.16	0.58
BiomassFlatfish_s	0.17	-0.61	-0.30	-0.21	-0.23	-0.53	-0.34	-0.31	0.53	-0.20	-0.11	-0.52	0.50	-0.04	-0.21	-0.29	-0.37	-0.20	-0.23	-0.59	-0.50	0.19	1.00	*0.00*	0.47	0.42	*0.00*	0.06	0.54	0.38	0.61
BiomassGadoids_s	0.68	0.53	0.24	0.24	0.33	0.33	0.27	0.22	-0.31	0.15	0.48	**0.82**	-0.25	0.21	0.52	0.57	0.32	0.36	0.56	0.67	0.37	0.06	*-0.37*	1.00	0.15	0.92	*0.00*	*0.00*	*0.00*	*0.01*	0.35
BiomassGroundfish_s	0.60	-0.21	-0.11	0.02	0.07	-0.22	-0.08	-0.10	0.30	-0.08	0.24	0.09	0.28	0.12	0.17	0.13	-0.13	0.06	0.18	-0.12	-0.16	0.27	**0.72**	0.36	1.00	0.26	*0.04*	*0.02*	*0.00*	*0.00*	0.18
BTGMediumBenthivore_s	-0.18	-0.33	-0.08	0.01	0.01	-0.23	-0.05	-0.05	0.27	-0.12	-0.15	-0.36	0.29	-0.02	-0.02	-0.26	-0.10	-0.04	-0.26	-0.57	-0.16	0.18	**0.77**	-0.22	0.66	1.00	*0.00*	*0.01*	0.44	*0.00*	0.22
BTGPiscivore_s	**0.98**	0.02	-0.09	0.00	0.05	-0.13	-0.10	-0.12	0.15	-0.01	0.46	0.43	0.13	0.17	0.25	0.40	-0.07	0.11	0.46	0.36	-0.10	0.15	0.25	0.67	0.69	-0.08	1.00	0.08	*0.00*	0.10	0.88
BiomassSkates_s	-0.18	-0.16	0.03	0.27	0.27	0.12	0.19	0.17	0.16	0.01	0.17	0.02	0.01	0.02	0.04	0.13	-0.09	0.02	0.09	-0.26	0.15	0.31	0.28	-0.04	0.41	0.53	-0.02	1.00	*0.01*	0.06	0.35
BTGZoopiscivore_s	0.11	0.43	-0.09	-0.17	0.15	0.01	0.09	0.09	-0.17	-0.01	-0.34	-0.01	0.07	0.01	0.26	-0.16	0.62	0.11	-0.22	0.36	0.09	-0.63	-0.19	0.24	-0.04	-0.12	0.08	-0.20	1.00	0.21	0.70
ShannonDiversity_s	-0.10	0.44	0.45	0.24	0.37	**0.86**	**0.98**	**0.93**	-0.50	-0.02	0.20	0.35	-0.22	0.14	0.32	0.25	0.54	0.33	0.24	0.48	**0.96**	0.21	-0.38	0.33	-0.08	-0.07	-0.08	0.18	0.14	1.00	*0.04*
SpeciesRichness_s	0.12	-0.50	-0.37	-0.28	-0.33	-0.63	-0.28	-0.28	0.26	0.02	-0.11	-0.49	**0.99**	0.39	-0.19	-0.25	-0.28	-0.18	-0.26	-0.55	-0.52	-0.13	0.56	-0.29	0.31	0.32	0.14	0.02	0.06	-0.31	1.00

Table S32. Spearman rank correlation coefficients (r) for indicators in strata 446. The upper triangle of the matrix represents p-values (p ≤ 0.05 highlighted in blue italics). The lower triangle of the matrix represents the r values (r ≥ 0.7 highlighted in red).

Indicator	BiomassTL4_s	CommunityCondition_s	CCMediumBenthivore_s	CCPiscivore_s	CCZoopiscivore_s	Heips_s	HillN1Diversity_s	HillN2Dominance_s	InverseCVBiomass_s	KemptonQ_s	LargeFishIndicator_s	LargeSpeciesIndicator_s	MargalefRichness_s	MargalefGroundfish_s	MeanLengthAbundance_s	MeanLengthBiomass_s	MeanLifespan_s	MMLengthAbundance_s	MMLengthBiomass_s	MeanTrophicLevel_s	PielouEvenness_s	PropPredatoryFish_s	BiomassFlatfish_s	BiomassGadoids_s	BiomassGroundfish_s	BTGMediumBenthivore_s	BTGPiscivore_s	BiomassSkates_s	BTGZoopiscivore_s	ShannonDiversity_s	SpeciesRichness_s
BiomassTL4_s	1.00	0.28	0.53	0.25	0.58	*0.01*	*0.00*	0.57	0.54	0.68	0.96	*0.04*	0.87	0.05	0.41	0.98	0.20	0.33	0.70	0.31	0.22	*0.00*	0.06	0.39	0.36	*0.02*	0.17	0.96	0.98	0.34	0.55
CommunityCondition_s	0.16	1.00	0.05	0.69	*0.02*	0.14	*0.00*	*0.00*	0.20	*0.01*	0.71	0.39	0.37	*0.02*	0.32	0.21	0.75	0.11	*0.00*	0.10	*0.00*	0.69	0.29	*0.00*	0.73	0.99	*0.03*	0.22	*0.02*	0.50	0.56
CCMediumBenthivore_s	0.09	0.27	1.00	0.40	0.30	0.22	*0.00*	*0.00*	0.07	0.45	0.65	*0.00*	0.32	*0.01*	0.54	0.21	0.62	*0.04*	*0.00*	*0.00*	0.08	*0.00*	*0.00*	*0.00*	*0.00*	0.16	0.18	0.16	*0.02*	0.84	*0.00*
CCPiscivore_s	0.29	0.25	0.51	1.00	*0.04*	0.81	*0.00*	0.92	0.09	0.46	*0.00*	0.66	0.28	*0.01*	0.84	0.92	0.13	0.64	0.42	*0.01*	0.41	*0.00*	*0.02*	*0.01*	*0.00*	0.64	0.25	0.86	0.90	*0.02*	*0.00*
CCZoopiscivore_s	0.17	0.54	-0.06	-0.15	1.00	0.07	0.69	*0.00*	*0.00*	0.50	0.44	*0.00*	0.76	0.40	*0.00*	0.06	*0.00*	*0.00*	0.36	0.99	0.23	*0.00*	0.48	0.09	0.30	0.43	*0.00*	*0.02*	*0.00*	*0.00*	*0.00*
Heips_s	-0.06	-0.47	-0.29	-0.22	0.30	1.00	*0.00*	0.44	*0.00*	0.80	0.29	0.67	0.98	0.25	0.13	0.55	*0.02*	*0.00*	0.45	0.06	0.06	*0.00*	*0.00*	*0.00*	*0.00*	0.50	0.30	0.06	0.77	0.67	0.46
HillN1Diversity_s	-0.13	-0.55	-0.38	-0.40	0.24	**0.85**	1.00	0.99	*0.00*	0.50	0.15	0.05	0.50	*0.04*	0.29	0.23	0.19	0.06	0.38	0.63	*0.00*	0.90	*0.00*	*0.00*	0.07	*0.01*	*0.00*	*0.00*	0.57	0.39	0.35
HillN2Dominance_s	-0.08	-0.57	-0.34	-0.35	0.24	**0.89**	**0.98**	1.00	*0.00*	0.38	0.26	*0.01*	0.66	*0.01*	0.86	*0.01*	*0.02*	0.59	0.98	*0.00*	*0.00*	0.08	0.14	*0.00*	0.05	0.07	0.19	*0.00*	0.87	0.44	0.40
InverseCVBiomass_s	0.35	0.06	-0.13	0.12	0.33	0.28	0.13	0.15	1.00	0.47	0.57	*0.02*	0.56	0.50	0.76	*0.01*	0.31	*0.00*	0.33	*0.00*	0.57	*0.00*	*0.02*	*0.00*	*0.00*	0.39	0.38	*0.00*	*0.01*	0.38	0.25
KemptonQ_s	-0.16	-0.39	-0.05	-0.15	-0.18	-0.08	0.23	0.18	-0.41	1.00	0.35	0.38	0.49	0.33	0.17	*0.04*	*0.02*	0.09	*0.00*	0.17	*0.03*	*0.00*	0.38	*0.00*	0.13	0.65	*0.00*	*0.00*	*0.00*	0.94	*0.00*
LargeFishIndicator_s	0.30	-0.11	-0.02	-0.09	0.38	0.62	0.41	0.42	0.51	-0.35	1.00	0.72	*0.01*	0.14	0.52	0.11	*0.01*	0.15	*0.00*	0.29	0.88	*0.03*	0.05	*0.02*	0.11	0.15	0.11	*0.00*	*0.01*	0.44	*0.00*
LargeSpeciesIndicator_s	0.38	-0.11	0.14	-0.03	0.19	0.25	0.29	0.26	0.60	-0.11	0.44	1.00	0.59	*0.01*	0.07	0.11	0.77	0.05	0.06	0.38	*0.00*	*0.00*	0.12	*0.00*	*0.04*	*0.00*	0.95	*0.00*	*0.00*	*0.00*	0.89
MargalefRichness_s	-0.22	-0.10	-0.15	-0.43	-0.05	-0.21	0.22	0.13	-0.41	0.50	-0.36	-0.09	1.00	*0.02*	*0.04*	*0.03*	0.27	*0.00*	*0.00*	0.63	*0.00*	*0.01*	0.20	*0.00*	0.92	0.68	0.77	*0.00*	0.96	*0.00*	0.29
MargalefGroundfish_s	0.19	-0.04	0.16	0.23	-0.07	-0.29	-0.15	-0.18	0.02	0.42	-0.25	0.14	0.13	1.00	0.95	0.22	0.34	*0.00*	0.39	0.54	0.16	0.10	0.93	0.96	*0.00*	0.41	0.79	*0.00*	*0.00*	0.59	0.44
MeanLengthAbundance_s	0.04	-0.10	-0.05	0.16	0.23	0.52	0.24	0.28	0.26	-0.22	0.49	0.05	-0.45	-0.06	1.00	*0.01*	0.84	*0.00*	0.12	0.35	0.37	*0.00*	0.17	0.10	*0.01*	0.98	0.57	0.52	*0.00*	0.39	0.29
MeanLengthBiomass_s	0.27	-0.13	0.00	0.03	0.41	**0.70**	0.45	0.47	0.56	-0.36	**0.89**	0.52	-0.44	-0.13	**0.72**	1.00	0.23	0.09	*0.00*	*0.00*	0.49	0.80	0.52	0.07	0.20	0.70	0.74	*0.00*	0.94	*0.00*	0.92
MeanLifespan_s	-0.71	0.11	-0.10	-0.05	-0.35	-0.44	-0.39	-0.42	-0.44	0.13	-0.68	-0.57	0.14	0.00	-0.16	-0.63	1.00	*0.01*	0.05	*0.00*	0.60	0.42	0.64	0.78	0.05	0.78	0.92	*0.00*	*0.00*	*0.00*	0.92
MMLengthAbundance_s	0.53	0.01	0.07	0.20	0.20	0.25	0.00	0.09	0.32	-0.29	0.46	0.16	-0.39	-0.06	0.60	0.51	-0.54	1.00	0.14	0.33	0.76	0.39	0.67	*0.02*	0.48	0.83	0.14	0.51	0.27	0.77	0.13
MMLengthBiomass_s	**0.76**	-0.06	0.09	0.10	0.33	0.38	0.28	0.32	0.49	-0.23	0.68	0.59	-0.22	-0.04	0.20	0.64	-0.97	0.64	1.00	0.32	0.39	0.21	0.50	*0.04*	0.38	0.07	*0.04*	*0.00*	0.06	*0.00*	0.57
MeanTrophicLevel_s	**0.83**	0.07	-0.10	0.27	0.15	0.06	-0.07	-0.02	0.39	-0.19	0.33	0.27	-0.35	-0.03	0.13	0.31	-0.68	0.62	**0.78**	1.00	*0.01*	*0.01*	0.20	*0.00*	*0.00*	0.53	*0.00*	0.30	*0.03*	0.29	*0.00*
PielouEvenness_s	-0.06	-0.44	-0.36	-0.31	0.34	**0.94**	**0.92**	**0.91**	0.24	-0.01	0.59	0.29	0.00	-0.27	0.43	0.67	-0.46	0.14	0.38	0.04	1.00	0.37	0.85	*0.00*	*0.00*	*0.03*	*0.00*	0.05	0.11	*0.01*	0.96
PropPredatoryFish_s	0.61	-0.12	0.08	0.01	0.39	0.59	0.48	0.52	0.43	-0.21	**0.73**	0.53	-0.21	-0.10	0.24	**0.71**	-0.95	0.55	**0.92**	0.57	0.58	1.00	*0.04*	*0.01*	0.36	0.07	*0.00*	*0.00*	0.81	*0.00*	0.91
BiomassFlatfish_s	-0.09	-0.16	0.29	0.00	-0.05	0.12	0.20	0.21	-0.04	0.10	0.01	0.23	0.07	0.32	-0.01	0.01	-0.10	0.00	0.01	-0.35	0.06	0.13	1.00	0.56	*0.01*	*0.02*	*0.00*	0.31	*0.00*	0.11	0.71
BiomassGadoids_s	**0.70**	0.22	0.34	0.19	0.17	-0.14	-0.16	-0.13	0.12	-0.07	0.25	0.24	0.12	0.27	-0.04	0.19	-0.57	0.33	0.52	0.38	-0.13	0.46	0.08	1.00	0.14	0.08	*0.04*	*0.00*	*0.02*	0.58	0.11
BiomassGroundfish_s	0.68	0.17	0.39	0.19	0.14	-0.11	-0.13	-0.11	0.13	-0.06	0.27	0.30	0.10	0.33	-0.04	0.21	-0.59	0.33	0.54	0.33	-0.12	0.49	0.23	**0.98**	1.00	0.17	*0.00*	*0.00*	*0.01*	0.13	0.85
BTGMediumBenthivore_s	-0.02	0.09	0.40	-0.01	0.03	-0.13	-0.07	-0.08	-0.19	0.10	0.04	-0.01	0.39	0.26	-0.09	-0.03	-0.10	-0.02	-0.01	-0.31	-0.13	0.04	0.36	0.69	**0.72**	1.00	*0.00*	0.35	*0.03*	*0.01*	0.52
BTGPiscivore_s	**0.99**	0.14	0.13	0.27	0.18	0.00	-0.09	-0.05	0.38	-0.19	0.35	0.44	-0.27	0.20	0.05	0.34	-0.74	0.51	**0.79**	**0.79**	-0.01	0.66	-0.05	0.70	0.69	-0.01	1.00	*0.00*	*0.03*	0.73	0.39
BiomassSkates_s	-0.12	-0.30	0.17	-0.09	-0.15	0.15	0.14	0.13	0.13	-0.03	0.30	0.38	-0.13	0.21	0.02	0.28	-0.16	-0.04	0.16	-0.14	0.12	0.16	0.29	-0.11	0.02	0.02	0.01	1.00	*0.00*	0.05	*0.00*
BTGZoopiscivore_s	0.00	0.13	0.31	0.18	-0.24	-0.46	-0.44	-0.40	-0.28	0.31	-0.45	-0.19	0.07	0.32	-0.22	-0.47	0.29	-0.09	-0.28	-0.10	-0.58	-0.37	0.13	0.14	0.16	0.23	-0.02	0.03	1.00	0.39	0.30
ShannonDiversity_s	-0.09	-0.47	-0.40	-0.40	0.31	**0.85**	**0.97**	**0.93**	0.16	0.13	0.48	0.29	0.22	-0.20	0.30	0.53	-0.41	0.02	0.32	-0.03	**0.97**	0.51	0.09	-0.13	-0.12	-0.09	-0.06	0.10	-0.56	1.00	0.38
SpeciesRichness_s	-0.19	-0.07	-0.10	-0.40	-0.07	-0.28	0.15	0.06	-0.43	0.51	-0.40	-0.11	**0.99**	0.17	-0.49	-0.49	0.15	-0.39	-0.24	-0.35	-0.08	-0.24	0.09	0.17	0.16	0.45	-0.24	-0.13	0.16	0.13	1.00

Table S 33. Spearman rank correlation coefficients (r) for indicators in strata 447. The upper triangle of the matrix represents p-values (p ≤ 0.05 highlighted in blue italics). The lower triangle of the matrix represents the r values (r ≥ 0.7 highlighted in red).

Indicator	BiomassTL4_s	CommunityCondition_s	CCMediumBenthivore_s	CCPiscivore_s	Heips_s	HillN1Diversity_s	HillN2Dominance_s	InverseCVBiomass_s	KemptonQ_s	LargeFishIndicator_s	LargeSpeciesIndicator_s	MargalefRichness_s	MargalefGroundfish_s	MeanLengthAbundance_s	MeanLengthBiomass_s	MeanLifespan_s	MMLengthAbundance_s	MMLengthBiomass_s	MeanTrophicLevel_s	PielouEvenness_s	PropPredatoryFish_s	BiomassFlatfish_s	BiomassGadoids_s	BiomassGroundfish_s	BTGMediumBenthivore_s	BTGPiscivore_s	BiomassSkates_s	ShannonDiversity_s	SpeciesRichness_s
BiomassTL4_s	1.00	0.17	0.91	0.73	0.15	0.10	*0.02*	*0.00*	*0.01*	*0.01*	*0.00*	0.60	0.16	*0.03*	*0.02*	0.59	*0.00*	0.68	*0.01*	0.15	*0.03*	0.49	*0.00*	0.51	0.40	*0.00*	*0.01*	0.14	0.67
CommunityCondition_s	0.20	1.00	*0.04*	0.19	0.74	0.42	*0.00*	*0.00*	0.25	*0.00*	*0.00*	0.56	0.49	0.96	*0.00*	*0.00*	*0.00*	*0.00*	*0.01*	0.48	0.24	1.00	*0.00*	*0.00*	0.20	*0.00*	*0.00*	0.84	*0.00*
CCMediumBenthivore_s	-0.02	0.41	1.00	0.17	*0.03*	*0.04*	*0.00*	0.41	*0.00*	0.22	0.98	0.92	0.28	*0.01*	0.09	*0.00*	0.07	*0.00*	*0.00*	*0.00*	*0.01*	0.15	*0.00*	*0.00*	0.36	*0.00*	*0.00*	*0.04*	*0.00*
CCPiscivore_s	-0.30	-0.17	0.08	1.00	*0.00*	0.15	0.47	*0.00*	*0.00*	*0.00*	0.07	0.81	0.20	*0.04*	*0.01*	*0.00*	0.15	*0.00*	*0.00*	*0.01*	*0.00*	*0.03*	*0.00*	*0.01*	0.47	*0.00*	*0.00*	*0.00*	0.05
Heips_s	0.05	0.61	0.09	-0.31	1.00	*0.00*	0.28	0.67	*0.00*	*0.00*	0.13	*0.03*	0.73	*0.02*	*0.00*	*0.00*	0.70	*0.00*	*0.02*	*0.04*	*0.03*	*0.04*	0.29	*0.00*	0.39	*0.00*	*0.01*	0.49	*0.04*
HillN1Diversity_s	0.20	0.55	-0.01	-0.34	**0.85**	1.00	0.55	0.20	0.07	*0.00*	0.75	0.17	0.65	*0.01*	*0.03*	*0.00*	0.25	*0.00*	0.64	*0.00*	0.07	*0.00*	0.62	*0.02*	0.38	*0.00*	*0.00*	0.08	0.16
HillN2Dominance_s	0.21	0.52	-0.04	-0.37	**0.90**	**0.98**	1.00	0.14	*0.00*	*0.00*	*0.01*	0.41	*0.04*	0.53	0.57	*0.00*	0.39	0.17	*0.00*	*0.01*	*0.00*	*0.00*	*0.00*	0.45	0.62	*0.00*	*0.00*	*0.00*	0.69
InverseCVBiomass_s	0.22	0.27	0.32	-0.10	0.46	0.32	0.38	1.00	*0.00*	*0.00*	*0.00*	0.53	0.12	0.50	*0.00*	*0.00*	0.17	*0.00*	*0.00*	0.08	*0.04*	*0.00*	*0.00*	*0.00*	0.88	0.66	0.82	0.39	*0.00*
KemptonQ_s	-0.05	-0.59	-0.21	0.10	-0.54	-0.30	-0.36	-0.30	1.00	0.05	*0.00*	*0.01*	0.79	*0.00*	*0.04*	0.24	*0.00*	*0.00*	*0.00*	0.14	*0.00*	0.22	*0.00*	*0.01*	0.71	0.06	*0.00*	0.25	0.37
LargeFishIndicator_s	0.32	0.66	0.12	-0.42	**0.78**	0.65	0.69	0.49	-0.57	1.00	*0.00*	0.67	0.06	*0.00*	*0.02*	*0.00*	*0.00*	0.10	*0.00*	*0.00*	*0.05*	*0.00*	*0.00*	0.77	0.51	0.12	*0.03*	0.41	*0.00*
LargeSpeciesIndicator_s	0.70	0.39	0.09	-0.49	0.44	0.45	0.48	0.40	-0.30	**0.76**	1.00	0.23	0.08	0.75	*0.00*	*0.00*	*0.00*	*0.03*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	0.42	*0.00*	0.89	0.45	*0.00*	0.50
MargalefRichness_s	0.24	-0.58	-0.37	0.05	-0.60	-0.27	-0.34	-0.26	**0.71**	-0.51	-0.16	1.00	0.23	0.23	0.33	*0.00*	*0.03*	0.87	0.06	*0.00*	*0.00*	*0.00*	*0.00*	0.89	*0.00*	*0.00*	*0.00*	0.12	*0.05*
MargalefGroundfish_s	-0.12	-0.19	0.07	-0.18	-0.18	-0.06	-0.07	-0.22	0.29	-0.18	-0.08	0.10	1.00	0.08	0.74	*0.00*	*0.04*	0.27	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	0.98	*0.00*	*0.00*	*0.00*	0.11	0.51
MeanLengthAbundance_s	0.30	0.64	0.18	-0.26	**0.70**	0.51	0.56	0.48	-0.52	**0.87**	0.67	-0.50	-0.16	1.00	*0.02*	*0.00*	*0.00*	0.16	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	1.00	*0.00*	*0.00*	*0.00*	0.94	*0.00*
MeanLengthBiomass_s	0.22	0.64	0.21	-0.35	0.62	0.51	0.53	0.50	-0.47	**0.87**	**0.74**	-0.48	-0.06	**0.79**	1.00	0.07	*0.00*	0.51	0.08	0.11	*0.00*	*0.00*	0.46	*0.00*	*0.00*	*0.00*	*0.00*	0.32	*0.00*
MeanLifespan_s	0.42	**0.71**	0.11	-0.47	**0.74**	0.67	0.67	0.49	-0.52	**0.91**	**0.73**	-0.38	-0.26	**0.77**	**0.81**	1.00	0.07	*0.00*	*0.02*	*0.01*	*0.03*	*0.00*	*0.00*	0.06	*0.00*	*0.00*	*0.00*	0.18	*0.00*
MMLengthAbundance_s	0.33	0.64	0.16	-0.25	**0.78**	0.69	**0.72**	0.52	-0.47	**0.86**	0.70	-0.42	-0.13	**0.90**	**0.81**	**0.82**	1.00	*0.02*	0.88	*0.00*	*0.00*	*0.00*	*0.04*	*0.00*	*0.00*	*0.00*	*0.00*	0.11	0.97
MMLengthBiomass_s	0.50	0.61	0.19	-0.40	0.67	0.64	0.65	0.52	-0.42	**0.90**	**0.90**	-0.34	-0.15	**0.79**	**0.89**	**0.89**	**0.88**	1.00	0.26	0.39	*0.01*	0.31	0.68	0.29	0.87	*0.00*	*0.00*	*0.00*	0.89
MeanTrophicLevel_s	**0.71**	0.29	-0.05	-0.55	0.27	0.20	0.28	0.24	-0.32	0.57	**0.75**	-0.11	0.02	0.50	0.43	0.56	0.40	0.55	1.00	0.05	0.82	*0.00*	*0.00*	0.68	*0.01*	*0.00*	0.79	*0.00*	*0.03*
PielouEvenness_s	0.11	0.65	0.07	-0.33	**0.95**	**0.93**	**0.93**	0.41	-0.48	**0.77**	0.48	-0.51	-0.13	0.65	0.64	**0.78**	**0.78**	**0.73**	0.22	1.00	0.47	0.28	*0.01*	0.08	0.10	*0.00*	*0.00*	0.29	*0.03*
PropPredatoryFish_s	0.16	0.63	0.30	-0.09	0.67	0.69	0.64	0.41	-0.37	0.68	0.54	-0.38	-0.19	0.59	**0.71**	**0.74**	**0.77**	**0.81**	0.03	**0.79**	1.00	0.56	*0.00*	0.38	0.77	0.24	*0.02*	0.11	0.34
BiomassFlatfish_s	0.09	0.00	0.23	0.60	-0.27	-0.24	-0.26	0.13	0.04	-0.15	-0.11	0.04	-0.14	-0.02	-0.07	-0.18	0.03	-0.04	-0.30	-0.23	0.16	1.00	0.17	0.32	*0.00*	*0.00*	0.89	*0.02*	0.94
BiomassGadoids_s	**0.96**	0.27	0.04	-0.31	0.22	0.31	0.34	0.29	-0.11	0.41	**0.72**	0.12	-0.11	0.40	0.28	0.48	0.44	0.56	**0.71**	0.24	0.24	0.06	1.00	0.89	*0.01*	0.28	*0.00*	0.16	*0.00*
BiomassGroundfish_s	0.49	0.23	0.27	0.35	-0.06	-0.03	-0.02	0.32	-0.11	0.16	0.31	-0.02	-0.13	0.25	0.23	0.16	0.33	0.33	0.10	-0.01	0.34	**0.87**	0.49	1.00	*0.00*	0.43	*0.00*	*0.01*	0.11
BTGMediumBenthivore_s	0.12	0.05	0.26	0.58	-0.17	-0.17	-0.17	0.18	0.00	-0.09	-0.06	0.00	-0.13	0.04	-0.02	-0.12	0.11	0.02	-0.26	-0.15	0.21	**0.99**	0.14	**0.89**	1.00	*0.00*	*0.00*	*0.00*	0.88
BTGPiscivore_s	**0.87**	0.39	0.18	-0.15	0.13	0.21	0.21	0.37	-0.22	0.45	**0.71**	0.00	-0.07	0.42	0.44	0.51	0.48	0.63	0.64	0.20	0.36	0.29	**0.86**	**0.71**	0.33	1.00	*0.01*	*0.00*	0.29
BiomassSkates_s	0.06	0.45	0.32	0.05	0.21	0.10	0.11	0.47	-0.33	0.44	0.36	-0.42	0.02	0.40	0.69	0.40	0.48	0.54	0.13	0.24	0.45	0.30	0.10	0.51	0.32	0.49	1.00	*0.00*	*0.00*
ShannonDiversity_s	0.19	0.58	-0.01	-0.34	**0.83**	**0.98**	**0.94**	0.32	-0.30	0.66	0.47	-0.28	-0.06	0.52	0.55	**0.71**	**0.71**	0.69	0.17	**0.95**	**0.77**	-0.21	0.29	0.01	-0.15	0.24	0.16	1.00	*0.02*
SpeciesRichness_s	0.22	-0.63	-0.37	0.08	-0.64	-0.34	-0.40	-0.27	**0.72**	-0.56	-0.20	**1.00**	0.10	-0.54	-0.52	-0.43	-0.47	-0.40	-0.12	-0.57	-0.44	0.06	0.10	-0.02	0.01	-0.02	-0.43	-0.35	1.00

Table S 34. Spearman rank correlation coefficients (r) for indicators in strata 448. The upper triangle of the matrix represents p-values (p ≤ 0.05 highlighted in blue italics). The lower triangle of the matrix represents the r values (r ≥ 0.7 highlighted in red).

Indicator	BiomassTL4_s	CommunityCondition_s	CCMediumBenthivore_s	CCPiscivore_s	Heips_s	HillN1Diversity_s	HillN2Dominance_s	InverseCVBiomass_s	KemptonQ_s	LargeFishIndicator_s	LargeSpeciesIndicator_s	MargalefRichness_s	MargalefGroundfish_s	MeanLengthAbundance_s	MeanLengthBiomass_s	MeanLifespan_s	MMLengthAbundance_s	MMLengthBiomass_s	MeanTrophicLevel_s	PielouEvenness_s	PropPredatoryFish_s	BiomassFlatfish_s	BiomassGadoids_s	BiomassGroundfish_s	BTGMediumBenthivore_s	BTGPiscivore_s	BiomassSkates_s	ShannonDiversity_s	SpeciesRichness_s
BiomassTL4_s	1.00	*0.00*	0.59	*0.00*	*0.00*	*0.03*	*0.00*	*0.00*	0.25	*0.00*	*0.00*	0.12	0.32	0.57	*0.01*	*0.00*	*0.00*	0.19	*0.01*	*0.00*	*0.01*	*0.00*	*0.00*	*0.01*	0.96	*0.00*	*0.00*	0.20	*0.00*
CommunityCondition_s	0.48	1.00	0.52	*0.00*	*0.01*	0.35	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	0.37	0.29	0.25	*0.00*	*0.00*	*0.00*	*0.00*	*0.03*	*0.00*	*0.03*	*0.03*	*0.00*	*0.00*	0.63	*0.00*	*0.00*	0.11	*0.00*
CCMediumBenthivore_s	-0.08	-0.17	1.00	*0.00*	*0.00*	*0.00*	*0.00*	*0.01*	*0.00*	0.43	*0.00*	0.29	0.49	0.69	0.27	*0.00*	*0.01*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	0.27	*0.00*	*0.00*	0.68	*0.00*
CCPiscivore_s	-0.10	-0.49	0.23	1.00	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	0.35	0.29	*0.02*	*0.02*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	0.07	*0.02*	*0.00*	*0.00*	0.43	*0.00*	*0.00*	*0.00*	*0.00*
Heips_s	0.57	**0.72**	-0.14	-0.35	1.00	*0.00*	*0.00*	*0.04*	*0.00*	*0.00*	*0.00*	0.95	0.69	*0.04*	0.88	*0.00*	*0.00*	*0.00*	*0.02*	*0.05*	*0.02*	0.07	*0.01*	*0.00*	0.27	*0.01*	*0.02*	0.07	*0.00*
HillN1Diversity_s	0.46	0.62	-0.16	-0.31	**0.88**	1.00	*0.01*	*0.00*	*0.01*	*0.00*	*0.00*	*0.04*	0.27	0.07	*0.02*	*0.00*	*0.01*	*0.00*	0.57	*0.00*	*0.05*	*0.00*	0.56	*0.00*	0.32	*0.00*	*0.00*	0.64	*0.00*
HillN2Dominance_s	0.50	0.66	-0.14	-0.27	**0.94**	**0.97**	1.00	*0.02*	*0.00*	*0.00*	*0.00*	0.39	0.21	0.43	*0.00*	*0.00*	*0.00*	0.45	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.01*	0.33	*0.00*	*0.00*	*0.00*	*0.01*
InverseCVBiomass_s	0.53	0.39	0.01	0.12	0.47	0.32	0.40	1.00	*0.00*	*0.00*	*0.00*	0.57	0.29	0.07	*0.03*	*0.00*	*0.00*	*0.00*	*0.00*	0.06	*0.00*	*0.00*	*0.00*	*0.01*	0.87	*0.00*	*0.00*	*0.01*	*0.00*
KemptonQ_s	-0.40	-0.63	0.31	0.27	-0.49	-0.24	-0.32	-0.29	1.00	*0.00*	*0.00*	0.81	0.69	*0.01*	0.17	0.35	*0.00*	*0.00*	*0.00*	0.26	*0.00*	0.63	*0.00*	*0.00*	0.24	*0.00*	*0.00*	0.70	*0.00*
LargeFishIndicator_s	0.66	**0.80**	-0.13	-0.37	**0.83**	**0.71**	**0.76**	0.51	-0.54	1.00	*0.00*	0.18	0.29	0.31	*0.04*	*0.00*	*0.00*	*0.03*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.01*	*0.03*	*0.00*	*0.00*	*0.01*	*0.00*
LargeSpeciesIndicator_s	**0.87**	0.56	-0.09	-0.15	0.67	0.55	0.61	0.60	-0.45	**0.75**	1.00	0.47	0.29	*0.01*	*0.02*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.01*	*0.00*	*0.00*	*0.00*	*0.00*	0.09
MargalefRichness_s	-0.33	-0.65	0.04	0.39	-0.53	-0.23	-0.35	-0.27	0.61	-0.56	-0.39	1.00	0.49	0.15	0.43	*0.00*	*0.03*	*0.00*	0.11	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
MargalefGroundfish_s	-0.14	-0.12	0.20	0.22	-0.14	0.20	0.09	-0.17	0.47	-0.07	-0.09	0.37	1.00	0.09	0.32	*0.00*	0.11	*0.02*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.01*	*0.00*	*0.00*	*0.00*	*0.00*	*0.01*
MeanLengthAbundance_s	0.66	**0.73**	-0.11	-0.25	0.69	0.54	0.60	0.55	-0.56	**0.88**	**0.71**	-0.50	-0.17	1.00	*0.04*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
MeanLengthBiomass_s	0.59	**0.80**	-0.15	-0.39	**0.80**	**0.71**	**0.75**	0.45	-0.52	**0.95**	**0.70**	-0.51	-0.08	**0.89**	1.00	*0.02*	*0.00*	*0.00*	*0.03*	0.16	*0.00*	*0.01*	0.08	*0.01*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
MeanLifespan_s	0.55	**0.76**	-0.16	-0.41	**0.83**	**0.74**	**0.74**	0.47	-0.51	**0.93**	0.60	-0.49	-0.09	**0.83**	**0.91**	1.00	0.13	*0.00*	*0.00*	*0.00*	*0.03*	*0.00*	*0.00*	0.17	*0.00*	*0.00*	*0.03*	*0.00*	*0.00*
MMLengthAbundance_s	0.66	0.67	-0.10	-0.16	**0.81**	0.69	**0.74**	0.62	-0.47	**0.87**	0.68	-0.44	-0.09	**0.89**	**0.87**	**0.91**	1.00	*0.03*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
MMLengthBiomass_s	0.63	**0.76**	-0.16	-0.35	**0.86**	**0.78**	**0.81**	0.54	-0.52	**0.94**	**0.73**	-0.46	-0.07	**0.85**	**0.95**	**0.96**	**0.93**	1.00	*0.03*	*0.03*	*0.00*	*0.00*	0.07	0.25	*0.00*	0.09	*0.00*	*0.00*	*0.00*
MeanTrophicLevel_s	0.52	0.42	-0.06	-0.02	0.35	0.11	0.24	0.21	-0.32	0.39	0.52	-0.37	-0.18	0.43	0.36	0.25	0.35	0.32	1.00	*0.00*	*0.04*	*0.00*	*0.00*	0.61	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
PielouEvenness_s	0.53	**0.70**	-0.17	-0.35	**0.96**	**0.95**	**0.95**	0.44	-0.42	**0.82**	0.62	-0.40	0.01	0.65	**0.81**	**0.86**	**0.80**	**0.88**	0.19	1.00	*0.00*	*0.00*	*0.01*	0.54	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
PropPredatoryFish_s	0.53	**0.79**	-0.19	-0.43	**0.88**	**0.81**	**0.83**	0.49	-0.53	**0.91**	0.63	-0.52	-0.07	**0.77**	**0.90**	**0.95**	**0.87**	**0.96**	0.24	**0.92**	1.00	*0.00*	*0.00*	0.55	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
BiomassFlatfish_s	0.39	0.53	-0.16	-0.32	0.39	0.33	0.32	0.32	-0.31	0.59	0.26	-0.36	-0.17	0.61	0.58	0.68	0.59	0.57	0.06	0.46	0.62	1.00	*0.00*	0.66	*0.00*	*0.00*	*0.00*	*0.00*	*0.01*
BiomassGadoids_s	**0.88**	0.51	-0.06	-0.21	0.55	0.43	0.43	0.45	-0.41	0.68	**0.75**	-0.38	-0.12	0.69	0.59	0.63	0.69	0.65	0.44	0.53	0.58	0.42	1.00	0.24	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
BiomassGroundfish_s	0.57	0.67	-0.16	-0.31	0.56	0.46	0.49	0.40	-0.42	**0.76**	0.47	-0.45	-0.17	**0.77**	**0.76**	**0.80**	**0.77**	**0.75**	0.27	0.60	**0.75**	**0.94**	0.59	1.00	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
BTGMediumBenthivore_s	0.40	0.55	-0.16	-0.35	0.40	0.34	0.32	0.31	-0.31	0.62	0.27	-0.37	-0.15	0.63	0.59	**0.71**	0.62	0.59	0.07	0.47	0.64	**0.99**	0.50	**0.94**	1.00	*0.00*	*0.00*	*0.00*	*0.00*
BTGPiscivore_s	**0.70**	0.66	-0.11	-0.12	0.67	0.54	0.65	0.43	-0.48	**0.75**	0.68	-0.45	-0.15	**0.77**	**0.80**	0.68	**0.79**	**0.78**	0.55	0.63	0.67	0.48	0.58	**0.74**	0.47	1.00	*0.00*	*0.00*	*0.00*
BiomassSkates_s	0.31	0.59	-0.09	-0.15	0.50	0.42	0.51	0.27	-0.35	0.65	0.37	-0.41	-0.02	0.64	**0.75**	0.64	0.69	0.70	0.36	0.50	0.59	0.50	0.25	0.69	0.48	**0.83**	1.00	*0.00*	*0.00*
ShannonDiversity_s	0.46	0.61	-0.17	-0.31	**0.86**	**0.97**	**0.92**	0.35	-0.27	**0.73**	0.54	-0.21	0.18	0.55	**0.73**	**0.79**	**0.71**	**0.82**	0.06	**0.97**	**0.85**	0.41	0.45	0.53	0.42	0.54	0.44	1.00	*0.04*
SpeciesRichness_s	-0.35	-0.71	0.06	0.43	-0.59	-0.32	-0.43	-0.29	0.63	-0.62	-0.43	**0.99**	0.32	-0.54	-0.57	-0.55	-0.49	-0.53	-0.37	-0.49	-0.60	-0.38	-0.41	-0.48	-0.39	-0.48	-0.44	-0.30	1.00

Table S 35. Spearman rank correlation coefficients (r) for indicators in strata 449. The upper triangle of the matrix represents p-values (p ≤ 0.05 highlighted in blue italics). The lower triangle of the matrix represents the r values (r ≥ 0.7 highlighted in red).

Indicator	BiomassTL4_s	CommunityCondition_s	CCMediumBenthivore_s	CCPiscivore_s	Heips_s	HillN1Diversity_s	HillN2Dominance_s	InverseCVBiomass_s	KemptonQ_s	LargeFishIndicator_s	LargeSpeciesIndicator_s	MargalefRichness_s	MargalefGroundfish_s	MeanLengthAbundance_s	MeanLengthBiomass_s	MeanLifespan_s	MMLengthAbundance_s	MMLengthBiomass_s	MeanTrophicLevel_s	PielouEvenness_s	PropPredatoryFish_s	BiomassFlatfish_s	BiomassGadoids_s	BiomassGroundfish_s	BTGMediumBenthivore_s	BTGPiscivore_s	BiomassSkates_s	ShannonDiversity_s	SpeciesRichness_s
BiomassTL4_s	1.00	0.69	0.12	0.30	0.22	0.38	0.43	*0.00*	0.07	0.20	*0.00*	*0.03*	*0.00*	0.68	0.15	0.67	*0.00*	*0.01*	1.00	0.68	0.70	0.64	*0.01*	*0.00*	0.95	0.07	0.07	0.76	0.39
CommunityCondition_s	0.06	1.00	0.29	0.77	0.95	0.64	0.06	*0.00*	0.25	0.33	0.10	0.08	0.74	0.91	0.66	*0.01*	*0.00*	0.87	0.68	0.95	0.55	0.61	0.87	0.14	0.20	0.10	*0.00*	0.53	*0.00*
CCMediumBenthivore_s	0.23	0.27	1.00	0.92	*0.04*	0.08	*0.00*	0.08	*0.00*	0.13	0.53	0.33	0.19	*0.01*	0.89	*0.00*	0.29	0.73	0.93	*0.00*	0.91	0.81	0.22	*0.01*	0.76	*0.00*	0.82	0.99	*0.00*
CCPiscivore_s	0.16	0.17	0.33	1.00	*0.00*	0.50	0.58	*0.00*	*0.00*	0.09	0.72	0.33	*0.01*	0.57	0.22	0.11	0.34	*0.01*	0.56	*0.00*	0.25	0.37	*0.00*	0.45	0.14	*0.00*	*0.00*	0.19	*0.01*
Heips_s	-0.16	0.43	0.26	-0.09	1.00	0.06	0.79	0.37	*0.00*	*0.01*	0.24	0.31	*0.01*	0.94	0.56	0.18	0.20	0.07	*0.00*	0.26	0.39	0.42	0.32	0.88	0.12	*0.02*	0.23	0.26	*0.00*
HillN1Diversity_s	0.04	0.57	-0.15	0.01	0.37	1.00	0.82	0.83	0.62	*0.00*	0.46	0.27	0.13	0.83	0.97	*0.00*	0.16	*0.05*	*0.04*	0.15	0.36	0.92	0.83	0.40	0.18	*0.00*	*0.00*	1.00	0.64
HillN2Dominance_s	0.02	0.62	-0.15	-0.03	0.46	**0.97**	1.00	0.33	0.62	*0.01*	0.12	*0.00*	*0.04*	0.22	0.29	0.08	0.54	*0.02*	0.64	0.49	0.86	*0.00*	0.06	0.15	0.21	*0.00*	*0.00*	*0.00*	0.84
InverseCVBiomass_s	-0.19	0.08	0.15	0.19	0.24	0.01	0.00	1.00	*0.02*	*0.00*	0.31	*0.02*	0.94	0.45	0.72	*0.03*	0.71	*0.00*	0.56	0.48	0.79	*0.02*	*0.00*	0.99	0.53	0.79	0.95	0.88	*0.00*
KemptonQ_s	0.01	0.07	0.17	0.11	0.20	0.10	0.06	0.17	1.00	0.37	*0.00*	*0.03*	*0.02*	0.12	0.35	0.07	*0.00*	0.53	*0.01*	0.93	0.85	0.88	0.40	*0.03*	*0.01*	0.28	0.24	0.28	*0.00*
LargeFishIndicator_s	0.30	0.35	0.69	0.23	0.46	-0.01	0.01	0.22	0.03	1.00	0.64	0.95	0.06	0.29	0.22	*0.03*	*0.01*	0.54	0.09	0.20	0.38	*0.00*	*0.01*	0.76	*0.00*	0.14	0.13	0.16	*0.00*
LargeSpeciesIndicator_s	**0.70**	0.19	0.35	0.16	0.26	0.07	0.09	-0.10	0.04	0.60	1.00	*0.00*	0.12	0.88	0.48	*0.00*	*0.00*	0.78	*0.04*	0.06	0.78	*0.00*	*0.00*	0.13	*0.00*	0.36	0.37	*0.00*	0.31
MargalefRichness_s	0.13	0.15	-0.32	-0.02	-0.32	0.68	0.56	-0.11	0.03	-0.35	-0.15	1.00	0.11	0.51	0.09	*0.03*	0.93	0.96	*0.01*	0.18	0.98	0.35	*0.00*	0.28	0.22	0.07	*0.04*	0.55	0.64
MargalefGroundfish_s	0.07	0.23	-0.01	0.10	-0.27	0.37	0.31	-0.01	0.13	-0.02	0.03	0.60	1.00	0.35	0.37	*0.00*	0.51	0.85	*0.00*	0.27	0.89	*0.00*	0.07	0.24	*0.00*	0.34	0.27	0.74	0.12
MeanLengthAbundance_s	0.26	0.25	0.57	0.14	0.32	-0.02	-0.07	0.19	0.04	**0.73**	0.28	-0.22	-0.15	1.00	0.77	*0.00*	0.95	0.60	0.48	0.15	0.79	*0.00*	*0.01*	0.57	*0.00*	0.07	*0.00*	0.80	*0.00*
MeanLengthBiomass_s	0.10	0.39	0.61	0.22	0.59	0.05	0.09	0.28	0.00	**0.93**	0.50	-0.37	-0.04	0.67	1.00	0.84	0.63	0.83	0.44	0.63	0.50	*0.01*	0.14	0.78	*0.04*	*0.00*	0.48	0.59	*0.00*
MeanLifespan_s	-0.28	0.65	0.05	0.07	0.33	0.39	0.36	0.20	-0.02	0.14	-0.13	0.11	0.17	0.18	0.24	1.00	*0.00*	*0.00*	0.94	0.11	0.45	*0.00*	*0.01*	*0.00*	*0.04*	*0.00*	0.15	0.71	*0.00*
MMLengthAbundance_s	0.12	0.36	0.20	0.02	0.53	0.27	0.25	0.17	0.04	0.47	0.40	-0.02	-0.04	0.46	0.51	0.44	1.00	*0.00*	0.76	0.05	0.24	*0.00*	0.22	*0.00*	*0.00*	*0.04*	*0.00*	0.82	0.60
MMLengthBiomass_s	0.28	0.44	0.37	0.19	0.61	0.30	0.31	0.22	0.10	**0.73**	0.68	-0.13	0.04	0.41	**0.74**	0.31	**0.80**	1.00	0.54	0.26	0.64	0.98	0.71	0.33	0.39	0.86	*0.00*	*0.00*	0.27
MeanTrophicLevel_s	0.44	-0.14	0.38	0.09	-0.03	-0.33	-0.38	0.07	0.11	0.38	0.53	-0.22	0.01	0.30	0.34	-0.03	0.18	0.21	1.00	0.62	0.61	*0.02*	*0.00*	0.80	*0.02*	*0.00*	0.77	0.47	*0.00*
PielouEvenness_s	-0.08	0.59	0.23	0.00	**0.91**	0.63	0.66	0.24	0.18	0.44	0.27	0.00	0.01	0.30	0.55	0.52	0.64	**0.71**	-0.05	1.00	0.89	*0.03*	0.13	0.27	*0.01*	*0.02*	0.10	0.19	*0.01*
PropPredatoryFish_s	0.04	0.24	0.30	0.16	0.62	0.09	0.11	0.29	0.07	0.62	0.40	-0.32	-0.19	0.44	0.66	0.34	**0.72**	**0.83**	0.09	0.64	1.00	0.15	0.22	0.79	*0.02*	*0.04*	0.09	0.49	0.88
BiomassFlatfish_s	-0.03	0.10	-0.01	0.05	-0.16	-0.09	-0.12	0.17	-0.08	0.00	-0.22	-0.05	-0.05	0.13	0.04	0.30	-0.01	-0.05	0.00	-0.09	0.20	1.00	0.21	0.78	*0.05*	0.06	0.50	0.06	0.23
BiomassGadoids_s	0.70	0.05	0.33	0.14	-0.14	0.04	-0.01	-0.07	-0.02	0.34	0.39	0.23	0.22	0.35	0.16	-0.28	0.18	0.25	0.20	-0.05	0.10	-0.13	1.00	0.95	0.99	0.75	*0.00*	0.13	*0.00*
BiomassGroundfish_s	0.50	0.18	0.28	0.18	-0.19	0.01	-0.05	0.06	-0.07	0.31	0.19	0.16	0.23	0.38	0.22	0.05	0.22	0.26	0.17	-0.04	0.28	0.60	0.69	1.00	0.48	0.65	0.48	0.07	0.30
BTGMediumBenthivore_s	0.26	0.11	0.23	0.11	-0.21	-0.03	-0.09	0.09	-0.08	0.21	-0.06	0.18	0.20	0.34	0.14	0.07	0.13	0.10	0.00	-0.08	0.23	0.60	0.64	**0.94**	1.00	0.98	*0.00*	0.20	0.60
BTGPiscivore_s	**0.77**	0.23	0.24	0.25	-0.09	0.08	0.06	-0.02	-0.04	0.37	0.57	0.09	0.19	0.29	0.27	0.00	0.30	0.44	0.43	0.06	0.27	0.37	0.54	**0.75**	0.47	1.00	0.14	*0.01*	0.75
BiomassSkates_s	-0.13	0.15	-0.06	0.13	-0.06	-0.03	-0.01	0.17	-0.14	0.03	-0.23	-0.04	0.10	0.00	0.14	0.27	0.17	0.11	0.02	0.03	0.19	0.68	-0.15	0.45	0.37	0.45	1.00	*0.00*	0.82
ShannonDiversity_s	0.03	0.62	0.02	0.04	0.56	**0.92**	**0.89**	0.13	0.12	0.19	0.18	0.52	0.37	0.11	0.27	0.52	0.52	0.55	-0.16	**0.83**	0.36	-0.07	0.07	0.08	0.02	0.16	0.05	1.00	*0.00*
SpeciesRichness_s	0.15	0.07	-0.36	-0.07	-0.41	0.60	0.49	-0.14	0.02	-0.41	-0.19	**0.99**	0.60	-0.27	-0.44	0.03	-0.11	-0.22	-0.21	-0.11	-0.41	-0.03	0.23	0.17	0.18	0.08	-0.03	0.41	1.00

Table S 36. Spearman rank correlations coefficients (r) for indicators in strata 450. The upper triangle of the matrix represents p-values (p ≤ 0.05 highlighted in blue italics). The lower triangle of the matrix represents the r values (r ≥ 0.7 highlighted in red).

Indicator	BiomassTL4_s	CommunityCondition_s	CCMediumBenthivore_s	CCPiscivore_s	CCZoopiscivore_s	Heips_s	HillN1Diversity_s	HillN2Dominance_s	InverseCVBiomass_s	KemptonQ_s	LargeFishIndicator_s	LargeSpeciesIndicator_s	MargalefRichness_s	MargalefGroundfish_s	MeanLengthAbundance_s	MeanLengthBiomass_s	MeanLifespan_s	MMLengthAbundance_s	MMLengthBiomass_s	MeanTrophicLevel_s	PielouEvenness_s	PropPredatoryFish_s	BiomassFlatfish_s	BiomassGadoids_s	BiomassGroundfish_s	BTGMediumBenthivore_s	BTGPiscivore_s	BiomassSkates_s	BTGZoopiscivore_s	ShannonDiversity_s	SpeciesRichness_s
BiomassTL4_s	1.00	0.31	0.55	0.70	0.24	*0.01*	0.17	0.76	0.48	0.49	*0.00*	0.40	*0.01*	*0.04*	0.82	0.26	0.43	0.06	0.49	*0.02*	0.15	*0.00*	0.12	0.10	0.61	0.14	0.78	*0.01*	*0.02*	0.81	0.81
CommunityCondition_s	0.15	1.00	0.41	0.11	0.14	0.77	0.44	*0.00*	0.55	0.58	0.06	*0.02*	0.62	0.21	0.85	0.46	0.53	0.34	*0.00*	0.57	0.47	0.10	0.95	*0.00*	*0.02*	0.50	0.56	0.67	0.19	0.10	0.13
CCMediumBenthivore_s	0.09	0.38	1.00	0.30	0.88	0.86	0.91	*0.00*	*0.01*	0.07	*0.00*	0.75	*0.00*	0.08	0.80	0.67	0.55	0.71	*0.04*	0.56	0.57	0.25	0.62	*0.04*	0.07	*0.00*	*0.00*	0.38	*0.03*	0.33	*0.00*
CCPiscivore_s	0.12	-0.01	-0.17	1.00	0.21	*0.04*	*0.00*	0.41	0.94	0.12	0.31	0.06	0.08	*0.00*	0.66	0.33	0.65	0.62	0.99	0.91	*0.03*	0.12	0.15	*0.00*	0.12	0.11	*0.02*	*0.01*	*0.00*	0.26	0.09
CCZoopiscivore_s	-0.06	0.31	-0.09	-0.02	1.00	0.54	0.32	*0.00*	*0.04*	0.05	0.11	0.26	*0.01*	0.79	0.67	0.83	0.51	*0.00*	0.10	0.65	0.06	0.09	0.60	0.80	*0.00*	0.91	*0.00*	0.89	*0.00*	0.05	*0.00*
Heips_s	-0.24	0.13	-0.12	0.26	0.20	1.00	0.82	0.37	0.39	0.17	0.16	0.54	*0.00*	0.59	0.42	0.93	0.05	*0.00*	0.19	0.93	0.72	0.68	*0.00*	*0.00*	*0.00*	0.37	0.55	*0.00*	0.10	0.69	0.31
HillN1Diversity_s	-0.16	-0.04	-0.44	0.20	0.11	**0.76**	1.00	*0.01*	0.78	0.07	0.24	0.43	0.21	0.93	0.16	0.57	0.85	0.93	0.65	0.16	0.67	0.34	*0.03*	*0.00*	*0.00*	*0.01*	*0.00*	0.21	0.14	0.28	*0.02*
HillN2Dominance_s	-0.18	-0.02	-0.43	0.21	0.12	**0.83**	**0.97**	1.00	0.88	*0.04*	0.09	*0.00*	*0.00*	*0.02*	0.58	0.24	0.55	0.63	0.16	*0.00*	0.90	0.11	*0.01*	*0.01*	0.81	0.51	*0.00*	0.61	0.83	0.47	0.36
InverseCVBiomass_s	-0.22	-0.11	0.16	0.03	-0.32	-0.01	-0.08	-0.09	1.00	*0.00*	0.06	*0.00*	*0.01*	*0.00*	0.25	0.57	0.29	*0.05*	0.42	0.49	0.97	*0.04*	0.08	*0.00*	*0.02*	0.07	0.24	*0.00*	*0.00*	0.88	0.86
KemptonQ_s	-0.02	0.08	-0.20	-0.03	0.19	0.07	0.28	0.22	-0.17	1.00	0.13	0.28	0.88	0.92	0.47	0.18	0.52	0.88	0.08	0.27	0.93	0.94	0.55	*0.00*	0.84	0.64	0.08	*0.01*	0.63	0.28	*0.00*
LargeFishIndicator_s	-0.19	0.27	0.41	0.04	-0.07	0.30	-0.15	-0.11	0.23	-0.22	1.00	0.18	0.28	0.08	0.90	0.48	0.27	0.36	*0.00*	0.20	0.16	0.89	*0.04*	0.24	*0.01*	*0.00*	*0.00*	*0.00*	*0.04*	0.45	*0.00*
LargeSpeciesIndicator_s	0.37	0.23	0.07	0.07	0.12	0.02	-0.10	-0.09	-0.25	-0.08	0.30	1.00	*0.00*	0.18	0.60	0.43	0.52	0.36	0.15	0.11	*0.00*	0.87	0.34	0.09	*0.01*	*0.00*	*0.00*	0.47	*0.00*	0.07	0.11
MargalefRichness_s	0.04	-0.29	-0.48	-0.06	-0.09	-0.14	0.46	0.32	-0.06	0.43	-0.53	-0.21	1.00	0.16	0.16	*0.03*	0.56	0.08	*0.00*	0.06	0.71	0.23	0.75	*0.00*	0.32	0.29	*0.02*	0.21	0.07	*0.00*	*0.02*
MargalefGroundfish_s	0.03	0.21	-0.26	-0.12	-0.09	0.14	0.34	0.28	-0.14	0.32	0.04	0.08	0.35	1.00	0.39	0.21	0.96	*0.03*	0.58	0.13	0.25	0.79	0.42	*0.03*	*0.00*	0.96	*0.00*	0.08	0.83	0.91	0.37
MeanLengthAbundance_s	0.30	0.27	0.41	0.21	-0.07	0.26	-0.09	-0.05	0.24	-0.38	0.59	0.33	-0.46	-0.16	1.00	0.66	0.83	0.23	0.06	0.57	0.17	0.40	0.23	0.39	0.55	0.21	*0.00*	*0.01*	0.27	*0.00*	0.56
MeanLengthBiomass_s	-0.09	0.31	0.41	0.08	-0.10	0.32	-0.09	-0.06	0.31	-0.26	**0.93**	0.27	-0.49	0.01	0.67	1.00	0.24	0.10	0.33	0.18	0.10	0.19	0.20	0.85	0.28	0.92	*0.04*	0.17	*0.01*	0.54	0.23
MeanLifespan_s	-0.20	0.64	0.19	-0.17	0.29	0.18	-0.02	0.02	0.01	0.09	0.37	0.23	-0.23	0.19	0.09	0.39	1.00	*0.05*	0.49	*0.00*	0.08	0.14	0.58	*0.00*	0.78	0.81	*0.03*	0.85	*0.02*	0.08	*0.00*
MMLengthAbundance_s	0.12	0.43	0.46	-0.11	-0.03	0.24	-0.07	-0.01	-0.02	-0.30	0.52	0.67	-0.52	-0.02	0.56	0.50	0.38	1.00	*0.00*	*0.01*	0.15	0.32	0.34	0.92	0.19	*0.01*	0.83	0.09	*0.04*	*0.00*	0.93
MMLengthBiomass_s	-0.02	0.28	0.38	-0.02	-0.09	0.29	-0.01	0.01	-0.02	-0.14	0.66	0.68	-0.36	0.04	0.43	0.64	0.41	**0.83**	1.00	0.54	0.68	0.45	*0.01*	*0.02*	*0.02*	*0.03*	0.68	0.42	*0.01*	0.42	0.32
MeanTrophicLevel_s	0.43	0.41	-0.02	-0.08	0.16	-0.11	-0.21	-0.21	-0.18	0.05	0.18	0.41	-0.22	0.37	0.18	0.16	0.11	0.18	0.07	1.00	0.19	0.27	0.50	0.07	*0.00*	0.44	*0.00*	*0.02*	0.41	0.10	*0.01*
PielouEvenness_s	-0.15	0.15	-0.16	0.21	0.10	**0.92**	**0.84**	**0.85**	0.04	0.12	0.25	0.04	0.10	0.32	0.26	0.31	0.19	0.23	0.31	-0.09	1.00	0.59	0.57	0.99	*0.00*	0.38	*0.01*	0.74	*0.01*	*0.03*	0.46
PropPredatoryFish_s	0.03	0.24	0.50	-0.13	-0.17	0.31	-0.10	-0.06	0.13	-0.18	0.70	0.34	-0.54	0.12	0.51	0.65	0.26	0.69	**0.71**	0.28	0.29	1.00	0.18	*0.00*	0.13	0.93	*0.00*	0.59	0.56	0.73	0.89
BiomassFlatfish_s	-0.05	0.21	0.30	-0.17	0.10	0.00	-0.17	-0.17	0.20	-0.19	0.33	0.03	-0.24	0.13	0.42	0.39	0.38	0.33	0.27	0.11	0.06	0.47	1.00	0.17	*0.00*	0.79	*0.00*	0.12	0.06	*0.00*	0.24
BiomassGadoids_s	**0.98**	0.18	0.19	0.11	-0.09	-0.24	-0.19	-0.20	-0.22	-0.08	-0.13	0.38	-0.02	0.01	0.34	-0.06	-0.21	0.20	0.03	0.41	-0.16	0.09	*-0.07*	1.00	*0.01*	0.63	0.28	*0.00*	0.48	0.66	0.71
BiomassGroundfish_s	**0.89**	0.25	0.26	0.06	0.01	-0.20	-0.24	-0.25	-0.15	-0.14	0.03	0.39	-0.13	0.04	0.50	0.13	-0.03	0.32	0.17	0.43	-0.11	0.26	0.32	**0.91**	1.00	0.62	*0.03*	0.22	*0.00*	*0.03*	0.96
BTGMediumBenthivore_s	0.12	0.28	0.57	-0.15	-0.03	-0.07	-0.27	-0.26	0.11	-0.36	0.41	0.15	-0.38	0.07	0.54	0.39	0.25	0.55	0.37	0.11	-0.02	0.57	**0.72**	0.25	0.51	1.00	*0.00*	0.12	*0.00*	*0.00*	1.00
BTGPiscivore_s	0.64	0.23	0.04	-0.03	0.18	-0.21	-0.23	-0.22	-0.17	0.10	-0.02	0.69	-0.10	-0.08	0.30	0.02	0.12	0.44	0.34	0.38	-0.16	0.12	0.16	0.61	0.65	0.18	1.00	*0.00*	0.45	0.28	0.08
BiomassSkates_s	-0.14	0.13	0.08	-0.01	0.28	0.12	-0.09	-0.06	0.08	-0.09	0.34	0.09	-0.27	-0.04	0.32	0.44	0.34	0.25	0.31	0.04	0.11	0.24	0.63	-0.15	0.24	0.42	0.11	1.00	*0.01*	*0.00*	0.11
BTGZoopiscivore_s	0.36	0.34	0.01	0.09	0.15	-0.26	-0.20	-0.20	-0.23	-0.20	-0.27	-0.16	-0.07	0.09	-0.03	-0.19	0.05	-0.22	-0.38	0.24	-0.27	-0.32	-0.06	0.36	0.33	0.01	0.02	0.01	1.00	0.70	0.90
ShannonDiversity_s	-0.11	0.05	-0.34	0.18	0.06	**0.78**	**0.94**	**0.90**	-0.01	0.25	0.00	-0.04	0.42	0.42	0.06	0.08	0.08	0.03	0.13	-0.15	**0.94**	0.05	-0.04	-0.14	-0.13	-0.15	-0.18	0.00	-0.24	1.00	*0.02*
SpeciesRichness_s	0.09	-0.28	-0.48	-0.09	-0.07	-0.22	0.39	0.25	-0.08	0.43	-0.57	-0.20	**0.99**	0.35	-0.49	-0.53	-0.23	-0.54	-0.40	-0.17	0.02	-0.56	-0.23	0.03	-0.09	-0.37	-0.06	-0.26	-0.02	0.34	1.00

Table S 37. Spearman rank correlation coefficients (r) for indicators in strata 451. The upper triangle of the matrix represents p-values (p ≤ 0.05 highlighted in blue italics). The lower triangle of the matrix represents the r values (r ≥ 0.7 highlighted in red).

Indicator	BiomassTL4_s	CommunityCondition_s	CCMediumBenthivore_s	CCPiscivore_s	CCZoopiscivore_s	Heips_s	HillN1Diversity_s	HillN2Dominance_s	InverseCVBiomass_s	KemptonQ_s	LargeFishIndicator_s	LargeSpeciesIndicator_s	MargalefRichness_s	MargalefGroundfish_s	MeanLengthAbundance_s	MeanLengthBiomass_s	MeanLifespan_s	MMLengthAbundance_s	MMLengthBiomass_s	MeanTrophicLevel_s	PielouEvenness_s	PropPredatoryFish_s	BiomassFlatfish_s	BiomassGadoids_s	BiomassGroundfish_s	BTGMediumBenthivore_s	BTGPiscivore_s	BiomassSkates_s	BTGZoopiscivore_s	ShannonDiversity_s	SpeciesRichness_s
BiomassTL4_s	1.00	0.19	0.06	0.27	0.36	*0.00*	0.11	0.91	0.50	0.51	0.09	0.50	0.16	0.14	0.73	0.21	1.00	0.39	*0.01*	0.13	0.71	*0.00*	0.22	0.53	*0.03*	0.26	0.24	0.70	0.09	0.64	*0.02*
CommunityCondition_s	0.20	1.00	*0.00*	0.22	0.70	0.52	*0.04*	*0.00*	0.62	0.35	*0.01*	*0.00*	*0.03*	0.08	0.24	*0.00*	0.60	*0.03*	*0.00*	0.75	0.09	0.46	0.78	*0.02*	0.84	0.76	0.87	0.34	*0.05*	0.08	0.06
CCMediumBenthivore_s	0.28	0.10	1.00	0.36	0.44	0.08	*0.00*	*0.00*	0.49	*0.01*	*0.00*	*0.00*	*0.01*	0.68	*0.01*	0.06	0.26	*0.00*	*0.00*	0.06	0.78	0.84	0.17	*0.00*	*0.00*	0.52	0.18	0.63	*0.01*	*0.00*	*0.00*
CCPiscivore_s	0.52	0.30	0.58	1.00	*0.02*	0.77	*0.00*	0.79	*0.04*	0.47	*0.00*	0.71	0.95	0.15	*0.00*	0.20	0.12	0.96	0.33	*0.00*	0.14	0.23	0.17	0.19	*0.00*	0.06	*0.00*	0.26	0.18	0.38	0.50
CCZoopiscivore_s	0.17	**0.72**	0.01	0.06	1.00	0.13	0.40	*0.00*	*0.00*	0.78	*0.00*	*0.00*	0.49	0.20	*0.01*	*0.00*	0.06	*0.00*	0.10	*0.03*	0.25	0.65	0.95	0.05	*0.00*	0.85	*0.00*	0.22	*0.02*	*0.00*	*0.00*
Heips_s	-0.18	-0.73	-0.14	-0.22	-0.44	1.00	0.23	0.48	*0.00*	0.48	0.32	0.97	0.62	0.28	0.31	0.70	*0.02*	*0.00*	0.26	*0.01*	0.86	0.18	*0.02*	*0.00*	*0.00*	0.24	0.81	0.72	0.38	0.10	0.92
HillN1Diversity_s	-0.14	-0.66	-0.31	-0.32	-0.45	**0.82**	1.00	0.82	*0.00*	0.61	0.10	0.37	0.39	0.92	0.06	0.77	0.09	0.91	0.89	*0.00*	0.12	0.18	*0.00*	*0.00*	*0.00*	*0.00*	0.06	*0.00*	0.21	0.21	0.42
HillN2Dominance_s	-0.14	-0.64	-0.26	-0.28	-0.43	**0.85**	**0.98**	1.00	*0.00*	*0.01*	0.28	*0.03*	0.15	0.05	*0.02*	*0.03*	0.18	0.81	0.14	*0.00*	*0.00*	0.92	0.53	*0.00*	0.28	0.74	0.97	*0.00*	*0.04*	0.59	0.35
InverseCVBiomass_s	-0.06	-0.10	0.19	-0.05	0.07	-0.02	-0.14	-0.15	1.00	*0.00*	0.67	0.08	0.30	*0.02*	0.28	*0.02*	*0.00*	*0.03*	0.45	*0.00*	*0.05*	0.83	0.52	*0.00*	*0.00*	0.38	0.41	*0.00*	0.29	0.52	0.66
KemptonQ_s	-0.12	-0.14	-0.03	-0.18	-0.12	-0.04	0.11	0.06	-0.03	1.00	0.13	0.21	0.31	0.71	*0.01*	*0.00*	*0.00*	0.56	*0.00*	*0.01*	*0.01*	0.56	0.61	*0.00*	0.62	0.50	0.25	*0.00*	*0.03*	0.29	*0.00*
LargeFishIndicator_s	0.35	-0.38	0.21	0.39	-0.34	0.32	0.29	0.26	0.18	0.20	1.00	0.84	0.17	0.13	*0.02*	*0.00*	*0.02*	0.23	*0.00*	0.31	*0.00*	*0.01*	0.97	0.85	*0.00*	0.22	0.62	*0.00*	*0.00*	0.58	*0.00*
LargeSpeciesIndicator_s	**0.76**	-0.11	0.32	0.51	0.00	0.09	0.05	0.04	-0.07	0.01	0.62	1.00	0.99	*0.03*	*0.01*	*0.00*	0.92	0.45	0.06	0.88	*0.00*	0.11	0.88	*0.00*	*0.00*	*0.00*	0.50	0.87	*0.00*	*0.00*	*0.00*
MargalefRichness_s	-0.10	-0.04	-0.36	-0.37	-0.08	-0.18	0.26	0.22	-0.20	0.35	-0.20	-0.11	1.00	0.06	0.07	0.64	0.20	0.31	*0.00*	*0.03*	*0.00*	*0.04*	0.10	*0.00*	0.43	0.94	0.90	*0.00*	0.44	*0.00*	0.18
MargalefGroundfish_s	0.26	-0.11	0.01	0.15	-0.17	-0.12	0.22	0.17	-0.20	0.47	0.29	0.33	0.57	1.00	0.72	0.44	0.22	*0.01*	0.37	0.32	*0.01*	0.92	0.89	0.96	*0.00*	0.34	0.68	*0.00*	*0.01*	0.25	0.93
MeanLengthAbundance_s	0.04	-0.08	0.10	0.28	-0.23	0.15	0.05	0.03	0.01	0.09	0.46	-0.03	-0.44	-0.01	1.00	*0.02*	0.95	*0.00*	0.47	0.88	0.31	0.12	1.00	0.05	0.36	0.06	0.83	0.63	*0.02*	*0.03*	0.15
MeanLengthBiomass_s	0.23	-0.36	0.08	0.33	-0.28	0.39	0.28	0.23	0.03	0.10	**0.83**	0.55	-0.35	0.14	0.52	1.00	0.14	0.06	*0.05*	*0.00*	0.95	0.09	0.64	0.17	0.11	*0.03*	0.56	0.27	0.74	0.31	0.24
MeanLifespan_s	-0.24	0.62	-0.13	-0.16	0.35	-0.53	-0.56	-0.54	0.09	-0.08	-0.59	-0.54	0.05	-0.28	-0.04	-0.55	1.00	*0.01*	0.72	*0.00*	0.05	0.51	0.66	0.55	0.34	*0.02*	0.43	0.46	*0.00*	0.09	*0.00*
MMLengthAbundance_s	0.31	-0.26	0.22	0.40	-0.25	0.28	0.32	0.29	-0.37	0.01	0.46	0.51	-0.11	0.32	0.28	0.39	-0.64	1.00	0.08	0.34	0.30	0.13	0.87	*0.04*	0.35	0.65	0.46	0.81	0.90	0.09	0.44
MMLengthBiomass_s	0.42	-0.38	0.16	0.35	-0.20	0.38	0.40	0.37	-0.24	0.02	0.62	**0.76**	-0.07	0.33	-0.01	0.61	-0.85	**0.79**	1.00	0.32	0.82	0.06	0.29	0.77	*0.00*	0.81	0.52	0.29	*0.00*	0.24	0.12
MeanTrophicLevel_s	0.48	0.53	0.15	0.41	0.43	-0.37	-0.45	-0.44	-0.30	-0.24	-0.03	0.50	-0.17	-0.07	-0.12	0.10	0.02	0.26	0.33	1.00	*0.00*	0.41	0.45	*0.00*	*0.00*	*0.03*	*0.00*	0.35	*0.00*	0.88	*0.00*
PielouEvenness_s	-0.13	-0.74	-0.21	-0.27	-0.42	**0.93**	**0.90**	**0.88**	0.02	0.02	0.44	0.16	-0.05	0.04	0.17	0.50	-0.63	0.31	0.45	-0.38	1.00	0.30	0.95	*0.01*	*0.02*	*0.00*	*0.00*	*0.00*	0.35	*0.00*	*0.02*
PropPredatoryFish_s	0.18	-0.60	0.00	0.05	-0.34	0.62	**0.71**	0.68	-0.24	0.00	0.46	0.48	0.10	0.32	-0.08	0.43	-0.87	**0.72**	**0.87**	-0.03	0.69	1.00	0.72	0.05	0.72	*0.03*	*0.01*	*0.00*	*0.01*	*0.00*	0.24
BiomassFlatfish_s	-0.02	-0.15	-0.22	-0.19	-0.02	0.15	0.39	0.37	-0.25	0.07	-0.01	-0.08	0.28	0.46	0.10	-0.06	-0.07	0.25	0.12	-0.33	0.24	0.33	1.00	0.45	0.47	*0.00*	*0.00*	0.29	0.87	0.97	0.42
BiomassGadoids_s	**0.97**	0.25	0.26	0.49	0.19	-0.24	-0.15	-0.15	-0.10	-0.07	0.29	**0.71**	0.03	0.33	-0.02	0.14	-0.16	0.30	0.38	0.46	-0.19	0.15	0.05	1.00	0.67	*0.00*	0.51	*0.00*	*0.03*	0.73	0.96
BiomassGroundfish_s	**0.71**	0.16	0.06	0.28	0.18	-0.17	0.02	0.01	-0.22	-0.03	0.21	0.48	0.17	0.49	0.06	0.07	-0.11	0.37	0.35	0.21	-0.08	0.25	0.56	**0.79**	1.00	*0.03*	*0.00*	0.08	*0.00*	*0.00*	*0.03*
BTGMediumBenthivore_s	-0.04	-0.07	-0.22	-0.19	0.01	0.02	0.31	0.29	-0.28	0.16	-0.09	-0.12	0.47	0.51	-0.03	-0.17	0.04	0.20	0.05	-0.29	0.10	0.25	**0.92**	0.10	0.60	1.00	*0.00*	*0.04*	0.16	*0.00*	0.82
BTGPiscivore_s	**0.89**	0.23	0.19	0.45	0.22	-0.22	-0.15	-0.16	-0.12	-0.11	0.30	0.66	-0.05	0.31	0.09	0.18	-0.16	0.34	0.41	0.41	-0.16	0.18	0.18	**0.90**	**0.89**	0.18	1.00	*0.00*	*0.05*	0.22	0.25
BiomassSkates_s	-0.11	0.10	-0.16	-0.06	0.13	-0.11	-0.02	-0.03	-0.15	-0.01	-0.04	-0.14	0.13	0.18	0.12	-0.05	0.14	0.13	0.02	-0.07	-0.08	0.02	0.44	-0.01	0.50	0.50	0.35	1.00	*0.00*	*0.00*	*0.00*
BTGZoopiscivore_s	0.03	0.57	0.01	0.04	0.32	-0.51	-0.49	-0.45	-0.18	-0.05	-0.53	-0.24	0.10	-0.02	-0.11	-0.51	0.59	-0.19	-0.41	0.26	-0.63	-0.51	-0.01	0.12	0.20	0.12	0.18	0.32	1.00	0.96	0.12
ShannonDiversity_s	-0.10	-0.69	-0.29	-0.31	-0.42	**0.83**	**0.96**	**0.92**	-0.04	0.09	0.40	0.14	0.18	0.20	0.10	0.42	-0.62	0.31	0.45	-0.41	**0.96**	**0.72**	0.35	-0.14	0.01	0.23	-0.12	-0.03	-0.60	1.00	0.72
SpeciesRichness_s	-0.07	0.06	-0.34	-0.35	-0.01	-0.28	0.14	0.11	-0.21	0.33	-0.29	-0.14	**0.99**	0.55	-0.48	-0.44	0.16	-0.16	-0.14	-0.13	-0.17	-0.01	0.28	0.07	0.22	0.49	-0.01	0.17	0.23	0.06	1.00

Table S 38. Spearman rank correlation coefficients (r) for indicators in strata 452. The upper triangle of the matrix represents p-values (p ≤ 0.05 highlighted in blue italics). The lower triangle of the matrix represents the r values (r ≥ 0.7 highlighted in red fonts).

Indicator	BiomassTL4_s	CommunityCondition_s	CCMediumBenthivore_s	CCPiscivore_s	CCZoopiscivore_s	Heips_s	HillN1Diversity_s	HillN2Dominance_s	InverseCVBiomass_s	KemptonQ_s	LargeFishIndicator_s	LargeSpeciesIndicator_s	MargalefRichness_s	MargalefGroundfish_s	MeanLengthAbundance_s	MeanLengthBiomass_s	MeanLifespan_s	MMLengthAbundance_s	MMLengthBiomass_s	MeanTrophicLevel_s	PielouEvenness_s	PropPredatoryFish_s	BiomassFlatfish_s	BiomassGadoids_s	BiomassGroundfish_s	BTGMediumBenthivore_s	BTGPiscivore_s	BiomassSkates_s	BTGZoopiscivore_s	ShannonDiversity_s	SpeciesRichness_s
BiomassTL4_s	1.00	0.77	0.88	0.63	0.25	*0.00*	0.08	0.15	0.16	*0.04*	0.06	0.74	0.66	0.36	0.43	0.96	0.68	0.35	*0.03*	0.78	0.81	*0.00*	0.49	0.94	0.42	0.37	0.75	0.58	0.11	0.74	0.79
CommunityCondition_s	-0.04	1.00	0.54	0.34	0.09	0.87	*0.00*	*0.00*	0.97	*0.03*	*0.01*	*0.03*	1.00	0.98	0.14	0.30	0.33	0.97	*0.00*	*0.00*	*0.00*	0.95	0.78	*0.00*	*0.02*	0.87	0.33	*0.00*	*0.00*	0.56	0.23
CCMediumBenthivore_s	0.02	0.32	1.00	0.29	0.30	0.23	*0.00*	*0.00*	*0.03*	0.22	0.86	*0.00*	*0.00*	0.78	0.27	0.48	0.54	0.66	*0.00*	*0.00*	*0.00*	0.76	0.77	*0.00*	*0.00*	0.51	0.98	*0.01*	*0.00*	0.15	*0.00*
CCPiscivore_s	0.09	0.13	0.44	1.00	*0.00*	*0.03*	*0.00*	0.12	0.40	0.25	*0.00*	0.47	0.35	0.72	0.30	0.61	0.66	0.34	0.67	*0.00*	0.28	0.36	0.21	0.22	*0.00*	0.31	0.13	0.44	0.22	0.24	0.06
CCZoopiscivore_s	0.07	**0.70**	0.10	-0.11	1.00	*0.00*	0.17	*0.00*	*0.00*	0.21	*0.00*	*0.00*	0.56	0.52	0.19	0.40	0.85	*0.00*	0.40	*0.00*	0.85	0.40	0.57	0.45	*0.00*	0.97	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
Heips_s	0.14	-0.42	-0.12	-0.08	-0.05	1.00	*0.00*	0.66	*0.00*	0.40	0.43	0.53	0.64	*0.00*	*0.02*	0.37	0.31	*0.00*	0.58	*0.00*	*0.00*	0.79	*0.00*	*0.00*	*0.00*	0.97	*0.00*	0.36	0.57	0.95	0.75
HillN1Diversity_s	0.16	-0.57	-0.30	-0.19	-0.18	**0.90**	1.00	0.54	*0.00*	0.38	0.82	0.42	0.09	*0.01*	0.78	0.48	0.46	0.60	0.42	0.18	*0.00*	0.99	*0.00*	*0.00*	*0.00*	0.54	*0.00*	*0.00*	*0.04*	0.23	0.56
HillN2Dominance_s	0.17	-0.56	-0.26	-0.18	-0.19	**0.90**	**0.98**	1.00	*0.00*	0.09	0.84	*0.04*	0.47	*0.02*	0.56	0.14	0.84	0.42	0.46	*0.00*	*0.00*	0.50	0.10	*0.00*	*0.00*	0.61	*0.01*	*0.00*	*0.00*	0.33	0.23
InverseCVBiomass_s	0.25	-0.30	0.10	0.12	-0.27	-0.08	-0.01	-0.03	1.00	*0.00*	1.00	0.08	0.45	*0.00*	0.83	0.24	0.68	*0.00*	0.10	*0.00*	*0.00*	0.70	0.37	*0.00*	*0.00*	*0.01*	0.17	*0.01*	0.09	0.66	0.96
KemptonQ_s	-0.16	-0.32	-0.17	0.22	-0.34	-0.12	0.01	-0.04	0.05	1.00	0.98	0.52	0.42	0.46	0.35	0.74	0.91	*0.00*	*0.00*	0.76	*0.00*	0.76	0.28	*0.00*	0.82	0.54	*0.00*	*0.00*	*0.00*	0.30	*0.00*
LargeFishIndicator_s	0.63	-0.18	0.07	0.17	0.10	**0.70**	0.61	0.60	0.14	-0.19	1.00	0.27	0.10	0.62	0.59	0.23	0.52	0.35	*0.00*	0.37	0.18	0.95	0.55	*0.00*	*0.00*	0.18	*0.01*	*0.00*	*0.00*	*0.02*	*0.00*
LargeSpeciesIndicator_s	0.57	-0.17	0.00	0.16	0.06	0.61	0.57	0.58	0.13	-0.09	**0.81**	1.00	0.05	0.21	0.33	0.20	0.80	0.80	*0.04*	0.47	*0.00*	0.46	0.61	*0.00*	*0.00*	*0.00*	0.82	0.07	*0.00*	*0.00*	0.16
MargalefRichness_s	0.02	-0.19	-0.53	-0.20	-0.15	-0.14	0.20	0.16	0.04	0.41	-0.19	0.04	1.00	0.23	0.25	0.07	0.75	*0.00*	*0.00*	0.78	*0.00*	0.80	1.00	*0.00*	1.00	0.34	0.06	*0.00*	0.46	*0.00*	0.83
MargalefGroundfish_s	0.18	-0.13	0.14	0.35	-0.09	-0.04	0.04	0.03	0.00	0.53	0.11	0.12	0.22	1.00	0.73	*0.02*	0.65	*0.00*	0.97	0.49	0.73	0.92	0.55	0.98	*0.00*	0.91	*0.05*	*0.00*	*0.00*	0.32	0.31
MeanLengthAbundance_s	0.32	-0.13	0.09	0.04	0.07	0.56	0.45	0.44	-0.10	-0.25	0.52	0.34	-0.39	-0.14	1.00	0.49	0.70	*0.00*	0.95	*0.02*	0.31	0.50	0.92	*0.00*	0.28	0.62	0.96	0.60	*0.00*	0.28	0.97
MeanLengthBiomass_s	0.46	-0.26	0.07	0.09	0.03	**0.73**	0.65	0.63	0.06	-0.14	**0.90**	**0.73**	-0.24	0.02	0.63	1.00	0.53	*0.00*	*0.00*	*0.00*	0.41	0.55	0.46	*0.00*	*0.02*	0.07	*0.02*	0.09	0.83	*0.00*	0.06
MeanLifespan_s	-0.26	0.60	0.25	0.03	0.15	-0.66	-0.71	-0.66	-0.05	-0.16	-0.55	-0.45	-0.10	-0.07	-0.54	-0.65	1.00	*0.00*	*0.00*	*0.00*	0.81	0.08	0.20	0.91	*0.00*	0.23	0.71	0.25	*0.00*	*0.01*	0.07
MMLengthAbundance_s	0.46	-0.28	-0.11	0.14	0.11	0.64	0.55	0.57	-0.01	-0.09	**0.72**	0.60	-0.16	0.27	0.49	0.56	-0.47	1.00	0.18	0.80	0.41	0.09	0.29	*0.00*	0.71	0.19	*0.01*	0.50	0.29	0.55	0.47
MMLengthBiomass_s	0.54	-0.39	-0.11	0.08	-0.03	**0.74**	**0.71**	**0.71**	0.11	-0.08	**0.91**	**0.84**	-0.02	0.18	0.37	**0.83**	-0.59	**0.79**	1.00	0.84	*0.03*	0.60	0.82	0.39	0.15	0.74	*0.00*	0.18	*0.00*	*0.01*	0.84
MeanTrophicLevel_s	0.57	-0.03	0.12	0.15	-0.06	0.31	0.20	0.20	0.04	0.00	0.63	0.49	-0.14	0.20	0.21	0.53	-0.27	0.40	0.58	1.00	*0.00*	0.10	0.19	*0.00*	*0.01*	0.30	*0.00*	*0.00*	*0.00*	0.09	0.38
PielouEvenness_s	0.21	-0.47	-0.25	-0.17	-0.02	**0.93**	**0.94**	**0.90**	0.02	-0.09	**0.72**	0.58	0.03	-0.05	0.57	**0.76**	-0.78	0.60	**0.75**	0.27	1.00	0.53	0.85	*0.00*	0.10	0.11	*0.00*	*0.00*	0.31	*0.00*	0.23
PropPredatoryFish_s	0.41	-0.57	-0.29	-0.05	-0.10	**0.80**	**0.82**	**0.79**	0.10	-0.02	**0.77**	0.63	0.10	0.15	0.37	**0.72**	-0.75	**0.73**	**0.90**	0.40	**0.86**	1.00	0.89	*0.04*	0.52	0.30	*0.00*	*0.00*	0.07	*0.00*	0.75
BiomassFlatfish_s	0.22	-0.12	-0.14	0.01	-0.04	-0.07	0.05	0.05	0.09	0.11	0.00	0.04	0.15	0.24	-0.04	-0.08	0.08	0.24	0.11	-0.22	-0.01	0.16	1.00	0.77	0.29	0.16	*0.00*	0.77	*0.01*	0.76	0.33
BiomassGadoids_s	**0.96**	-0.04	0.00	0.16	0.05	0.13	0.14	0.15	0.26	-0.19	0.62	0.53	0.01	0.16	0.28	0.41	-0.26	0.44	0.52	0.52	0.18	0.41	0.22	1.00	0.88	0.16	*0.00*	*0.00*	0.15	0.14	0.56
BiomassGroundfish_s	**0.95**	-0.03	0.04	0.11	0.07	0.08	0.11	0.12	0.25	-0.16	0.56	0.47	0.00	0.21	0.29	0.36	-0.17	0.45	0.47	0.43	0.15	0.38	0.47	**0.94**	1.00	0.24	*0.00*	*0.01*	*0.00*	*0.00*	*0.04*
BTGMediumBenthivore_s	0.23	0.00	-0.05	0.08	0.06	-0.12	-0.04	-0.04	0.08	0.03	-0.02	0.00	0.09	0.21	-0.01	-0.12	0.10	0.19	0.03	-0.26	-0.07	0.09	**0.94**	0.28	0.51	1.00	*0.00*	*0.00*	*0.00*	*0.00*	*0.01*
BTGPiscivore_s	**0.98**	0.00	0.10	0.13	0.09	0.11	0.10	0.12	0.25	-0.20	0.62	0.53	-0.08	0.18	0.35	0.45	-0.20	0.45	0.51	0.54	0.16	0.36	0.24	**0.95**	**0.96**	0.28	1.00	*0.00*	0.08	0.10	*0.03*
BiomassSkates_s	0.07	0.05	0.41	0.13	-0.14	-0.25	-0.35	-0.33	0.10	-0.03	-0.13	-0.16	-0.39	0.05	-0.06	-0.14	0.43	-0.09	-0.16	0.05	-0.35	-0.26	0.21	0.05	0.21	0.27	0.18	1.00	*0.00*	0.16	*0.00*
BTGZoopiscivore_s	-0.09	0.32	0.37	0.11	-0.01	-0.51	-0.54	-0.48	-0.11	-0.02	-0.44	-0.33	-0.09	0.15	-0.39	-0.51	0.64	-0.30	-0.46	-0.09	-0.65	-0.56	0.10	-0.09	-0.03	0.11	-0.05	0.30	1.00	0.49	0.67
ShannonDiversity_s	0.21	-0.53	-0.34	-0.22	-0.07	**0.87**	**0.96**	**0.92**	0.04	-0.01	0.65	0.56	0.20	0.00	0.49	0.70	-0.79	0.55	**0.72**	0.21	**0.98**	**0.86**	0.04	0.18	0.15	-0.03	0.15	-0.40	-0.66	1.00	0.87
SpeciesRichness_s	0.01	-0.11	-0.47	-0.18	-0.14	-0.30	0.04	0.01	0.04	0.42	-0.31	-0.06	**0.98**	0.23	-0.50	-0.38	0.04	-0.25	-0.15	-0.18	-0.15	-0.05	0.18	-0.01	-0.01	0.13	-0.09	-0.33	0.06	0.02	1.00

Table S 39. Spearman rank correlation coefficients (r) for indicators in strata 453. The upper triangle of the matrix represents p-values (p ≤ 0.05 highlighted in blue italics). The lower triangle of the matrix represents the r values (r ≥ 0.7 highlighted in red).

Indicator	BiomassTL4_s	CommunityCondition_s	CCMediumBenthivore_s	CCPiscivore_s	CCZoopiscivore_s	Heips_s	HillN1Diversity_s	HillN2Dominance_s	InverseCVBiomass_s	KemptonQ_s	LargeFishIndicator_s	LargeSpeciesIndicator_s	MargalefRichness_s	MargalefGroundfish_s	MeanLengthAbundance_s	MeanLengthBiomass_s	MeanLifespan_s	MMLengthAbundance_s	MMLengthBiomass_s	MeanTrophicLevel_s	PielouEvenness_s	PropPredatoryFish_s	BiomassFlatfish_s	BiomassGadoids_s	BiomassGroundfish_s	BTGMediumBenthivore_s	BTGPiscivore_s	BTGZoopiscivore_s	ShannonDiversity_s	SpeciesRichness_s
BiomassTL4_s	1.00	0.46	0.51	*0.02*	0.81	*0.00*	*0.03*	0.69	0.20	0.82	0.19	0.25	0.11	0.73	0.21	0.40	0.67	*0.00*	0.98	0.72	0.05	0.90	0.07	0.52	0.14	0.53	0.69	0.21	*0.01*	*0.03*
CommunityCondition_s	-0.11	1.00	0.12	0.89	0.80	0.22	0.11	*0.00*	0.92	0.77	0.23	0.63	0.96	0.91	0.20	0.48	*0.00*	0.32	0.96	*0.00*	0.81	0.97	0.80	*0.02*	0.46	0.32	*0.01*	0.56	0.79	0.57
CCMediumBenthivore_s	0.10	0.02	1.00	0.53	*0.02*	0.55	0.23	*0.00*	0.87	0.41	0.30	0.59	*0.03*	0.53	0.50	0.90	0.65	0.98	0.38	*0.00*	0.17	0.53	0.39	0.59	*0.00*	0.26	0.08	0.51	0.93	*0.03*
CCPiscivore_s	0.23	-0.03	-0.08	1.00	0.31	0.14	*0.00*	0.64	*0.00*	0.48	*0.01*	0.18	0.43	0.54	*0.03*	0.38	0.51	0.05	*0.04*	0.18	0.33	0.76	*0.01*	0.64	0.08	*0.03*	0.47	*0.00*	0.20	*0.01*
CCZoopiscivore_s	-0.34	0.69	-0.20	-0.25	1.00	0.36	0.83	*0.00*	0.22	0.66	0.99	0.47	0.29	0.83	0.43	0.15	*0.01*	0.14	*0.00*	0.60	*0.00*	0.33	0.62	*0.02*	0.13	0.92	*0.00*	*0.00*	*0.01*	0.68
Heips_s	-0.02	-0.18	-0.11	-0.11	0.05	1.00	0.10	0.91	0.14	0.98	0.76	0.81	0.63	0.09	0.28	0.77	0.75	0.92	0.56	0.46	*0.02*	0.09	0.10	*0.03*	0.99	0.98	0.79	*0.03*	0.67	0.61
HillN1Diversity_s	0.09	-0.22	0.04	-0.18	-0.06	**0.82**	1.00	0.53	0.29	0.57	0.77	0.83	0.95	0.09	*0.03*	0.68	*0.03*	0.61	*0.00*	0.57	0.11	0.72	0.48	0.08	*0.02*	0.53	*0.03*	*0.00*	0.43	0.32
HillN2Dominance_s	0.04	-0.16	0.03	-0.19	0.03	**0.84**	**0.96**	1.00	0.57	*0.00*	0.48	*0.03*	0.18	0.49	0.26	0.84	0.13	0.09	*0.04*	0.57	0.66	0.27	0.93	*0.00*	*0.00*	0.13	*0.00*	0.42	*0.00*	0.22
InverseCVBiomass_s	-0.04	0.09	0.32	-0.38	0.12	0.15	0.31	0.30	1.00	0.60	0.83	0.35	0.74	0.24	*0.03*	0.41	0.40	*0.01*	0.10	*0.01*	0.51	0.36	0.63	0.13	0.27	0.35	0.66	0.17	0.35	*0.00*
KemptonQ_s	0.33	-0.03	0.14	0.12	-0.25	0.00	0.25	0.13	0.06	1.00	0.11	0.85	0.51	0.22	0.56	0.10	0.71	0.08	0.22	*0.00*	0.47	0.58	0.36	0.07	*0.01*	0.82	*0.00*	0.39	0.74	*0.00*
LargeFishIndicator_s	0.15	0.04	0.03	0.14	0.07	0.29	0.18	0.13	-0.09	-0.03	1.00	0.44	0.24	*0.01*	0.42	0.65	0.43	0.18	0.16	*0.00*	0.74	0.60	0.37	0.33	0.08	0.44	0.71	0.70	0.97	*0.02*
LargeSpeciesIndicator_s	0.51	-0.13	0.12	0.19	-0.21	0.22	0.21	0.14	-0.07	0.18	0.59	1.00	0.48	0.41	0.44	0.15	0.93	*0.03*	*0.00*	*0.04*	*0.05*	0.94	0.19	0.74	0.68	0.12	0.27	*0.05*	0.65	0.93
MargalefRichness_s	0.19	-0.11	0.24	-0.19	-0.19	0.01	0.53	0.42	0.31	0.46	-0.09	0.05	1.00	0.34	0.08	0.21	0.23	0.85	0.39	0.39	*0.00*	0.39	0.14	0.15	0.84	0.11	0.31	*0.04*	*0.01*	0.52
MargalefGroundfish_s	0.09	-0.07	0.01	0.10	-0.03	-0.08	0.13	0.07	0.31	0.55	0.07	0.22	0.36	1.00	0.12	0.85	0.93	*0.00*	0.98	0.39	*0.02*	*0.02*	*0.00*	0.73	0.24	0.44	0.39	0.23	0.52	0.35
MeanLengthAbundance_s	0.22	0.00	-0.31	0.32	0.09	0.25	0.00	0.04	-0.05	-0.15	0.34	0.05	-0.43	-0.05	1.00	0.57	0.22	*0.03*	0.10	0.36	0.71	0.05	*0.00*	*0.00*	*0.01*	*0.02*	1.00	*0.01*	0.75	*0.00*
MeanLengthBiomass_s	0.14	-0.09	-0.12	0.12	0.06	0.40	0.25	0.20	0.02	-0.01	**0.78**	0.50	-0.17	0.09	0.52	1.00	*0.00*	0.45	*0.01*	*0.00*	0.55	0.82	0.57	*0.04*	0.32	*0.00*	*0.00*	0.61	0.67	*0.01*
MeanLifespan_s	-0.31	0.45	-0.16	-0.16	0.44	-0.26	-0.39	-0.28	-0.01	-0.27	-0.01	-0.31	-0.40	-0.15	0.17	-0.04	1.00	0.90	0.65	0.66	0.62	0.23	0.66	*0.05*	0.42	0.26	0.23	0.40	0.73	0.89
MMLengthAbundance_s	0.24	-0.08	0.07	0.32	-0.07	0.20	0.07	0.04	0.10	0.04	0.37	0.29	-0.26	0.17	0.61	0.32	-0.17	1.00	*0.04*	0.81	*0.04*	*0.00*	*0.02*	*0.00*	0.32	*0.00*	*0.01*	*0.02*	0.42	0.41
MMLengthBiomass_s	0.18	-0.20	-0.01	0.17	-0.10	0.33	0.31	0.21	0.05	0.13	0.60	**0.75**	0.06	0.32	0.08	0.54	-0.52	0.53	1.00	0.19	*0.04*	*0.00*	*0.00*	*0.05*	0.51	0.62	0.08	0.79	*0.01*	0.24
MeanTrophicLevel_s	0.50	-0.18	0.20	0.33	-0.38	-0.03	-0.05	-0.15	-0.15	0.37	-0.10	0.30	-0.03	-0.02	0.06	0.07	-0.31	0.12	0.04	1.00	0.75	0.30	0.95	0.11	0.61	0.69	0.27	*0.01*	*0.00*	0.50
PielouEvenness_s	0.03	-0.16	-0.05	-0.09	0.05	**0.95**	**0.88**	**0.85**	0.25	0.08	0.34	0.24	0.18	0.00	0.26	0.49	-0.34	0.21	0.40	0.01	1.00	0.93	*0.01*	0.05	*0.02*	0.08	*0.00*	*0.00*	0.70	0.51
PropPredatoryFish_s	0.25	-0.38	0.10	0.12	-0.31	0.33	0.44	0.34	-0.06	0.25	0.08	0.29	0.39	0.10	-0.24	0.06	-0.93	0.13	0.57	0.19	0.40	1.00	*0.00*	0.51	*0.00*	0.11	*0.04*	0.71	0.46	0.54
BiomassFlatfish_s	-0.06	0.00	-0.18	-0.12	0.23	0.11	0.20	0.24	0.17	0.11	-0.07	-0.10	0.15	0.23	-0.07	-0.17	0.05	0.06	0.06	-0.40	0.10	0.11	1.00	0.09	*0.00*	0.66	*0.02*	0.16	0.11	0.44
BiomassGadoids_s	0.60	0.05	0.11	0.26	-0.13	-0.02	0.08	0.07	-0.14	0.01	0.36	0.25	0.12	-0.14	0.26	0.15	-0.22	0.30	0.21	-0.06	0.05	0.24	0.09	1.00	0.72	0.08	*0.00*	0.16	0.11	0.62
BiomassGroundfish_s	0.58	0.05	0.05	0.23	-0.06	0.00	0.11	0.10	-0.08	0.07	0.32	0.22	0.15	-0.03	0.25	0.13	-0.19	0.30	0.21	-0.12	0.06	0.24	0.31	**0.97**	1.00	0.10	0.76	0.26	0.18	0.52
BTGMediumBenthivore_s	-0.07	0.11	0.02	0.13	0.12	0.01	0.09	0.11	-0.08	-0.14	0.26	-0.11	0.10	-0.12	0.06	0.00	-0.09	0.18	0.17	-0.52	0.05	0.20	0.41	**0.72**	**0.75**	1.00	0.15	*0.01*	0.40	0.62
BTGPiscivore_s	0.59	0.03	-0.10	0.11	-0.01	0.13	0.09	0.05	-0.01	0.14	0.54	**0.71**	-0.08	0.23	0.37	0.45	0.10	0.38	0.39	0.14	0.12	-0.13	0.06	0.34	0.36	-0.10	1.00	*0.00*	*0.00*	*0.01*
BTGZoopiscivore_s	-0.02	0.24	-0.09	0.02	0.18	-0.31	-0.36	-0.29	-0.13	-0.20	-0.23	-0.26	-0.35	-0.24	0.26	-0.18	0.64	-0.08	-0.52	0.05	-0.36	-0.63	-0.08	-0.01	-0.02	-0.10	0.08	1.00	*0.00*	0.07
ShannonDiversity_s	0.09	-0.17	0.03	-0.13	-0.01	**0.85**	**0.96**	**0.90**	0.34	0.22	0.27	0.23	0.46	0.12	0.11	0.38	-0.41	0.13	0.38	-0.01	**0.95**	0.45	0.15	0.10	0.12	0.09	0.10	-0.40	1.00	*0.02*
SpeciesRichness_s	0.19	-0.07	0.25	-0.22	-0.18	-0.09	0.43	0.34	0.29	0.43	-0.15	0.00	**0.99**	0.33	-0.48	-0.26	-0.32	-0.34	-0.04	-0.07	0.06	0.31	0.18	0.14	0.18	0.12	-0.08	-0.27	0.35	1.00

Table S 40. Spearman rank correlation coefficients (r) for indicators in strata 454. The upper triangle of the matrix represents p-values (p ≤ 0.05 highlighted in blue italics). The lower triangle of the matrix represents the r values (r ≥ 0.7 highlighted in red).

Indicator	BiomassTL4_s	CommunityCondition_s	CCMediumBenthivore_s	CCPiscivore_s	CCZoopiscivore_s	Heips_s	HillN1Diversity_s	HillN2Dominance_s	InverseCVBiomass_s	KemptonQ_s	LargeFishIndicator_s	LargeSpeciesIndicator_s	MargalefRichness_s	MargalefGroundfish_s	MeanLengthAbundance_s	MeanLengthBiomass_s	MeanLifespan_s	MMLengthAbundance_s	MMLengthBiomass_s	MeanTrophicLevel_s	PielouEvenness_s	PropPredatoryFish_s	BiomassFlatfish_s	BiomassGadoids_s	BiomassGroundfish_s	BTGMediumBenthivore_s	BTGPiscivore_s	BiomassSkates_s	BTGZoopiscivore_s	ShannonDiversity_s	SpeciesRichness_s
BiomassTL4_s	1.00	0.76	0.99	0.41	0.33	*0.00*	0.16	0.71	0.31	0.05	*0.00*	0.10	*0.02*	0.23	0.25	0.73	0.38	0.26	0.92	0.07	0.07	*0.00*	0.09	*0.01*	0.73	0.11	0.07	0.26	0.52	*0.05*	0.90
CommunityCondition_s	0.05	1.00	0.41	0.09	0.14	0.18	0.15	*0.00*	0.11	*0.00*	*0.00*	0.65	0.96	0.56	0.44	0.39	0.84	0.22	*0.00*	0.31	0.13	0.83	0.21	*0.05*	*0.00*	0.17	0.91	0.41	0.06	*0.00*	0.17
CCMediumBenthivore_s	0.00	0.49	1.00	0.25	0.58	0.66	0.10	*0.00*	*0.00*	*0.01*	0.27	*0.00*	*0.00*	0.99	0.66	0.29	0.57	0.56	*0.01*	*0.04*	0.11	0.57	*0.00*	*0.00*	*0.00*	0.75	0.13	0.78	0.21	0.31	*0.00*
CCPiscivore_s	0.13	0.17	-0.01	1.00	0.38	*0.03*	*0.00*	0.91	0.27	0.29	*0.00*	0.07	*0.04*	0.10	0.90	0.73	0.35	0.88	0.22	*0.00*	0.41	*0.05*	0.11	0.43	0.17	0.27	*0.05*	0.46	0.12	0.14	0.20
CCZoopiscivore_s	-0.12	0.39	0.10	0.33	1.00	0.61	0.13	*0.00*	*0.01*	0.16	*0.00*	0.97	0.11	0.89	0.42	0.28	0.59	*0.00*	0.05	*0.02*	0.32	0.99	0.39	0.75	*0.00*	0.16	*0.00*	0.85	0.25	*0.00*	*0.00*
Heips_s	-0.25	0.44	0.16	0.00	-0.04	1.00	0.46	*0.00*	*0.00*	0.96	0.76	0.50	*0.03*	0.26	0.23	0.12	0.13	*0.00*	*0.02*	*0.00*	0.26	*0.00*	0.09	*0.00*	*0.00*	*0.03*	0.17	*0.04*	*0.03*	0.61	*0.00*
HillN1Diversity_s	-0.17	0.34	-0.08	-0.16	-0.08	**0.79**	1.00	*0.00*	*0.02*	*0.00*	0.51	0.29	*0.05*	0.45	0.56	0.68	0.64	*0.01*	0.11	0.27	0.07	0.20	*0.01*	*0.00*	*0.00*	0.35	*0.00*	0.87	0.98	0.11	*0.00*
HillN2Dominance_s	-0.15	0.32	-0.04	-0.13	-0.09	**0.82**	**0.97**	1.00	*0.03*	*0.00*	0.32	0.61	*0.00*	0.98	0.94	0.65	0.76	*0.01*	0.11	*0.00*	*0.01*	*0.05*	0.13	*0.00*	0.25	0.11	*0.01*	*0.01*	*0.01*	0.05	0.31
InverseCVBiomass_s	-0.22	0.29	0.19	-0.17	0.01	0.39	0.12	0.07	1.00	*0.00*	0.14	0.80	0.11	*0.00*	0.74	0.51	0.79	0.11	0.39	*0.02*	*0.03*	*0.00*	*0.02*	*0.00*	0.18	0.54	*0.00*	0.06	*0.01*	0.49	0.09
KemptonQ_s	-0.08	-0.55	-0.33	-0.12	0.19	-0.37	-0.25	-0.27	-0.09	1.00	0.26	0.20	0.64	*0.03*	0.62	0.81	0.68	0.24	*0.04*	0.50	*0.01*	*0.00*	0.12	*0.00*	0.06	*0.05*	0.09	*0.00*	0.24	0.13	0.07
LargeFishIndicator_s	0.13	0.37	0.35	-0.07	-0.11	0.24	0.24	0.23	0.30	-0.24	1.00	*0.03*	0.28	0.97	0.58	0.60	0.08	*0.01*	*0.00*	0.22	0.42	*0.03*	*0.00*	0.33	*0.00*	0.25	0.18	*0.00*	*0.00*	0.60	*0.00*
LargeSpeciesIndicator_s	0.57	0.16	0.01	0.02	-0.13	0.18	0.25	0.24	0.00	-0.13	0.57	1.00	0.49	0.29	0.41	0.56	0.51	0.92	*0.00*	0.15	*0.00*	0.11	*0.01*	0.07	*0.00*	*0.00*	0.40	0.87	*0.00*	0.09	*0.00*
MargalefRichness_s	0.20	-0.21	-0.41	-0.12	-0.03	-0.38	0.21	0.12	-0.50	0.25	-0.12	0.05	1.00	0.39	0.94	0.92	0.47	0.17	*0.00*	0.52	0.06	0.77	0.80	*0.04*	0.19	0.75	*0.01*	*0.00*	0.08	*0.00*	*0.00*
MargalefGroundfish_s	-0.07	-0.01	-0.31	-0.18	0.09	0.01	0.27	0.15	0.19	0.39	0.05	-0.05	0.32	1.00	0.36	0.20	0.60	*0.01*	0.43	0.28	0.37	*0.01*	*0.00*	0.07	*0.00*	0.37	*0.02*	0.11	0.05	*0.04*	0.26
MeanLengthAbundance_s	0.32	0.43	0.24	-0.09	-0.14	0.21	0.15	0.17	0.30	-0.23	0.43	0.41	-0.15	0.05	1.00	0.46	0.94	*0.00*	0.09	0.80	0.32	0.22	*0.00*	0.13	*0.01*	0.19	0.06	0.29	0.33	0.12	*0.01*
MeanLengthBiomass_s	0.08	0.49	0.33	0.01	-0.08	0.38	0.31	0.27	0.48	-0.36	**0.84**	0.49	-0.21	0.14	0.57	1.00	0.94	*0.00*	0.10	0.24	0.20	0.83	0.54	0.44	0.16	0.55	0.13	0.22	0.70	0.40	1.00
MeanLifespan_s	-0.21	0.46	0.30	0.05	0.23	0.44	0.44	0.36	0.51	-0.23	0.44	0.20	-0.15	0.20	0.21	0.63	1.00	*0.00*	0.10	*0.00*	0.61	0.12	0.41	0.11	0.18	0.96	0.09	0.06	0.20	0.26	0.88
MMLengthAbundance_s	0.21	0.62	0.43	0.07	-0.07	0.45	0.33	0.33	0.31	-0.46	0.69	0.57	-0.31	-0.09	0.53	0.64	0.47	1.00	0.15	0.46	0.36	*0.05*	0.68	0.48	0.94	0.16	0.06	0.92	*0.03*	0.28	0.71
MMLengthBiomass_s	0.25	0.48	0.24	0.08	-0.05	0.41	0.43	0.38	0.24	-0.38	**0.79**	**0.75**	-0.11	0.01	0.40	**0.74**	0.57	**0.87**	1.00	0.66	0.66	0.63	0.21	0.10	*0.03*	0.59	0.18	0.12	0.87	0.46	0.89
MeanTrophicLevel_s	0.52	0.17	-0.07	-0.12	-0.04	0.02	0.16	0.12	0.04	0.04	0.15	0.42	0.24	0.21	0.44	0.24	-0.03	0.14	0.18	1.00	0.22	0.11	0.97	0.69	0.33	0.81	0.22	0.38	*0.00*	0.20	0.26
PielouEvenness_s	-0.23	0.56	0.16	0.01	-0.06	**0.94**	**0.86**	**0.85**	0.37	-0.50	0.27	0.17	-0.21	0.08	0.25	0.43	0.52	0.51	0.50	0.05	1.00	0.38	0.82	0.10	0.16	0.33	*0.00*	0.06	0.21	0.41	*0.00*
PropPredatoryFish_s	0.11	0.45	0.10	0.14	-0.26	0.36	0.35	0.28	0.18	-0.49	0.30	0.20	-0.05	0.04	0.20	0.36	0.24	0.60	0.56	0.00	0.55	1.00	0.75	0.24	0.32	0.52	*0.00*	*0.00*	0.75	*0.00*	*0.00*
BiomassFlatfish_s	-0.06	0.05	-0.18	0.05	-0.10	-0.19	-0.10	-0.14	-0.03	-0.09	-0.27	-0.28	0.17	0.15	0.13	-0.17	-0.16	-0.10	-0.26	-0.29	-0.08	0.23	1.00	0.75	*0.04*	0.92	*0.00*	0.11	1.00	0.46	0.33
BiomassGadoids_s	**0.97**	0.10	0.09	0.13	-0.11	-0.29	-0.18	-0.15	-0.23	-0.12	0.23	0.53	0.21	-0.10	0.37	0.12	-0.18	0.28	0.28	0.46	-0.24	0.13	*-0.03*	1.00	0.48	0.77	0.11	*0.00*	0.05	0.85	0.06
BiomassGroundfish_s	**0.88**	0.15	0.00	0.16	-0.08	-0.35	-0.21	-0.19	-0.29	-0.06	0.12	0.43	0.32	-0.01	0.35	0.04	-0.28	0.19	0.15	0.42	-0.29	0.17	0.24	**0.90**	1.00	0.94	*0.00*	0.36	*0.00*	0.11	*0.03*
BTGMediumBenthivore_s	-0.02	0.22	0.24	0.05	0.01	-0.24	-0.10	-0.08	-0.07	-0.19	0.24	-0.20	0.14	-0.04	0.28	0.11	0.02	0.23	0.06	-0.27	-0.10	0.16	0.53	0.19	0.27	1.00	*0.01*	*0.00*	*0.00*	*0.00*	0.78
BTGPiscivore_s	**0.79**	0.17	-0.02	0.16	-0.01	-0.24	-0.16	-0.14	-0.24	0.01	0.11	0.54	0.24	-0.01	0.23	0.03	-0.23	0.17	0.19	0.36	-0.22	0.11	0.08	**0.76**	**0.90**	0.00	1.00	*0.00*	0.07	0.58	0.62
BiomassSkates_s	0.50	0.24	0.17	0.23	0.17	0.13	0.04	0.07	0.13	-0.03	0.25	0.36	-0.09	0.27	0.25	0.31	0.13	0.32	0.32	0.30	0.08	0.19	0.01	0.48	0.46	-0.02	0.48	1.00	*0.01*	0.93	0.35
BTGZoopiscivore_s	**0.79**	-0.07	-0.11	0.06	-0.18	-0.30	-0.18	-0.19	-0.25	-0.05	-0.06	0.21	0.29	0.02	0.28	-0.02	-0.28	0.00	-0.03	0.58	-0.25	0.12	0.11	**0.77**	**0.71**	0.06	0.42	0.32	1.00	0.47	*0.02*
ShannonDiversity_s	-0.15	0.48	0.00	-0.07	-0.09	**0.77**	**0.96**	**0.90**	0.19	-0.40	0.24	0.20	0.17	0.23	0.20	0.36	0.48	0.41	0.48	0.15	**0.92**	0.53	-0.02	-0.15	-0.17	-0.02	-0.15	0.04	-0.14	1.00	0.68
SpeciesRichness_s	0.24	-0.27	-0.42	-0.10	-0.02	-0.47	0.11	0.03	-0.54	0.29	-0.18	0.01	**0.99**	0.30	-0.18	-0.28	-0.24	-0.37	-0.19	0.22	-0.31	-0.11	0.21	0.25	0.37	0.17	0.28	-0.08	0.33	0.06	1.00

Table S 41. Spearman rank correlation coefficients (r) for indicators in strata 455. The upper triangle of the matrix represents p-values (p ≤ 0.05 highlighted in blue italics). The lower triangle of the matrix represents the r values (r ≥ 0.7 highlighted in red).

Indicator	BiomassTL4_s	CommunityCondition_s	CCMediumBenthivore_s	CCPiscivore_s	CCZoopiscivore_s	Heips_s	HillN1Diversity_s	HillN2Dominance_s	InverseCVBiomass_s	KemptonQ_s	LargeFishIndicator_s	LargeSpeciesIndicator_s	MargalefRichness_s	MargalefGroundfish_s	MeanLengthAbundance_s	MeanLengthBiomass_s	MeanLifespan_s	MMLengthAbundance_s	MMLengthBiomass_s	MeanTrophicLevel_s	PielouEvenness_s	PropPredatoryFish_s	BiomassFlatfish_s	BiomassGadoids_s	BiomassGroundfish_s	BTGMediumBenthivore_s	BTGPiscivore_s	BiomassSkates_s	BTGZoopiscivore_s	ShannonDiversity_s	SpeciesRichness_s
BiomassTL4_s	1.00	0.94	0.91	0.70	0.93	*0.05*	0.94	0.47	0.97	*0.05*	*0.00*	*0.02*	*0.04*	*0.01*	0.69	0.56	*0.04*	*0.03*	0.48	0.79	0.23	*0.00*	0.15	0.30	0.84	0.28	0.07	*0.01*	0.08	0.14	0.95
CommunityCondition_s	0.01	1.00	0.40	0.49	0.43	0.26	*0.03*	*0.00*	0.19	0.94	0.27	0.25	0.32	0.25	0.31	0.96	0.55	0.80	*0.00*	0.58	*0.00*	0.83	0.83	0.26	0.07	*0.03*	0.21	0.57	*0.02*	*0.00*	*0.01*
CCMediumBenthivore_s	-0.02	0.34	1.00	0.71	0.24	0.67	0.42	*0.00*	*0.02*	*0.01*	0.11	0.97	*0.00*	0.05	0.10	0.85	0.15	0.71	*0.01*	0.05	0.34	0.92	*0.00*	*0.00*	*0.00*	0.19	0.37	0.17	*0.01*	0.61	*0.00*
CCPiscivore_s	0.13	-0.22	-0.09	1.00	0.55	0.13	*0.00*	0.09	0.14	0.20	0.25	*0.01*	0.35	*0.00*	0.36	0.17	0.42	0.46	0.38	0.56	0.60	*0.02*	0.06	*0.00*	*0.00*	*0.01*	0.34	*0.03*	*0.04*	0.19	*0.00*
CCZoopiscivore_s	-0.06	0.26	0.17	0.13	1.00	0.99	0.79	*0.00*	0.09	*0.01*	0.75	0.56	0.69	*0.05*	0.05	0.92	0.13	*0.00*	0.53	0.09	0.59	*0.00*	0.67	0.19	*0.00*	0.46	*0.00*	*0.02*	*0.00*	*0.00*	*0.00*
Heips_s	-0.10	0.29	0.23	-0.24	0.05	1.00	0.32	0.65	0.05	*0.02*	0.06	0.27	*0.04*	0.10	0.68	0.92	0.77	*0.00*	0.78	*0.04*	0.20	*0.00*	0.24	*0.00*	*0.00*	0.88	*0.01*	*0.00*	*0.02*	0.32	0.31
HillN1Diversity_s	-0.06	0.02	-0.06	-0.13	0.03	0.67	1.00	*0.00*	0.87	*0.00*	0.36	0.13	0.09	0.11	*0.01*	0.21	0.12	*0.04*	0.79	0.76	*0.02*	0.24	*0.01*	*0.00*	0.26	0.16	*0.00*	0.10	0.45	0.80	*0.00*
HillN2Dominance_s	0.01	0.13	-0.03	-0.17	0.01	**0.72**	**0.96**	1.00	0.40	*0.00*	0.14	0.70	0.07	0.87	0.08	0.44	0.09	0.08	0.40	*0.00*	0.19	*0.02*	0.35	*0.00*	*0.03*	0.19	0.07	*0.01*	*0.02*	0.93	0.99
InverseCVBiomass_s	-0.12	0.30	0.11	-0.06	0.34	0.31	-0.04	-0.01	1.00	*0.00*	*0.02*	0.85	*0.02*	*0.00*	*0.05*	*0.05*	0.57	*0.00*	0.15	0.12	*0.03*	*0.00*	0.65	*0.00*	*0.00*	*0.00*	*0.04*	*0.00*	*0.00*	0.68	0.33
KemptonQ_s	-0.18	0.01	-0.07	0.15	0.32	-0.26	-0.13	-0.18	-0.02	1.00	0.09	0.46	0.17	0.40	0.14	0.76	0.59	*0.02*	0.12	0.36	*0.04*	0.49	0.27	*0.00*	0.30	*0.02*	*0.02*	*0.00*	0.57	0.45	*0.00*
LargeFishIndicator_s	0.09	0.38	0.31	-0.25	-0.03	0.68	0.38	0.46	0.35	-0.28	1.00	0.64	0.32	0.10	0.23	0.83	*0.02*	*0.00*	*0.00*	0.72	0.64	*0.01*	0.22	0.65	0.18	0.48	0.35	*0.00*	*0.00*	0.37	*0.00*
LargeSpeciesIndicator_s	0.30	0.19	0.15	-0.14	0.30	0.35	0.14	0.14	0.42	-0.06	0.48	1.00	0.06	0.38	0.74	0.95	0.12	0.23	*0.00*	0.53	*0.00*	*0.01*	0.36	*0.00*	0.10	*0.00*	*0.04*	0.13	*0.00*	0.35	0.60
MargalefRichness_s	0.17	-0.39	-0.45	0.29	-0.09	-0.54	0.16	0.08	-0.42	0.18	-0.44	-0.35	1.00	0.27	0.15	*0.02*	0.24	*0.00*	*0.00*	0.57	0.23	0.18	0.79	*0.00*	0.69	*0.02*	*0.04*	0.21	0.14	*0.00*	*0.00*
MargalefGroundfish_s	0.07	0.33	0.14	-0.06	0.22	0.18	0.04	0.08	0.18	0.36	0.20	0.03	-0.14	1.00	0.76	*0.03*	0.59	*0.00*	0.81	1.00	0.27	0.11	0.12	0.10	*0.00*	*0.02*	*0.01*	0.30	0.19	*0.01*	0.99
MeanLengthAbundance_s	0.23	0.61	0.06	-0.36	-0.12	0.43	0.08	0.19	0.33	-0.14	0.65	0.27	-0.42	0.34	1.00	0.85	0.51	*0.04*	0.39	0.25	0.82	*0.01*	0.79	0.07	*0.01*	0.84	*0.01*	0.34	0.08	*0.00*	0.95
MeanLengthBiomass_s	0.00	0.47	0.30	-0.26	0.23	0.66	0.29	0.35	0.55	-0.07	**0.88**	0.57	-0.55	0.35	0.60	1.00	0.95	*0.00*	*0.01*	0.56	0.88	*0.00*	0.97	*0.02*	0.18	0.12	0.08	0.11	0.05	0.66	*0.01*
MeanLifespan_s	0.01	0.49	0.25	-0.30	0.04	0.31	0.09	0.20	0.10	-0.16	0.51	0.54	-0.41	0.03	0.36	0.51	1.00	*0.00*	0.37	*0.00*	0.79	0.11	0.08	*0.00*	0.25	0.57	0.13	0.23	*0.00*	0.13	0.34
MMLengthAbundance_s	0.32	0.51	0.27	-0.22	0.23	0.55	0.26	0.32	0.37	-0.19	**0.72**	**0.77**	-0.43	0.23	0.60	**0.72**	0.51	1.00	0.29	0.51	0.90	0.71	0.11	*0.00*	*0.01*	0.46	0.53	*0.04*	*0.01*	0.22	0.81
MMLengthBiomass_s	0.12	0.17	0.34	-0.18	0.26	0.54	0.30	0.31	0.38	-0.14	**0.71**	**0.85**	-0.40	0.09	0.27	**0.74**	0.56	**0.80**	1.00	0.94	0.28	0.94	0.15	*0.04*	0.34	0.18	0.37	*0.00*	*0.03*	0.10	0.97
MeanTrophicLevel_s	**0.70**	0.24	-0.21	-0.05	0.09	-0.11	-0.05	0.07	-0.20	0.04	-0.07	0.17	0.16	0.11	0.30	-0.06	0.22	0.19	-0.09	1.00	0.91	0.38	0.09	0.17	*0.00*	0.09	*0.00*	0.47	*0.01*	*0.01*	0.22
PielouEvenness_s	-0.04	0.17	0.15	-0.21	0.08	**0.93**	**0.84**	**0.85**	0.24	-0.23	0.64	0.33	-0.31	0.20	0.34	0.60	0.19	0.53	0.55	-0.13	1.00	*0.00*	0.51	*0.00*	*0.00*	*0.00*	*0.00*	*0.01*	*0.00*	0.86	0.13
PropPredatoryFish_s	0.15	-0.05	0.28	-0.05	0.34	0.39	0.23	0.18	0.40	0.04	0.44	0.44	-0.20	0.25	0.14	0.54	-0.16	0.53	0.67	-0.19	0.49	1.00	0.91	*0.00*	*0.00*	0.83	*0.00*	0.78	0.40	*0.01*	0.87
BiomassFlatfish_s	0.11	0.28	0.40	-0.09	0.23	0.13	-0.14	-0.17	0.46	0.01	0.25	0.16	-0.38	0.41	0.31	0.36	-0.14	0.26	0.22	-0.18	0.15	0.52	1.00	*0.02*	*0.00*	0.30	*0.00*	*0.01*	0.19	0.10	0.87
BiomassGadoids_s	**0.85**	0.14	0.17	-0.01	-0.18	-0.09	-0.05	0.03	-0.24	-0.26	0.27	0.20	0.11	0.03	0.30	0.09	0.24	0.34	0.20	0.56	-0.04	0.07	0.10	1.00	*0.01*	0.24	0.68	*0.00*	0.24	0.50	0.20
BiomassGroundfish_s	**0.82**	0.22	0.29	-0.03	-0.08	-0.04	-0.10	-0.02	-0.06	-0.24	0.33	0.25	-0.02	0.16	0.37	0.20	0.18	0.40	0.26	0.46	0.01	0.23	0.41	**0.95**	1.00	0.52	*0.00*	0.20	*0.00*	*0.00*	0.18
BTGMediumBenthivore_s	0.25	0.35	0.49	-0.20	-0.10	0.04	-0.09	-0.04	-0.01	-0.21	0.45	0.06	-0.21	0.18	0.37	0.32	0.31	0.30	0.29	-0.01	0.06	0.19	0.52	0.65	**0.76**	1.00	*0.00*	*0.00*	*0.00*	*0.00*	0.52
BTGPiscivore_s	0.63	0.26	0.30	-0.02	-0.01	0.13	0.00	0.02	0.13	-0.25	0.41	**0.74**	-0.20	-0.10	0.26	0.34	0.44	0.67	0.60	0.27	0.12	0.25	0.19	0.64	0.66	0.38	1.00	*0.00*	0.95	0.20	*0.00*
BiomassSkates_s	-0.07	0.34	0.25	-0.01	0.33	0.21	-0.17	-0.16	0.68	0.10	0.30	0.40	-0.51	0.27	0.23	0.57	0.11	0.35	0.36	-0.22	0.14	0.40	0.63	-0.15	0.08	0.15	0.23	1.00	0.06	*0.00*	0.89
BTGZoopiscivore_s	**0.79**	-0.17	-0.24	0.19	-0.04	-0.23	-0.09	-0.02	-0.21	-0.02	-0.21	-0.20	0.35	0.19	0.10	-0.24	-0.36	-0.12	-0.32	0.67	-0.14	0.03	0.06	0.58	0.55	0.04	0.02	-0.20	1.00	0.70	*0.01*
ShannonDiversity_s	0.01	0.01	-0.02	-0.12	0.06	**0.71**	**0.97**	**0.94**	0.03	-0.16	0.45	0.17	0.11	0.14	0.14	0.36	0.04	0.33	0.38	-0.08	**0.90**	0.38	-0.01	0.00	0.00	-0.01	0.03	-0.10	-0.02	1.00	0.76
SpeciesRichness_s	0.20	-0.39	-0.44	0.29	-0.11	-0.59	0.10	0.03	-0.44	0.17	-0.47	-0.37	**1.00**	-0.15	-0.42	-0.58	-0.39	-0.46	-0.44	0.20	-0.37	-0.25	-0.38	0.15	0.01	-0.19	-0.19	-0.52	0.39	0.05	1.00

Table S 42. Spearman rank correlation coefficients (r) for indicators in strata 456. The upper triangle of the matrix represents p-values (p ≤ 0.05 highlighted in blue italics). The lower triangle of the matrix represents the r values (r ≥ 0.7 highlighted in red).

Indicator	BiomassTL3_s	BiomassTL4_s	BPelagicToDemersal_s	CommunityCondition_s	CCMediumBenthivore_s	CCPiscivore_s	CCZoopiscivore_s	Heips_s	HillN1Diversity_s	HillN2Dominance_s	InverseCVBiomass_s	KemptonQ_s	LargeFishIndicator_s	LargeSpeciesIndicator_s	MargalefRichness_s	MargalefGroundfish_s	MeanLengthAbundance_s	MeanLengthBiomass_s	MeanLifespan_s	MMLengthAbundance_s	MMLengthBiomass_s	MeanTrophicLevel_s	PielouEvenness_s	PropPredatoryFish_s	Biomass_s	BiomassClupeids_s	BiomassFinfish_s	BiomassFlatfish_s	BiomassForage_s	BiomassGadoids_s	BiomassGroundfish_s	BTGMediumBenthivore_s	BTGPiscivore_s	BTGPlanktivore_s	BiomassSkates_s	BTGZoopiscivore_s	ShannonDiversity_s	SpeciesRichness_s
BiomassTL3_s	1.00	0.49	*0.00*	0.55	*0.00*	0.29	0.94	*0.00*	0.65	0.35	0.18	*0.02*	0.12	*0.01*	0.19	0.63	*0.01*	0.54	0.08	0.30	0.72	0.24	0.24	*0.00*	*0.01*	0.17	*0.04*	0.11	*0.00*	*0.00*	*0.00*	0.92	0.58	0.22	*0.00*	0.66	0.47	0.34
BiomassTL4_s	-0.10	1.00	0.96	0.78	*0.00*	*0.00*	0.07	*0.00*	0.55	0.45	0.83	*0.00*	*0.00*	*0.01*	*0.00*	*0.00*	0.18	0.97	0.54	0.43	0.39	0.49	0.86	*0.00*	0.29	0.96	0.24	0.80	*0.00*	*0.00*	*0.00*	0.58	0.66	*0.00*	*0.02*	*0.00*	*0.00*	0.42	*0.00*
BPelagicToDemersal_s	**0.95**	-0.11	1.00	0.33	*0.00*	*0.04*	0.87	*0.00*	0.99	0.44	0.61	0.84	0.41	0.25	*0.00*	0.78	0.05	0.90	0.67	0.73	*0.03*	*0.01*	0.37	*0.00*	0.10	*0.00*	*0.05*	0.91	0.12	*0.00*	0.37	0.66	*0.00*	0.13	*0.00*	0.05	*0.00*	*0.00*
CommunityCondition_s	0.01	0.12	-0.05	1.00	0.39	0.62	*0.02*	*0.00*	0.49	0.83	*0.00*	0.09	0.83	0.35	*0.00*	0.14	*0.04*	0.52	0.80	0.85	0.92	0.14	0.72	*0.00*	*0.04*	*0.04*	0.09	*0.01*	*0.00*	*0.00*	0.68	0.27	0.06	0.72	0.10	*0.00*	0.61	*0.00*
CCMediumBenthivore_s	-0.09	-0.03	-0.12	0.22	1.00	0.70	*0.00*	*0.00*	*0.00*	0.33	0.69	0.57	*0.01*	*0.02*	*0.00*	0.11	0.22	0.30	0.34	0.17	0.98	0.31	0.22	0.13	0.81	*0.00*	0.99	*0.04*	*0.00*	0.16	*0.02*	0.20	0.10	*0.00*	*0.02*	*0.00*	0.84	0.44
CCPiscivore_s	0.04	-0.15	0.02	0.24	-0.15	1.00	0.16	0.49	0.83	0.64	0.43	0.47	0.82	0.14	*0.00*	0.16	*0.01*	0.19	0.13	0.52	0.93	0.23	*0.03*	*0.00*	*0.00*	0.24	0.56	*0.03*	*0.03*	*0.03*	0.59	*0.00*	0.08	0.05	*0.00*	*0.00*	*0.00*	0.53
CCZoopiscivore_s	-0.15	-0.07	-0.11	0.21	-0.06	0.21	1.00	*0.00*	0.87	0.93	*0.04*	0.54	0.71	0.95	0.29	0.07	0.14	0.31	0.77	0.72	0.34	0.11	0.22	0.39	*0.01*	*0.04*	0.31	0.49	*0.00*	*0.00*	0.63	0.72	*0.00*	*0.00*	0.81	*0.00*	0.22	*0.01*
Heips_s	-0.49	-0.01	-0.36	0.27	0.02	-0.10	0.49	1.00	*0.00*	0.98	0.77	*0.00*	0.74	0.97	*0.00*	0.31	0.24	0.70	0.52	0.61	0.57	0.07	*0.00*	0.91	*0.00*	*0.01*	0.55	0.65	*0.00*	0.15	0.79	*0.00*	*0.05*	*0.00*	0.59	*0.00*	0.96	0.92
HillN1Diversity_s	-0.48	0.00	-0.39	0.15	0.05	-0.05	0.38	**0.79**	1.00	0.98	0.19	0.38	0.41	0.85	0.35	0.33	0.93	0.89	0.53	0.38	0.19	0.66	*0.00*	0.38	*0.01*	0.86	0.32	0.81	0.27	0.07	0.50	*0.01*	0.71	0.07	0.06	0.30	*0.00*	0.57
HillN2Dominance_s	-0.45	0.00	-0.36	0.15	0.11	-0.08	0.38	**0.82**	**0.97**	1.00	*0.00*	*0.00*	0.92	0.19	0.25	0.75	0.97	0.73	0.47	0.83	0.21	0.11	0.45	0.80	*0.00*	*0.00*	0.13	0.86	*0.00*	0.17	0.32	*0.00*	0.18	0.07	0.07	0.05	0.47	*0.00*
InverseCVBiomass_s	-0.13	-0.20	-0.17	-0.05	0.16	0.13	0.18	0.11	0.30	0.28	1.00	*0.00*	0.46	0.65	0.23	0.49	0.84	0.47	0.52	0.39	0.14	0.14	0.53	*0.00*	0.56	*0.00*	0.19	0.37	*0.00*	*0.00*	0.65	*0.00*	0.69	0.09	*0.04*	0.59	0.57	*0.00*
KemptonQ_s	-0.16	-0.03	-0.14	-0.10	0.18	-0.03	0.10	-0.10	0.21	0.16	0.30	1.00	*0.01*	0.09	0.50	0.23	0.33	0.29	0.15	0.11	0.40	0.83	*0.00*	0.22	*0.00*	*0.00*	0.25	0.77	*0.00*	*0.04*	0.34	*0.01*	0.21	*0.00*	0.33	*0.05*	0.77	0.31
LargeFishIndicator_s	-0.43	0.08	-0.34	0.18	0.04	-0.13	0.37	**0.72**	0.46	0.51	-0.18	-0.04	1.00	*0.02*	*0.00*	0.33	0.95	0.24	0.41	0.37	0.70	*0.01*	*0.00*	0.72	0.88	*0.01*	0.11	0.98	*0.01*	*0.03*	0.31	*0.01*	*0.04*	*0.02*	0.16	*0.00*	0.62	0.12
LargeSpeciesIndicator_s	-0.30	0.50	-0.22	0.15	0.02	-0.24	0.22	0.41	0.16	0.21	-0.29	0.02	0.64	1.00	0.69	0.26	0.43	0.81	0.22	0.34	0.76	0.17	*0.00*	*0.00*	0.84	*0.00*	0.29	0.30	*0.00*	*0.00*	0.50	*0.01*	*0.00*	*0.04*	*0.02*	0.11	*0.00*	*0.01*
MargalefRichness_s	0.08	-0.06	-0.01	-0.17	-0.03	0.14	-0.15	-0.46	0.09	-0.01	0.25	0.40	-0.46	-0.41	1.00	0.83	0.33	0.89	0.60	0.75	0.65	0.29	0.09	*0.00*	1.00	0.51	0.41	0.41	*0.01*	0.85	*0.00*	0.72	0.15	*0.01*	*0.03*	0.93	0.80	0.69
MargalefGroundfish_s	-0.06	0.12	-0.01	-0.03	-0.02	-0.14	0.18	0.25	0.43	0.42	0.00	0.30	0.23	0.14	-0.02	1.00	0.43	0.83	*0.01*	0.54	0.51	0.38	*0.00*	*0.00*	0.80	*0.00*	0.26	0.27	*0.00*	*0.00*	0.39	0.93	*0.00*	0.96	0.51	*0.00*	0.72	0.82
MeanLengthAbundance_s	0.01	0.31	0.03	0.37	-0.26	-0.05	0.24	0.50	0.26	0.31	-0.09	-0.31	0.51	0.50	-0.41	0.13	1.00	0.88	0.96	0.54	0.36	0.29	*0.00*	*0.04*	*0.00*	0.92	0.32	0.30	0.92	*0.04*	0.07	0.62	*0.00*	*0.00*	*0.03*	*0.00*	*0.00*	0.18
MeanLengthBiomass_s	-0.27	0.04	-0.20	0.20	-0.09	-0.09	0.27	0.67	0.40	0.42	-0.15	-0.10	**0.90**	0.60	-0.46	0.27	0.65	1.00	0.43	0.12	*0.00*	0.76	0.21	0.16	0.47	0.83	0.35	0.31	0.19	*0.01*	0.36	*0.00*	*0.00*	*0.02*	0.14	*0.00*	0.39	0.51
MeanLifespan_s	0.02	0.20	0.07	0.29	0.06	-0.09	0.07	0.19	0.16	0.18	0.09	0.07	0.32	0.48	0.09	-0.14	0.38	0.31	1.00	0.06	*0.01*	0.40	*0.00*	*0.00*	0.35	0.87	0.64	0.89	0.52	0.11	0.35	0.90	*0.00*	0.21	0.60	*0.00*	0.33	0.31
MMLengthAbundance_s	-0.34	0.45	-0.25	0.31	0.04	-0.23	0.24	0.46	0.25	0.31	-0.15	0.04	0.57	**0.90**	-0.35	0.14	0.57	0.52	0.55	1.00	*0.01*	0.29	*0.00*	0.29	*0.00*	0.89	0.46	0.82	0.10	0.21	0.18	0.16	*0.02*	0.28	*0.01*	0.89	*0.04*	0.27
MMLengthBiomass_s	-0.44	0.34	-0.34	0.18	0.14	-0.28	0.22	0.55	0.31	0.36	-0.22	0.03	**0.83**	**0.92**	-0.44	0.20	0.51	**0.78**	0.47	**0.86**	1.00	0.52	0.87	0.55	0.94	*0.00*	0.23	0.82	*0.00*	*0.00*	0.64	*0.01*	0.12	0.06	0.81	*0.00*	*0.00*	0.91
MeanTrophicLevel_s	0.21	0.46	0.20	0.37	-0.22	0.05	-0.03	-0.03	-0.04	-0.03	-0.20	-0.14	-0.17	0.21	0.02	-0.07	0.40	-0.08	0.35	0.29	0.02	1.00	*0.00*	*0.00*	0.06	0.61	0.27	0.92	*0.00*	0.92	*0.01*	0.44	0.56	*0.01*	0.92	0.48	0.11	0.44
PielouEvenness_s	-0.63	0.03	-0.50	0.22	0.04	-0.13	0.38	**0.92**	**0.91**	**0.89**	0.17	0.04	0.64	0.33	-0.20	0.36	0.37	0.58	0.23	0.41	0.50	-0.04	1.00	0.08	0.29	0.53	0.34	0.29	0.06	*0.00*	*0.05*	*0.02*	0.69	0.90	*0.00*	0.59	*0.00*	0.41
PropPredatoryFish_s	-0.58	0.25	-0.46	0.18	0.10	-0.32	0.21	0.64	0.40	0.43	-0.24	0.00	**0.80**	0.68	-0.50	0.29	0.40	**0.71**	0.09	0.69	**0.85**	-0.08	0.62	1.00	*0.00*	*0.00*	0.48	0.47	*0.00*	*0.00*	0.81	0.95	0.18	*0.00*	*0.00*	0.76	0.34	0.67
Biomass_s	**0.98**	0.09	**0.92**	0.01	-0.09	0.02	-0.16	-0.50	-0.48	-0.45	-0.16	-0.16	-0.43	-0.22	0.08	-0.04	0.06	-0.28	0.06	-0.27	-0.38	0.28	-0.63	-0.55	1.00	0.59	0.40	0.67	*0.00*	0.57	0.64	*0.01*	0.68	*0.00*	*0.00*	0.65	*0.00*	0.95
BiomassClupeids_s	**0.94**	-0.11	**0.95**	0.01	-0.11	0.00	-0.13	-0.41	-0.39	-0.38	-0.12	-0.13	-0.39	-0.27	0.14	-0.07	0.01	-0.24	0.20	-0.27	-0.38	0.27	-0.51	-0.52	**0.92**	1.00	0.08	0.20	*0.01*	*0.02*	0.81	0.84	0.80	*0.01*	*0.00*	*0.00*	0.38	0.92
BiomassFinfish_s	**0.98**	0.09	**0.92**	0.03	-0.10	0.01	-0.16	-0.49	-0.48	-0.45	-0.17	-0.17	-0.41	-0.20	0.06	-0.04	0.07	-0.26	0.06	-0.25	-0.37	0.30	-0.62	-0.53	**1.00**	**0.92**	1.00	*0.01*	0.35	*0.00*	*0.01*	0.13	0.96	*0.01*	0.26	0.78	0.59	0.32
BiomassFlatfish_s	-0.10	0.49	-0.16	0.15	-0.21	-0.14	0.05	0.23	0.09	0.10	-0.15	-0.16	0.37	0.52	-0.34	0.36	0.50	0.47	0.04	0.45	0.47	0.15	0.17	0.43	-0.02	-0.21	-0.01	1.00	*0.00*	0.92	0.61	*0.00*	0.12	*0.01*	*0.00*	0.74	*0.02*	0.61
BiomassForage_s	**0.99**	-0.13	**0.96**	-0.01	-0.12	0.09	-0.13	-0.48	-0.49	-0.46	-0.14	-0.15	-0.45	-0.30	0.08	-0.08	-0.02	-0.30	0.01	-0.34	-0.45	0.21	-0.63	-0.59	**0.97**	**0.95**	**0.97**	-0.15	1.00	0.18	0.93	*0.04*	0.10	*0.00*	0.81	*0.00*	0.39	0.82
BiomassGadoids_s	-0.07	**0.90**	-0.14	0.12	0.18	-0.20	-0.16	-0.13	-0.02	-0.02	-0.07	0.02	0.02	0.32	0.07	0.01	0.21	-0.06	0.23	0.31	0.25	0.35	-0.04	0.16	0.11	-0.09	0.11	0.31	-0.13	1.00	0.37	*0.00*	0.34	*0.00*	0.78	0.31	0.28	*0.00*
BiomassGroundfish_s	-0.09	**0.89**	-0.17	0.15	0.08	-0.19	-0.10	-0.02	0.03	0.03	-0.11	-0.03	0.20	0.47	-0.04	0.14	0.37	0.20	0.24	0.41	0.42	0.31	0.04	0.29	0.08	-0.15	0.09	0.60	-0.16	**0.93**	1.00	*0.00*	*0.01*	0.09	0.77	*0.00*	0.46	0.37
BTGMediumBenthivore_s	0.00	0.24	-0.18	0.12	0.38	-0.22	-0.18	-0.13	0.00	0.03	0.18	0.04	0.10	-0.03	0.10	-0.02	0.12	0.06	0.14	0.01	0.13	-0.10	-0.04	0.08	0.05	-0.11	0.04	0.24	-0.11	0.59	0.60	1	0.958	*0.00*	0.87	0.16	0.41	0.48
BTGPiscivore_s	-0.11	**0.91**	-0.10	0.09	-0.01	-0.13	0.03	0.04	-0.04	-0.02	-0.16	-0.02	0.24	0.67	-0.15	0.07	0.36	0.19	0.36	0.57	0.51	0.32	0.03	0.30	0.07	-0.12	0.07	0.53	-0.12	**0.79**	**0.83**	0.203	1	0.40	*0.00*	*0.00*	*0.00*	0.47
BTGPlanktivore_s	**0.99**	-0.12	**0.96**	0.00	-0.12	0.06	-0.13	-0.48	-0.48	-0.45	-0.14	-0.16	-0.45	-0.31	0.07	-0.07	-0.01	-0.30	0.01	-0.35	-0.46	0.22	-0.63	-0.59	**0.97**	**0.95**	**0.97**	-0.14	**1.00**	-0.12	-0.15	-0.10	-0.13	1	0.31	0.54	0.63	0.30
BiomassSkates_s	-0.03	-0.03	-0.06	0.02	-0.15	0.05	0.05	0.18	0.11	0.08	-0.11	-0.11	0.45	0.36	-0.14	0.17	0.37	0.69	0.19	0.19	0.45	-0.08	0.15	0.24	-0.04	-0.08	-0.04	0.52	-0.07	-0.09	0.23	0.15	0.06	-0.08	1	0.32	0.70	0.31
BTGZoopiscivore_s	-0.02	0.39	-0.07	0.10	-0.12	-0.07	-0.18	-0.05	0.14	0.09	-0.13	-0.07	-0.28	-0.24	0.15	0.19	0.03	-0.22	-0.34	-0.16	-0.25	0.39	0.07	0.01	0.05	-0.03	0.05	0.13	-0.06	0.40	0.36	0.17	-0.01	-0.04	-0.11	1	*0.00*	0.29
ShannonDiversity_s	-0.60	0.03	-0.50	0.16	0.05	-0.10	0.31	**0.77**	**0.97**	**0.91**	0.26	0.19	0.48	0.19	0.10	0.41	0.23	0.42	0.22	0.28	0.36	-0.04	**0.95**	0.46	-0.60	-0.47	-0.60	0.08	-0.61	0.02	0.06	0.02	-0.02	-0.60	0.11	0.15	1	0.91
SpeciesRichness_s	0.14	-0.06	0.04	-0.20	-0.03	0.14	-0.18	-0.53	0.01	-0.08	0.24	0.36	-0.53	-0.44	**0.99**	-0.06	-0.45	-0.52	0.06	-0.40	-0.49	0.02	-0.29	-0.58	0.15	0.18	0.13	-0.34	0.14	0.09	-0.03	0.12	-0.15	0.13	-0.16	0.16	0.02	1

Table S 43. Spearman rank correlation coefficients (r) for indicators in strata 457. The upper triangle of the matrix represents p-values (p ≤ 0.05 highlighted in blue italics). The lower triangle of the matrix represents the r values (r ≥ 0.7 highlighted in red).

Indicator	BiomassTL4_s	CommunityCondition_s	CCMediumBenthivore_s	CCPiscivore_s	CCZoopiscivore_s	Heips_s	HillN1Diversity_s	HillN2Dominance_s	InverseCVBiomass_s	KemptonQ_s	LargeFishIndicator_s	LargeSpeciesIndicator_s	MargalefRichness_s	MargalefGroundfish_s	MeanLengthAbundance_s	MeanLengthBiomass_s	MeanLifespan_s	MMLengthAbundance_s	MMLengthBiomass_s	MeanTrophicLevel_s	PielouEvenness_s	PropPredatoryFish_s	BiomassFlatfish_s	BiomassGadoids_s	BiomassGroundfish_s	BTGMediumBenthivore_s	BTGPiscivore_s	BiomassSkates_s	BTGZoopiscivore_s	ShannonDiversity_s	SpeciesRichness_s
BiomassTL4_s	1.00	0.78	0.81	0.15	0.51	*0.00*	0.90	*0.00*	0.52	0.19	0.24	*0.02*	0.07	0.91	0.69	0.98	*0.02*	0.19	*0.01*	*0.00*	0.57	*0.00*	0.34	0.21	0.15	0.12	0.64	*0.02*	0.24	0.93	0.71
CommunityCondition_s	0.04	1.00	0.72	0.34	0.69	0.54	*0.03*	*0.00*	0.58	0.76	0.58	*0.00*	0.07	0.50	0.83	0.80	0.06	*0.02*	*0.00*	0.30	0.51	0.06	*0.00*	*0.03*	*0.00*	0.28	0.58	*0.02*	*0.05*	0.57	0.58
CCMediumBenthivore_s	0.04	0.46	1.00	0.65	0.24	0.60	*0.03*	*0.00*	*0.00*	0.84	0.10	0.17	*0.02*	0.52	0.69	0.79	0.49	0.34	*0.00*	0.40	0.87	*0.02*	*0.00*	*0.00*	*0.00*	*0.04*	*0.00*	*0.01*	0.05	0.10	*0.00*
CCPiscivore_s	0.05	-0.02	0.35	1.00	*0.00*	*0.01*	0.13	*0.00*	0.91	0.62	0.32	0.13	0.79	0.18	0.24	0.90	0.17	0.05	0.65	0.56	*0.02*	0.84	0.26	0.13	0.78	0.54	*0.00*	0.08	0.27	0.08	*0.00*
CCZoopiscivore_s	0.22	0.67	0.30	0.16	1.00	*0.01*	0.34	*0.00*	*0.00*	0.13	0.35	*0.02*	0.34	0.61	0.27	0.67	0.40	*0.00*	0.47	0.84	*0.01*	0.74	*0.04*	0.55	*0.00*	0.68	*0.00*	*0.01*	*0.02*	*0.00*	*0.00*
Heips_s	0.15	-0.14	0.09	0.02	0.01	1.00	0.17	*0.00*	0.36	0.98	0.72	*0.05*	0.35	*0.00*	0.71	1.00	*0.00*	*0.00*	0.46	0.68	0.34	*0.00*	*0.02*	*0.00*	*0.00*	0.63	0.66	0.10	*0.03*	0.53	*0.00*
HillN1Diversity_s	0.07	-0.25	-0.16	-0.04	-0.16	**0.74**	1.00	0.87	0.09	0.30	0.73	0.54	0.36	0.72	0.53	0.48	*0.02*	0.19	0.86	0.15	0.52	0.10	*0.03*	*0.00*	*0.01*	0.74	*0.00*	0.08	0.77	0.39	0.89
HillN2Dominance_s	0.10	-0.23	-0.11	0.01	-0.09	**0.82**	**0.96**	1.00	0.12	0.84	0.68	0.28	*0.03*	0.36	0.82	0.50	0.10	0.84	0.29	*0.00*	0.49	0.81	0.15	0.39	0.12	0.36	*0.00*	0.07	0.93	0.38	0.53
InverseCVBiomass_s	-0.06	-0.20	-0.26	-0.06	-0.20	0.20	0.49	0.39	1.00	*0.00*	0.63	0.48	*0.02*	*0.01*	0.13	0.27	0.18	*0.03*	0.76	0.08	0.98	0.30	0.58	*0.00*	*0.00*	0.08	*0.05*	0.35	*0.00*	0.92	0.75
KemptonQ_s	-0.18	-0.05	-0.14	-0.03	-0.06	-0.03	0.16	0.09	0.35	1.00	0.68	0.08	0.84	0.29	0.38	0.94	0.74	0.06	0.12	0.95	0.62	0.97	0.61	*0.00*	0.14	0.30	0.68	0.44	*0.02*	0.33	*0.00*
LargeFishIndicator_s	0.53	0.03	0.27	0.06	0.22	0.32	0.09	0.10	0.03	-0.17	1.00	0.36	1.00	0.91	0.19	0.29	0.99	0.31	*0.00*	0.70	0.08	0.86	*0.02*	*0.05*	*0.00*	*0.00*	0.19	0.80	*0.04*	0.85	*0.00*
LargeSpeciesIndicator_s	0.48	0.07	0.27	0.18	0.34	0.28	0.01	0.03	-0.05	-0.31	**0.82**	1.00	0.12	0.78	0.72	0.57	0.47	0.26	0.13	0.72	*0.00*	0.64	0.19	*0.03*	*0.00*	*0.00*	0.10	0.88	*0.00*	*0.02*	*0.00*
MargalefRichness_s	-0.09	-0.23	-0.35	-0.17	-0.28	-0.15	0.50	0.34	0.47	0.34	-0.22	-0.29	1.00	0.94	0.70	0.19	0.35	0.77	*0.00*	0.84	*0.05*	0.46	0.95	*0.00*	0.26	0.22	*0.00*	0.76	0.14	*0.00*	0.91
MargalefGroundfish_s	-0.08	0.00	-0.04	0.06	-0.10	0.17	0.45	0.38	0.24	0.32	-0.09	-0.22	0.52	1.00	0.13	0.71	0.32	*0.05*	*0.00*	0.77	0.80	*0.01*	0.61	*0.00*	*0.00*	0.81	*0.00*	0.14	0.05	0.58	0.53
MeanLengthAbundance_s	0.39	0.16	0.14	-0.10	0.21	0.05	-0.16	-0.14	-0.04	-0.21	0.63	0.62	-0.24	-0.18	1.00	0.14	0.77	0.66	0.29	0.58	0.56	0.90	0.21	*0.00*	0.16	0.12	*0.01*	0.06	0.05	0.24	0.69
MeanLengthBiomass_s	0.36	0.03	0.14	-0.03	0.13	0.29	0.13	0.10	0.16	0.08	**0.77**	0.64	-0.10	0.04	0.62	1.00	0.10	*0.04*	0.56	0.10	0.57	0.78	0.74	*0.00*	0.42	0.05	*0.01*	0.73	0.29	0.29	*0.00*
MeanLifespan_s	0.02	0.62	0.14	-0.23	0.47	-0.07	-0.09	-0.10	-0.01	0.08	0.13	0.04	-0.01	0.23	0.07	0.09	1.00	*0.01*	0.95	*0.00*	0.97	0.53	0.16	*0.00*	0.66	0.16	*0.05*	0.51	*0.02*	0.26	*0.00*
MMLengthAbundance_s	0.32	0.18	0.32	0.13	0.34	0.31	-0.03	0.00	-0.03	-0.35	**0.78**	**0.87**	-0.40	-0.29	0.57	0.55	0.12	1.00	*0.00*	*0.00*	0.60	0.58	0.21	*0.00*	*0.03*	0.93	0.40	0.27	0.09	0.56	0.98
MMLengthBiomass_s	0.32	0.08	0.33	0.20	0.25	0.37	0.06	0.07	-0.07	-0.20	**0.79**	**0.86**	-0.33	-0.21	0.47	0.66	0.04	**0.88**	1.00	*0.01*	0.76	0.34	0.26	*0.00*	*0.00*	*0.03*	0.71	0.74	0.49	0.18	0.95
MeanTrophicLevel_s	0.23	0.25	-0.03	-0.05	0.20	0.39	0.21	0.26	0.11	-0.01	0.30	0.38	-0.23	-0.01	0.29	0.31	0.02	0.41	0.35	1.00	0.16	0.57	0.22	0.40	0.11	0.35	0.09	*0.05*	0.48	0.19	0.85
PielouEvenness_s	0.15	-0.15	0.00	-0.06	-0.05	**0.91**	**0.87**	**0.87**	0.36	0.08	0.32	0.23	0.16	0.32	0.06	0.38	-0.05	0.22	0.31	0.36	1.00	0.73	0.47	0.26	0.51	0.48	0.56	*0.00*	*0.01*	0.11	*0.00*
PropPredatoryFish_s	0.21	-0.14	0.23	0.23	0.00	0.54	0.26	0.29	0.02	-0.19	0.58	0.60	-0.30	-0.14	0.20	0.39	-0.22	**0.71**	**0.82**	0.30	0.45	1.00	0.40	0.08	0.93	0.73	*0.00*	0.72	*0.01*	0.08	0.89
BiomassFlatfish_s	**0.79**	0.05	0.02	0.00	0.11	0.07	0.01	0.04	-0.04	-0.05	0.42	0.22	-0.09	0.11	0.24	0.34	0.28	0.18	0.22	0.10	0.09	0.18	1.00	0.05	*0.01*	0.91	*0.00*	0.91	*0.04*	*0.01*	0.60
BiomassGadoids_s	**0.97**	0.05	0.10	0.04	0.14	0.11	0.06	0.09	-0.09	-0.21	0.54	0.44	-0.06	-0.05	0.42	0.35	0.05	0.30	0.29	0.16	0.13	0.16	**0.78**	1.00	*0.02*	0.86	*0.04*	*0.00*	0.49	*0.00*	0.38
BiomassGroundfish_s	**0.97**	0.06	0.10	0.04	0.15	0.11	0.05	0.09	-0.08	-0.19	0.54	0.42	-0.07	-0.02	0.41	0.37	0.10	0.29	0.29	0.16	0.13	0.17	**0.84**	**0.99**	1.00	0.50	*0.01*	*0.00*	0.28	*0.00*	1.00
BTGMediumBenthivore_s	0.69	0.07	0.20	0.02	-0.04	-0.03	-0.03	-0.01	-0.14	-0.17	0.42	0.17	-0.05	0.03	0.36	0.26	0.17	0.17	0.16	-0.01	0.02	0.09	**0.75**	**0.83**	**0.84**	1.00	*0.01*	0.14	0.29	*0.00*	0.74
BTGPiscivore_s	**0.99**	0.06	0.08	0.06	0.24	0.16	0.04	0.08	-0.09	-0.19	0.55	0.51	-0.14	-0.10	0.38	0.37	0.05	0.34	0.35	0.20	0.15	0.20	**0.78**	**0.96**	**0.96**	0.67	1.00	*0.00*	0.94	*0.00*	0.09
BiomassSkates_s	0.47	0.34	0.43	0.00	0.20	0.05	-0.08	-0.05	-0.05	-0.11	0.42	0.21	-0.26	-0.07	0.30	0.24	0.30	0.33	0.25	0.01	0.03	0.20	0.59	0.52	0.56	0.64	0.49	1.00	0.17	*0.00*	*0.02*
BTGZoopiscivore_s	-0.02	0.52	0.05	-0.11	0.35	-0.23	-0.24	-0.21	-0.14	-0.13	-0.13	-0.12	-0.16	-0.08	-0.13	-0.26	0.54	-0.04	-0.11	0.09	-0.36	-0.24	0.01	-0.02	-0.02	0.00	-0.02	0.00	1.00	0.94	0.40
ShannonDiversity_s	0.10	-0.21	-0.14	-0.10	-0.14	**0.75**	**0.96**	**0.90**	0.49	0.19	0.17	0.07	0.49	0.47	-0.06	0.27	-0.05	0.01	0.11	0.24	**0.93**	0.26	0.06	0.10	0.10	0.01	0.08	-0.05	-0.35	1.00	*0.00*
SpeciesRichness_s	-0.08	-0.23	-0.37	-0.17	-0.29	-0.23	0.44	0.28	0.44	0.33	-0.26	-0.32	**0.99**	0.51	-0.26	-0.14	-0.02	-0.44	-0.39	-0.26	0.08	-0.37	-0.08	-0.05	-0.06	-0.03	-0.13	-0.26	-0.13	0.42	1.00

Table S 44. Spearman rank correlation coefficients (r) for indicators in strata 458. The upper triangle of the matrix represents p-values (p ≤ 0.05 highlighted in blue italics). The lower triangle of the matrix represents the r values (r ≥ 0.7 highlighted in red).

Indicator	BiomassTL4_s	CommunityCondition_s	CCMediumBenthivore_s	CCPiscivore_s	CCZoopiscivore_s	Heips_s	HillN1Diversity_s	HillN2Dominance_s	InverseCVBiomass_s	KemptonQ_s	LargeFishIndicator_s	LargeSpeciesIndicator_s	MargalefRichness_s	MargalefGroundfish_s	MeanLengthAbundance_s	MeanLengthBiomass_s	MeanLifespan_s	MMLengthAbundance_s	MMLengthBiomass_s	MeanTrophicLevel_s	PielouEvenness_s	PropPredatoryFish_s	BiomassFlatfish_s	BiomassGadoids_s	BiomassGroundfish_s	BTGMediumBenthivore_s	BTGPiscivore_s	BiomassSkates_s	BTGZoopiscivore_s	ShannonDiversity_s	SpeciesRichness_s
BiomassTL4_s	1.00	*0.00*	0.44	0.23	0.98	*0.00*	*0.00*	0.87	0.99	0.06	*0.00*	0.05	0.59	0.72	0.13	0.85	*0.01*	0.25	0.16	0.43	0.40	*0.00*	0.17	0.65	0.54	*0.00*	0.63	0.06	0.28	0.37	0.74
CommunityCondition_s	0.46	1.00	0.43	0.74	0.47	0.06	*0.00*	*0.00*	0.06	*0.04*	*0.00*	0.24	0.74	0.22	0.20	0.27	0.08	0.19	*0.00*	0.29	*0.00*	0.36	*0.04*	*0.03*	*0.00*	0.09	0.97	*0.01*	*0.00*	0.09	*0.03*
CCMediumBenthivore_s	0.12	0.40	1.00	0.76	0.19	0.79	*0.00*	*0.00*	*0.01*	*0.00*	*0.00*	*0.00*	0.08	0.26	*0.03*	0.31	*0.01*	0.30	*0.00*	*0.00*	0.29	0.83	0.47	*0.00*	*0.00*	*0.00*	0.43	*0.00*	*0.00*	0.87	*0.00*
CCPiscivore_s	-0.12	-0.24	-0.10	1.00	*0.01*	*0.00*	*0.00*	0.12	0.10	*0.00*	*0.00*	*0.00*	0.22	0.18	0.12	0.34	0.44	0.08	0.56	*0.00*	0.80	0.38	0.05	*0.00*	*0.00*	*0.03*	0.23	*0.03*	0.21	*0.00*	*0.00*
CCZoopiscivore_s	0.18	0.32	0.18	-0.01	1.00	*0.01*	0.74	*0.00*	*0.03*	*0.00*	*0.00*	0.49	0.06	0.55	*0.01*	0.44	0.29	*0.00*	0.51	*0.02*	0.18	0.82	0.36	0.31	*0.00*	0.06	*0.00*	*0.01*	*0.00*	*0.00*	*0.00*
Heips_s	0.05	0.59	0.13	-0.20	-0.02	1.00	0.07	0.18	*0.00*	0.42	*0.03*	0.22	0.49	*0.04*	0.75	0.37	0.23	*0.00*	0.42	*0.00*	0.06	0.70	*0.03*	*0.00*	*0.00*	*0.01*	*0.00*	*0.04*	*0.01*	0.41	0.28
HillN1Diversity_s	-0.05	0.35	0.02	-0.05	-0.18	**0.72**	1.00	*0.00*	*0.02*	*0.00*	*0.00*	0.40	0.65	0.24	*0.02*	0.55	*0.00*	0.13	0.24	0.99	*0.00*	0.70	*0.02*	*0.00*	*0.00*	*0.03*	*0.00*	0.53	0.13	0.55	*0.01*
HillN2Dominance_s	0.00	0.43	0.09	-0.04	-0.14	**0.83**	**0.95**	1.00	*0.00*	*0.00*	*0.00*	0.92	0.47	0.86	*0.01*	0.61	*0.02*	*0.04*	0.69	*0.00*	*0.00*	0.85	*0.01*	*0.00*	*0.04*	*0.03*	*0.00*	*0.00*	*0.00*	0.41	0.81
InverseCVBiomass_s	-0.11	-0.28	-0.12	0.23	0.16	-0.23	-0.26	-0.21	1.00	*0.00*	0.05	0.56	0.78	0.07	0.11	*0.01*	0.26	*0.00*	0.32	*0.00*	*0.00*	0.44	0.08	*0.00*	*0.00*	0.17	*0.00*	*0.00*	*0.00*	0.21	0.06
KemptonQ_s	-0.20	-0.30	-0.17	0.19	0.07	-0.30	-0.05	-0.13	-0.03	1.00	*0.00*	0.43	0.21	0.95	0.26	0.87	0.66	*0.02*	0.22	0.73	*0.00*	0.34	0.39	*0.00*	0.70	0.96	*0.00*	*0.00*	*0.00*	0.75	*0.00*
LargeFishIndicator_s	0.39	0.60	0.08	-0.33	0.12	**0.72**	0.48	0.52	-0.13	-0.29	1.00	0.26	0.56	0.18	0.12	0.24	*0.04*	*0.00*	*0.00*	0.96	0.53	0.49	0.81	*0.02*	*0.00*	0.75	*0.00*	*0.00*	*0.00*	0.23	*0.00*
LargeSpeciesIndicator_s	**0.75**	0.59	0.05	-0.23	0.41	0.33	0.09	0.16	-0.03	-0.14	**0.71**	1.00	0.76	0.76	0.06	0.36	0.25	0.05	*0.00*	0.83	*0.00*	0.43	0.34	*0.00*	*0.00*	*0.00*	0.12	*0.00*	*0.00*	0.30	*0.01*
MargalefRichness_s	-0.28	-0.67	-0.26	0.37	-0.26	-0.47	0.15	-0.04	0.06	0.33	-0.43	-0.44	1.00	0.77	0.26	0.30	0.55	*0.00*	*0.00*	0.86	*0.00*	0.93	0.19	*0.00*	0.65	0.26	*0.00*	*0.00*	0.24	*0.00*	*0.02*
MargalefGroundfish_s	-0.04	-0.12	-0.18	0.05	-0.38	-0.29	-0.12	-0.20	0.06	0.34	-0.15	-0.09	0.17	1.00	0.15	0.64	0.30	*0.00*	0.08	0.69	0.63	0.06	0.19	0.36	*0.00*	0.45	*0.00*	*0.00*	*0.00*	*0.01*	0.77
MeanLengthAbundance_s	0.42	0.56	0.28	-0.33	0.12	0.58	0.16	0.28	-0.03	-0.37	0.65	0.51	-0.61	-0.17	1.00	0.42	0.99	*0.00*	0.75	0.62	0.75	0.22	0.38	*0.01*	*0.05*	0.52	*0.00*	0.52	*0.00*	*0.00*	*0.01*
MeanLengthBiomass_s	0.36	0.67	0.10	-0.39	0.16	**0.72**	0.43	0.49	-0.12	-0.26	**0.91**	0.69	-0.55	-0.12	**0.77**	1.00	0.15	*0.00*	*0.00*	0.28	0.94	0.58	0.94	*0.00*	0.06	0.30	*0.00*	*0.00*	0.24	0.19	0.07
MeanLifespan_s	0.45	0.68	0.07	-0.24	0.18	0.69	0.56	0.60	-0.14	-0.13	**0.81**	**0.72**	-0.39	-0.10	0.67	**0.88**	1.00	*0.00*	0.54	*0.00*	0.72	0.50	0.34	0.10	0.23	0.43	0.16	*0.00*	*0.00*	*0.02*	0.05
MMLengthAbundance_s	0.48	0.64	0.11	-0.17	0.43	0.56	0.34	0.41	-0.10	-0.04	0.65	**0.79**	-0.43	-0.16	0.64	**0.73**	**0.82**	1.00	0.33	0.84	0.91	0.65	0.33	*0.01*	*0.00*	0.71	0.53	0.24	*0.01*	0.11	0.50
MMLengthBiomass_s	0.59	0.69	0.04	-0.24	0.34	0.60	0.42	0.46	-0.12	-0.14	**0.85**	**0.90**	-0.41	-0.12	0.60	**0.85**	**0.90**	**0.89**	1.00	0.15	0.62	0.82	0.80	0.18	0.26	0.17	0.06	*0.00*	0.37	*0.04*	0.46
MeanTrophicLevel_s	0.61	0.50	0.19	-0.28	0.17	0.21	0.00	0.10	0.01	-0.20	0.35	0.67	-0.44	-0.06	0.44	0.40	0.49	0.50	0.50	1.00	0.22	0.54	0.16	0.50	*0.00*	0.64	*0.00*	*0.04*	*0.00*	*0.02*	*0.03*
PielouEvenness_s	0.05	0.59	0.09	-0.17	-0.07	**0.93**	**0.87**	**0.91**	-0.28	-0.20	**0.71**	0.31	-0.26	-0.21	0.49	**0.72**	**0.76**	0.56	0.64	0.14	1.00	0.29	0.19	*0.00*	*0.00*	0.79	*0.00*	0.77	*0.00*	0.84	*0.04*
PropPredatoryFish_s	0.27	**0.73**	0.05	-0.22	0.31	0.70	0.54	0.55	-0.18	-0.13	**0.75**	0.62	-0.43	-0.07	0.45	**0.79**	**0.76**	**0.76**	**0.85**	0.23	**0.75**	1.00	0.18	*0.00*	*0.01*	0.73	*0.00*	*0.00*	0.35	*0.00*	*0.00*
BiomassFlatfish_s	0.02	0.31	0.05	-0.03	0.17	0.09	-0.05	-0.07	0.08	-0.01	0.14	0.06	-0.32	0.04	0.23	0.28	0.10	0.16	0.18	-0.11	0.13	0.43	1.00	*0.00*	*0.00*	0.87	*0.00*	*0.00*	0.12	*0.00*	0.91
BiomassGadoids_s	**0.95**	0.41	0.18	-0.16	0.09	0.10	-0.01	0.05	-0.10	-0.15	0.40	0.64	-0.28	-0.05	0.52	0.36	0.43	0.43	0.52	0.54	0.09	0.20	*0.04*	1.00	*0.00*	0.99	*0.01*	*0.00*	0.47	0.79	*0.02*
BiomassGroundfish_s	**0.88**	0.51	0.17	-0.15	0.16	0.12	-0.03	0.01	-0.07	-0.15	0.41	0.62	-0.39	-0.02	0.54	0.43	0.42	0.46	0.55	0.47	0.12	0.34	0.41	**0.92**	1.00	0.76	*0.00*	*0.00*	*0.00*	*0.00*	0.50
BTGMediumBenthivore_s	0.23	0.29	0.20	-0.14	0.00	0.17	0.03	0.05	0.03	0.04	0.24	0.07	-0.32	0.00	0.49	0.33	0.18	0.19	0.18	-0.01	0.19	0.24	**0.74**	0.44	0.66	1.00	*0.00*	*0.00*	*0.00*	*0.00*	0.38
BTGPiscivore_s	**0.99**	0.50	0.09	-0.12	0.21	0.06	-0.06	-0.02	-0.09	-0.21	0.39	**0.76**	-0.33	-0.05	0.41	0.37	0.44	0.49	0.60	0.59	0.05	0.31	0.09	**0.93**	**0.90**	0.27	1.00	*0.00*	0.94	0.54	0.14
BiomassSkates_s	0.20	0.29	-0.31	0.14	0.17	0.15	0.07	0.08	0.16	-0.20	0.20	0.29	-0.20	-0.07	0.21	0.31	0.31	0.38	0.37	0.14	0.18	0.36	0.43	0.16	0.37	0.29	0.31	1.00	*0.00*	*0.00*	0.35
BTGZoopiscivore_s	0.49	0.18	0.18	0.09	0.20	-0.18	-0.16	-0.19	-0.21	-0.20	-0.10	0.28	0.01	0.00	0.10	-0.10	0.04	0.23	0.14	0.25	-0.16	-0.03	-0.10	0.40	0.35	-0.10	0.48	0.10	1.00	0.53	0.90
ShannonDiversity_s	0.00	0.44	0.03	-0.08	-0.16	**0.77**	**0.97**	**0.93**	-0.30	-0.07	0.57	0.18	0.05	-0.12	0.28	0.56	0.67	0.44	0.53	0.03	**0.94**	0.64	0.05	0.04	0.04	0.11	-0.02	0.13	-0.14	1.00	0.63
SpeciesRichness_s	-0.28	-0.73	-0.27	0.41	-0.26	-0.55	0.03	-0.14	0.11	0.33	-0.51	-0.48	**0.99**	0.18	-0.64	-0.64	-0.48	-0.50	-0.50	-0.45	-0.37	-0.53	-0.33	-0.28	-0.39	-0.32	-0.33	-0.22	0.02	-0.07	1.00

Table S 45. Spearman rank correlation coefficients (r) for indicators in strata 459. The upper triangle of the matrix represents p-values (p ≤ 0.05 highlighted in blue italics). The lower triangle of the matrix represents the r values (r ≥ 0.7 highlighted in red).

Indicator	BiomassTL3_s	BiomassTL4_s	BPelagicToDemersal_s	CommunityCondition_s	CCMediumBenthivore_s	CCPiscivore_s	CCZoopiscivore_s	Heips_s	HillN1Diversity_s	HillN2Dominance_s	InverseCVBiomass_s	KemptonQ_s	LargeFishIndicator_s	LargeSpeciesIndicator_s	MargalefRichness_s	MargalefGroundfish_s	MeanLengthAbundance_s	MeanLengthBiomass_s	MeanLifespan_s	MMLengthAbundance_s	MMLengthBiomass_s	MeanTrophicLevel_s	PielouEvenness_s	PropPredatoryFish_s	Biomass_s	BiomassClupeids_s	BiomassFinfish_s	BiomassFlatfish_s	BiomassForage_s	BiomassGadoids_s	BiomassGroundfish_s	BTGLargeBenthivore_s	BTGMediumBenthivore_s	BTGPiscivore_s	BTGPlanktivore_s	BiomassSkates_s	BTGZoopiscivore_s	ShannonDiversity_s	SpeciesRichness_s
BiomassTL3_s	1.00	0.56	*0.00*	0.25	*0.00*	0.10	0.63	*0.00*	0.52	*0.00*	0.16	*0.01*	*0.00*	*0.05*	*0.00*	0.20	*0.05*	*0.01*	*0.00*	*0.00*	0.86	0.06	0.15	*0.00*	*0.00*	0.16	0.06	0.53	*0.00*	*0.02*	*0.00*	0.24	0.60	0.69	*0.00*	*0.00*	*0.01*	0.48	0.10
BiomassTL4_s	-0.09	1.00	0.29	0.34	*0.00*	*0.00*	*0.00*	*0.00*	0.26	*0.04*	0.81	*0.00*	0.40	*0.00*	*0.00*	*0.00*	0.15	*0.01*	*0.00*	0.16	0.43	0.58	0.10	*0.00*	*0.01*	*0.00*	0.11	0.05	0.09	*0.00*	*0.01*	*0.00*	0.78	*0.00*	*0.03*	*0.00*	*0.00*	0.42	0.25
BPelagicToDemersal_s	**0.87**	-0.19	1.00	0.08	*0.01*	*0.02*	*0.00*	*0.00*	0.38	0.20	0.23	*0.00*	0.19	*0.00*	0.55	0.28	0.35	*0.01*	*0.02*	*0.00*	0.13	*0.04*	*0.02*	*0.02*	0.58	0.78	0.81	0.56	0.28	0.14	*0.00*	0.09	*0.03*	*0.00*	*0.00*	0.39	*0.00*	0.20	0.22
CommunityCondition_s	-0.16	0.31	-0.23	1.00	0.08	0.12	*0.00*	*0.00*	0.17	*0.03*	*0.02*	0.10	*0.00*	*0.01*	*0.00*	0.32	*0.00*	0.09	0.72	*0.00*	0.38	*0.02*	*0.03*	*0.00*	0.07	0.94	0.26	0.45	*0.02*	*0.00*	0.96	*0.01*	0.54	*0.00*	*0.00*	0.87	0.36	0.45	*0.00*
CCMediumBenthivore_s	-0.17	0.34	-0.22	0.48	1.00	0.05	*0.00*	*0.00*	0.25	*0.02*	*0.00*	0.12	0.41	0.09	*0.00*	*0.00*	*0.01*	*0.03*	*0.01*	0.15	0.32	0.39	0.23	*0.00*	0.06	*0.00*	0.06	0.24	*0.02*	*0.00*	*0.05*	*0.00*	*0.00*	*0.00*	*0.01*	*0.03*	*0.00*	*0.00*
CCPiscivore_s	-0.14	0.17	-0.08	0.18	0.28	1.00	0.61	0.25	*0.00*	0.27	0.28	0.88	*0.04*	*0.05*	*0.00*	0.21	*0.00*	0.16	*0.00*	*0.01*	0.14	0.32	*0.03*	*0.05*	0.72	0.96	*0.01*	0.25	*0.01*	*0.00*	*0.00*	0.99	*0.00*	0.21	*0.00*	0.78	*0.00*	0.19	0.16
CCZoopiscivore_s	-0.26	0.18	-0.29	0.56	0.49	0.07	1.00	*0.00*	0.15	0.24	0.07	0.73	*0.01*	*0.00*	*0.00*	*0.00*	*0.00*	0.10	*0.01*	0.20	0.95	0.52	0.12	*0.00*	0.71	*0.00*	0.98	0.39	0.05	*0.00*	*0.01*	0.08	*0.03*	*0.00*	0.78	0.60	*0.00*	0.94	*0.00*
Heips_s	-0.47	0.26	-0.41	0.34	0.52	0.03	0.35	1.00	0.93	0.09	*0.00*	0.91	0.22	0.05	*0.00*	0.23	*0.02*	*0.01*	*0.00*	*0.03*	0.21	*0.01*	*0.01*	*0.00*	0.09	0.45	0.72	0.05	0.09	0.47	0.08	*0.00*	*0.00*	*0.01*	*0.00*	*0.00*	*0.00*	*0.00*	0.12
HillN1Diversity_s	-0.42	0.14	-0.41	0.22	0.31	-0.13	0.13	**0.80**	1.00	0.35	*0.01*	0.51	0.27	0.44	0.19	*0.00*	*0.00*	0.06	*0.00*	*0.01*	0.35	*0.00*	*0.00*	*0.00*	*0.02*	0.05	*0.00*	0.49	*0.01*	*0.04*	*0.00*	0.06	*0.00*	*0.00*	*0.00*	*0.04*	0.26	*0.05*	0.11
HillN2Dominance_s	-0.38	0.21	-0.36	0.24	0.38	-0.08	0.15	**0.84**	**0.97**	1.00	0.14	0.41	0.12	*0.04*	*0.00*	*0.02*	*0.01*	0.08	*0.00*	0.65	0.11	*0.00*	*0.03*	*0.02*	0.12	*0.03*	0.61	0.27	0.74	*0.00*	0.21	0.35	0.54	0.06	0.27	0.47	*0.00*	0.21	*0.02*
InverseCVBiomass_s	-0.26	0.04	-0.26	0.15	0.25	0.13	0.10	0.44	0.36	0.42	1.00	*0.00*	0.15	0.13	0.16	0.14	0.35	0.06	*0.00*	0.82	0.38	*0.01*	*0.00*	*0.00*	*0.01*	0.88	0.46	*0.01*	0.54	*0.00*	*0.00*	0.07	*0.01*	*0.00*	*0.00*	*0.00*	0.82	0.87	0.33
KemptonQ_s	0.25	-0.18	0.30	-0.08	-0.23	0.22	-0.38	-0.42	-0.08	-0.12	-0.11	1.00	0.58	*0.00*	0.06	0.11	0.34	*0.00*	*0.02*	0.41	0.79	0.05	0.06	0.18	*0.01*	0.73	0.11	0.58	*0.00*	0.13	*0.00*	*0.00*	0.90	*0.03*	*0.00*	*0.00*	0.46	*0.00*	0.16
LargeFishIndicator_s	-0.52	0.35	-0.43	0.25	0.43	0.17	0.51	0.61	0.27	0.29	0.24	-0.46	1.00	*0.00*	0.28	0.31	0.92	*0.00*	0.29	0.60	0.23	0.07	0.39	*0.00*	0.09	*0.04*	0.17	*0.00*	*0.00*	*0.00*	0.52	0.06	*0.04*	*0.00*	*0.00*	*0.03*	0.41	0.34	0.31
LargeSpeciesIndicator_s	-0.35	0.59	-0.29	0.29	0.49	0.17	0.47	0.56	0.28	0.33	0.20	-0.30	**0.84**	1.00	0.08	0.61	0.35	*0.04*	0.41	0.41	0.23	*0.00*	*0.01*	*0.03*	*0.00*	*0.02*	0.72	*0.05*	*0.00*	*0.00*	0.12	0.18	*0.05*	0.14	*0.00*	*0.00*	0.19	*0.00*	*0.00*
MargalefRichness_s	0.23	-0.16	0.12	-0.21	-0.35	-0.31	-0.38	-0.47	0.05	-0.02	-0.05	0.42	-0.58	-0.43	1.00	0.10	0.80	*0.01*	0.31	0.13	0.20	*0.00*	*0.00*	*0.01*	0.06	0.13	0.32	*0.00*	*0.00*	*0.02*	*0.00*	*0.01*	*0.00*	*0.02*	*0.00*	*0.00*	0.25	0.43	*0.02*	0.49
MargalefGroundfish_s	0.29	-0.27	0.30	-0.14	-0.06	0.07	-0.29	-0.31	-0.06	-0.05	-0.15	0.67	-0.43	-0.22	0.41	1.00	0.16	0.10	0.31	0.26	0.88	*0.01*	*0.00*	0.22	*0.00*	*0.01*	0.26	*0.00*	*0.00*	*0.00*	0.11	0.05	*0.00*	*0.04*	*0.00*	*0.00*	*0.00*	0.21	0.86
MeanLengthAbundance_s	-0.07	0.45	-0.22	0.45	0.40	0.03	0.27	0.47	0.26	0.30	0.17	-0.32	0.55	0.55	-0.26	-0.18	1.00	0.12	0.15	0.27	0.38	*0.00*	*0.00*	*0.01*	0.10	*0.01*	0.20	*0.03*	*0.00*	*0.00*	*0.04*	*0.02*	*0.00*	*0.01*	*0.00*	*0.04*	0.17	*0.00*	0.60
MeanLengthBiomass_s	-0.53	0.39	-0.54	0.36	0.47	0.12	0.47	0.65	0.34	0.35	0.19	-0.46	**0.93**	**0.80**	-0.54	-0.41	0.69	1.00	*0.00*	*0.04*	0.28	0.68	*0.00*	*0.00*	*0.00*	*0.04*	*0.01*	*0.00*	*0.00*	*0.01*	0.14	0.06	0.13	*0.02*	*0.00*	*0.02*	0.94	0.20	*0.00*
MeanLifespan_s	-0.44	0.22	-0.54	0.63	0.38	0.23	0.65	0.34	0.23	0.23	0.40	-0.23	0.46	0.35	-0.19	-0.25	0.32	0.52	1.00	0.66	0.23	0.07	*0.00*	*0.00*	1.00	*0.00*	*0.01*	0.12	*0.00*	*0.00*	*0.01*	0.06	*0.00*	*0.00*	*0.00*	0.46	*0.00*	0.77	0.12
MMLengthAbundance_s	-0.49	0.36	-0.51	0.41	0.45	0.13	0.39	0.67	0.37	0.40	0.38	-0.42	**0.84**	**0.72**	-0.44	-0.37	**0.73**	**0.90**	0.61	1.00	0.12	*0.02*	*0.00*	*0.05*	*0.00*	0.07	*0.02*	*0.00*	*0.00*	*0.00*	0.14	*0.01*	*0.00*	*0.00*	0.07	*0.02*	*0.04*	*0.01*	*0.00*
MMLengthBiomass_s	-0.59	0.41	-0.57	0.34	0.46	0.15	0.50	0.67	0.38	0.39	0.33	-0.44	**0.96**	**0.85**	-0.49	-0.42	0.56	**0.94**	0.59	**0.90**	1.00	0.09	*0.00*	0.62	0.16	*0.01*	0.93	*0.00*	0.83	*0.03*	0.28	0.43	*0.00*	*0.00*	*0.00*	*0.02*	*0.00*	0.37	0.40
MeanTrophicLevel_s	0.08	0.63	-0.09	0.46	0.41	0.22	0.06	0.30	0.25	0.30	0.01	0.06	0.03	0.36	-0.10	0.00	0.40	0.22	0.19	0.22	0.17	1.00	*0.04*	*0.00*	0.23	0.11	*0.00*	0.71	*0.00*	*0.04*	*0.02*	0.46	*0.02*	*0.02*	*0.00*	*0.00*	0.45	0.16	0.18
PielouEvenness_s	-0.55	0.24	-0.56	0.36	0.45	0.01	0.27	**0.92**	**0.91**	**0.90**	0.42	-0.27	0.51	0.46	-0.23	-0.26	0.43	0.61	0.43	0.64	0.63	0.33	1.00	*0.00*	0.98	*0.01*	0.07	0.07	*0.00*	*0.04*	0.70	*0.00*	*0.00*	0.11	*0.00*	0.23	*0.00*	0.31	*0.00*
PropPredatoryFish_s	-0.62	0.23	-0.50	0.14	0.33	0.19	0.35	0.59	0.28	0.27	0.27	-0.41	**0.90**	0.65	-0.60	-0.49	0.39	**0.83**	0.40	**0.78**	**0.89**	-0.01	0.53	1.00	0.30	0.95	0.08	*0.01*	*0.00*	0.08	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	0.99	0.72	0.12	0.15
Biomass_s	**1.00**	-0.02	**0.85**	-0.14	-0.16	-0.14	-0.25	-0.46	-0.41	-0.37	-0.26	0.24	-0.51	-0.31	0.24	0.27	-0.05	-0.51	-0.43	-0.47	-0.57	0.11	-0.54	-0.61	1.00	*0.01*	0.14	0.11	*0.00*	*0.01*	0.07	*0.03*	*0.00*	0.15	0.90	*0.00*	0.46	0.15	*0.00*
BiomassClupeids_s	**0.81**	-0.05	0.48	0.02	-0.12	-0.24	-0.21	-0.35	-0.25	-0.24	-0.22	0.18	-0.46	-0.31	0.30	0.14	0.08	-0.35	-0.28	-0.31	-0.43	0.20	-0.31	-0.51	**0.82**	1.00	0.08	0.24	*0.00*	*0.00*	0.14	*0.00*	*0.01*	*0.00*	*0.00*	*0.04*	0.62	*0.00*	0.22
BiomassFinfish_s	**1.00**	-0.02	**0.86**	-0.14	-0.15	-0.13	-0.25	-0.46	-0.41	-0.36	-0.26	0.24	-0.50	-0.31	0.22	0.27	-0.04	-0.51	-0.43	-0.46	-0.57	0.12	-0.54	-0.60	**1.00**	**0.81**	1.00	0.11	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	0.36	0.09	0.13
BiomassFlatfish_s	-0.17	0.10	-0.19	0.04	0.15	0.04	0.35	0.20	0.00	-0.01	0.09	-0.42	0.53	0.26	-0.40	-0.49	0.31	0.46	0.33	0.46	0.46	-0.28	0.17	0.54	-0.17	-0.11	-0.17	1.00	*0.00*	0.17	0.21	*0.01*	0.05	*0.00*	*0.02*	*0.00*	0.24	0.39	0.06
BiomassForage_s	**0.99**	-0.12	**0.87**	-0.21	-0.22	-0.18	-0.32	-0.47	-0.42	-0.39	-0.29	0.26	-0.53	-0.36	0.22	0.28	-0.09	-0.54	-0.53	-0.51	-0.61	0.04	-0.56	-0.61	**0.99**	**0.82**	**0.99**	-0.19	1.00	*0.01*	0.60	*0.00*	*0.00*	*0.04*	0.95	*0.00*	*0.00*	*0.00*	0.09
BiomassGadoids_s	-0.10	**0.96**	-0.21	0.38	0.44	0.18	0.18	0.32	0.21	0.28	0.09	-0.16	0.36	0.59	-0.16	-0.20	0.53	0.41	0.22	0.38	0.41	0.69	0.31	0.21	-0.03	-0.05	-0.03	0.02	-0.14	1.00	*0.00*	*0.01*	*0.00*	*0.00*	0.45	*0.00*	*0.04*	*0.05*	0.40
BiomassGroundfish_s	-0.17	**0.90**	-0.27	0.36	0.47	0.19	0.33	0.38	0.18	0.24	0.11	-0.33	0.55	0.65	-0.33	-0.39	0.61	0.57	0.35	0.54	0.57	0.50	0.35	0.43	-0.11	-0.11	-0.11	0.46	-0.21	**0.90**	1.00	0.75	*0.00*	*0.00*	0.17	*0.00*	0.57	*0.00*	*0.00*
BTGLargeBenthivore_s	-0.13	0.13	-0.16	0.36	0.21	-0.02	0.23	0.19	0.00	0.04	0.18	-0.35	0.22	0.20	-0.06	-0.29	0.31	0.29	0.31	0.32	0.27	0.13	0.11	0.16	-0.13	-0.08	-0.12	0.14	-0.15	0.11	0.18	1.00	2E-05	*0.00*	0.42	0.16	0.14	0.45	*0.05*
BTGMediumBenthivore_s	-0.21	0.20	-0.26	0.25	0.43	0.13	0.39	0.36	0.16	0.17	0.17	-0.38	0.58	0.36	-0.42	-0.36	0.54	0.56	0.37	0.55	0.51	-0.02	0.34	0.51	-0.20	-0.14	-0.19	**0.82**	-0.23	0.27	0.61	0.146	1.00	*0.01*	0.06	*0.00*	*0.02*	0.07	0.78
BTGPiscivore_s	-0.17	**0.83**	-0.19	0.32	0.45	0.16	0.42	0.41	0.21	0.28	0.13	-0.29	0.60	**0.78**	-0.27	-0.28	0.50	0.56	0.34	0.50	0.61	0.40	0.34	0.37	-0.12	-0.18	-0.12	0.36	-0.21	**0.80**	**0.88**	0.21	0.44	1.00	0.79	0.28	0.26	*0.00*	0.94
BTGPlanktivore_s	**0.99**	-0.12	**0.87**	-0.21	-0.22	-0.18	-0.32	-0.47	-0.42	-0.39	-0.29	0.26	-0.53	-0.36	0.22	0.28	-0.09	-0.54	-0.53	-0.51	-0.61	0.04	-0.56	-0.61	**0.99**	**0.82**	**0.99**	-0.19	**1.00**	-0.14	-0.21	-0.15	-0.23	-0.21	1.00	*0.00*	*0.00*	0.37	*0.00*
BiomassSkates_s	-0.22	0.30	-0.16	0.25	0.39	0.23	0.45	0.29	-0.04	0.00	0.11	-0.36	0.59	0.53	-0.49	-0.36	0.37	0.58	0.42	0.52	0.55	0.08	0.18	0.47	-0.21	-0.31	-0.20	0.52	-0.25	0.28	0.51	0.57	0.54	0.51	-0.25	1.00	0.84	0.06	0.74
BTGZoopiscivore_s	-0.01	0.36	-0.15	0.36	0.19	0.28	0.28	-0.08	0.01	0.06	0.17	0.05	-0.11	0.01	0.19	0.12	0.02	-0.06	0.58	0.04	0.02	0.41	0.00	-0.14	0.01	-0.08	0.01	-0.19	-0.13	0.35	0.23	0.10	-0.13	0.18	-0.13	0.04	1.00	*0.02*	0.22
ShannonDiversity_s	-0.49	0.18	-0.53	0.28	0.32	-0.08	0.13	**0.76**	**0.96**	**0.92**	0.37	-0.09	0.30	0.29	0.08	-0.11	0.31	0.41	0.35	0.46	0.44	0.30	**0.94**	0.33	-0.48	-0.22	-0.48	0.04	-0.49	0.25	0.24	0.03	0.20	0.23	-0.49	-0.01	0.05	1.00	0.959
SpeciesRichness_s	0.31	-0.17	0.19	-0.26	-0.38	-0.31	-0.40	-0.52	-0.01	-0.08	-0.08	0.41	-0.63	-0.47	**0.99**	0.41	-0.30	-0.59	-0.24	-0.50	-0.55	-0.11	-0.30	-0.65	0.31	0.34	0.29	-0.40	0.29	-0.17	-0.34	-0.08	-0.44	-0.28	0.30	-0.50	0.18	0.01	1.00

Table S 46. Spearman rank correlation coefficients (r) for indicators in strata 460. The upper triangle of the matrix represents p-values (p ≤ 0.05 highlighted in blue italics). The lower triangle of the matrix represents the r values (r ≥ 0.7 highlighted in red).

Indicator	BiomassTL3_s	BiomassTL4_s	BPelagicToDemersal_s	CommunityCondition_s	CCMediumBenthivore_s	CCPiscivore_s	CCZoopiscivore_s	Heips_s	HillN1Diversity_s	HillN2Dominance_s	InverseCVBiomass_s	KemptonQ_s	LargeFishIndicator_s	LargeSpeciesIndicator_s	MargalefRichness_s	MargalefGroundfish_s	MeanLengthAbundance_s	MeanLengthBiomass_s	MeanLifespan_s	MMLengthAbundance_s	MMLengthBiomass_s	MeanTrophicLevel_s	PielouEvenness_s	PropPredatoryFish_s	Biomass_s	BiomassClupeids_s	BiomassFinfish_s	BiomassFlatfish_s	BiomassForage_s	BiomassGadoids_s	BiomassGroundfish_s	BTGMediumBenthivore_s	BTGPiscivore_s	BTGPlanktivore_s	BTGZoopiscivore_s	ShannonDiversity_s	SpeciesRichness_s
BiomassTL3_s	1.00	0.05	0.00	0.07	0.00	0.56	0.77	0.00	0.12	0.05	0.10	0.00	0.00	0.38	0.00	0.26	0.28	0.38	0.02	0.64	0.95	1.00	0.00	0.43	0.00	0.00	0.67	0.19	0.00	0.00	0.12	0.94	0.47	0.00	0.00	0.09	0.14
BiomassTL4_s	-0.29	1.00	0.69	0.94	0.00	0.00	0.00	0.00	0.04	0.09	0.00	0.18	0.07	0.44	0.00	0.02	0.43	0.20	0.52	0.47	0.68	0.58	0.00	0.30	0.00	0.00	0.33	0.04	0.00	1.00	0.02	0.48	0.89	0.02	0.00	0.00	0.06
BPelagicToDemersal_s	**0.91**	-0.29	1.00	0.12	0.00	0.00	0.11	0.00	0.47	0.33	0.00	0.00	0.86	0.01	0.00	0.00	0.04	0.61	0.06	0.28	0.70	0.00	0.72	0.18	0.08	0.00	0.63	0.64	0.64	0.00	0.16	0.77	0.20	0.00	0.00	0.49	0.35
CommunityCondition_s	0.06	-0.25	0.01	1.00	0.21	0.42	0.00	0.00	0.03	0.74	0.51	0.14	0.19	0.04	0.00	0.93	0.65	0.10	0.06	0.91	0.14	0.14	0.02	0.00	0.00	0.00	0.23	0.43	0.00	0.01	0.06	0.63	0.82	0.00	0.00	0.00	0.05
CCMediumBenthivore_s	-0.27	0.15	-0.21	0.17	1.00	0.07	0.00	0.00	0.00	0.82	0.30	0.08	0.43	0.87	0.56	0.38	0.12	0.08	0.08	0.97	0.69	0.08	0.00	0.12	0.39	0.00	0.25	0.64	0.01	0.22	0.01	0.00	0.08	0.00	0.15	0.14	0.00
CCPiscivore_s	-0.01	0.05	0.01	0.35	0.08	1.00	0.04	0.67	0.49	0.46	0.00	0.14	0.94	0.16	0.00	0.49	0.78	0.10	0.05	0.97	0.63	0.70	0.00	0.00	0.29	0.07	0.24	0.12	0.00	0.01	0.05	0.50	0.01	0.00	0.00	0.00	0.51
CCZoopiscivore_s	-0.23	-0.03	-0.21	**0.80**	0.25	0.32	1.00	0.00	0.00	0.33	0.00	0.78	0.17	0.97	0.07	0.13	0.83	0.13	0.08	0.98	0.50	0.05	0.00	0.00	0.17	0.00	0.59	0.43	0.46	0.02	0.01	0.00	0.08	0.00	0.37	0.66	0.00
Heips_s	-0.65	0.11	-0.49	-0.01	0.26	0.07	0.27	1.00	0.13	0.20	0.32	0.08	0.96	0.03	0.03	0.18	0.78	0.18	0.44	0.40	0.79	0.45	0.00	0.00	0.23	0.22	0.26	0.18	0.00	0.00	0.01	0.78	0.99	0.00	0.17	0.00	0.10
HillN1Diversity_s	-0.72	0.15	-0.57	-0.13	0.25	0.11	0.22	**0.83**	1.00	0.20	0.00	0.00	0.15	0.05	0.30	0.18	0.40	0.76	0.05	0.86	0.40	0.11	0.74	0.46	0.00	0.18	0.25	0.05	0.00	0.00	0.08	0.98	0.01	0.70	0.26	0.14	0.00
HillN2Dominance_s	-0.68	0.19	-0.54	-0.10	0.23	0.16	0.23	**0.85**	**0.97**	1.00	0.00	0.00	0.00	0.01	0.08	0.28	0.80	0.02	0.22	0.63	0.61	0.03	0.00	0.95	0.11	0.18	0.24	0.04	0.19	0.00	0.05	0.42	0.13	0.00	0.10	0.06	0.22
InverseCVBiomass_s	-0.19	0.19	-0.13	-0.23	0.20	-0.02	-0.13	0.05	0.11	0.11	1.00	0.62	0.00	0.00	0.00	0.19	0.81	0.07	0.28	0.67	0.37	0.11	0.27	0.00	0.00	0.14	0.50	0.04	0.00	0.08	0.08	0.00	0.41	0.01	0.00	0.32	0.00
KemptonQ_s	0.09	-0.25	0.12	-0.20	0.05	0.01	-0.30	-0.33	0.01	-0.09	-0.08	1.00	0.00	0.14	0.41	0.05	0.10	0.16	0.76	0.81	0.07	0.68	0.00	0.00	0.28	0.00	0.27	0.42	0.00	0.07	0.68	0.56	0.31	0.00	0.13	0.06	0.13
LargeFishIndicator_s	-0.54	0.58	-0.39	-0.20	0.35	-0.01	0.19	0.57	0.53	0.53	0.14	-0.31	1.00	0.00	0.00	0.21	0.98	0.73	0.09	0.47	0.14	0.03	0.00	0.73	0.46	0.15	0.25	0.25	0.06	0.01	0.05	0.00	0.85	0.43	0.00	0.00	0.66
LargeSpeciesIndicator_s	-0.42	**0.70**	-0.30	-0.16	0.27	0.00	0.16	0.41	0.42	0.43	0.08	-0.26	**0.84**	1.00	0.49	0.07	0.42	0.90	0.06	0.85	0.13	0.57	0.01	0.27	0.56	0.00	0.67	0.92	0.06	0.11	0.48	0.00	0.01	0.00	0.01	0.51	0.28
MargalefRichness_s	0.12	-0.10	0.02	-0.20	-0.21	-0.13	-0.26	-0.51	-0.05	-0.14	-0.04	0.57	-0.39	-0.28	1.00	0.00	0.83	0.03	0.65	0.15	0.38	0.81	0.00	0.30	0.00	0.11	0.26	0.00	0.00	0.05	0.35	0.00	0.00	0.00	0.00	0.00	0.90
MargalefGroundfish_s	0.27	-0.15	0.21	-0.29	-0.05	0.03	-0.43	-0.54	-0.17	-0.26	0.07	0.65	-0.31	-0.28	0.67	1.00	0.00	0.20	0.10	0.62	0.04	0.70	0.00	0.00	0.00	0.59	0.72	0.00	0.00	0.01	0.66	0.00	0.40	0.36	0.00	0.10	0.14
MeanLengthAbundance_s	-0.04	0.45	0.01	-0.19	-0.02	-0.07	0.00	0.05	-0.16	-0.14	0.07	-0.30	0.51	0.60	-0.44	-0.23	1.00	0.01	0.10	0.96	0.22	0.45	0.00	0.71	0.36	0.36	0.04	0.01	0.88	0.44	0.13	0.00	0.05	0.00	0.00	0.68	0.00
MeanLengthBiomass_s	-0.47	0.58	-0.33	-0.27	0.32	-0.06	0.08	0.58	0.47	0.48	0.13	-0.32	**0.91**	**0.88**	-0.51	-0.34	0.66	1.00	0.03	0.96	0.29	0.03	0.00	0.00	0.08	0.61	0.08	0.04	0.00	0.32	0.05	0.00	0.00	0.00	0.10	0.00	0.05
MeanLifespan_s	-0.24	-0.15	-0.29	0.44	0.19	-0.04	0.56	0.17	0.06	0.04	0.08	-0.36	0.03	-0.02	-0.26	-0.21	0.17	0.09	1.00	0.69	0.08	0.00	0.00	0.00	0.35	0.79	0.00	0.00	0.00	0.44	0.42	0.00	0.00	0.02	0.00	0.26	0.98
MMLengthAbundance_s	-0.51	0.48	-0.40	-0.16	0.37	-0.11	0.22	0.46	0.45	0.43	0.09	-0.26	**0.78**	**0.83**	-0.27	-0.28	0.65	**0.82**	0.24	1.00	0.00	0.11	0.15	0.07	0.00	0.65	0.00	0.00	0.00	0.51	0.24	0.00	0.00	0.00	0.01	0.12	0.18
MMLengthBiomass_s	-0.56	0.62	-0.42	-0.12	0.33	0.03	0.26	0.61	0.58	0.59	0.07	-0.33	**0.91**	**0.96**	-0.38	-0.36	0.54	**0.93**	0.11	**0.87**	1.00	0.04	0.00	0.00	0.78	0.63	0.04	0.86	0.00	0.33	0.00	0.47	0.00	0.08	0.00	0.48	0.36
MeanTrophicLevel_s	-0.30	0.58	-0.22	-0.30	0.10	-0.22	-0.06	0.37	0.27	0.28	0.07	-0.19	0.67	**0.84**	-0.24	-0.29	0.69	**0.79**	0.02	**0.75**	**0.78**	1.00	0.80	0.00	0.00	0.39	0.03	0.00	0.00	0.96	0.00	0.00	0.00	0.10	0.09	0.09	0.72
PielouEvenness_s	-0.80	0.20	-0.66	-0.07	0.28	0.08	0.29	**0.93**	**0.93**	**0.92**	0.15	-0.20	0.59	0.43	-0.30	-0.38	0.00	0.55	0.19	0.51	0.61	0.33	1.00	0.00	0.00	0.58	0.01	0.00	0.01	0.43	0.26	0.06	0.00	0.08	0.00	0.00	0.33
PropPredatoryFish_s	-0.60	0.57	-0.45	-0.23	0.28	0.01	0.12	**0.72**	0.68	0.69	0.07	-0.30	**0.85**	**0.84**	-0.36	-0.37	0.38	**0.87**	-0.03	**0.79**	**0.93**	0.69	**0.71**	1.00	0.06	0.54	0.08	0.00	0.01	0.31	0.00	0.00	0.00	0.32	0.00	0.50	0.29
Biomass_s	**1.00**	-0.22	**0.91**	0.04	-0.26	-0.01	-0.24	-0.66	-0.72	-0.68	-0.18	0.07	-0.50	-0.38	0.12	0.26	-0.01	-0.44	-0.26	-0.48	-0.52	-0.26	-0.80	-0.57	1.00	0.62	0.03	0.00	0.01	0.05	0.00	0.36	0.87	0.09	0.10	0.00	0.27
BiomassClupeids_s	**0.98**	-0.26	**0.93**	-0.03	-0.29	-0.06	-0.33	-0.61	-0.67	-0.64	-0.17	0.12	-0.50	-0.36	0.15	0.29	-0.04	-0.43	-0.37	-0.49	-0.52	-0.24	-0.76	-0.54	**0.98**	1.00	0.20	0.00	0.76	0.34	0.00	0.00	0.00	0.20	0.00	0.14	0.28
BiomassFinfish_s	**1.00**	-0.22	**0.91**	0.04	-0.26	-0.01	-0.24	-0.66	-0.72	-0.68	-0.18	0.07	-0.50	-0.38	0.12	0.26	-0.01	-0.44	-0.26	-0.48	-0.52	-0.26	-0.80	-0.57	**1.00**	**0.98**	1.00	0.00	0.01	0.68	1.00	0.00	0.27	0.00	0.00	0.68	0.04
BiomassFlatfish_s	-0.06	0.04	-0.09	-0.13	-0.12	0.06	-0.06	0.21	0.26	0.27	-0.08	-0.24	0.07	-0.05	-0.10	0.06	-0.11	0.11	0.00	0.03	0.06	-0.15	0.22	0.24	-0.06	-0.07	-0.06	1.00	0.00	0.83	0.01	0.22	0.00	0.15	0.00	0.57	0.80
BiomassForage_s	**0.98**	-0.26	**0.93**	-0.04	-0.29	-0.06	-0.33	-0.61	-0.67	-0.64	-0.17	0.12	-0.51	-0.37	0.15	0.29	-0.04	-0.43	-0.37	-0.49	-0.52	-0.26	-0.76	-0.54	**0.98**	**1.00**	**0.98**	-0.06	1.00	0.00	0.94	0.00	0.66	0.00	0.00	0.25	0.18
BiomassGadoids_s	-0.23	**0.87**	-0.27	-0.04	0.19	0.22	0.09	0.04	0.13	0.18	0.17	-0.20	0.37	0.45	-0.01	-0.11	0.07	0.28	-0.23	0.17	0.38	0.19	0.13	0.39	-0.17	-0.22	-0.17	0.09	-0.22	1.00	0.79	0.00	0.00	0.07	0.68	0.00	0.03
BiomassGroundfish_s	-0.30	**0.99**	-0.31	-0.25	0.16	0.06	-0.04	0.12	0.16	0.20	0.18	-0.28	0.58	0.68	-0.12	-0.14	0.43	0.58	-0.12	0.48	0.61	0.53	0.21	0.58	-0.23	-0.28	-0.23	0.17	-0.28	**0.88**	1.00	0.11	0.00	0.33	0.00	0.87	0.55
BTGMediumBenthivore_s	-0.11	0.08	-0.16	0.00	0.05	0.07	0.06	0.16	0.21	0.20	-0.10	-0.31	0.11	0.00	-0.15	0.07	-0.10	0.14	0.15	0.07	0.12	-0.22	0.17	0.25	-0.11	-0.15	-0.11	**0.88**	-0.14	0.18	0.22	1.00	0.631	0.08	0.25	0.66	0.00
BTGPiscivore_s	-0.31	**0.92**	-0.26	-0.12	0.25	0.10	0.11	0.20	0.18	0.22	0.16	-0.31	0.69	**0.85**	-0.29	-0.22	0.59	**0.72**	-0.03	0.63	**0.76**	0.69	0.25	0.65	-0.25	-0.28	-0.25	-0.02	-0.29	**0.75**	**0.90**	0.054	1.00	0.06	0.12	0.90	0.10
BTGPlanktivore_s	**0.98**	-0.27	**0.93**	-0.03	-0.28	-0.04	-0.32	-0.62	-0.68	-0.65	-0.17	0.12	-0.50	-0.38	0.14	0.29	-0.04	-0.44	-0.36	-0.50	-0.53	-0.27	-0.77	-0.55	**0.98**	**1.00**	**0.98**	-0.07	**1.00**	-0.23	-0.29	-0.15	-0.30	1.00	0.48	0.14	0.14
BTGZoopiscivore_s	0.10	-0.03	-0.12	0.45	0.07	0.13	0.43	-0.23	-0.24	-0.22	-0.06	-0.17	-0.20	-0.18	-0.06	-0.12	0.00	-0.18	0.59	-0.07	-0.14	-0.15	-0.23	-0.25	0.10	-0.10	0.10	-0.02	-0.10	0.07	0.00	0.16	-0.04	-0.09	1.00	0.49	0.79
ShannonDiversity_s	-0.81	0.20	-0.68	-0.13	0.24	0.08	0.24	**0.81**	**0.97**	**0.93**	0.17	-0.01	0.52	0.39	-0.03	-0.18	-0.12	0.45	0.13	0.46	0.55	0.26	**0.96**	0.65	-0.81	-0.76	-0.81	0.22	-0.76	0.16	0.20	0.17	0.20	-0.77	-0.22	1.00	0.34
SpeciesRichness_s	0.22	-0.12	0.11	-0.19	-0.24	-0.14	-0.30	-0.59	-0.16	-0.24	-0.05	0.55	-0.47	-0.34	**0.99**	0.67	-0.44	-0.58	-0.29	-0.35	-0.46	-0.28	-0.40	-0.44	0.22	0.25	0.22	-0.10	0.25	-0.02	-0.14	-0.16	-0.32	0.24	-0.04	-0.14	1.00

Table S 47. Spearman rank correlation coefficients (r) for indicators in strata 461. The upper triangle of the matrix represents p-values (p ≤ 0.05 highlighted in blue italics). The lower triangle of the matrix represents the r values (r ≥ 0.7 highlighted in red).

Indicator	BiomassTL4_s	CommunityCondition_s	CCMediumBenthivore_s	CCPiscivore_s	CCPlanktivore_s	CCZoopiscivore_s	Heips_s	HillN1Diversity_s	HillN2Dominance_s	InverseCVBiomass_s	KemptonQ_s	LargeFishIndicator_s	LargeSpeciesIndicator_s	MargalefRichness_s	MargalefGroundfish_s	MeanLengthAbundance_s	MeanLengthBiomass_s	MeanLifespan_s	MMLengthAbundance_s	MMLengthBiomass_s	MeanTrophicLevel_s	PielouEvenness_s	PropPredatoryFish_s	BiomassFlatfish_s	BiomassGadoids_s	BiomassGroundfish_s	BTGMediumBenthivore_s	BTGPiscivore_s	BTGZoopiscivore_s	ShannonDiversity_s	SpeciesRichness_s
BiomassTL4_s	1.00	0.09	0.22	0.67	0.45	0.10	0.46	*0.00*	0.19	0.34	*0.00*	*0.04*	0.91	0.80	0.06	0.41	0.54	0.33	0.35	0.38	0.14	*0.00*	0.06	0.08	0.35	*0.00*	0.06	*0.02*	*0.02*	*0.00*	0.17
CommunityCondition_s	-0.26	1.00	0.39	0.75	0.50	0.42	*0.04*	0.09	0.73	0.22	0.83	*0.00*	0.79	0.84	0.15	0.23	0.24	0.91	0.76	0.12	0.91	*0.00*	*0.00*	*0.00*	0.55	*0.01*	0.44	0.97	0.58	0.93	0.13
CCMediumBenthivore_s	-0.18	0.04	1.00	0.19	0.66	0.59	0.38	*0.00*	0.79	0.26	0.74	0.14	0.82	0.22	0.43	0.18	*0.04*	0.82	0.27	0.90	0.57	0.21	0.09	0.92	*0.00*	*0.01*	*0.00*	0.79	*0.01*	*0.01*	0.09
CCPiscivore_s	0.13	0.06	0.25	1.00	*0.02*	0.38	0.64	*0.00*	0.71	0.21	0.08	0.43	0.89	0.24	0.91	0.49	0.90	*0.04*	0.28	*0.01*	*0.00*	0.62	0.63	0.18	*0.00*	*0.02*	*0.00*	0.66	0.06	0.69	0.11
CCPlanktivore_s	-0.07	0.31	-0.04	-0.15	1.00	0.54	*0.01*	*0.04*	*0.03*	0.93	0.06	0.10	0.69	0.70	0.06	0.63	0.72	0.55	0.63	0.75	*0.00*	0.32	*0.05*	0.17	0.53	0.70	0.93	0.80	0.29	0.13	*0.00*
CCZoopiscivore_s	-0.05	**0.79**	-0.01	0.19	0.07	1.00	0.12	0.06	*0.00*	0.52	*0.00*	0.80	0.97	0.71	*0.03*	0.79	0.99	0.69	0.54	*0.00*	0.74	*0.00*	0.82	0.10	*0.00*	0.52	0.58	*0.02*	*0.01*	*0.00*	0.81
Heips_s	-0.20	-0.24	0.25	-0.17	-0.19	-0.09	1.00	0.38	0.11	0.28	0.89	0.97	0.64	0.93	0.06	0.14	0.98	0.65	0.82	*0.00*	0.39	*0.04*	*0.00*	0.12	*0.00*	0.35	*0.05*	0.80	*0.00*	*0.00*	0.98
HillN1Diversity_s	-0.11	-0.15	0.22	-0.36	0.09	-0.06	**0.75**	1.00	0.31	0.09	0.06	0.09	0.99	0.19	0.44	*0.01*	*0.02*	0.68	0.99	*0.02*	*0.03*	0.98	0.28	1.00	0.35	0.15	0.71	0.21	0.47	*0.04*	0.08
HillN2Dominance_s	-0.10	-0.14	0.27	-0.28	0.07	-0.07	**0.80**	**0.95**	1.00	0.63	0.11	0.14	0.91	0.78	0.42	*0.04*	0.79	0.25	*0.01*	*0.00*	0.79	0.71	0.38	0.17	0.36	*0.00*	0.83	0.05	0.95	*0.01*	*0.00*
InverseCVBiomass_s	-0.07	0.18	-0.16	-0.22	0.27	0.06	-0.09	0.22	0.19	1.00	0.94	0.07	0.88	0.32	0.78	0.66	0.32	0.64	*0.00*	*0.00*	0.18	*0.00*	*0.05*	0.77	0.97	0.69	*0.00*	0.62	*0.00*	*0.00*	*0.00*
KemptonQ_s	0.34	-0.17	-0.02	-0.12	0.14	-0.17	-0.28	-0.02	-0.07	-0.07	1.00	0.29	0.88	0.22	0.84	0.21	0.49	0.73	0.33	0.67	*0.00*	0.84	0.46	0.51	0.54	*0.00*	0.79	*0.00*	0.46	0.67	0.05
LargeFishIndicator_s	0.25	-0.19	0.04	0.02	-0.09	-0.07	0.15	0.09	0.15	-0.30	0.01	1.00	0.15	0.25	0.30	0.57	0.38	0.87	0.81	*0.05*	*0.05*	0.07	0.05	0.10	0.20	0.14	*0.02*	*0.00*	*0.04*	0.96	0.51
LargeSpeciesIndicator_s	0.12	-0.01	0.03	-0.28	0.18	0.05	0.40	0.63	0.64	-0.04	0.20	0.25	1.00	*0.01*	0.21	0.64	0.73	0.97	*0.00*	0.17	*0.00*	*0.00*	0.07	0.08	0.09	*0.00*	*0.01*	0.63	*0.00*	0.20	0.51
MargalefRichness_s	-0.08	0.10	-0.02	-0.32	0.30	0.03	-0.13	0.47	0.30	0.42	0.21	-0.14	0.27	1.00	0.06	0.07	0.48	0.43	*0.00*	0.50	0.09	0.11	0.05	*0.04*	0.71	*0.04*	0.38	*0.03*	0.14	0.47	0.06
MargalefGroundfish_s	-0.13	0.16	0.06	-0.28	0.02	-0.01	-0.24	0.05	0.00	0.16	0.25	0.09	0.08	0.45	1.00	0.36	0.73	0.90	0.54	0.53	0.22	*0.00*	0.50	0.06	*0.03*	0.46	0.54	0.24	0.86	*0.04*	0.70
MeanLengthAbundance_s	0.09	0.25	-0.01	0.12	-0.05	0.12	-0.02	-0.13	-0.06	-0.13	-0.23	0.59	0.10	-0.30	0.01	1.00	0.09	*0.00*	0.06	*0.03*	0.09	0.17	*0.03*	*0.04*	0.49	0.95	0.12	0.81	0.33	0.37	*0.03*
MeanLengthBiomass_s	0.11	-0.07	0.07	-0.12	0.00	-0.02	0.39	0.33	0.41	-0.30	0.00	**0.78**	0.68	-0.11	0.08	0.59	1.00	0.09	0.31	*0.00*	0.52	0.41	*0.04*	*0.01*	0.59	*0.04*	0.15	0.80	0.50	*0.04*	0.06
MeanLifespan_s	-0.30	**0.75**	0.00	0.04	0.00	**0.78**	-0.05	-0.04	0.03	0.11	-0.20	-0.09	0.18	-0.01	0.29	0.11	0.07	1.00	*0.01*	0.20	0.55	0.08	0.64	*0.00*	0.34	0.97	0.90	0.43	*0.01*	0.13	0.38
MMLengthAbundance_s	0.13	-0.03	0.02	-0.03	-0.34	0.25	0.44	0.20	0.27	-0.28	0.04	0.48	0.44	-0.30	0.06	0.16	0.59	0.38	1.00	*0.00*	*0.01*	0.56	0.71	0.36	0.07	0.61	0.43	0.58	0.40	0.13	0.24
MMLengthBiomass_s	0.07	-0.05	0.02	-0.16	-0.04	0.14	0.49	0.45	0.48	-0.27	0.10	0.43	**0.82**	-0.01	0.03	0.10	**0.78**	0.25	**0.78**	1.00	*0.05*	0.56	0.27	0.65	0.62	0.26	*0.00*	*0.00*	0.29	0.56	0.98
MeanTrophicLevel_s	0.38	-0.27	-0.02	-0.19	0.15	-0.05	0.34	0.30	0.24	-0.29	0.24	-0.14	0.37	-0.08	-0.50	-0.32	0.07	-0.35	0.11	0.33	1.00	*0.02*	0.70	0.42	0.51	0.23	*0.00*	0.44	*0.02*	*0.00*	0.71
PielouEvenness_s	-0.23	-0.28	0.22	-0.28	-0.10	-0.17	**0.93**	**0.85**	**0.86**	0.10	-0.26	0.14	0.40	0.17	-0.04	-0.11	0.33	-0.11	0.30	0.42	0.23	1.00	0.14	0.15	*0.00*	*0.00*	0.46	0.08	*0.02*	*0.00*	0.89
PropPredatoryFish_s	0.41	-0.45	-0.04	-0.12	-0.13	-0.16	0.41	0.25	0.21	-0.32	0.30	-0.01	0.36	-0.18	-0.35	-0.34	0.18	-0.35	0.47	0.53	**0.81**	0.30	1.00	0.10	0.24	0.53	0.29	0.33	*0.00*	0.47	0.14
BiomassFlatfish_s	0.25	-0.02	-0.03	0.18	0.05	0.07	0.07	-0.18	-0.12	-0.31	0.28	-0.09	0.06	-0.45	-0.36	0.00	0.04	-0.08	0.22	0.17	0.43	-0.14	0.48	1.00	*0.00*	0.83	0.51	*0.01*	*0.00*	*0.00*	0.33
BiomassGadoids_s	**0.97**	-0.28	-0.18	0.20	-0.11	-0.09	-0.30	-0.26	-0.26	-0.07	0.30	0.19	-0.10	-0.09	-0.13	0.04	-0.04	-0.38	0.03	-0.10	0.30	-0.31	0.35	0.25	1.00	0.33	*0.03*	0.10	0.25	*0.02*	*0.01*
BiomassGroundfish_s	**0.99**	-0.24	-0.18	0.11	-0.05	-0.03	-0.21	-0.10	-0.09	-0.06	0.37	0.25	0.14	-0.03	-0.09	0.07	0.12	-0.28	0.15	0.09	0.37	-0.22	0.41	0.24	**0.96**	1.00	0.47	*0.02*	0.51	*0.00*	0.19
BTGMediumBenthivore_s	0.31	-0.01	-0.06	0.07	0.25	0.00	-0.10	-0.09	-0.09	-0.17	0.55	-0.06	0.22	-0.15	-0.24	-0.04	0.08	-0.16	0.10	0.20	0.44	-0.23	0.45	**0.86**	0.29	0.33	1.00	0.47	0.53	*0.00*	0.07
BTGPiscivore_s	0.28	0.30	-0.06	-0.04	0.15	0.36	0.10	0.36	0.36	-0.06	0.14	0.32	0.69	0.28	0.22	0.33	0.58	0.36	0.36	0.58	0.07	0.09	0.03	-0.04	0.10	0.28	0.06	1.00	0.19	0.82	*0.00*
BTGZoopiscivore_s	0.13	0.57	-0.01	0.22	-0.02	0.64	-0.33	-0.29	-0.28	-0.22	-0.07	-0.11	-0.06	-0.12	-0.02	0.04	-0.12	0.54	0.13	-0.01	0.01	-0.47	-0.14	0.00	0.10	0.13	-0.02	0.36	1.00	0.34	0.57
ShannonDiversity_s	-0.20	-0.22	0.20	-0.36	0.03	-0.15	**0.77**	**0.95**	**0.90**	0.26	-0.12	0.08	0.47	0.49	0.12	-0.19	0.26	-0.11	0.16	0.36	0.19	**0.93**	0.20	-0.26	-0.28	-0.18	-0.22	0.20	-0.44	1.00	*0.00*
SpeciesRichness_s	-0.05	0.12	-0.04	-0.30	0.31	0.04	-0.19	0.42	0.25	0.43	0.21	-0.14	0.22	**1.00**	0.46	-0.29	-0.15	-0.01	-0.34	-0.06	-0.11	0.11	-0.22	-0.46	-0.06	0.00	-0.15	0.27	-0.09	0.44	1.00

Table S 48. Spearman rank correlation coefficients (r) for indicators in strata 462. The upper triangle of the matrix represents p-values (p ≤ 0.05 highlighted in blue italics). The lower triangle of the matrix represents the r values (r ≥ 0.7 highlighted in red).

Indicator	BiomassTL3_s	BiomassTL4_s	BPelagicToDemersal_s	CommunityCondition_s	CCMediumBenthivore_s	CCPiscivore_s	CCPlanktivore_s	CCZoopiscivore_s	Heips_s	HillN1Diversity_s	HillN2Dominance_s	InverseCVBiomass_s	KemptonQ_s	LargeFishIndicator_s	LargeSpeciesIndicator_s	MargalefRichness_s	MargalefGroundfish_s	MeanLengthAbundance_s	MeanLengthBiomass_s	MeanLifespan_s	MMLengthAbundance_s	MMLengthBiomass_s	MeanTrophicLevel_s	PielouEvenness_s	PropPredatoryFish_s	Biomass_s	BiomassClupeids_s	BiomassFinfish_s	BiomassFlatfish_s	BiomassForage_s	BiomassGadoids_s	BiomassGroundfish_s	BTGMediumBenthivore_s	BTGPiscivore_s	BTGPlanktivore_s	BTGZoopiscivore_s	ShannonDiversity_s	SpeciesRichness_s
BiomassTL3_s	1.00	*0.04*	*0.00*	0.42	0.06	0.17	0.27	0.41	*0.00*	*0.05*	0.49	0.66	*0.00*	*0.00*	*0.00*	0.11	0.23	0.47	0.80	0.33	0.31	0.67	0.73	*0.00*	0.60	*0.00*	0.33	0.15	0.07	*0.05*	*0.01*	0.17	0.58	*0.01*	*0.00*	0.59	*0.02*	0.24
BiomassTL4_s	0.31	1.00	0.20	0.87	*0.00*	0.19	*0.02*	*0.00*	*0.04*	0.08	0.94	0.75	0.70	*0.00*	0.35	*0.00*	0.20	0.71	0.99	0.85	0.12	0.30	0.76	0.29	*0.00*	*0.00*	0.05	0.89	0.82	*0.00*	*0.00*	0.85	0.13	0.38	*0.04*	0.27	0.22	0.42
BPelagicToDemersal_s	0.69	-0.26	1.00	0.20	*0.00*	*0.03*	*0.01*	*0.00*	0.09	0.10	0.94	0.07	*0.00*	*0.00*	*0.00*	0.73	0.38	0.39	0.07	0.15	0.96	0.44	0.55	0.06	0.07	0.59	*0.00*	*0.01*	*0.05*	0.89	*0.01*	0.33	0.86	*0.00*	*0.00*	0.48	0.53	0.73
CommunityCondition_s	0.19	-0.24	0.16	1.00	*0.00*	*0.01*	0.34	*0.00*	0.18	0.60	*0.03*	0.35	*0.05*	0.77	*0.00*	0.28	*0.00*	0.11	0.29	0.07	0.39	0.32	0.22	*0.01*	*0.00*	0.07	*0.04*	*0.00*	0.29	*0.00*	*0.03*	0.22	0.09	*0.01*	0.54	*0.00*	*0.00*	0.08
CCMediumBenthivore_s	-0.12	-0.08	-0.21	0.16	1.00	0.30	*0.00*	*0.00*	0.77	0.18	0.31	0.51	*0.00*	*0.03*	*0.00*	0.99	0.88	0.92	*0.00*	0.76	0.99	0.72	0.79	0.05	*0.00*	0.55	0.45	0.26	0.65	*0.00*	*0.01*	0.40	*0.01*	0.30	*0.00*	*0.00*	0.07	0.63
CCPiscivore_s	0.02	-0.20	0.17	0.00	0.01	1.00	*0.00*	*0.00*	*0.00*	0.69	0.21	*0.01*	0.61	*0.00*	*0.00*	*0.01*	0.65	0.35	*0.00*	0.85	0.92	*0.00*	0.76	*0.00*	0.06	*0.00*	0.10	0.13	0.16	0.28	0.94	0.57	0.32	0.93	*0.02*	*0.00*	*0.00*	*0.00*
CCPlanktivore_s	0.19	-0.06	0.17	0.40	-0.17	0.05	1.00	0.06	0.16	0.26	0.38	0.50	0.12	*0.01*	*0.00*	*0.00*	0.12	0.94	0.08	0.76	0.92	0.34	*0.00*	*0.01*	*0.00*	0.47	0.51	0.78	0.24	*0.00*	*0.02*	*0.00*	*0.01*	0.05	0.74	*0.00*	*0.04*	0.79
CCZoopiscivore_s	-0.28	-0.17	-0.33	**0.72**	0.27	-0.03	-0.01	1.00	*0.00*	0.17	0.19	*0.01*	0.28	0.75	0.07	0.45	0.65	0.26	0.05	0.78	0.47	0.09	*0.00*	0.27	*0.00*	*0.00*	*0.00*	*0.00*	*0.03*	*0.00*	0.20	0.51	0.54	0.08	*0.00*	*0.01*	*0.00*	*0.00*
Heips_s	-0.58	-0.21	-0.51	0.12	0.38	0.05	-0.26	0.49	1.00	0.52	0.36	0.66	0.16	0.10	*0.00*	0.87	0.11	0.07	*0.01*	0.86	0.85	*0.04*	*0.01*	0.38	*0.00*	*0.00*	0.37	0.28	0.11	0.06	0.13	0.07	0.32	0.34	*0.00*	*0.00*	*0.01*	*0.01*
HillN1Diversity_s	-0.62	-0.10	-0.60	0.02	0.27	0.04	-0.05	0.37	**0.90**	1.00	*0.05*	0.43	0.25	0.07	0.07	0.76	0.29	*0.01*	0.40	0.07	0.65	0.87	*0.01*	0.25	*0.00*	0.15	*0.00*	*0.00*	0.31	*0.00*	*0.01*	0.53	0.33	0.26	*0.00*	0.35	*0.00*	*0.00*
HillN2Dominance_s	-0.55	-0.10	-0.56	0.05	0.30	0.03	-0.06	0.38	**0.89**	**0.98**	1.00	*0.00*	0.26	*0.01*	*0.03*	0.31	0.44	0.07	0.37	0.13	0.25	0.71	0.93	0.77	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	0.07	*0.00*	0.09	0.23	0.10	*0.00*	0.62	0.51	0.31
InverseCVBiomass_s	-0.20	-0.01	-0.04	-0.15	0.18	0.27	-0.16	-0.01	0.26	0.23	0.15	1.00	*0.02*	0.38	0.07	0.18	0.30	*0.04*	0.38	0.27	0.51	0.36	*0.02*	*0.02*	*0.02*	*0.00*	0.08	0.76	0.19	0.34	*0.01*	*0.03*	0.84	0.27	*0.00*	0.06	0.84	*0.00*
KemptonQ_s	0.19	-0.01	0.32	-0.20	-0.29	-0.23	0.12	-0.34	-0.43	-0.30	-0.29	-0.02	1.00	*0.00*	0.11	0.52	0.13	0.22	0.66	0.46	0.72	0.83	0.24	*0.01*	*0.00*	*0.00*	*0.00*	0.13	0.22	*0.00*	0.12	0.74	0.10	*0.00*	0.15	0.21	0.05	0.06
LargeFishIndicator_s	-0.32	0.31	-0.45	-0.10	0.27	0.17	-0.15	0.18	0.55	0.53	0.45	0.36	-0.27	1.00	*0.00*	0.21	0.47	*0.05*	0.41	0.61	0.79	0.28	0.88	*0.01*	0.19	*0.00*	*0.00*	*0.00*	0.05	*0.02*	*0.01*	0.35	*0.02*	0.12	*0.00*	*0.00*	0.61	*0.00*
LargeSpeciesIndicator_s	-0.39	0.15	-0.38	-0.19	0.21	0.11	0.05	-0.02	0.34	0.41	0.31	0.53	-0.03	0.57	1.00	0.29	0.09	0.07	0.94	0.77	0.22	0.11	*0.01*	*0.00*	0.34	*0.00*	*0.00*	0.19	0.20	*0.01*	0.89	*0.04*	0.27	*0.04*	0.48	0.92	*0.00*	0.59
MargalefRichness_s	0.16	0.19	-0.05	-0.16	-0.24	0.08	0.44	-0.39	-0.45	-0.08	-0.11	-0.17	0.29	-0.24	0.07	1.00	0.14	0.16	0.89	0.73	0.98	0.23	0.84	*0.00*	0.08	*0.01*	*0.00*	0.30	0.89	*0.00*	*0.03*	0.33	0.39	0.11	0.32	*0.00*	0.72	0.11
MargalefGroundfish_s	-0.17	0.13	-0.24	-0.18	0.04	0.04	-0.14	0.03	0.08	0.27	0.25	0.23	0.16	0.26	0.25	0.32	1.00	0.12	*0.00*	0.28	0.70	0.23	0.43	*0.00*	0.26	*0.00*	*0.00*	0.18	0.06	*0.00*	*0.00*	0.26	*0.01*	0.14	*0.00*	*0.00*	*0.00*	0.10
MeanLengthAbundance_s	0.35	0.20	0.27	0.19	0.00	-0.05	-0.25	0.12	0.08	-0.09	-0.10	0.04	-0.07	0.30	-0.11	-0.42	-0.10	1.00	0.46	0.30	0.97	0.22	0.20	0.08	*0.00*	0.51	*0.01*	0.30	0.66	*0.03*	*0.04*	0.35	0.80	0.43	*0.00*	*0.00*	*0.01*	*0.00*
MeanLengthBiomass_s	-0.40	0.14	-0.39	-0.13	0.27	0.16	-0.30	0.19	0.65	0.57	0.49	0.54	-0.21	**0.86**	**0.71**	-0.30	0.27	0.33	1.00	0.34	0.08	0.56	*0.00*	*0.00*	0.64	0.89	*0.00*	0.31	0.88	0.88	*0.01*	*0.04*	*0.00*	0.16	*0.00*	*0.00*	0.07	0.12
MeanLifespan_s	-0.14	-0.29	-0.13	0.59	0.16	-0.16	-0.03	**0.74**	0.27	0.11	0.13	-0.16	-0.18	-0.02	-0.22	-0.36	-0.10	0.09	-0.04	1.00	0.72	0.27	*0.00*	*0.00*	*0.00*	*0.03*	0.51	0.64	0.78	*0.00*	0.13	0.31	*0.00*	*0.03*	0.31	*0.00*	*0.00*	*0.00*
MMLengthAbundance_s	-0.58	-0.07	-0.57	0.02	0.48	0.14	-0.06	0.41	**0.75**	**0.71**	0.66	0.47	-0.32	**0.71**	0.61	-0.22	0.25	-0.14	**0.73**	0.16	1.00	0.63	0.06	*0.02*	*0.00*	0.06	0.82	0.73	0.87	*0.03*	0.32	0.31	0.91	0.26	*0.00*	0.33	*0.01*	0.98
MMLengthBiomass_s	-0.58	0.05	-0.57	-0.07	0.43	0.15	-0.14	0.28	0.66	0.63	0.55	0.53	-0.24	**0.76**	**0.82**	-0.15	0.31	-0.08	**0.86**	0.01	**0.91**	1.00	0.29	*0.00*	*0.00*	*0.00*	*0.04*	*0.03*	0.13	0.63	0.46	0.13	*0.00*	*0.01*	0.07	*0.00*	*0.02*	0.11
MeanTrophicLevel_s	-0.12	0.27	-0.14	-0.23	-0.26	-0.24	0.03	-0.16	-0.27	-0.22	-0.26	0.05	0.15	-0.16	0.32	0.11	-0.05	-0.23	-0.02	-0.29	-0.18	0.05	1.00	0.58	0.13	0.44	0.24	*0.04*	0.15	0.09	*0.04*	*0.00*	*0.00*	*0.00*	0.19	0.28	0.23	*0.00*
PielouEvenness_s	-0.70	-0.14	-0.66	0.07	0.29	-0.01	-0.16	0.49	**0.95**	**0.95**	**0.93**	0.23	-0.41	0.54	0.37	-0.31	0.14	-0.03	0.59	0.26	**0.73**	0.64	-0.20	1.00	*0.04*	*0.00*	*0.00*	0.17	*0.03*	0.46	0.53	*0.02*	*0.01*	0.23	0.12	0.25	0.50	0.14
PropPredatoryFish_s	-0.62	0.10	-0.61	-0.24	0.39	0.13	-0.24	0.16	0.54	0.52	0.46	0.47	-0.20	0.61	**0.72**	-0.09	0.30	-0.25	**0.72**	-0.15	**0.82**	**0.92**	0.23	0.52	1.00	0.19	0.71	0.25	*0.03*	*0.00*	0.25	0.33	*0.00*	*0.00*	0.55	*0.01*	*0.00*	0.66
Biomass_s	**0.99**	0.41	0.64	0.16	-0.13	0.00	0.18	-0.28	-0.58	-0.60	-0.54	-0.20	0.19	-0.28	-0.36	0.17	-0.15	0.36	-0.37	-0.17	-0.57	-0.55	-0.09	-0.68	-0.58	1.00	*0.00*	*0.00*	0.18	*0.00*	0.15	0.10	0.20	*0.01*	*0.00*	0.97	*0.03*	0.09	*0.04*
BiomassClupeids_s	**0.91**	0.10	**0.74**	0.12	-0.14	0.02	0.18	-0.39	-0.62	-0.66	-0.60	-0.16	0.29	-0.53	-0.33	0.25	-0.17	0.15	-0.47	-0.25	-0.61	-0.57	0.01	-0.76	-0.53	**0.89**	1.00	0.15	0.11	*0.00*	0.24	0.11	0.27	*0.00*	0.53	*0.00*	*0.00*	0.91
BiomassFinfish_s	**1.00**	0.40	0.65	0.16	-0.13	0.01	0.18	-0.29	-0.58	-0.61	-0.54	-0.20	0.19	-0.27	-0.36	0.18	-0.14	0.36	-0.37	-0.17	-0.57	-0.55	-0.09	-0.69	-0.59	**1.00**	**0.89**	1.00	0.08	*0.00*	0.36	0.08	*0.00*	*0.00*	0.49	0.33	*0.04*	0.77
BiomassFlatfish_s	-0.28	-0.07	-0.27	0.23	0.07	-0.11	-0.09	0.51	0.34	0.37	0.36	0.16	0.02	0.14	0.01	-0.14	0.30	0.09	0.17	0.53	0.36	0.22	-0.11	0.40	0.15	-0.28	-0.37	-0.27	1.00	*0.03*	0.09	*0.02*	0.31	*0.00*	0.87	*0.00*	*0.01*	0.94
BiomassForage_s	**0.92**	0.12	**0.74**	0.11	-0.13	0.03	0.17	-0.40	-0.63	-0.66	-0.61	-0.15	0.28	-0.51	-0.34	0.25	-0.15	0.15	-0.47	-0.23	-0.61	-0.57	-0.02	-0.77	-0.54	**0.90**	**1.00**	**0.89**	-0.37	1.00	0.19	0.55	0.16	*0.01*	0.20	0.16	0.56	0.12
BiomassGadoids_s	0.30	**0.97**	-0.27	-0.25	0.01	-0.07	-0.07	-0.17	-0.20	-0.10	-0.10	0.07	-0.07	0.33	0.19	0.20	0.15	0.15	0.15	-0.30	0.01	0.11	0.19	-0.14	0.16	0.39	0.10	0.38	-0.09	0.12	1.00	0.36	*0.01*	*0.00*	0.22	*0.00*	0.88	0.44
BiomassGroundfish_s	0.25	**0.98**	-0.32	-0.22	0.02	-0.17	-0.05	-0.13	-0.14	-0.02	-0.03	0.05	-0.02	0.40	0.22	0.21	0.23	0.18	0.21	-0.24	0.04	0.15	0.18	-0.07	0.17	0.35	0.03	0.34	0.02	0.05	**0.97**	1.00	0	0.96	*0.01*	*0.00*	*0.00*	0.38
BTGMediumBenthivore_s	-0.20	0.06	-0.27	0.11	0.52	0.10	0.05	0.17	0.26	0.32	0.30	0.32	-0.04	0.45	0.36	0.03	0.44	0.03	0.36	0.22	0.54	0.50	-0.37	0.28	0.36	-0.19	-0.29	-0.18	0.47	-0.26	0.15	0.24	1.00	0.77	0.24	0.06	0.40	*0.00*
BTGPiscivore_s	0.04	0.50	-0.24	-0.06	0.11	-0.05	0.09	-0.04	0.17	0.28	0.18	0.31	0.02	0.59	0.63	0.15	0.35	0.25	0.55	-0.12	0.30	0.48	0.18	0.19	0.32	0.10	-0.08	0.10	0.13	-0.07	0.45	0.56	0.44	1.00	0.48	*0.00*	*0.03*	*0.03*
BTGPlanktivore_s	**0.99**	0.30	**0.71**	0.13	-0.15	0.04	0.19	-0.35	-0.60	-0.63	-0.56	-0.21	0.23	-0.32	-0.38	0.18	-0.15	0.34	-0.39	-0.21	-0.59	-0.58	-0.11	-0.72	-0.61	**0.99**	**0.92**	**0.99**	-0.32	**0.93**	0.28	0.23	-0.22	0.04	1.00	*0.01*	0.21	0.82
BTGZoopiscivore_s	0.21	0.62	-0.24	0.24	-0.03	-0.19	-0.04	0.40	-0.07	-0.12	-0.06	-0.17	-0.22	0.02	-0.23	-0.13	-0.19	0.17	-0.13	0.33	-0.09	-0.15	0.08	-0.01	-0.15	0.27	-0.05	0.26	0.19	-0.04	0.61	0.59	-0.07	-0.01	0.13	1.00	*0.01*	0.66
ShannonDiversity_s	-0.70	-0.08	-0.70	0.01	0.22	0.00	-0.05	0.40	**0.87**	**0.98**	**0.94**	0.20	-0.33	0.51	0.39	-0.08	0.24	-0.13	0.53	0.17	0.69	0.60	-0.17	**0.97**	0.50	-0.68	-0.76	-0.68	0.40	-0.76	-0.08	0.00	0.30	0.23	-0.72	-0.04	1.00	0.18
SpeciesRichness_s	0.29	0.23	0.05	-0.14	-0.27	0.06	0.45	-0.43	-0.55	-0.20	-0.22	-0.22	0.32	-0.32	-0.02	**0.99**	0.26	-0.38	-0.40	-0.36	-0.34	-0.27	0.11	-0.42	-0.21	0.31	0.37	0.31	-0.18	0.37	0.24	0.24	-0.02	0.12	0.31	-0.07	-0.20	1.00

Table S 49. Spearman rank correlation coefficients (r) for indicators in strata 463. The upper triangle of the matrix represents p-values (p ≤ 0.05 highlighted in blue italics). The lower triangle of the matrix represents the r values (r ≥ 0.7 highlighted in red).

Indicator	BiomassTL4_s	CommunityCondition_s	CCMediumBenthivore_s	CCPiscivore_s	Heips_s	HillN1Diversity_s	HillN2Dominance_s	InverseCVBiomass_s	KemptonQ_s	LargeFishIndicator_s	LargeSpeciesIndicator_s	MargalefRichness_s	MargalefGroundfish_s	MeanLengthAbundance_s	MeanLengthBiomass_s	MeanLifespan_s	MMLengthAbundance_s	MMLengthBiomass_s	MeanTrophicLevel_s	PielouEvenness_s	PropPredatoryFish_s	BiomassFlatfish_s	BiomassGadoids_s	BiomassGroundfish_s	BTGMediumBenthivore_s	BTGPiscivore_s	ShannonDiversity_s	SpeciesRichness_s
BiomassTL4_s	1.00	0.99	0.52	0.21	0.98	0.17	0.43	*0.00*	0.98	1.00	0.34	*0.00*	*0.05*	*0.02*	0.39	0.26	0.39	0.22	0.46	0.08	0.06	*0.01*	*0.00*	*0.02*	0.49	*0.01*	*0.00*	0.15
CommunityCondition_s	0.00	1.00	0.82	0.74	0.45	0.58	0.15	*0.00*	0.36	0.37	0.52	*0.00*	0.28	*0.02*	0.34	0.09	0.09	0.64	0.17	0.91	*0.01*	*0.00*	0.72	*0.03*	0.35	0.19	0.07	0.08
CCMediumBenthivore_s	0.10	0.34	1.00	0.59	0.08	*0.04*	0.13	0.09	0.27	0.06	0.72	0.38	0.09	*0.04*	*0.00*	*0.03*	0.08	*0.00*	0.12	0.65	0.78	0.42	0.09	0.27	0.78	0.21	0.17	0.12
CCPiscivore_s	0.03	0.00	0.15	1.00	*0.00*	*0.04*	0.30	*0.00*	0.26	0.73	0.60	0.60	*0.02*	0.11	0.55	0.85	*0.00*	0.09	0.67	0.13	0.65	*0.00*	*0.00*	*0.00*	0.53	0.09	0.08	0.36
Heips_s	0.19	-0.14	-0.32	-0.35	1.00	0.21	0.37	0.56	0.68	*0.00*	0.58	0.08	0.32	0.13	0.15	*0.00*	0.64	*0.00*	0.16	0.59	0.45	*0.00*	*0.05*	*0.00*	0.46	0.54	0.18	0.09
HillN1Diversity_s	0.05	-0.16	-0.44	-0.34	**0.88**	1.00	0.20	0.18	0.57	*0.04*	0.90	0.87	0.09	0.12	*0.00*	0.83	*0.00*	0.05	0.66	0.06	0.27	*0.00*	0.97	0.42	*0.00*	*0.04*	*0.03*	*0.01*
HillN2Dominance_s	0.08	-0.17	-0.43	-0.30	**0.88**	**0.98**	1.00	*0.02*	0.69	0.95	0.47	*0.00*	*0.00*	0.66	*0.01*	*0.02*	0.28	0.18	*0.00*	0.05	0.27	0.27	0.62	0.37	*0.00*	0.86	0.21	0.42
InverseCVBiomass_s	0.00	0.06	0.13	-0.24	0.25	0.16	0.17	1.00	0.55	0.08	0.90	*0.01*	*0.00*	*0.01*	*0.00*	0.10	0.89	*0.05*	0.08	0.51	0.11	*0.00*	0.47	0.18	*0.00*	0.77	*0.00*	0.86
KemptonQ_s	-0.11	0.09	-0.08	0.23	-0.17	0.02	-0.04	0.04	1.00	0.51	0.33	0.06	*0.00*	*0.01*	0.85	0.23	0.62	0.35	*0.00*	0.11	0.45	0.61	*0.00*	0.83	0.06	0.94	0.80	0.51
LargeFishIndicator_s	0.26	-0.06	0.26	0.23	0.25	0.07	0.09	0.14	0.13	1.00	*0.03*	0.37	0.74	0.73	*0.00*	*0.02*	0.37	*0.00*	0.11	*0.01*	0.25	*0.00*	0.29	0.26	0.44	0.87	*0.00*	*0.03*
LargeSpeciesIndicator_s	0.46	0.09	-0.02	0.07	0.32	0.14	0.18	0.09	0.01	0.58	1.00	0.91	*0.00*	0.54	*0.02*	0.62	*0.01*	*0.04*	0.33	0.12	0.63	*0.00*	*0.02*	0.25	*0.02*	0.07	0.74	*0.00*
MargalefRichness_s	-0.21	0.00	-0.41	-0.37	0.03	0.40	0.32	-0.26	0.28	-0.41	-0.30	1.00	*0.01*	0.46	*0.00*	*0.00*	*0.00*	0.26	0.10	0.69	0.88	*0.00*	*0.00*	*0.00*	0.44	0.49	*0.01*	0.34
MargalefGroundfish_s	-0.08	-0.13	-0.39	-0.39	0.42	0.61	0.51	0.02	0.38	0.07	0.07	0.62	1.00	0.60	*0.00*	*0.01*	0.43	0.81	0.21	0.99	0.84	*0.02*	*0.03*	0.08	*0.00*	*0.00*	*0.02*	*0.00*
MeanLengthAbundance_s	0.30	0.28	0.27	0.05	0.03	-0.12	-0.11	0.07	-0.04	0.40	-0.05	-0.31	-0.12	1.00	0.09	*0.00*	0.25	0.54	*0.00*	0.81	0.57	0.68	*0.01*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
MeanLengthBiomass_s	0.30	0.05	0.13	0.09	0.35	0.17	0.20	0.23	0.07	**0.88**	0.67	-0.36	0.13	0.39	1.00	0.16	0.10	0.24	0.11	0.81	0.63	*0.00*	0.30	*0.02*	*0.04*	0.29	0.43	*0.00*
MeanLifespan_s	-0.19	0.50	-0.02	-0.11	0.25	0.25	0.23	-0.08	0.11	0.12	0.01	0.16	0.20	0.16	0.12	1.00	0.75	*0.03*	0.80	0.26	0.92	*0.05*	0.09	0.09	0.06	*0.00*	0.86	*0.03*
MMLengthAbundance_s	0.12	0.31	0.30	0.08	0.18	0.05	0.06	0.28	0.17	0.62	0.55	-0.25	0.03	0.00	0.50	0.37	1.00	*0.00*	0.34	*0.04*	0.10	0.67	*0.02*	*0.04*	*0.00*	0.32	0.25	*0.03*
MMLengthBiomass_s	0.22	0.01	0.16	0.13	0.35	0.18	0.21	0.29	0.17	**0.88**	**0.73**	-0.33	0.17	0.10	**0.80**	0.20	**0.79**	1.00	0.53	0.37	*0.00*	0.75	0.44	0.96	0.15	0.20	*0.03*	*0.00*
MeanTrophicLevel_s	0.23	0.26	-0.25	-0.14	-0.07	-0.07	-0.07	-0.10	-0.24	-0.59	0.06	0.12	-0.17	-0.14	-0.31	-0.19	-0.44	-0.56	1.00	0.94	*0.00*	*0.00*	0.17	*0.00*	0.12	0.20	*0.00*	*0.00*
PielouEvenness_s	0.15	-0.10	-0.34	-0.41	**0.97**	**0.91**	**0.88**	0.24	-0.11	0.16	0.26	0.21	0.54	-0.04	0.28	0.25	0.16	0.28	-0.04	1.00	0.63	0.97	0.07	*0.00*	*0.02*	0.24	0.07	0.12
PropPredatoryFish_s	0.14	-0.14	0.15	0.09	0.37	0.26	0.26	0.40	0.17	**0.81**	0.50	-0.27	0.26	0.10	0.68	0.09	**0.71**	**0.92**	-0.66	0.33	1.00	*0.00*	0.22	*0.01*	0.13	0.30	0.21	*0.04*
BiomassFlatfish_s	0.19	-0.10	-0.26	-0.22	0.50	0.58	0.58	0.23	0.07	0.08	0.29	0.18	0.44	-0.11	0.22	0.30	0.15	0.27	-0.05	0.48	0.30	1.00	*0.01*	0.28	*0.00*	0.58	*0.03*	0.07
BiomassGadoids_s	0.50	-0.05	0.49	0.42	-0.21	-0.29	-0.24	-0.06	0.02	0.43	-0.01	-0.36	-0.33	0.45	0.23	-0.03	0.19	0.20	-0.36	-0.27	0.21	-0.12	1.00	0.99	0.23	*0.03*	0.15	*0.02*
BiomassGroundfish_s	0.56	-0.08	0.44	0.38	-0.13	-0.20	-0.15	0.00	0.03	0.47	0.08	-0.34	-0.26	0.45	0.33	-0.05	0.19	0.26	-0.35	-0.19	0.26	0.03	**0.98**	1.00	*0.00*	*0.00*	*0.00*	*0.05*
BTGMediumBenthivore_s	0.26	-0.08	0.49	0.44	-0.26	-0.29	-0.24	-0.04	0.09	0.43	-0.11	-0.33	-0.30	0.41	0.23	0.01	0.18	0.20	-0.49	-0.31	0.23	-0.10	**0.95**	**0.94**	1.00	0.06	0.50	0.29
BTGPiscivore_s	**0.91**	0.02	0.05	0.03	0.26	0.14	0.19	-0.04	-0.07	0.34	0.55	-0.16	-0.01	0.28	0.45	-0.03	0.16	0.31	0.12	0.21	0.14	0.32	0.45	0.56	0.27	1.00	*0.04*	0.28
ShannonDiversity_s	0.09	-0.11	-0.41	-0.42	**0.90**	**0.96**	**0.92**	0.17	-0.02	0.06	0.16	0.41	0.65	-0.12	0.18	0.27	0.08	0.19	-0.03	**0.97**	0.25	0.52	-0.32	-0.23	-0.34	0.16	1.00	*0.03*
SpeciesRichness_s	-0.20	-0.02	-0.40	-0.34	-0.07	0.31	0.24	-0.31	0.25	-0.49	-0.35	**0.99**	0.53	-0.34	-0.44	0.10	-0.32	-0.42	0.17	0.10	-0.37	0.15	-0.33	-0.31	-0.29	-0.16	0.31	1.00

Table S 50. Spearman rank correlation coefficients (r) for indicators in strata 464. The upper triangle of the matrix represents p-values (p ≤ 0.05 highlighted in blue italics). The lower triangle of the matrix represents the r values (r ≥ 0.7 highlighted in red).

Indicator	BiomassTL4_s	CommunityCondition_s	CCMediumBenthivore_s	CCPiscivore_s	CCZoopiscivore_s	Heips_s	HillN1Diversity_s	HillN2Dominance_s	InverseCVBiomass_s	KemptonQ_s	LargeFishIndicator_s	LargeSpeciesIndicator_s	MargalefRichness_s	MargalefGroundfish_s	MeanLengthAbundance_s	MeanLengthBiomass_s	MeanLifespan_s	MMLengthAbundance_s	MMLengthBiomass_s	MeanTrophicLevel_s	PielouEvenness_s	PropPredatoryFish_s	BiomassFlatfish_s	BiomassGadoids_s	BiomassGroundfish_s	BTGMediumBenthivore_s	BTGPiscivore_s	BiomassSkates_s	BTGZoopiscivore_s	ShannonDiversity_s	SpeciesRichness_s
BiomassTL4_s	1.00	0.73	0.58	0.53	0.94	0.06	0.29	0.37	0.66	0.49	0.45	0.22	*0.01*	0.09	0.55	0.63	0.93	0.64	*0.00*	*0.04*	0.24	*0.00*	0.70	0.24	0.07	0.30	0.15	0.62	0.29	0.49	0.26
CommunityCondition_s	-0.05	1.00	0.81	0.27	0.46	0.07	0.54	*0.00*	0.06	0.87	0.80	0.68	0.33	0.33	0.52	0.97	0.70	*0.02*	*0.00*	*0.03*	0.17	*0.04*	*0.04*	*0.00*	0.13	0.60	0.67	0.48	0.26	*0.02*	0.38
CCMediumBenthivore_s	-0.08	0.32	1.00	0.95	0.72	0.54	0.45	*0.00*	*0.03*	0.94	0.32	0.09	*0.04*	0.82	*0.05*	0.93	*0.00*	0.78	*0.00*	0.53	0.42	0.47	0.85	*0.00*	*0.00*	0.08	0.21	0.82	0.42	*0.01*	*0.00*
CCPiscivore_s	0.04	0.05	0.43	1.00	0.97	0.84	0.07	0.22	0.72	0.73	0.10	0.70	0.69	0.49	*0.01*	0.93	0.89	0.65	0.91	0.08	*0.02*	0.19	0.12	*0.00*	0.91	0.44	*0.01*	0.51	0.59	0.18	*0.00*
CCZoopiscivore_s	-0.09	0.18	-0.10	-0.15	1.00	0.68	0.74	*0.00*	0.23	0.67	0.25	*0.00*	*0.01*	0.91	0.54	0.56	0.38	*0.00*	*0.02*	0.62	*0.05*	0.51	0.17	0.18	*0.00*	0.13	*0.00*	*0.01*	*0.03*	*0.00*	*0.01*
Heips_s	-0.17	-0.18	0.13	0.16	0.10	1.00	0.43	0.28	0.22	0.44	0.13	0.51	0.13	0.35	0.21	0.78	*0.00*	*0.00*	0.07	0.12	*0.02*	0.72	*0.00*	*0.00*	*0.00*	0.18	0.06	*0.00*	0.24	0.52	0.30
HillN1Diversity_s	0.01	-0.15	-0.08	0.06	0.03	0.62	1.00	*0.00*	0.31	0.74	0.86	0.37	0.52	0.18	0.88	0.56	0.48	0.11	*0.04*	*0.02*	0.51	0.48	*0.00*	*0.00*	0.77	0.32	*0.00*	*0.00*	*0.05*	0.08	0.20
HillN2Dominance_s	0.01	-0.12	-0.05	0.06	0.03	0.65	**0.98**	1.00	0.42	0.69	0.69	0.61	*0.02*	0.85	0.25	0.34	0.47	0.20	0.30	*0.00*	0.13	0.67	0.70	0.35	*0.01*	0.20	*0.01*	0.23	0.28	0.26	0.42
InverseCVBiomass_s	0.11	-0.10	-0.02	0.09	-0.07	0.24	0.28	0.32	1.00	*0.01*	0.90	0.76	0.11	*0.04*	0.12	0.47	0.59	*0.00*	*0.02*	*0.00*	0.45	0.47	*0.03*	*0.00*	*0.00*	*0.04*	0.06	*0.00*	*0.00*	0.12	0.09
KemptonQ_s	0.05	-0.03	0.16	0.10	-0.21	-0.19	0.21	0.18	-0.11	1.00	0.81	0.92	0.23	0.31	*0.01*	0.50	0.50	*0.00*	0.06	0.28	0.07	0.39	*0.01*	*0.00*	0.63	*0.00*	0.82	0.38	*0.00*	0.32	*0.00*
LargeFishIndicator_s	0.01	-0.01	0.38	0.29	0.08	0.62	0.18	0.21	0.20	-0.23	1.00	0.29	0.54	0.30	0.07	0.83	0.52	*0.01*	*0.00*	0.35	*0.01*	0.13	0.13	*0.00*	0.82	*0.02*	*0.05*	0.39	*0.00*	0.07	*0.00*
LargeSpeciesIndicator_s	0.28	0.05	0.15	0.38	-0.01	0.48	0.09	0.12	0.10	-0.21	0.69	1.00	0.21	0.67	0.75	0.85	0.54	0.48	*0.00*	0.65	*0.00*	0.09	*0.05*	*0.00*	0.90	*0.00*	0.11	0.93	*0.00*	0.34	0.36
MargalefRichness_s	0.27	-0.06	-0.30	-0.09	-0.06	-0.38	0.41	0.35	0.05	0.49	-0.48	-0.40	1.00	0.71	0.18	0.66	0.70	0.51	*0.00*	0.47	*0.00*	*0.02*	0.49	*0.00*	0.22	0.93	0.12	0.85	0.77	*0.00*	0.28
MargalefGroundfish_s	0.09	-0.12	-0.06	-0.19	-0.41	-0.11	0.30	0.30	0.11	0.58	-0.20	-0.27	0.38	1.00	0.13	0.17	0.59	*0.00*	0.06	0.92	0.33	*0.04*	0.68	0.54	*0.00*	*0.03*	0.25	0.84	0.68	0.32	0.77
MeanLengthAbundance_s	-0.03	0.05	0.40	0.02	-0.02	0.10	-0.33	-0.33	0.07	-0.06	0.56	0.22	-0.54	0.01	1.00	0.62	0.69	0.32	0.16	0.83	0.53	*0.02*	0.13	0.40	*0.00*	*0.01*	0.18	*0.04*	0.50	0.41	0.13
MeanLengthBiomass_s	-0.06	-0.06	0.23	0.17	0.13	0.67	0.09	0.10	0.11	-0.33	**0.88**	0.69	-0.58	-0.31	0.52	1.00	0.75	*0.00*	0.24	0.97	0.80	0.41	0.50	0.39	0.08	*0.04*	0.24	0.89	0.99	0.53	0.18
MeanLifespan_s	-0.16	0.37	0.10	-0.23	0.64	0.15	-0.26	-0.22	-0.13	-0.36	0.14	0.02	-0.46	-0.36	0.28	0.30	1.00	*0.00*	0.54	*0.00*	0.65	0.67	0.31	0.49	0.32	*0.05*	0.27	0.50	*0.00*	0.24	0.65
MMLengthAbundance_s	0.09	0.11	0.36	0.37	0.11	0.47	0.07	0.11	0.23	-0.23	**0.93**	**0.73**	-0.40	-0.31	0.45	**0.77**	0.13	1.00	*0.00*	*0.02*	0.86	0.51	0.34	*0.02*	*0.00*	0.93	0.11	0.75	*0.00*	0.55	0.81
MMLengthBiomass_s	0.11	-0.04	0.24	0.27	0.11	0.67	0.23	0.27	0.25	-0.30	**0.94**	**0.82**	-0.43	-0.29	0.39	**0.90**	0.13	**0.92**	1.00	*0.03*	0.99	0.69	0.27	*0.04*	*0.01*	0.80	0.09	0.52	*0.02*	*0.01*	0.46
MeanTrophicLevel_s	0.27	0.15	-0.18	-0.05	-0.08	-0.46	-0.36	-0.38	-0.33	0.10	-0.64	-0.04	0.16	-0.01	-0.28	-0.47	0.01	-0.53	-0.54	1.00	0.95	0.46	0.38	*0.01*	*0.00*	0.21	*0.00*	0.73	*0.03*	*0.00*	0.24
PielouEvenness_s	-0.05	-0.25	0.09	0.20	0.10	**0.92**	**0.81**	**0.81**	0.30	-0.06	0.53	0.38	-0.08	-0.04	-0.03	0.51	-0.03	0.41	0.58	-0.50	1.00	0.89	0.19	0.08	*0.00*	0.32	*0.04*	0.88	*0.00*	0.13	*0.00*
PropPredatoryFish_s	0.12	-0.17	0.19	0.23	0.10	0.69	0.42	0.44	0.35	-0.23	**0.89**	0.64	-0.26	-0.19	0.30	**0.80**	-0.03	**0.84**	**0.93**	-0.72	0.68	1.00	0.35	*0.00*	*0.00*	0.19	*0.00*	0.09	*0.00*	*0.00*	0.62
BiomassFlatfish_s	0.14	-0.23	-0.25	0.07	-0.09	0.02	0.16	0.15	0.12	0.10	-0.09	-0.07	0.12	0.15	-0.24	-0.08	-0.30	-0.16	-0.05	-0.29	0.10	0.12	1.00	*0.01*	*0.01*	0.15	*0.00*	*0.00*	*0.00*	*0.03*	0.65
BiomassGadoids_s	0.54	0.03	0.15	0.00	-0.06	-0.36	-0.14	-0.10	0.07	0.15	0.13	-0.03	0.23	0.20	0.23	-0.11	-0.02	0.17	0.06	-0.16	-0.26	0.09	0.10	1.00	*0.00*	0.11	*0.00*	*0.00*	*0.05*	0.53	0.20
BiomassGroundfish_s	0.57	-0.06	0.03	0.01	-0.08	-0.27	-0.07	-0.04	0.10	0.14	0.13	0.02	0.20	0.22	0.17	-0.03	-0.10	0.12	0.10	-0.24	-0.17	0.18	0.45	**0.92**	1.00	0.90	*0.00*	*0.00*	0.28	*0.00*	0.56
BTGMediumBenthivore_s	0.18	-0.02	0.10	-0.01	-0.06	-0.31	-0.11	-0.07	0.06	0.17	0.10	-0.18	0.15	0.24	0.20	-0.10	-0.05	0.08	0.00	-0.40	-0.23	0.09	0.41	**0.86**	**0.90**	1.00	*0.00*	*0.01*	0.11	*0.00*	0.55
BTGPiscivore_s	0.70	0.04	0.02	0.09	-0.05	0.16	0.02	0.03	0.11	-0.13	0.35	0.63	-0.19	-0.02	0.18	0.38	0.10	0.33	0.47	0.04	0.15	0.36	0.25	0.37	0.52	0.20	1.00	*0.00*	*0.01*	0.09	*0.03*
BiomassSkates_s	0.16	-0.18	-0.14	0.04	0.07	0.35	0.03	0.00	0.02	-0.20	0.31	0.47	-0.31	-0.22	0.17	0.58	0.05	0.18	0.44	-0.10	0.27	0.41	0.42	-0.16	0.14	-0.07	0.55	1.00	0.80	*0.00*	0.82
BTGZoopiscivore_s	0.53	-0.06	-0.20	-0.09	0.34	-0.28	0.00	-0.01	-0.06	0.14	-0.40	-0.26	0.45	-0.06	-0.24	-0.41	-0.02	-0.29	-0.33	0.36	-0.14	-0.22	0.03	0.19	0.16	-0.04	-0.08	-0.09	1.00	0.86	*0.00*
ShannonDiversity_s	0.07	-0.25	-0.03	0.14	0.04	0.68	**0.96**	**0.93**	0.31	0.18	0.26	0.15	0.35	0.19	-0.26	0.18	-0.25	0.16	0.32	-0.40	**0.89**	0.49	0.17	-0.12	-0.04	-0.11	0.07	0.09	0.03	1.00	0.05
SpeciesRichness_s	0.28	-0.06	-0.31	-0.11	-0.07	-0.44	0.35	0.30	0.03	0.49	-0.54	-0.43	**1.00**	0.38	-0.56	-0.62	-0.45	-0.45	-0.49	0.20	-0.15	-0.32	0.13	0.25	0.22	0.18	-0.19	-0.32	0.46	0.29	1.00

Table S 51. Spearman rank correlation coefficients (r) for indicators in strata 465. The upper triangle of the matrix represents p-values (p ≤ 0.05 highlighted in blue italics). The lower triangle of the matrix represents the r values (r ≥ 0.7 highlighted in red).

Indicator	BiomassTL4_s	CommunityCondition_s	CCMediumBenthivore_s	CCPiscivore_s	CCPlanktivore_s	CCZoopiscivore_s	Heips_s	HillN1Diversity_s	HillN2Dominance_s	InverseCVBiomass_s	KemptonQ_s	LargeFishIndicator_s	LargeSpeciesIndicator_s	MargalefRichness_s	MargalefGroundfish_s	MeanLengthAbundance_s	MeanLengthBiomass_s	MeanLifespan_s	MMLengthAbundance_s	MMLengthBiomass_s	MeanTrophicLevel_s	PielouEvenness_s	PropPredatoryFish_s	BiomassFlatfish_s	BiomassGadoids_s	BiomassGroundfish_s	BTGMediumBenthivore_s	BTGPiscivore_s	BiomassSkates_s	BTGZoopiscivore_s	ShannonDiversity_s	SpeciesRichness_s
BiomassTL4_s	1.00	*0.00*	0.33	0.58	0.74	0.61	0.32	0.42	*0.00*	0.09	*0.01*	0.89	0.68	0.95	*0.01*	0.13	0.10	0.42	*0.03*	*0.00*	0.33	0.05	0.81	0.61	0.67	*0.01*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	0.70
CommunityCondition_s	-0.45	1.00	0.77	0.23	0.66	0.30	0.07	0.55	0.62	*0.05*	0.20	0.17	0.25	0.56	*0.01*	0.46	0.33	0.41	*0.01*	*0.00*	*0.04*	0.35	*0.00*	0.60	0.07	*0.00*	0.20	0.59	0.11	*0.02*	0.89	0.49
CCMediumBenthivore_s	0.15	0.05	1.00	0.75	0.06	0.72	0.70	*0.00*	0.79	*0.00*	*0.03*	0.25	0.40	0.90	*0.01*	*0.00*	*0.00*	0.49	*0.03*	0.39	0.15	0.63	*0.02*	*0.01*	*0.01*	0.34	*0.00*	0.26	*0.00*	*0.00*	0.81	*0.00*
CCPiscivore_s	0.04	-0.26	0.19	1.00	*0.01*	0.80	0.92	*0.00*	0.74	0.63	*0.00*	*0.00*	0.72	*0.00*	*0.00*	0.14	0.14	0.53	0.72	*0.01*	0.49	0.62	0.53	0.12	*0.00*	0.24	0.39	0.22	*0.00*	0.92	*0.00*	*0.00*
CCPlanktivore_s	-0.08	0.47	-0.04	-0.07	1.00	*0.05*	*0.00*	0.39	0.08	*0.00*	0.75	*0.04*	0.45	0.09	0.09	0.63	*0.04*	0.34	0.73	*0.00*	*0.00*	0.34	0.74	0.05	0.14	0.08	0.13	0.56	0.52	0.22	0.75	*0.00*
CCZoopiscivore_s	-0.18	0.41	-0.06	-0.36	0.11	1.00	0.58	*0.00*	*0.00*	0.06	*0.00*	*0.00*	0.52	0.26	0.59	0.91	0.22	0.97	0.21	*0.00*	*0.00*	0.26	0.67	0.09	0.69	*0.00*	*0.00*	0.90	0.10	0.19	0.14	*0.01*
Heips_s	0.05	-0.45	0.04	0.40	-0.15	-0.38	1.00	0.57	*0.00*	*0.00*	*0.00*	0.20	0.71	0.41	0.20	0.76	*0.00*	0.66	0.57	*0.00*	*0.00*	0.07	0.39	0.44	*0.04*	*0.02*	0.19	0.68	0.07	*0.01*	*0.00*	0.81
HillN1Diversity_s	0.05	-0.25	0.07	0.40	0.25	-0.18	**0.80**	1.00	*0.00*	0.06	0.41	0.78	0.52	0.66	0.11	0.63	0.20	0.16	*0.03*	0.56	0.52	0.87	0.20	0.38	*0.01*	0.94	0.08	0.09	0.14	0.11	0.99	*0.00*
HillN2Dominance_s	0.07	-0.29	0.06	0.41	0.15	-0.22	**0.83**	**0.97**	1.00	0.69	*0.03*	0.68	0.94	0.73	0.23	0.23	0.96	*0.00*	0.38	0.74	0.64	*0.00*	0.06	0.82	0.70	0.73	*0.01*	*0.00*	*0.00*	0.96	0.92	0.85
InverseCVBiomass_s	0.28	-0.60	0.17	0.25	-0.55	-0.28	0.13	-0.10	-0.05	1.00	0.05	0.79	0.72	0.25	0.39	0.22	0.12	*0.01*	0.48	*0.00*	0.14	0.98	0.77	0.11	*0.00*	*0.00*	*0.00*	0.22	*0.02*	0.17	0.80	0.53
KemptonQ_s	0.39	0.07	0.13	-0.08	0.22	0.07	-0.38	-0.07	-0.12	0.00	1.00	0.65	0.63	0.54	0.98	0.53	0.38	0.23	0.88	0.18	*0.02*	0.76	*0.00*	0.72	*0.00*	0.95	0.50	0.79	0.30	*0.05*	0.45	*0.00*
LargeFishIndicator_s	0.08	-0.43	0.05	0.19	-0.31	-0.23	0.46	0.22	0.27	0.21	-0.08	1.00	0.84	0.46	0.35	*0.00*	0.41	0.15	0.92	*0.02*	0.67	0.42	0.66	*0.01*	*0.00*	*0.00*	0.89	*0.00*	0.12	0.08	0.09	*0.00*
LargeSpeciesIndicator_s	0.16	-0.28	-0.11	0.24	-0.18	-0.21	0.53	0.33	0.37	0.15	0.00	0.63	1.00	0.62	0.85	0.11	*0.04*	0.06	0.28	*0.00*	0.08	0.07	0.98	0.59	0.55	*0.00*	0.87	0.06	*0.00*	*0.00*	0.08	0.24
MargalefRichness_s	-0.05	0.41	-0.10	-0.18	0.49	0.27	-0.41	0.06	0.00	-0.38	0.60	-0.49	-0.35	1.00	0.62	0.48	0.52	0.63	0.32	0.85	0.34	*0.01*	0.16	0.98	0.97	0.44	*0.02*	*0.01*	0.53	*0.01*	0.87	*0.00*
MargalefGroundfish_s	0.04	0.28	0.06	-0.13	0.19	0.31	-0.09	0.26	0.20	-0.20	0.54	-0.09	0.01	0.58	1.00	0.34	0.93	0.13	0.74	*0.00*	0.25	0.99	0.31	*0.00*	*0.00*	*0.00*	0.53	0.86	0.98	*0.00*	*0.00*	0.82
MeanLengthAbundance_s	0.30	0.06	0.10	0.00	-0.01	-0.36	0.05	-0.14	-0.13	-0.14	-0.10	0.01	-0.05	-0.19	-0.11	1.00	0.12	0.16	0.54	*0.00*	0.09	0.17	*0.01*	*0.00*	0.95	*0.00*	0.43	*0.02*	*0.00*	0.55	*0.03*	0.95
MeanLengthBiomass_s	0.15	-0.37	0.01	0.14	-0.23	-0.33	0.47	0.17	0.21	0.10	-0.02	**0.86**	**0.73**	-0.47	-0.08	0.18	1.00	0.07	0.18	0.98	*0.04*	0.41	0.18	0.49	*0.00*	0.62	0.79	0.68	0.09	0.25	0.45	0.38
MeanLifespan_s	-0.27	0.19	-0.05	-0.03	-0.13	0.05	-0.20	-0.26	-0.28	-0.08	0.00	0.01	0.01	-0.13	0.09	-0.04	-0.01	1.00	0.05	0.68	0.13	0.16	0.36	0.88	*0.00*	0.61	*0.00*	0.07	0.07	0.19	*0.03*	0.97
MMLengthAbundance_s	-0.06	-0.32	-0.07	0.08	-0.12	0.05	0.35	0.30	0.34	0.16	0.09	0.67	0.49	-0.22	0.00	-0.49	0.50	-0.10	1.00	0.57	0.82	0.06	0.53	1.00	*0.00*	0.29	0.46	0.09	0.59	*0.05*	*0.04*	0.83
MMLengthBiomass_s	-0.02	-0.42	-0.03	0.22	-0.30	-0.19	0.46	0.23	0.28	0.34	-0.03	**0.86**	**0.76**	-0.48	-0.17	-0.28	**0.77**	0.00	**0.80**	1.00	*0.00*	*0.02*	0.62	0.55	*0.00*	1.00	0.59	0.53	0.14	*0.00*	*0.01*	0.47
MeanTrophicLevel_s	0.51	-0.05	-0.01	-0.11	0.10	-0.09	-0.03	0.04	0.04	-0.08	0.09	-0.49	-0.12	0.20	0.08	0.37	-0.24	-0.46	-0.51	-0.55	1.00	0.06	0.27	0.86	*0.00*	*0.00*	0.56	0.15	0.24	0.08	0.08	0.87
PielouEvenness_s	0.08	-0.44	0.09	0.47	0.01	-0.32	**0.93**	**0.90**	**0.88**	0.08	-0.25	0.42	0.44	-0.26	0.05	-0.03	0.41	-0.25	0.35	0.39	0.00	1.00	*0.02*	0.57	0.28	*0.00*	0.99	0.90	0.83	0.05	0.84	*0.00*
PropPredatoryFish_s	0.12	-0.51	0.02	0.22	-0.24	-0.13	0.43	0.29	0.34	0.37	0.07	**0.75**	0.55	-0.36	-0.16	-0.33	0.63	-0.27	**0.81**	**0.90**	-0.41	0.42	1.00	0.10	*0.04*	0.08	0.26	0.30	0.42	0.12	0.43	0.77
BiomassFlatfish_s	-0.09	0.12	-0.46	-0.07	0.12	0.11	0.00	0.14	0.09	-0.23	0.27	-0.16	0.07	0.44	0.43	-0.06	-0.10	0.08	0.02	-0.09	0.01	0.00	*-0.11*	1.00	*0.05*	*0.03*	0.59	0.42	0.21	*0.00*	*0.04*	0.29
BiomassGadoids_s	**0.77**	-0.33	0.25	-0.02	-0.12	-0.02	-0.06	-0.07	-0.05	0.29	0.36	0.30	0.08	-0.10	0.08	0.27	0.24	-0.22	0.18	0.17	0.06	-0.01	0.31	-0.15	1.00	*0.01*	0.76	0.24	0.79	0.98	*0.00*	*0.01*
BiomassGroundfish_s	**0.77**	-0.29	0.17	-0.05	-0.10	-0.02	-0.09	-0.08	-0.06	0.25	0.45	0.29	0.16	-0.02	0.17	0.25	0.27	-0.18	0.20	0.20	0.06	-0.04	0.31	0.02	**0.98**	1.00	0.30	0.96	0.07	*0.01*	0.30	0.41
BTGMediumBenthivore_s	0.13	-0.02	0.12	-0.07	-0.09	0.16	-0.15	-0.14	-0.13	0.12	0.22	0.37	0.00	-0.02	0.18	0.09	0.22	-0.03	0.38	0.30	-0.44	-0.11	0.36	0.08	**0.71**	**0.72**	1.00	*0.00*	0.50	0.93	0.88	0.07
BTGPiscivore_s	0.45	-0.20	-0.07	0.18	-0.14	-0.15	0.31	0.17	0.19	0.13	0.06	0.48	**0.80**	-0.36	0.09	0.22	0.55	0.12	0.24	0.47	0.02	0.26	0.26	0.01	0.37	0.43	0.13	1.00	*0.00*	0.68	0.61	0.47
BiomassSkates_s	0.09	0.17	-0.05	-0.18	0.01	-0.05	-0.22	-0.27	-0.28	-0.03	0.31	0.14	0.50	0.10	0.02	0.02	0.34	0.19	-0.01	0.26	-0.04	-0.26	0.03	0.10	0.04	0.18	-0.01	0.45	1.00	0.69	0.94	0.89
BTGZoopiscivore_s	**0.73**	-0.44	0.17	-0.10	-0.07	-0.09	-0.10	-0.03	-0.05	0.24	0.36	-0.18	-0.26	0.12	0.06	0.16	-0.16	-0.04	-0.20	-0.29	0.45	-0.02	-0.12	-0.06	0.52	0.50	0.03	-0.04	-0.13	1.00	0.51	0.33
ShannonDiversity_s	0.08	-0.31	0.09	0.45	0.21	-0.20	**0.79**	**0.97**	**0.92**	-0.05	-0.06	0.26	0.32	0.04	0.25	-0.12	0.23	-0.27	0.29	0.23	0.05	**0.94**	0.30	0.10	-0.03	-0.04	-0.11	0.16	-0.27	0.02	1.00	0.84
SpeciesRichness_s	-0.04	0.42	-0.11	-0.24	0.45	0.29	-0.46	0.00	-0.07	-0.37	0.60	-0.53	-0.38	**0.99**	0.58	-0.18	-0.50	-0.10	-0.26	-0.53	0.22	-0.32	-0.42	0.45	-0.09	-0.01	-0.02	-0.36	0.11	0.15	-0.03	1.00

Table S 52. Spearman rank correlation coefficients (r) for indicators in strata 466. The upper triangle of the matrix represents p-values (p ≤ 0.05 highlighted in blue italics). The lower triangle of the matrix represents the r values (r ≥ 0.7 highlighted in red).

Indicator	BiomassTL4_s	CommunityCondition_s	CCMediumBenthivore_s	CCPiscivore_s	CCZoopiscivore_s	Heips_s	HillN1Diversity_s	HillN2Dominance_s	InverseCVBiomass_s	KemptonQ_s	LargeFishIndicator_s	LargeSpeciesIndicator_s	MargalefRichness_s	MargalefGroundfish_s	MeanLengthAbundance_s	MeanLengthBiomass_s	MeanLifespan_s	MMLengthAbundance_s	MMLengthBiomass_s	MeanTrophicLevel_s	PielouEvenness_s	PropPredatoryFish_s	BiomassFlatfish_s	BiomassGadoids_s	BiomassGroundfish_s	BTGMediumBenthivore_s	BTGPiscivore_s	BTGZoopiscivore_s	ShannonDiversity_s	SpeciesRichness_s
BiomassTL4_s	1.00	0.71	0.06	0.12	0.44	*0.00*	0.88	*0.00*	0.09	0.98	0.80	0.64	*0.00*	0.13	0.20	0.93	0.18	*0.00*	*0.02*	0.16	0.91	0.78	0.79	0.66	*0.00*	0.07	0.96	0.89	0.12	0.51
CommunityCondition_s	-0.06	1.00	0.06	0.06	*0.03*	0.16	0.10	*0.00*	*0.02*	0.18	0.59	0.11	*0.01*	*0.00*	*0.01*	*0.04*	*0.00*	0.15	0.20	*0.00*	0.90	0.38	0.60	0.06	0.11	*0.04*	0.43	0.88	0.96	*0.00*
CCMediumBenthivore_s	0.28	0.34	1.00	0.70	0.49	*0.04*	0.09	*0.00*	0.70	0.68	0.28	0.46	0.76	0.11	0.86	0.13	0.64	0.17	0.26	0.69	0.78	0.32	0.44	0.32	*0.00*	0.51	*0.01*	0.68	0.26	*0.00*
CCPiscivore_s	0.28	0.06	-0.11	1.00	0.08	*0.01*	*0.03*	*0.01*	*0.00*	0.12	*0.01*	0.86	0.44	0.47	0.06	0.13	0.65	0.25	*0.02*	0.62	0.44	0.43	0.38	0.23	0.29	0.88	0.19	*0.00*	*0.00*	0.85
CCZoopiscivore_s	-0.23	**0.82**	0.03	-0.07	1.00	*0.02*	0.23	*0.00*	0.07	0.12	0.51	0.21	0.56	0.27	0.66	*0.01*	0.91	0.84	*0.00*	0.45	*0.00*	0.56	0.80	0.16	0.39	0.21	0.06	0.85	0.93	*0.00*
Heips_s	-0.28	-0.27	-0.19	-0.04	-0.09	1.00	0.87	*0.00*	0.35	0.16	0.70	0.33	1.00	*0.00*	0.55	0.54	0.93	0.24	0.08	0.43	0.46	0.21	0.90	0.17	0.22	0.19	0.48	0.52	0.13	0.38
HillN1Diversity_s	-0.06	-0.14	0.15	-0.28	0.01	**0.70**	1.00	0.75	0.21	0.16	0.63	0.71	0.71	0.65	*0.02*	0.97	0.07	0.91	*0.00*	0.58	0.29	0.56	0.86	0.24	*0.00*	0.08	*0.00*	*0.00*	0.13	0.49
HillN2Dominance_s	-0.12	-0.19	0.06	-0.24	-0.04	**0.78**	**0.95**	1.00	0.85	*0.00*	*0.04*	0.58	0.91	0.78	0.40	0.77	0.21	0.07	0.76	0.86	0.27	0.32	0.64	*0.01*	0.13	0.97	*0.00*	0.09	0.64	0.25
InverseCVBiomass_s	0.31	-0.03	0.08	-0.12	-0.05	-0.22	0.05	-0.03	1.00	0.42	0.93	0.40	0.85	0.06	0.28	0.74	0.11	*0.05*	0.18	0.22	0.26	*0.03*	0.63	0.92	0.43	0.06	*0.05*	*0.03*	0.76	*0.00*
KemptonQ_s	0.11	0.00	0.13	-0.06	0.15	-0.21	0.20	0.10	0.03	1.00	0.06	0.06	0.21	0.11	0.45	0.32	0.11	0.28	0.05	*0.00*	0.83	*0.02*	0.72	*0.03*	0.60	0.06	*0.00*	0.51	0.32	*0.00*
LargeFishIndicator_s	0.26	0.20	0.28	0.10	0.18	0.17	0.29	0.18	-0.08	0.12	1.00	0.06	0.54	0.42	0.23	0.23	0.19	0.07	0.49	*0.00*	0.43	0.46	0.84	0.37	0.14	*0.03*	0.39	0.92	0.15	*0.00*
LargeSpeciesIndicator_s	0.50	0.06	0.28	0.19	0.01	-0.03	0.10	-0.05	0.09	0.10	0.53	1.00	0.07	0.70	0.89	0.95	0.50	0.18	*0.00*	0.84	0.28	0.62	0.54	0.20	0.74	0.42	0.20	0.14	0.24	*0.00*
MargalefRichness_s	0.21	0.24	0.47	-0.40	0.18	-0.18	0.51	0.36	0.33	0.52	0.17	0.19	1.00	0.49	*0.05*	0.22	0.35	0.54	*0.01*	0.51	*0.00*	0.16	0.21	0.97	0.12	0.06	0.08	0.13	0.52	0.46
MargalefGroundfish_s	0.31	0.23	0.38	-0.03	0.16	-0.02	0.41	0.35	-0.05	0.50	0.25	0.01	0.60	1.00	0.05	0.28	0.67	*0.00*	0.46	0.23	*0.04*	0.80	*0.00*	0.93	0.55	*0.00*	0.06	0.40	0.20	0.14
MeanLengthAbundance_s	0.40	-0.21	0.05	0.28	-0.26	0.27	0.11	0.11	0.08	-0.13	0.17	-0.01	-0.23	0.13	1.00	0.09	0.29	0.97	*0.02*	0.75	0.86	*0.01*	*0.00*	*0.00*	0.58	*0.00*	0.87	0.09	0.09	*0.00*
MeanLengthBiomass_s	0.34	0.21	0.12	0.07	0.20	0.29	0.34	0.23	-0.04	0.07	**0.78**	0.50	0.12	0.27	0.44	1.00	*0.00*	0.15	0.77	*0.01*	0.58	0.43	0.25	*0.04*	0.40	*0.00*	*0.02*	0.71	0.10	*0.00*
MeanLifespan_s	-0.02	0.48	0.09	0.09	0.43	-0.16	-0.04	-0.02	-0.13	0.04	0.17	-0.31	0.08	0.31	0.01	0.11	1.00	*0.02*	0.66	*0.02*	0.57	0.51	0.09	0.08	0.25	0.96	0.74	0.18	0.75	*0.00*
MMLengthAbundance_s	0.24	-0.12	0.00	0.34	-0.07	0.27	0.07	0.02	-0.15	-0.08	0.29	0.26	-0.22	0.10	0.63	0.41	-0.23	1.00	0.21	0.46	*0.02*	*0.00*	0.27	*0.00*	0.29	*0.00*	*0.00*	*0.05*	0.66	0.46
MMLengthBiomass_s	0.25	-0.04	0.06	0.13	0.07	0.20	0.19	0.04	-0.12	0.12	0.57	**0.80**	0.05	0.02	0.05	0.59	-0.40	0.51	1.00	0.12	0.72	*0.00*	*0.00*	*0.05*	*0.02*	0.75	0.74	*0.01*	0.06	0.17
MeanTrophicLevel_s	0.31	-0.08	-0.02	-0.16	-0.02	0.09	0.21	0.12	0.09	0.13	0.07	0.29	0.24	0.19	0.15	0.29	-0.39	0.26	0.38	1.00	0.59	0.40	0.25	0.66	0.65	0.31	0.13	0.08	*0.00*	*0.01*
PielouEvenness_s	-0.18	-0.16	-0.03	-0.11	0.01	**0.92**	**0.84**	**0.84**	-0.19	-0.04	0.28	0.07	0.09	0.20	0.31	0.43	-0.04	0.33	0.26	0.17	1.00	0.67	0.05	0.13	0.44	*0.04*	*0.01*	*0.01*	0.93	0.37
PropPredatoryFish_s	-0.02	-0.37	-0.19	-0.18	-0.27	0.01	-0.06	-0.11	0.09	-0.02	-0.15	0.22	-0.08	-0.26	-0.22	-0.13	-0.84	0.10	0.38	0.50	-0.10	1.00	*0.00*	*0.00*	*0.00*	0.15	*0.01*	*0.01*	*0.02*	0.45
BiomassFlatfish_s	0.42	-0.10	-0.09	0.02	-0.19	-0.21	-0.08	-0.16	0.15	-0.03	0.18	0.50	0.13	0.00	-0.12	0.19	-0.27	-0.02	0.38	0.01	-0.19	0.34	1.00	*0.00*	*0.00*	0.44	0.77	0.26	0.96	*0.01*
BiomassGadoids_s	**0.97**	-0.06	0.27	0.29	-0.24	-0.35	-0.11	-0.16	0.33	0.07	0.21	0.42	0.17	0.28	0.39	0.26	0.00	0.22	0.17	0.23	-0.25	-0.01	0.42	1.00	0.41	*0.01*	*0.00*	0.18	0.88	0.81
BiomassGroundfish_s	**0.97**	-0.07	0.23	0.28	-0.24	-0.34	-0.12	-0.17	0.33	0.07	0.20	0.43	0.16	0.28	0.38	0.28	-0.02	0.23	0.20	0.22	-0.25	0.02	0.47	**0.99**	1.00	*0.01*	0.07	0.47	0.44	0.95
BTGMediumBenthivore_s	0.38	0.30	0.55	-0.01	0.20	-0.19	0.08	0.03	0.11	0.06	0.18	0.24	0.34	0.32	-0.01	0.02	0.02	0.13	0.11	-0.07	-0.05	-0.12	0.03	0.42	0.41	1.00	0.99	*0.00*	0.73	0.51
BTGPiscivore_s	0.69	-0.01	0.24	0.31	-0.10	-0.17	-0.03	-0.12	0.08	0.03	0.38	**0.76**	0.07	0.12	0.12	0.33	-0.06	0.25	0.50	0.05	-0.07	0.05	0.60	0.70	**0.72**	0.37	1.00	0.07	*0.00*	0.24
BTGZoopiscivore_s	0.50	0.28	0.11	0.23	0.14	-0.33	-0.18	-0.16	0.21	0.09	-0.02	-0.16	0.12	0.28	0.36	0.05	0.46	0.06	-0.27	0.15	-0.27	-0.42	-0.13	0.49	0.46	0.13	0.04	1.00	0.36	0.30
ShannonDiversity_s	-0.05	-0.07	0.17	-0.23	0.06	**0.72**	**0.96**	**0.90**	-0.04	0.19	0.32	0.13	0.47	0.44	0.20	0.43	0.03	0.20	0.23	0.22	**0.91**	-0.14	-0.10	-0.11	-0.11	0.11	0.01	-0.18	1.00	*0.01*
SpeciesRichness_s	0.25	0.24	0.47	-0.39	0.16	-0.26	0.43	0.30	0.36	0.50	0.13	0.18	**0.99**	0.56	-0.28	0.05	0.10	-0.29	-0.01	0.18	-0.01	-0.10	0.17	0.22	0.21	0.37	0.10	0.16	0.37	1.00

Table S 53. Spearman rank correlation coefficients (r) for indicators in strata 470. The upper triangle of the matrix represents p-values (p ≤ 0.05 highlighted in blue italics). The lower triangle of the matrix represents the r values (r ≥ 0.7 highlighted in red).

Indicator	BiomassTL3_s	BiomassTL4_s	BPelagicToDemersal_s	CommunityCondition_s	CCMediumBenthivore_s	CCPiscivore_s	CCZoopiscivore_s	Heips_s	HillN1Diversity_s	HillN2Dominance_s	InverseCVBiomass_s	KemptonQ_s	LargeFishIndicator_s	LargeSpeciesIndicator_s	MargalefRichness_s	MargalefGroundfish_s	MeanLengthAbundance_s	MeanLengthBiomass_s	MeanLifespan_s	MMLengthAbundance_s	MMLengthBiomass_s	MeanTrophicLevel_s	PielouEvenness_s	PropPredatoryFish_s	Biomass_s	BiomassClupeids_s	BiomassFinfish_s	BiomassFlatfish_s	BiomassForage_s	BiomassGadoids_s	BiomassGroundfish_s	BTGMediumBenthivore_s	BTGPiscivore_s	BTGPlanktivore_s	BiomassSkates_s	BTGZoopiscivore_s	ShannonDiversity_s	SpeciesRichness_s
BiomassTL3_s	1.00	0.80	*0.00*	0.75	*0.00*	0.06	0.13	*0.00*	0.64	0.18	0.44	*0.00*	0.25	*0.00*	*0.04*	*0.01*	0.86	0.82	0.07	0.97	0.20	*0.04*	0.08	*0.00*	0.07	0.12	*0.05*	0.97	*0.00*	*0.00*	0.60	*0.01*	*0.00*	0.33	*0.00*	*0.02*	0.96	0.06
BiomassTL4_s	-0.04	1.00	*0.02*	0.97	*0.00*	*0.01*	*0.05*	*0.00*	0.82	0.16	0.24	*0.00*	*0.00*	*0.01*	*0.00*	*0.00*	*0.02*	0.21	0.42	0.65	0.37	0.66	0.66	*0.00*	0.40	*0.00*	0.19	0.81	0.09	0.10	*0.02*	0.09	*0.00*	*0.00*	*0.00*	*0.00*	0.52	*0.00*
BPelagicToDemersal_s	**0.87**	-0.21	1.00	*0.00*	*0.00*	*0.02*	0.75	*0.00*	0.97	0.86	*0.01*	0.82	0.73	0.53	*0.00*	0.09	*0.00*	0.83	0.83	0.78	0.97	0.11	*0.03*	*0.00*	*0.00*	0.06	0.42	0.94	0.38	*0.00*	*0.01*	0.80	*0.00*	0.19	0.83	0.17	*0.00*	0.39
CommunityCondition_s	0.34	0.03	0.22	1.00	0.33	*0.03*	*0.00*	*0.00*	0.61	0.52	*0.00*	*0.00*	0.88	0.12	*0.00*	0.21	0.99	*0.00*	0.76	0.15	0.94	0.05	0.78	*0.00*	*0.00*	*0.05*	0.96	*0.01*	*0.02*	*0.00*	*0.02*	0.83	0.09	*0.00*	*0.05*	*0.00*	0.44	*0.00*
CCMediumBenthivore_s	0.05	0.10	0.02	0.19	1.00	0.78	*0.00*	*0.00*	*0.00*	0.64	0.17	0.77	0.76	0.12	*0.00*	0.87	0.19	0.24	0.48	0.63	0.77	0.51	*0.00*	1.00	0.24	0.06	0.26	0.10	*0.00*	*0.00*	0.98	0.98	0.20	*0.00*	*0.00*	*0.00*	*0.02*	0.94
CCPiscivore_s	0.01	0.07	-0.06	0.03	0.14	1.00	*0.02*	0.42	0.37	0.53	*0.04*	0.75	0.56	*0.03*	*0.00*	*0.00*	0.06	0.20	0.69	0.19	0.94	*0.02*	0.12	*0.00*	*0.00*	0.40	*0.03*	0.11	*0.01*	*0.00*	*0.01*	*0.05*	0.09	*0.00*	0.21	*0.00*	*0.00*	0.77
CCZoopiscivore_s	0.45	-0.09	0.38	**0.89**	0.22	0.07	1.00	*0.00*	*0.00*	0.93	*0.00*	0.77	0.20	*0.02*	0.45	*0.04*	0.12	0.34	0.55	0.28	0.67	0.63	0.29	0.38	*0.00*	*0.00*	0.25	0.91	*0.00*	*0.00*	0.63	*0.00*	0.68	*0.00*	*0.03*	0.84	0.07	0.09
Heips_s	-0.49	-0.01	-0.37	-0.30	0.13	0.20	-0.30	1.00	*0.00*	0.38	*0.00*	0.08	0.14	0.68	*0.00*	0.17	*0.02*	0.13	0.66	0.23	0.78	*0.02*	*0.00*	0.87	*0.00*	*0.00*	0.42	0.96	*0.00*	*0.04*	0.18	*0.00*	0.21	*0.00*	*0.00*	*0.00*	0.51	0.29
HillN1Diversity_s	-0.54	-0.13	-0.43	-0.20	0.04	0.16	-0.23	**0.86**	1.00	0.45	0.71	0.74	0.89	0.20	0.19	0.23	*0.02*	0.41	0.71	0.99	*0.04*	*0.01*	*0.00*	0.57	*0.00*	0.26	0.20	0.83	*0.00*	*0.04*	0.79	*0.01*	0.31	*0.01*	0.07	0.26	*0.00*	0.81
HillN2Dominance_s	-0.48	-0.11	-0.39	-0.18	0.01	0.18	-0.19	**0.88**	**0.98**	1.00	*0.00*	*0.00*	0.68	0.15	0.15	0.16	0.23	0.78	0.93	0.81	0.67	0.70	0.77	0.75	*0.00*	*0.00*	0.41	0.70	*0.00*	*0.04*	0.22	0.93	*0.00*	*0.00*	0.07	*0.00*	0.41	0.74
InverseCVBiomass_s	-0.15	-0.12	-0.10	-0.21	-0.02	0.00	-0.30	-0.05	0.02	-0.04	1.00	*0.00*	*0.01*	0.19	0.84	0.62	*0.02*	0.93	0.71	0.98	0.94	0.06	0.39	*0.00*	0.86	*0.00*	0.50	0.74	*0.00*	0.36	*0.01*	0.24	0.92	*0.01*	0.07	0.85	0.76	*0.00*
KemptonQ_s	-0.28	-0.18	-0.23	-0.07	-0.04	-0.04	-0.07	0.13	0.31	0.28	0.29	1.00	*0.01*	*0.01*	0.16	0.07	0.77	0.88	0.94	0.59	0.79	*0.01*	*0.00*	0.63	*0.00*	*0.00*	0.96	0.17	*0.02*	*0.04*	0.53	0.10	*0.00*	0.46	0.24	*0.00*	0.96	0.73
LargeFishIndicator_s	-0.38	0.40	-0.23	-0.27	0.13	0.00	-0.24	0.62	0.37	0.36	-0.20	0.04	1.00	*0.01*	*0.00*	0.19	0.21	0.78	0.91	0.75	0.78	0.06	*0.00*	*0.02*	0.18	*0.00*	0.70	0.51	*0.04*	*0.04*	0.89	0.05	0.21	*0.00*	0.06	*0.00*	0.99	0.78
LargeSpeciesIndicator_s	-0.36	0.66	-0.32	-0.19	0.12	-0.08	-0.29	0.47	0.27	0.23	-0.12	-0.01	**0.83**	1.00	0.45	0.35	0.10	0.39	0.26	1.00	0.68	*0.01*	0.62	*0.00*	0.36	*0.00*	0.30	*0.05*	*0.02*	*0.00*	*0.00*	0.38	0.44	0.08	0.28	0.96	*0.00*	0.79
MargalefRichness_s	-0.32	-0.20	-0.34	0.14	-0.20	0.05	0.10	0.08	0.52	0.46	0.01	0.39	-0.25	-0.19	1.00	0.20	0.80	0.45	0.24	0.50	0.40	*0.00*	0.53	0.70	0.70	0.96	0.58	0.09	0.42	0.47	*0.00*	0.07	*0.01*	*0.00*	*0.00*	*0.00*	0.38	0.53
MargalefGroundfish_s	0.04	-0.31	0.06	0.19	0.17	0.00	0.35	0.10	0.32	0.28	0.17	0.24	-0.13	-0.19	0.42	1.00	0.76	0.19	*0.01*	0.97	0.43	*0.03*	0.54	*0.00*	0.58	*0.00*	0.30	*0.05*	*0.05*	*0.00*	0.22	0.06	0.08	0.36	0.08	*0.00*	*0.00*	0.21
MeanLengthAbundance_s	0.23	0.47	0.19	-0.03	0.27	0.10	0.07	-0.09	-0.36	-0.29	-0.32	-0.24	0.36	0.27	-0.60	-0.19	1.00	0.26	0.30	0.99	0.85	*0.00*	*0.00*	0.91	*0.00*	0.20	0.32	0.67	0.65	*0.04*	0.18	0.08	*0.00*	*0.00*	*0.00*	0.19	*0.00*	0.44
MeanLengthBiomass_s	-0.29	0.49	-0.21	-0.34	0.12	-0.01	-0.33	0.58	0.27	0.28	-0.17	-0.02	**0.91**	**0.89**	-0.41	-0.20	0.46	1.00	0.91	0.14	*0.04*	0.43	0.54	*0.04*	0.55	0.42	0.54	0.08	*0.01*	1.00	0.21	0.42	0.55	*0.00*	0.06	*0.00*	0.15	0.94
MeanLifespan_s	-0.05	-0.06	-0.20	0.47	-0.03	0.00	0.41	-0.09	0.13	0.13	-0.12	-0.01	-0.39	-0.25	0.45	0.19	-0.36	-0.47	1.00	0.90	0.13	*0.03*	*0.00*	*0.01*	*0.02*	0.62	0.46	0.45	0.63	0.05	0.96	*0.05*	0.27	0.52	0.50	*0.00*	0.38	0.36
MMLengthAbundance_s	-0.44	0.43	-0.40	0.00	0.05	0.22	-0.06	0.68	0.56	0.55	-0.19	0.03	**0.70**	**0.76**	0.14	-0.01	0.01	0.64	0.09	1.00	0.21	0.23	*0.00*	0.07	*0.00*	0.62	0.44	0.36	*0.00*	*0.03*	0.44	0.06	0.26	0.34	0.08	0.52	0.19	0.87
MMLengthBiomass_s	-0.44	0.54	-0.40	-0.20	0.11	-0.02	-0.28	0.65	0.46	0.43	-0.12	0.06	**0.85**	**0.96**	-0.09	-0.12	0.18	**0.88**	-0.17	**0.86**	1.00	0.79	*0.02*	*0.00*	*0.01*	*0.00*	0.93	0.34	*0.05*	0.07	0.07	*0.00*	0.53	*0.00*	0.11	*0.00*	0.26	0.68
MeanTrophicLevel_s	-0.33	**0.70**	-0.30	-0.28	-0.06	-0.19	-0.40	0.34	0.18	0.17	-0.10	-0.05	0.66	**0.89**	-0.19	-0.27	0.25	**0.75**	-0.17	0.62	**0.81**	1.00	*0.00*	*0.03*	0.80	0.44	0.47	0.39	0.35	*0.00*	0.18	0.15	*0.03*	0.80	0.09	0.40	*0.00*	0.75
PielouEvenness_s	-0.63	-0.03	-0.50	-0.23	0.09	0.13	-0.28	**0.92**	**0.94**	**0.92**	0.01	0.21	0.51	0.43	0.34	0.20	-0.29	0.42	0.10	0.68	0.61	0.33	1.00	*0.01*	0.06	0.05	0.53	0.08	*0.00*	*0.00*	0.50	*0.00*	0.73	*0.00*	*0.00*	0.76	0.15	0.50
PropPredatoryFish_s	-0.49	0.42	-0.41	-0.35	0.07	0.01	-0.40	**0.73**	0.54	0.52	-0.06	0.10	**0.82**	**0.89**	-0.08	-0.10	0.13	**0.87**	-0.32	**0.80**	**0.95**	**0.79**	0.67	1.00	*0.01*	*0.00*	0.72	*0.01*	*0.01*	*0.01*	0.91	*0.05*	0.09	*0.00*	*0.00*	0.96	0.38	0.83
Biomass_s	**1.00**	0.05	**0.85**	0.34	0.06	0.01	0.44	-0.49	-0.55	-0.49	-0.16	-0.29	-0.35	-0.30	-0.33	0.02	0.27	-0.25	-0.05	-0.40	-0.40	-0.27	-0.63	-0.45	1.00	*0.02*	0.16	0.18	*0.02*	*0.00*	0.80	0.67	0.74	*0.00*	*0.00*	0.98	0.85	0.82
BiomassClupeids_s	**0.95**	-0.05	**0.87**	0.18	0.01	-0.05	0.32	-0.46	-0.52	-0.47	-0.08	-0.26	-0.31	-0.31	-0.37	0.04	0.28	-0.19	-0.26	-0.47	-0.42	-0.27	-0.62	-0.42	**0.94**	1.00	0.84	0.06	0.21	0.35	0.91	0.73	0.66	*0.01*	*0.00*	*0.00*	0.97	0.82
BiomassFinfish_s	**1.00**	0.04	**0.85**	0.34	0.06	0.01	0.44	-0.49	-0.55	-0.49	-0.16	-0.29	-0.35	-0.30	-0.33	0.02	0.26	-0.25	-0.05	-0.40	-0.40	-0.27	-0.63	-0.46	**1.00**	**0.94**	1.00	*0.01*	0.20	0.57	*0.00*	*0.01*	0.08	*0.00*	0.88	0.38	0.97	0.22
BiomassFlatfish_s	0.12	-0.26	0.11	-0.04	0.01	-0.06	0.12	0.00	0.03	-0.01	0.15	-0.06	-0.12	-0.14	0.00	0.49	-0.12	-0.06	0.07	-0.11	-0.08	-0.18	-0.02	-0.03	0.10	0.14	0.10	1.00	0.07	0.21	0.80	*0.00*	0.84	*0.01*	*0.00*	*0.00*	0.91	0.40
BiomassForage_s	**0.95**	-0.05	**0.88**	0.19	0.02	-0.04	0.33	-0.45	-0.52	-0.47	-0.09	-0.26	-0.29	-0.31	-0.38	0.04	0.29	-0.19	-0.26	-0.47	-0.42	-0.28	-0.62	-0.42	**0.94**	**1.00**	**0.94**	0.13	1.00	*0.02*	0.23	*0.00*	0.70	0.58	0.36	*0.00*	0.95	*0.02*
BiomassGadoids_s	0.07	0.66	-0.20	0.24	0.17	0.30	0.18	-0.13	-0.20	-0.19	-0.11	-0.11	0.07	0.30	-0.07	-0.18	0.28	0.15	-0.03	0.26	0.25	0.16	-0.14	0.17	0.13	-0.01	0.13	-0.20	-0.01	1.00	0.13	*0.00*	0.91	*0.00*	0.78	0.14	0.74	*0.00*
BiomassGroundfish_s	-0.03	**0.97**	-0.22	0.04	0.18	0.07	-0.04	-0.02	-0.14	-0.12	-0.12	-0.14	0.39	0.65	-0.20	-0.23	0.52	0.50	-0.06	0.41	0.54	0.65	-0.04	0.43	0.05	-0.05	0.05	-0.17	-0.05	**0.70**	1.00	*0.00*	0.86	0.10	0.59	*0.00*	0.94	0.06
BTGMediumBenthivore_s	0.01	-0.17	-0.03	0.05	0.37	-0.01	0.26	-0.09	-0.06	-0.08	0.01	0.14	-0.07	-0.11	0.04	0.36	0.22	-0.02	0.02	-0.14	-0.05	-0.26	-0.08	-0.03	-0.01	-0.01	-0.01	0.44	-0.01	0.13	0.05	1.00	0.08	*0.00*	0.87	0.36	0.51	0.67
BTGPiscivore_s	-0.08	**0.96**	-0.21	0.04	0.16	0.04	-0.07	0.05	-0.08	-0.08	-0.11	-0.13	0.48	**0.72**	-0.19	-0.26	0.46	0.54	-0.03	0.51	0.62	**0.70**	0.03	0.47	0.00	-0.10	0.00	-0.22	-0.10	0.60	**0.95**	-0.1	1.00	0.73	*0.00*	*0.00*	*0.00*	0.81
BTGPlanktivore_s	**0.95**	-0.05	**0.88**	0.19	0.02	-0.04	0.33	-0.45	-0.52	-0.47	-0.09	-0.26	-0.29	-0.31	-0.38	0.04	0.29	-0.19	-0.26	-0.47	-0.42	-0.28	-0.61	-0.42	**0.94**	**1.00**	**0.94**	0.13	**1.00**	-0.01	-0.05	-0.01	-0.10	1.00	0.78	0.97	0.41	0.58
BiomassSkates_s	0.13	-0.02	0.12	0.03	0.00	-0.06	0.04	0.07	0.09	0.12	0.05	0.37	0.14	0.00	-0.10	-0.03	0.06	0.12	-0.15	-0.10	0.03	-0.10	0.04	0.01	0.13	0.12	0.13	-0.03	0.13	0.04	0.04	0.14	-0.03	0.13	1.00	0.76	*0.02*	*0.03*
BTGZoopiscivore_s	0.63	0.05	0.39	0.54	0.07	0.13	0.51	-0.35	-0.34	-0.29	-0.21	-0.20	-0.42	-0.29	-0.02	0.00	-0.05	-0.40	0.51	-0.14	-0.29	-0.26	-0.35	-0.42	0.63	0.35	0.63	-0.01	0.35	0.25	0.04	-0.03	0.03	0.35	0.06	1.00	*0.00*	0.62
ShannonDiversity_s	-0.62	-0.09	-0.51	-0.18	0.04	0.12	-0.23	**0.83**	**0.97**	**0.94**	0.03	0.28	0.37	0.32	0.54	0.30	-0.40	0.26	0.20	0.61	0.50	0.24	**0.97**	0.56	-0.63	-0.62	-0.63	-0.01	-0.62	-0.16	-0.09	-0.06	-0.03	-0.62	0.04	-0.33	1.00	*0.00*
SpeciesRichness_s	-0.20	-0.19	-0.25	0.19	-0.21	0.03	0.16	-0.06	0.40	0.35	0.01	0.36	-0.36	-0.27	**0.99**	0.42	-0.59	-0.50	0.47	0.04	-0.19	-0.25	0.21	-0.20	-0.22	-0.27	-0.22	0.02	-0.28	-0.04	-0.19	0.05	-0.19	-0.28	-0.08	0.08	0.42	1.00

Table S 54. Spearman rank correlation coefficients (r) for indicators in strata 471. The upper triangle of the matrix represents p-values (p ≤ 0.05 highlighted in blue italics). The lower triangle of the matrix represents the r values (r ≥ 0.7 highlighted in red).

Indicator	BiomassTL4_s	CommunityCondition_s	CCMediumBenthivore_s	CCPiscivore_s	CCPlanktivore_s	CCZoopiscivore_s	Heips_s	HillN1Diversity_s	HillN2Dominance_s	InverseCVBiomass_s	KemptonQ_s	LargeFishIndicator_s	LargeSpeciesIndicator_s	MargalefRichness_s	MargalefGroundfish_s	MeanLengthAbundance_s	MeanLengthBiomass_s	MeanLifespan_s	MMLengthAbundance_s	MMLengthBiomass_s	MeanTrophicLevel_s	PielouEvenness_s	PropPredatoryFish_s	BiomassFlatfish_s	BiomassGadoids_s	BiomassGroundfish_s	BTGMediumBenthivore_s	BTGPiscivore_s	BTGZoopiscivore_s	ShannonDiversity_s	SpeciesRichness_s
BiomassTL4_s	1.00	0.06	0.30	0.54	0.76	*0.02*	0.13	0.41	0.96	0.44	*0.00*	0.32	*0.01*	0.87	0.61	0.14	0.67	0.25	0.70	0.18	*0.00*	*0.00*	0.95	*0.01*	0.57	*0.00*	0.43	*0.01*	*0.00*	*0.00*	*0.00*
CommunityCondition_s	-0.28	1.00	0.84	*0.04*	0.86	*0.02*	0.94	0.15	0.66	0.77	*0.05*	*0.01*	0.21	0.21	0.83	0.74	0.59	0.44	0.25	0.78	0.95	0.08	*0.00*	0.97	0.99	0.05	0.32	0.07	0.64	0.38	0.52
CCMediumBenthivore_s	0.16	0.18	1.00	0.79	0.44	0.86	0.25	*0.00*	0.22	0.10	0.15	0.19	0.30	0.29	0.56	0.99	0.40	0.89	0.75	0.19	*0.01*	*0.00*	0.81	0.63	0.06	*0.00*	*0.02*	0.70	0.63	*0.00*	0.11
CCPiscivore_s	-0.03	-0.11	-0.17	1.00	0.52	0.29	0.07	*0.00*	0.45	*0.02*	*0.03*	0.20	*0.04*	0.22	0.06	0.72	0.52	0.43	*0.02*	*0.00*	*0.00*	0.23	0.62	0.35	*0.00*	*0.01*	*0.00*	0.64	0.84	0.93	0.22
CCPlanktivore_s	-0.09	0.02	0.11	0.06	1.00	0.47	0.64	0.15	0.89	0.54	0.25	0.26	*0.02*	*0.04*	0.31	0.91	0.12	0.98	0.82	0.90	*0.01*	*0.03*	0.42	*0.01*	0.41	0.76	0.22	0.92	0.41	0.13	*0.02*
CCZoopiscivore_s	-0.30	**0.87**	0.13	-0.01	-0.03	1.00	0.96	*0.00*	*0.00*	0.14	*0.00*	0.45	0.07	0.17	0.19	0.94	0.40	0.96	*0.03*	*0.00*	*0.03*	*0.01*	0.30	*0.02*	*0.00*	0.23	0.32	*0.01*	0.23	*0.00*	*0.02*
Heips_s	-0.04	-0.08	0.06	0.23	-0.16	0.00	1.00	*0.01*	0.59	1.00	0.93	0.38	0.20	0.52	0.14	0.51	0.65	0.85	*0.05*	*0.00*	0.39	0.45	0.87	*0.03*	*0.00*	*0.03*	0.08	0.19	*0.00*	0.14	0.74
HillN1Diversity_s	-0.05	-0.15	-0.15	0.09	0.02	-0.01	**0.77**	1.00	0.33	0.07	0.06	0.70	0.33	0.24	0.63	0.44	0.88	0.59	0.18	0.23	*0.01*	0.43	0.58	0.15	0.46	0.65	*0.04*	0.29	0.29	0.88	0.54
HillN2Dominance_s	0.03	-0.12	-0.06	0.08	-0.13	-0.03	**0.85**	**0.92**	1.00	0.62	0.06	0.31	0.73	*0.04*	0.20	0.13	0.90	0.08	0.51	*0.00*	0.32	0.92	0.75	0.25	*0.00*	*0.00*	0.16	*0.00*	0.30	0.74	0.29
InverseCVBiomass_s	-0.12	0.04	0.11	0.03	-0.06	0.08	0.49	0.46	0.52	1.00	0.12	0.68	0.36	0.68	*0.01*	0.82	0.47	0.21	*0.01*	*0.01*	*0.00*	*0.02*	0.44	0.95	*0.04*	0.23	0.66	0.71	*0.00*	0.22	*0.00*
KemptonQ_s	0.10	-0.25	-0.39	0.09	0.50	-0.26	-0.22	-0.01	-0.18	-0.08	1.00	0.48	0.33	0.93	0.79	0.27	0.64	0.89	0.75	0.30	*0.00*	0.30	0.38	0.64	0.12	*0.00*	0.24	*0.00*	0.06	0.71	*0.00*
LargeFishIndicator_s	0.35	-0.34	0.19	0.28	-0.06	-0.19	0.46	0.36	0.33	0.12	-0.07	1.00	0.62	0.12	0.41	0.89	0.37	0.69	0.71	0.65	0.16	*0.00*	0.30	0.44	0.05	0.59	0.81	*0.00*	*0.00*	0.88	*0.00*
LargeSpeciesIndicator_s	0.34	-0.09	0.16	0.15	-0.08	-0.02	0.54	0.44	0.37	0.16	-0.14	0.63	1.00	0.55	*0.02*	0.40	0.40	0.45	*0.00*	0.72	*0.00*	*0.00*	0.13	0.58	*0.02*	*0.00*	0.49	0.45	*0.00*	0.13	*0.00*
MargalefRichness_s	0.03	-0.22	-0.31	-0.20	0.13	-0.06	-0.20	0.36	0.11	0.03	0.39	-0.08	-0.02	1.00	0.19	0.68	0.91	0.16	*0.00*	0.88	*0.01*	0.50	0.71	0.55	0.17	*0.00*	0.11	*0.00*	0.73	0.44	0.90
MargalefGroundfish_s	-0.16	0.00	-0.34	-0.22	0.10	0.11	-0.04	0.32	0.12	-0.08	0.35	0.00	0.09	0.45	1.00	*0.00*	0.94	0.84	*0.00*	0.10	0.53	*0.00*	*0.01*	0.17	*0.00*	0.20	0.39	0.05	0.32	*0.00*	0.47
MeanLengthAbundance_s	0.11	0.27	0.27	0.07	-0.24	0.21	0.20	-0.13	-0.02	-0.05	-0.33	0.28	0.24	-0.57	-0.19	1.00	*0.02*	*0.00*	0.13	0.32	0.73	0.07	0.31	0.38	0.26	0.32	0.27	0.68	0.13	0.37	*0.02*
MeanLengthBiomass_s	0.23	-0.08	0.19	0.19	-0.13	0.03	0.56	0.39	0.34	0.12	-0.22	**0.80**	**0.87**	-0.19	0.15	0.46	1.00	0.48	*0.00*	*0.00*	0.85	0.13	0.42	0.46	*0.01*	0.20	1.00	0.55	0.42	0.83	*0.00*
MeanLifespan_s	0.01	0.58	0.15	-0.36	-0.07	0.58	0.02	0.15	0.16	-0.13	-0.17	-0.12	0.10	0.15	0.26	0.07	0.06	1.00	*0.00*	*0.05*	0.91	0.94	0.49	0.87	0.35	0.50	0.36	0.12	*0.03*	0.97	*0.00*
MMLengthAbundance_s	0.17	-0.29	0.05	0.04	0.02	-0.11	0.61	0.63	0.52	0.16	0.01	0.61	0.60	0.19	0.31	-0.15	0.62	0.14	1.00	*0.00*	0.24	0.88	0.45	0.43	0.87	0.26	*0.02*	0.99	0.73	0.96	0.94
MMLengthBiomass_s	0.27	-0.22	0.14	0.12	0.02	-0.06	0.63	0.60	0.49	0.23	-0.07	0.68	**0.90**	0.10	0.21	0.04	**0.83**	0.08	**0.86**	1.00	0.69	0.97	0.99	0.73	0.55	0.70	*0.00*	*0.00*	*0.00*	0.11	0.49
MeanTrophicLevel_s	0.07	-0.31	-0.15	0.35	0.11	-0.17	0.18	0.21	0.10	0.06	0.12	0.11	0.29	0.17	-0.07	-0.43	0.11	-0.44	0.28	0.37	1.00	0.10	0.92	0.80	0.11	0.22	*0.00*	0.08	0.53	0.61	0.43
PielouEvenness_s	-0.01	-0.17	-0.08	0.20	-0.07	-0.05	**0.93**	**0.91**	**0.92**	0.39	-0.08	0.44	0.50	0.06	0.18	0.00	0.48	0.10	0.67	0.65	0.23	1.00	0.49	*0.01*	*0.00*	0.25	0.66	*0.01*	*0.01*	*0.00*	0.70
PropPredatoryFish_s	0.12	-0.51	-0.02	0.22	0.13	-0.33	0.41	0.39	0.27	0.15	0.09	0.31	0.39	0.18	0.04	-0.38	0.29	-0.41	0.69	0.64	**0.76**	0.45	1.00	*0.00*	0.49	0.65	0.33	0.08	*0.00*	0.77	0.99
BiomassFlatfish_s	0.22	-0.01	0.19	-0.05	-0.13	0.03	0.16	0.09	0.23	-0.12	-0.20	0.23	-0.05	-0.17	-0.10	0.27	0.06	0.07	-0.05	-0.07	-0.22	0.14	*-0.20*	1.00	*0.00*	0.65	0.77	0.36	*0.00*	0.19	0.96
BiomassGadoids_s	**0.93**	-0.28	0.16	0.00	0.02	-0.32	-0.07	-0.05	0.01	-0.10	0.13	0.29	0.18	0.07	-0.24	0.06	0.09	-0.07	0.15	0.17	0.02	-0.03	0.16	0.24	1.00	0.96	*0.00*	0.60	0.67	0.28	0.95
BiomassGroundfish_s	**0.98**	-0.28	0.18	-0.05	-0.01	-0.30	-0.05	-0.03	0.02	-0.11	0.11	0.35	0.33	0.07	-0.13	0.07	0.23	0.03	0.22	0.30	0.05	-0.01	0.17	0.18	**0.95**	1.00	0.99	*0.00*	0.26	0.25	0.19
BTGMediumBenthivore_s	0.22	-0.24	0.30	-0.02	0.34	-0.20	-0.02	-0.02	-0.01	0.00	-0.03	0.20	-0.07	0.01	-0.17	0.02	0.00	-0.12	0.12	0.08	-0.19	-0.01	0.18	0.35	0.43	0.35	1.00	0.49	*0.04*	0.22	0.43
BTGPiscivore_s	**0.75**	-0.15	0.21	0.01	-0.17	-0.10	0.24	0.18	0.25	-0.02	-0.12	0.49	0.66	-0.12	0.00	0.40	0.56	0.18	0.31	0.52	-0.06	0.24	0.05	0.33	0.59	**0.70**	0.12	1.00	0.58	0.74	0.86
BTGZoopiscivore_s	0.38	0.38	0.10	-0.10	0.12	0.36	-0.15	-0.06	-0.01	-0.10	0.05	-0.17	-0.18	0.15	-0.14	-0.20	-0.26	0.43	-0.05	-0.13	0.02	-0.08	-0.12	0.05	0.44	0.41	0.06	-0.01	1.00	0.44	0.19
ShannonDiversity_s	-0.01	-0.20	-0.18	0.12	0.02	-0.05	**0.78**	**0.98**	**0.91**	0.37	0.04	0.37	0.43	0.34	0.34	-0.16	0.38	0.16	0.66	0.60	0.23	**0.95**	0.42	0.09	-0.02	0.01	0.00	0.20	-0.03	1.00	0.11
SpeciesRichness_s	0.07	-0.19	-0.30	-0.23	0.12	-0.06	-0.29	0.26	0.04	-0.01	0.40	-0.14	-0.08	**0.99**	0.41	-0.56	-0.26	0.15	0.09	0.01	0.12	-0.04	0.10	-0.16	0.11	0.10	0.01	-0.12	0.20	0.24	1.00

Table S 55. Spearman rank correlation coefficients (r) for indicators in strata 472. The upper triangle of the matrix represents p-values (p ≤ 0.05 highlighted in blue italics). The lower triangle of the matrix represents the r values (r ≥ 0.7 highlighted in red).

Indicator	BiomassTL4_s	CommunityCondition_s	CCMediumBenthivore_s	CCPiscivore_s	CCZoopiscivore_s	Heips_s	HillN1Diversity_s	HillN2Dominance_s	InverseCVBiomass_s	KemptonQ_s	LargeFishIndicator_s	LargeSpeciesIndicator_s	MargalefRichness_s	MargalefGroundfish_s	MeanLengthAbundance_s	MeanLengthBiomass_s	MeanLifespan_s	MMLengthAbundance_s	MMLengthBiomass_s	MeanTrophicLevel_s	PielouEvenness_s	PropPredatoryFish_s	BiomassFlatfish_s	BiomassGadoids_s	BiomassGroundfish_s	BTGMediumBenthivore_s	BTGPiscivore_s	BTGZoopiscivore_s	ShannonDiversity_s	SpeciesRichness_s
BiomassTL4_s	1.00	0.80	0.29	0.22	0.58	*0.01*	0.27	0.41	0.39	0.25	0.10	0.85	0.83	0.19	0.26	0.48	*0.02*	*0.00*	0.59	0.29	0.88	0.58	0.61	0.65	*0.01*	0.19	0.08	0.22	*0.02*	0.16
CommunityCondition_s	0.04	1.00	0.28	0.57	0.29	0.31	0.54	*0.00*	*0.02*	0.07	0.73	0.23	0.42	0.32	0.17	0.27	*0.00*	0.85	0.93	*0.00*	0.23	0.16	0.13	*0.02*	0.43	0.78	0.12	0.55	0.08	0.23
CCMediumBenthivore_s	0.16	0.35	1.00	0.52	0.68	0.65	0.49	*0.00*	0.26	0.19	0.85	*0.02*	0.34	0.23	0.08	0.41	0.71	0.10	0.61	*0.02*	*0.02*	0.22	0.18	*0.00*	*0.01*	0.05	0.64	0.38	0.60	0.07
CCPiscivore_s	0.16	0.17	0.34	1.00	0.18	0.18	0.09	0.54	*0.00*	0.29	*0.01*	0.10	0.18	0.87	0.35	1.00	0.15	*0.00*	0.09	0.73	0.30	0.24	0.41	0.60	0.10	0.12	*0.01*	*0.00*	0.17	*0.01*
CCZoopiscivore_s	-0.19	**0.79**	0.24	-0.05	1.00	0.19	0.44	*0.00*	0.55	0.90	0.19	*0.01*	0.83	*0.00*	0.13	0.13	0.71	*0.00*	*0.00*	0.37	*0.00*	0.55	0.30	*0.01*	*0.01*	0.32	*0.00*	0.94	0.27	0.44
Heips_s	-0.09	-0.09	0.36	0.08	-0.06	1.00	0.77	0.58	0.83	0.79	0.49	*0.00*	0.12	0.97	0.07	0.72	0.90	0.19	0.08	0.36	*0.02*	0.66	0.38	*0.01*	0.27	0.14	*0.02*	0.21	0.59	0.60
HillN1Diversity_s	-0.10	0.03	0.43	-0.01	0.11	0.69	1.00	0.42	0.57	0.06	0.66	*0.00*	*0.01*	0.76	0.80	0.47	*0.03*	*0.02*	*0.00*	0.32	0.86	0.45	0.65	*0.00*	*0.00*	0.13	*0.00*	*0.00*	0.58	0.73
HillN2Dominance_s	-0.08	0.09	0.49	0.01	0.15	**0.74**	**0.97**	1.00	0.69	*0.00*	0.55	1.00	0.87	0.61	0.19	0.32	0.18	0.53	0.24	0.45	0.43	0.41	0.39	0.18	*0.00*	0.95	*0.00*	0.13	*0.01*	0.25
InverseCVBiomass_s	-0.16	0.06	0.00	0.20	-0.02	-0.03	-0.18	-0.21	1.00	0.42	0.51	0.12	*0.00*	0.96	0.60	0.88	0.42	*0.01*	0.77	0.39	0.45	0.63	0.41	*0.03*	0.05	0.25	0.92	0.06	0.27	*0.00*
KemptonQ_s	-0.06	-0.17	-0.24	-0.33	-0.11	-0.25	0.04	-0.08	-0.05	1.00	*0.00*	0.10	0.10	0.97	0.66	0.47	0.34	0.54	0.33	*0.00*	0.40	0.51	0.24	0.21	0.26	0.36	*0.03*	*0.00*	0.15	*0.00*
LargeFishIndicator_s	0.20	-0.27	0.25	0.21	-0.27	0.43	0.15	0.16	0.14	-0.17	1.00	*0.00*	0.14	0.18	0.37	0.07	0.73	*0.01*	*0.01*	*0.00*	0.52	0.52	0.59	*0.01*	*0.05*	0.14	*0.00*	0.50	0.25	*0.00*
LargeSpeciesIndicator_s	0.39	-0.20	0.44	0.17	-0.27	0.50	0.38	0.40	0.06	-0.11	0.67	1.00	0.14	*0.02*	0.06	0.07	0.37	*0.00*	*0.00*	0.17	0.61	0.39	0.53	0.43	0.19	0.61	0.24	0.38	0.07	0.59
MargalefRichness_s	-0.15	0.16	0.03	-0.21	0.20	-0.20	0.48	0.38	-0.23	0.39	-0.35	-0.12	1.00	0.17	0.07	0.18	*0.00*	0.93	0.54	0.60	*0.00*	0.31	0.99	0.24	0.07	0.81	*0.02*	0.33	*0.00*	0.29
MargalefGroundfish_s	-0.07	-0.02	-0.12	-0.26	-0.06	-0.35	0.09	0.03	-0.17	0.63	-0.34	-0.18	0.52	1.00	0.22	0.70	0.55	*0.00*	*0.00*	0.29	*0.03*	0.38	*0.01*	0.31	0.71	0.99	*0.01*	*0.00*	0.98	0.20
MeanLengthAbundance_s	0.20	-0.04	-0.14	0.14	-0.22	-0.10	-0.43	-0.39	0.10	-0.13	0.25	0.15	-0.43	-0.14	1.00	0.14	0.17	*0.00*	0.30	*0.01*	0.75	0.10	*0.00*	*0.00*	0.33	*0.00*	*0.00*	0.72	0.40	*0.00*
MeanLengthBiomass_s	0.20	-0.28	0.20	0.23	-0.35	0.40	0.16	0.19	0.08	-0.13	**0.88**	0.68	-0.29	-0.20	0.41	1.00	*0.00*	0.64	0.95	*0.01*	0.36	0.27	*0.02*	*0.01*	0.22	*0.00*	0.24	0.33	0.40	*0.00*
MeanLifespan_s	-0.16	0.58	0.03	-0.27	0.64	-0.09	-0.01	0.02	-0.21	-0.08	-0.38	-0.38	0.17	0.04	0.05	-0.34	1.00	0.59	0.35	0.85	0.69	0.45	*0.02*	*0.00*	0.16	0.73	*0.03*	0.33	0.60	0.58
MMLengthAbundance_s	-0.09	-0.12	0.24	0.04	-0.06	0.37	0.14	0.18	0.18	-0.22	0.68	0.41	-0.30	-0.29	-0.05	0.58	-0.17	1.00	*0.03*	*0.01*	0.12	*0.01*	0.09	*0.00*	0.15	0.75	0.22	*0.02*	0.39	0.29
MMLengthBiomass_s	0.11	-0.25	0.39	0.20	-0.22	0.48	0.33	0.35	0.18	-0.20	**0.75**	**0.78**	-0.20	-0.23	-0.07	0.68	-0.47	**0.78**	1.00	0.20	0.27	*0.00*	*0.00*	*0.01*	0.14	0.62	*0.02*	0.34	0.22	0.19
MeanTrophicLevel_s	0.25	0.05	-0.02	0.08	-0.06	-0.01	0.16	0.16	-0.09	0.12	-0.07	0.41	0.27	0.15	-0.12	0.01	-0.25	-0.23	0.14	1.00	0.52	0.40	*0.01*	*0.00*	0.23	0.42	0.26	*0.00*	*0.00*	0.39
PielouEvenness_s	-0.12	-0.03	0.41	0.07	0.02	**0.94**	**0.85**	**0.86**	-0.07	-0.16	0.34	0.47	0.06	-0.22	-0.25	0.32	-0.05	0.28	0.45	0.08	1.00	0.38	*0.00*	*0.00*	*0.03*	0.10	*0.00*	*0.00*	0.91	0.89
PropPredatoryFish_s	0.04	-0.39	0.25	0.14	-0.31	0.47	0.34	0.33	0.11	-0.13	**0.75**	0.66	-0.15	-0.23	-0.17	0.65	-0.61	**0.72**	**0.91**	0.21	0.46	1.00	*0.00*	0.95	*0.01*	0.26	0.09	0.95	0.72	0.30
BiomassFlatfish_s	0.12	-0.20	-0.22	-0.28	-0.20	0.07	-0.05	-0.03	-0.13	-0.07	0.08	0.01	-0.18	0.01	0.22	0.18	0.05	0.10	-0.01	-0.17	0.00	0.05	1.00	*0.01*	*0.00*	0.14	0.72	0.16	0.26	0.13
BiomassGadoids_s	**0.92**	0.10	0.22	0.27	-0.12	-0.08	-0.14	-0.12	-0.07	-0.13	0.40	0.38	-0.21	-0.17	0.26	0.34	-0.21	0.13	0.21	0.08	-0.13	0.17	0.18	1.00	0.35	0.08	*0.00*	0.13	0.23	0.58
BiomassGroundfish_s	**0.92**	0.07	0.20	0.18	-0.14	-0.08	-0.14	-0.11	-0.10	-0.12	0.41	0.40	-0.22	-0.14	0.28	0.38	-0.18	0.15	0.23	0.08	-0.13	0.18	0.27	**0.99**	1.00	0.06	0.75	*0.03*	*0.02*	0.33
BTGMediumBenthivore_s	0.09	0.09	0.15	0.11	0.05	-0.01	-0.15	-0.13	0.10	-0.18	0.58	0.12	-0.22	-0.22	0.26	0.49	-0.09	0.58	0.33	-0.37	-0.08	0.35	0.40	0.46	0.47	1.00	0.17	0.43	0.91	0.31
BTGPiscivore_s	**0.98**	0.10	0.18	0.17	-0.14	-0.08	-0.11	-0.10	-0.13	-0.08	0.20	0.38	-0.18	-0.08	0.23	0.18	-0.13	-0.05	0.12	0.16	-0.13	0.02	0.12	**0.92**	**0.91**	0.13	1.00	0.07	*0.03*	0.52
BTGZoopiscivore_s	-0.08	0.56	-0.03	-0.12	0.54	-0.25	-0.13	-0.08	-0.15	-0.09	-0.32	-0.24	0.32	0.04	-0.07	-0.32	0.57	-0.15	-0.27	0.21	-0.18	-0.32	-0.08	-0.08	-0.08	-0.02	-0.08	1.00	*0.01*	*0.01*
ShannonDiversity_s	-0.12	0.03	0.43	0.00	0.09	**0.77**	**0.97**	**0.94**	-0.13	0.00	0.19	0.40	0.38	0.00	-0.39	0.19	-0.01	0.15	0.35	0.17	**0.93**	0.38	-0.05	-0.16	-0.16	-0.15	-0.15	-0.10	1.00	*0.03*
SpeciesRichness_s	-0.13	0.18	0.01	-0.23	0.21	-0.26	0.41	0.32	-0.25	0.40	-0.40	-0.17	**0.99**	0.54	-0.41	-0.34	0.19	-0.34	-0.26	0.27	-0.02	-0.21	-0.17	-0.19	-0.20	-0.23	-0.15	0.36	0.31	1.00

Table S 56. Spearman rank correlation coefficients (r) for indicators in strata 473. The upper triangle of the matrix represents p-values (p ≤ 0.05 highlighted in blue italics). The lower triangle of the matrix represents the r values (r ≥ 0.7 highlighted in red).

Indicator	BiomassTL4_s	CommunityCondition_s	CCMediumBenthivore_s	CCPiscivore_s	Heips_s	HillN1Diversity_s	HillN2Dominance_s	InverseCVBiomass_s	KemptonQ_s	LargeFishIndicator_s	LargeSpeciesIndicator_s	MargalefRichness_s	MargalefGroundfish_s	MeanLengthAbundance_s	MeanLengthBiomass_s	MeanLifespan_s	MMLengthAbundance_s	MMLengthBiomass_s	MeanTrophicLevel_s	PielouEvenness_s	PropPredatoryFish_s	BiomassGadoids_s	BiomassGroundfish_s	BTGMediumBenthivore_s	BTGPiscivore_s	ShannonDiversity_s	SpeciesRichness_s
BiomassTL4_s	1.00	0.41	0.11	0.45	0.48	0.12	*0.04*	*0.00*	0.80	0.11	0.63	*0.00*	0.10	0.43	0.73	0.36	*0.00*	*0.02*	*0.00*	*0.01*	0.94	0.13	*0.00*	*0.00*	0.07	0.46	*0.01*
CommunityCondition_s	-0.12	1.00	0.85	0.41	0.63	0.99	*0.02*	*0.01*	0.35	*0.01*	0.64	0.11	0.07	0.70	0.58	0.28	0.07	*0.01*	0.28	0.71	0.28	0.28	*0.00*	0.31	*0.00*	0.41	*0.00*
CCMediumBenthivore_s	0.24	-0.11	1.00	0.55	*0.03*	*0.01*	0.13	*0.00*	0.42	0.13	0.74	*0.00*	*0.00*	0.19	0.60	*0.00*	0.65	0.38	*0.01*	*0.00*	0.69	*0.02*	*0.00*	0.55	*0.00*	0.72	0.59
CCPiscivore_s	0.03	-0.17	0.01	1.00	*0.00*	*0.01*	0.61	0.60	0.11	0.34	0.42	*0.00*	0.22	0.48	0.54	0.73	0.49	*0.00*	*0.01*	0.17	0.78	0.52	0.43	0.33	0.23	*0.03*	*0.00*
Heips_s	0.11	-0.04	0.43	0.13	1.00	0.68	0.11	0.13	0.30	*0.01*	0.14	*0.00*	0.23	0.18	0.90	*0.00*	0.16	*0.01*	*0.01*	0.23	0.77	*0.00*	*0.00*	0.89	0.15	0.67	0.38
HillN1Diversity_s	-0.12	0.14	-0.07	-0.03	0.48	1.00	*0.00*	0.45	0.37	0.33	0.16	*0.00*	0.38	0.41	0.93	*0.00*	*0.00*	0.11	0.53	0.14	0.77	*0.02*	*0.00*	0.08	0.45	*0.00*	0.21
HillN2Dominance_s	-0.09	0.12	0.02	0.04	0.61	**0.98**	1.00	0.27	0.31	0.56	0.95	*0.00*	0.12	0.66	0.18	0.58	0.39	0.88	*0.00*	0.62	0.50	0.47	0.05	*0.00*	*0.00*	0.12	0.21
InverseCVBiomass_s	-0.11	0.24	0.43	-0.12	-0.01	-0.27	-0.24	1.00	0.19	0.60	*0.00*	*0.00*	0.57	0.98	*0.00*	*0.00*	0.30	0.27	0.06	0.14	0.20	0.41	0.70	*0.00*	0.77	*0.00*	0.35
KemptonQ_s	-0.07	0.16	-0.24	-0.06	-0.07	0.07	0.02	-0.10	1.00	0.49	0.64	0.88	*0.00*	0.42	*0.00*	*0.00*	0.99	*0.02*	0.49	*0.00*	*0.00*	*0.00*	*0.00*	0.66	*0.00*	*0.00*	0.09
LargeFishIndicator_s	0.32	-0.14	**0.75**	-0.20	0.51	0.11	0.17	0.36	-0.10	1.00	0.90	*0.00*	0.37	0.76	0.97	*0.01*	0.99	*0.01*	*0.01*	0.52	*0.00*	0.35	0.07	*0.00*	0.56	0.99	0.55
LargeSpeciesIndicator_s	0.43	-0.15	0.44	0.11	**0.77**	0.21	0.34	-0.01	-0.11	0.50	1.00	*0.00*	0.86	0.93	0.64	*0.01*	0.92	0.46	0.95	0.47	*0.01*	*0.00*	0.09	*0.00*	0.44	0.83	*0.00*
MargalefRichness_s	-0.23	0.20	-0.65	-0.20	-0.27	0.49	0.36	-0.48	0.18	-0.61	-0.35	1.00	0.81	0.71	*0.00*	*0.00*	0.27	0.35	*0.00*	0.22	*0.00*	*0.00*	0.12	*0.01*	*0.02*	0.64	*0.00*
MargalefGroundfish_s	0.00	0.24	-0.48	-0.12	-0.14	0.13	0.11	-0.25	0.40	-0.37	0.11	0.47	1.00	0.44	*0.00*	0.44	0.74	0.54	0.10	*0.01*	*0.00*	*0.00*	0.10	0.96	0.89	*0.01*	*0.00*
MeanLengthAbundance_s	0.37	-0.36	0.63	0.07	0.16	-0.15	-0.14	0.14	-0.16	0.62	0.12	-0.42	-0.57	1.00	0.07	*0.00*	*0.00*	0.88	0.36	0.30	0.27	*0.00*	*0.00*	*0.00*	*0.03*	0.14	*0.00*
MeanLengthBiomass_s	0.39	-0.22	**0.72**	0.00	0.55	0.00	0.09	0.29	-0.05	**0.89**	0.61	-0.61	-0.24	0.64	1.00	*0.03*	0.52	0.71	0.05	0.75	*0.00*	*0.00*	*0.00*	*0.00*	0.13	*0.00*	*0.00*
MeanLifespan_s	0.06	0.14	-0.02	0.12	0.05	0.00	0.02	-0.14	0.06	-0.17	0.14	0.12	0.17	-0.07	-0.05	1.00	*0.01*	0.07	0.35	0.70	*0.00*	0.06	*0.00*	*0.00*	0.18	0.62	0.10
MMLengthAbundance_s	0.31	-0.40	0.64	-0.05	0.46	-0.02	0.06	0.28	-0.21	**0.77**	0.49	-0.57	-0.47	0.66	**0.76**	-0.09	1.00	0.93	0.06	0.16	*0.00*	0.17	0.11	*0.00*	0.10	*0.00*	*0.00*
MMLengthBiomass_s	0.35	-0.15	0.67	-0.01	0.69	0.17	0.27	0.36	-0.18	**0.86**	**0.74**	-0.62	-0.28	0.43	**0.83**	-0.12	**0.83**	1.00	*0.01*	0.24	*0.00*	*0.01*	0.26	*0.01*	0.70	*0.02*	*0.00*
MeanTrophicLevel_s	0.23	-0.09	-0.24	0.06	0.08	-0.05	-0.01	-0.38	0.01	-0.45	0.41	0.29	0.48	-0.40	-0.27	0.35	-0.27	-0.23	1.00	0.94	*0.00*	*0.00*	*0.00*	0.06	0.91	0.05	*0.01*
PielouEvenness_s	0.08	0.08	0.27	0.12	**0.94**	0.68	**0.76**	-0.06	-0.01	0.42	**0.70**	-0.06	0.00	-0.01	0.42	0.02	0.30	0.60	0.07	1.00	0.15	*0.01*	0.06	*0.00*	0.35	*0.01*	0.12
PropPredatoryFish_s	0.24	-0.10	0.62	-0.05	0.48	0.10	0.16	0.47	-0.16	**0.88**	0.41	-0.65	-0.45	0.50	**0.76**	-0.32	**0.81**	**0.91**	-0.58	0.40	1.00	*0.01*	*0.00*	0.72	*0.00*	0.16	*0.01*
BiomassGadoids_s	0.46	-0.07	0.18	-0.08	-0.39	-0.36	-0.39	0.20	-0.06	0.22	-0.28	-0.27	-0.15	0.45	0.18	-0.23	0.11	0.00	-0.35	-0.42	0.19	1.00	0.98	*0.00*	0.07	0.62	*0.00*
BiomassGroundfish_s	0.58	-0.07	0.18	-0.08	-0.36	-0.35	-0.36	0.18	-0.04	0.23	-0.21	-0.26	-0.09	0.46	0.21	-0.20	0.12	0.03	-0.29	-0.39	0.19	**0.98**	1.00	*0.00*	*0.04*	*0.02*	0.17
BTGMediumBenthivore_s	0.39	-0.05	0.13	-0.09	-0.46	-0.37	-0.40	0.22	-0.05	0.16	-0.37	-0.23	-0.15	0.42	0.11	-0.24	0.05	-0.07	-0.39	-0.48	0.14	**0.99**	**0.97**	1.00	*0.00*	*0.01*	0.59
BTGPiscivore_s	**0.99**	-0.12	0.24	0.02	0.12	-0.13	-0.09	-0.08	-0.04	0.34	0.43	-0.24	0.02	0.37	0.43	0.06	0.33	0.36	0.21	0.08	0.26	0.46	0.59	0.39	1.00	*0.00*	0.11
ShannonDiversity_s	-0.08	0.22	-0.09	0.01	0.60	**0.93**	**0.92**	-0.22	0.10	0.10	0.37	0.43	0.26	-0.28	0.04	0.02	-0.07	0.22	0.08	**0.82**	0.09	-0.44	-0.40	-0.46	-0.08	1.00	*0.02*
SpeciesRichness_s	-0.23	0.21	-0.69	-0.20	-0.33	0.40	0.28	-0.48	0.19	-0.67	-0.38	**0.99**	0.50	-0.45	-0.66	0.14	-0.61	-0.69	0.33	-0.13	-0.71	-0.25	-0.23	-0.20	-0.24	0.35	1.00

Table S 57. Spearman rank correlation coefficients (r) for indicators in strata 474. The upper triangle of the matrix represents p-values (p ≤ 0.05 highlighted in blue italics). The lower triangle of the matrix represents the r values (r ≥ 0.7 highlighted in red).

Indicator	BiomassTL4_s	CommunityCondition_s	CCMediumBenthivore_s	CCPiscivore_s	Heips_s	HillN1Diversity_s	HillN2Dominance_s	InverseCVBiomass_s	KemptonQ_s	LargeFishIndicator_s	LargeSpeciesIndicator_s	MargalefRichness_s	MargalefGroundfish_s	MeanLengthAbundance_s	MeanLengthBiomass_s	MeanLifespan_s	MMLengthAbundance_s	MMLengthBiomass_s	MeanTrophicLevel_s	PielouEvenness_s	PropPredatoryFish_s	BiomassFlatfish_s	BiomassGadoids_s	BiomassGroundfish_s	BTGMediumBenthivore_s	BTGPiscivore_s	ShannonDiversity_s	SpeciesRichness_s
BiomassTL4_s	1.00	0.24	0.13	0.66	0.60	0.12	0.16	0.62	0.37	0.50	*0.05*	*0.03*	*0.00*	0.73	0.23	0.23	*0.01*	0.53	0.41	0.11	0.40	*0.00*	*0.00*	0.99	*0.00*	0.73	*0.00*	0.30
CommunityCondition_s	0.18	1.00	0.69	0.30	0.82	0.90	*0.02*	*0.02*	0.41	1.00	0.73	*0.05*	*0.04*	0.39	0.74	*0.00*	*0.01*	0.38	0.83	0.65	0.25	*0.00*	*0.00*	0.56	0.16	0.37	0.07	0.30
CCMediumBenthivore_s	0.23	0.10	1.00	0.26	0.05	*0.02*	*0.00*	0.94	0.54	0.48	0.92	0.55	0.69	0.23	0.70	*0.00*	0.54	*0.00*	0.79	0.31	0.97	0.91	*0.00*	0.10	0.42	*0.00*	0.90	0.31
CCPiscivore_s	0.06	0.14	0.20	1.00	*0.00*	*0.01*	0.56	*0.00*	0.51	0.89	0.85	0.10	0.16	0.60	0.13	0.21	*0.00*	0.50	0.86	0.24	0.28	*0.00*	*0.00*	*0.00*	*0.02*	0.92	0.81	0.68
Heips_s	-0.07	-0.13	-0.05	0.05	1.00	*0.02*	0.62	0.27	0.94	*0.00*	0.86	*0.00*	*0.03*	0.79	0.79	0.51	0.08	0.96	0.41	0.60	0.38	*0.00*	0.60	*0.00*	0.64	*0.03*	0.61	0.15
HillN1Diversity_s	-0.16	0.09	-0.32	-0.13	0.43	1.00	0.10	0.14	0.59	0.16	0.25	0.52	0.41	*0.01*	0.60	0.08	*0.00*	0.06	0.55	0.36	0.11	0.15	*0.04*	0.16	0.10	0.50	*0.03*	0.09
HillN2Dominance_s	-0.17	0.10	-0.30	-0.18	0.53	**0.97**	1.00	0.52	0.83	0.74	0.72	*0.02*	0.05	0.60	0.57	*0.01*	0.08	*0.05*	*0.00*	0.35	0.12	*0.04*	0.28	0.49	*0.03*	0.24	0.27	0.47
InverseCVBiomass_s	-0.08	0.01	0.09	0.08	-0.03	0.26	0.19	1.00	0.86	0.14	0.32	0.62	*0.05*	0.07	0.67	0.71	0.84	0.08	0.42	0.36	0.87	*0.00*	*0.01*	0.10	0.16	0.50	*0.01*	0.57
KemptonQ_s	-0.03	-0.08	0.25	0.04	-0.18	0.03	0.00	0.02	1.00	0.34	0.19	*0.00*	0.10	0.54	0.57	*0.00*	0.91	0.24	0.75	0.75	0.23	0.08	*0.00*	0.12	*0.02*	0.13	0.99	0.89
LargeFishIndicator_s	0.29	-0.03	0.46	0.36	0.42	-0.02	0.00	0.21	0.11	1.00	0.74	*0.00*	0.12	*0.02*	0.20	*0.00*	0.68	*0.00*	*0.04*	0.39	0.12	0.30	0.38	0.29	0.43	*0.03*	0.20	*0.03*
LargeSpeciesIndicator_s	0.52	0.03	0.10	0.08	0.55	0.06	0.11	-0.04	0.08	0.63	1.00	0.70	*0.01*	*0.04*	0.05	0.38	*0.00*	*0.00*	*0.03*	0.74	0.93	0.22	*0.00*	0.48	*0.01*	0.83	0.42	0.93
MargalefRichness_s	-0.24	0.10	-0.35	-0.27	-0.19	0.69	0.57	0.24	0.13	-0.44	-0.37	1.00	*0.02*	0.22	*0.00*	*0.00*	*0.02*	0.20	0.05	0.87	0.59	0.54	*0.00*	0.51	0.38	0.86	*0.03*	0.21
MargalefGroundfish_s	-0.02	0.00	-0.08	-0.09	-0.10	0.35	0.32	0.07	0.17	-0.19	-0.10	0.44	1.00	0.74	*0.00*	*0.00*	0.40	0.98	0.19	0.96	0.51	0.06	*0.03*	0.74	*0.00*	*0.00*	0.33	*0.00*
MeanLengthAbundance_s	0.35	-0.11	0.51	0.34	0.27	-0.13	-0.13	0.16	0.01	0.64	0.40	-0.33	-0.21	1.00	0.84	0.16	0.78	1.00	*0.00*	0.92	0.53	0.96	*0.00*	0.25	*0.00*	0.38	*0.01*	*0.00*
MeanLengthBiomass_s	0.38	0.02	0.45	0.31	0.40	-0.04	-0.03	0.18	0.16	**0.93**	**0.74**	-0.45	-0.11	0.62	1.00	*0.01*	0.95	0.47	*0.00*	0.68	0.98	*0.00*	0.78	0.63	*0.01*	*0.04*	*0.00*	0.59
MeanLifespan_s	0.35	0.62	-0.06	-0.19	0.06	0.01	0.04	-0.08	-0.14	0.02	0.37	-0.04	-0.25	0.00	0.13	1.00	0.85	*0.00*	0.90	0.25	0.74	*0.01*	*0.04*	0.51	0.06	*0.00*	0.27	*0.05*
MMLengthAbundance_s	0.21	-0.21	0.51	0.05	0.42	-0.03	0.03	0.14	0.24	**0.71**	0.55	-0.30	-0.24	0.58	0.64	-0.05	1.00	*0.03*	0.17	0.15	0.44	0.51	*0.03*	0.57	*0.00*	0.19	*0.03*	0.69
MMLengthBiomass_s	0.34	-0.05	0.31	0.18	0.54	0.10	0.13	0.14	0.23	**0.87**	**0.83**	-0.32	-0.16	0.49	**0.87**	0.14	**0.80**	1.00	0.77	0.47	*0.00*	*0.01*	*0.03*	0.94	0.13	0.60	*0.00*	*0.00*
MeanTrophicLevel_s	0.58	0.22	0.06	-0.05	0.13	-0.13	-0.09	-0.14	-0.02	0.22	**0.71**	-0.32	-0.11	0.21	0.39	0.59	0.13	0.34	1.00	0.58	*0.00*	*0.00*	0.50	*0.01*	0.85	0.48	0.44	*0.02*
PielouEvenness_s	-0.09	-0.15	-0.21	-0.06	**0.92**	0.64	0.69	0.05	-0.18	0.31	0.45	0.10	0.10	0.12	0.28	0.02	0.31	0.46	0.00	1.00	0.22	*0.01*	0.21	*0.00*	0.56	0.73	*0.01*	*0.04*
PropPredatoryFish_s	0.08	-0.30	0.32	0.23	0.44	0.10	0.12	0.13	0.23	**0.74**	0.43	-0.19	-0.05	0.36	0.62	-0.32	**0.76**	**0.80**	-0.19	0.44	1.00	*0.00*	0.27	*0.00*	0.74	0.19	*0.01*	0.81
BiomassFlatfish_s	0.25	0.05	-0.13	0.04	-0.21	0.01	-0.05	0.05	0.01	-0.27	-0.08	0.17	0.18	0.07	-0.23	0.10	-0.20	-0.27	0.12	-0.12	-0.27	1.00	0.86	0.98	*0.01*	0.84	*0.01*	0.86
BiomassGadoids_s	0.08	0.01	0.29	0.08	-0.37	-0.28	-0.31	0.02	0.08	0.16	-0.30	0.03	0.07	0.25	0.03	-0.18	0.08	-0.02	-0.32	-0.36	0.16	-0.11	1.00	*0.00*	0.90	*0.02*	0.44	0.07
BiomassGroundfish_s	0.34	0.03	0.30	0.09	-0.39	-0.30	-0.33	-0.01	0.10	0.19	-0.16	0.00	0.10	0.32	0.09	-0.10	0.11	0.04	-0.15	-0.37	0.16	0.09	**0.95**	1.00	*0.00*	*0.02*	*0.00*	0.42
BTGMediumBenthivore_s	0.01	-0.03	0.25	0.07	-0.40	-0.26	-0.29	0.02	0.10	0.09	-0.36	0.09	0.09	0.21	-0.05	-0.23	0.05	-0.08	-0.37	-0.37	0.16	-0.02	**0.99**	**0.94**	1.00	*0.00*	0.89	0.21
BTGPiscivore_s	**0.99**	0.18	0.24	0.09	-0.09	-0.18	-0.20	-0.06	0.00	0.29	0.50	-0.25	0.01	0.34	0.38	0.32	0.20	0.32	0.58	-0.12	0.06	0.32	0.08	0.35	0.03	1.00	0.07	0.12
ShannonDiversity_s	-0.17	-0.06	-0.36	-0.19	0.57	**0.92**	**0.90**	0.18	-0.05	0.01	0.13	0.61	0.40	-0.12	-0.02	-0.03	0.03	0.17	-0.17	**0.82**	0.22	0.01	-0.30	-0.30	-0.27	-0.19	1.00	*0.00*
SpeciesRichness_s	-0.22	0.15	-0.36	-0.29	-0.27	0.62	0.51	0.22	0.12	-0.50	-0.41	**0.99**	0.45	-0.37	-0.51	-0.03	-0.36	-0.38	-0.32	0.02	-0.26	0.19	0.06	0.04	0.12	-0.23	0.54	1.00

Table S 58. Spearman rank correlation coefficients (r) for indicators in strata 475. The upper triangle of the matrix represents p-values (p ≤ 0.05 highlighted in blue italics). The lower triangle of the matrix represents the r values (r ≥ 0.7 highlighted in red).

Indicator	BiomassTL4_s	CommunityCondition_s	CCMediumBenthivore_s	CCPiscivore_s	Heips_s	HillN1Diversity_s	HillN2Dominance_s	InverseCVBiomass_s	KemptonQ_s	LargeFishIndicator_s	LargeSpeciesIndicator_s	MargalefRichness_s	MargalefGroundfish_s	MeanLengthAbundance_s	MeanLengthBiomass_s	MeanLifespan_s	MMLengthAbundance_s	MMLengthBiomass_s	MeanTrophicLevel_s	PielouEvenness_s	PropPredatoryFish_s	BiomassFlatfish_s	BiomassGadoids_s	BiomassGroundfish_s	BTGLargeBenthivore_s	BTGMediumBenthivore_s	BTGPiscivore_s	ShannonDiversity_s	SpeciesRichness_s
BiomassTL4_s	1.00	0.47	0.28	0.39	0.18	0.70	0.49	0.22	0.48	0.62	0.67	0.77	0.06	0.28	0.06	0.95	*0.00*	*0.00*	0.07	0.20	0.28	0.64	0.08	*0.00*	*0.04*	*0.00*	*0.00*	0.81	0.80
CommunityCondition_s	-0.11	1.00	0.29	0.63	0.59	*0.05*	*0.03*	*0.00*	0.74	0.67	0.96	0.61	0.43	*0.03*	*0.04*	*0.00*	*0.00*	*0.04*	0.29	0.73	*0.00*	0.61	0.14	*0.00*	0.89	*0.00*	0.06	0.56	0.71
CCMediumBenthivore_s	-0.16	-0.11	1.00	0.71	0.15	*0.00*	*0.00*	0.45	0.80	0.52	0.15	*0.00*	*0.00*	*0.00*	*0.05*	*0.00*	0.33	0.30	0.55	*0.00*	0.89	0.72	0.44	*0.04*	0.07	*0.00*	0.81	0.41	0.51
CCPiscivore_s	-0.16	0.05	0.04	1.00	*0.00*	*0.02*	0.52	0.24	0.59	0.09	0.83	*0.01*	0.16	0.08	*0.01*	0.35	0.21	0.08	0.10	*0.00*	0.20	0.58	*0.00*	0.73	0.37	*0.00*	*0.00*	0.22	0.40
Heips_s	-0.13	-0.04	0.08	-0.26	1.00	*0.00*	0.43	*0.00*	0.98	0.61	0.47	0.91	0.44	0.10	0.19	0.36	0.31	0.60	*0.00*	0.21	*0.01*	0.35	0.16	*0.02*	0.06	0.06	0.79	*0.00*	0.84
HillN1Diversity_s	-0.07	0.08	-0.43	-0.25	0.55	1.00	0.86	0.73	0.47	0.72	0.67	0.13	0.81	0.08	*0.02*	*0.00*	0.07	0.12	*0.00*	0.55	0.06	*0.05*	0.14	*0.03*	*0.04*	*0.00*	0.14	0.38	0.08
HillN2Dominance_s	-0.06	0.00	-0.39	-0.26	0.65	**0.97**	1.00	0.60	0.60	0.74	0.87	*0.03*	0.12	0.90	0.05	*0.00*	0.16	0.79	0.07	0.54	0.68	*0.00*	*0.03*	0.70	0.49	*0.00*	*0.00*	0.06	0.20
InverseCVBiomass_s	-0.20	0.11	-0.02	-0.02	0.14	0.34	0.27	1.00	0.78	0.71	0.48	0.40	0.13	0.31	0.53	0.18	0.40	*0.00*	0.16	*0.03*	0.71	*0.01*	*0.00*	0.54	*0.05*	0.32	0.28	*0.00*	*0.01*
KemptonQ_s	0.08	-0.08	-0.23	-0.15	-0.14	0.23	0.16	0.19	1.00	0.55	0.49	*0.00*	0.08	*0.02*	0.52	0.59	*0.00*	0.09	*0.04*	*0.01*	*0.03*	0.70	*0.00*	*0.02*	*0.00*	0.58	0.08	0.74	0.66
LargeFishIndicator_s	0.22	-0.04	0.32	-0.34	0.48	0.06	0.09	0.09	0.06	1.00	0.62	*0.01*	0.42	*0.03*	0.27	0.68	0.08	*0.02*	0.71	0.11	*0.00*	*0.00*	*0.02*	0.15	*0.00*	*0.02*	0.32	0.60	*0.00*
LargeSpeciesIndicator_s	0.52	-0.08	0.13	-0.32	0.48	0.18	0.25	-0.09	-0.06	0.48	1.00	*0.01*	0.06	0.94	0.98	*0.00*	*0.00*	0.07	0.07	0.58	0.30	*0.00*	*0.00*	0.16	*0.00*	*0.02*	0.36	*0.00*	0.22
MargalefRichness_s	0.06	0.07	-0.56	-0.01	-0.20	0.62	0.51	0.32	0.31	-0.39	-0.21	1.00	0.34	0.07	0.74	0.09	*0.02*	0.56	0.54	0.17	0.68	*0.02*	*0.00*	0.79	0.14	0.80	0.11	0.26	0.10
MargalefGroundfish_s	0.29	0.10	-0.39	-0.27	0.08	0.55	0.51	0.41	0.47	-0.06	0.22	0.53	1.00	0.97	0.28	0.06	0.13	0.23	*0.00*	0.90	0.45	*0.00*	*0.00*	0.65	*0.00*	*0.02*	0.47	0.17	0.21
MeanLengthAbundance_s	0.42	-0.25	0.38	0.01	0.06	-0.30	-0.27	-0.24	-0.16	0.53	0.31	-0.43	-0.32	1.00	*0.02*	*0.00*	0.67	0.29	0.07	0.85	0.74	*0.00*	*0.00*	0.59	*0.02*	0.17	0.93	0.44	0.71
MeanLengthBiomass_s	0.35	-0.08	0.28	-0.28	0.54	0.16	0.21	0.08	0.06	**0.87**	0.70	-0.31	0.11	0.46	1.00	0.77	0.22	0.65	0.07	*0.04*	0.90	0.98	0.11	0.70	0.36	*0.01*	*0.01*	0.05	*0.01*
MeanLifespan_s	0.66	-0.06	-0.12	-0.31	0.25	0.26	0.30	-0.21	0.12	0.34	**0.85**	0.05	0.33	0.22	0.54	1.00	*0.00*	*0.00*	0.07	0.05	0.91	*0.01*	0.53	*0.00*	0.52	0.29	*0.01*	0.19	*0.00*
MMLengthAbundance_s	0.10	-0.05	0.43	-0.30	0.28	-0.08	-0.06	0.02	0.05	0.67	0.34	-0.35	-0.19	0.47	0.53	0.16	1.00	*0.00*	0.60	0.42	0.73	*0.00*	*0.00*	*0.00*	*0.01*	*0.00*	*0.00*	0.54	0.65
MMLengthBiomass_s	0.33	-0.06	0.21	-0.36	0.60	0.23	0.27	0.03	0.02	0.69	**0.85**	-0.33	0.12	0.36	**0.76**	0.65	0.53	1.00	0.23	0.38	0.63	0.35	0.24	*0.03*	0.43	*0.00*	*0.00*	*0.00*	0.69
MeanTrophicLevel_s	0.62	-0.09	-0.12	-0.19	0.04	0.04	0.09	-0.30	-0.02	0.00	**0.76**	0.06	0.25	0.14	0.28	**0.83**	-0.04	0.36	1.00	0.90	0.14	0.09	0.23	0.45	*0.00*	0.06	*0.04*	0.85	0.62
PielouEvenness_s	-0.10	0.06	-0.04	-0.35	**0.92**	**0.75**	**0.80**	0.29	-0.05	0.37	0.44	0.09	0.31	-0.10	0.43	0.28	0.22	0.55	0.04	1.00	0.24	0.07	*0.00*	*0.02*	*0.00*	*0.02*	0.97	0.11	0.49
PropPredatoryFish_s	0.12	0.01	0.23	-0.29	0.61	0.25	0.27	0.12	0.07	**0.76**	0.53	-0.35	0.02	0.36	0.70	0.34	0.62	**0.87**	-0.09	0.58	1.00	0.08	0.08	0.20	0.94	0.05	*0.03*	0.28	0.10
BiomassFlatfish_s	0.03	0.22	-0.22	-0.10	0.15	0.33	0.27	0.13	0.22	0.14	0.24	0.22	0.27	-0.12	0.15	0.29	-0.16	0.30	0.13	0.17	0.24	1.00	0.11	0.42	*0.00*	0.42	0.11	0.27	0.51
BiomassGadoids_s	0.18	-0.03	0.26	-0.10	-0.19	-0.27	-0.27	-0.02	-0.18	0.26	-0.09	-0.21	-0.14	0.44	0.08	-0.12	0.26	0.01	-0.18	-0.20	0.16	0.04	1.00	0.09	*0.00*	*0.00*	0.93	0.08	0.23
BiomassGroundfish_s	**0.98**	-0.11	-0.12	-0.17	-0.15	-0.09	-0.08	-0.16	0.07	0.27	0.47	0.04	0.28	0.48	0.35	0.61	0.15	0.32	0.53	-0.12	0.17	0.06	0.36	1.00	*0.03*	0.87	*0.02*	0.17	0.26
BTGLargeBenthivore_s	-0.11	-0.06	0.28	0.00	0.27	0.18	0.18	0.47	0.08	0.26	0.18	-0.07	0.30	-0.01	0.36	-0.03	0.14	0.24	-0.13	0.29	0.26	0.10	0.07	-0.06	1.00	0.48	*0.03*	0.40	0.64
BTGMediumBenthivore_s	0.18	-0.02	0.15	-0.05	-0.21	-0.16	-0.19	0.02	-0.05	0.26	-0.18	-0.08	-0.10	0.41	0.04	-0.11	0.24	-0.01	-0.28	-0.19	0.21	0.13	**0.94**	0.37	0.08	1.00	*0.01*	*0.03*	0.76
BTGPiscivore_s	**1.00**	-0.11	-0.16	-0.16	-0.13	-0.07	-0.05	-0.19	0.08	0.22	0.53	0.06	0.30	0.42	0.36	0.67	0.11	0.33	0.62	-0.09	0.13	0.03	0.18	**0.98**	-0.10	0.18	1.00	*0.00*	0.61
ShannonDiversity_s	-0.05	0.10	-0.32	-0.33	0.65	**0.95**	**0.94**	0.38	0.14	0.12	0.26	0.54	0.57	-0.31	0.21	0.28	-0.01	0.31	0.05	**0.87**	0.33	0.26	-0.25	-0.07	0.24	-0.17	-0.05	1.00	*0.00*
SpeciesRichness_s	0.08	0.08	-0.57	0.01	-0.26	0.56	0.45	0.28	0.29	-0.44	-0.24	**0.99**	0.52	-0.45	-0.36	0.04	-0.38	-0.39	0.08	0.03	-0.42	0.19	-0.19	0.06	-0.10	-0.07	0.08	0.48	1.00

Table S 59. Spearman rank correlation coefficients (r) for indicators in strata 476. The upper triangle of the matrix represents p-values (p ≤ 0.05 highlighted in blue italics). The lower triangle of the matrix represents the r values (r ≥ 0.7 highlighted in red).

Indicator	BiomassTL4_s	CommunityCondition_s	CCMediumBenthivore_s	CCPiscivore_s	CCZoopiscivore_s	Heips_s	HillN1Diversity_s	HillN2Dominance_s	InverseCVBiomass_s	KemptonQ_s	LargeFishIndicator_s	LargeSpeciesIndicator_s	MargalefRichness_s	MargalefGroundfish_s	MeanLengthAbundance_s	MeanLengthBiomass_s	MeanLifespan_s	MMLengthAbundance_s	MMLengthBiomass_s	MeanTrophicLevel_s	PielouEvenness_s	PropPredatoryFish_s	BiomassFlatfish_s	BiomassGadoids_s	BiomassGroundfish_s	BTGMediumBenthivore_s	BTGPiscivore_s	BiomassSkates_s	BTGZoopiscivore_s	ShannonDiversity_s	SpeciesRichness_s
BiomassTL4_s	1.00	0.36	0.58	0.40	0.50	*0.00*	0.22	0.54	0.76	0.30	0.35	0.05	*0.01*	0.60	0.34	0.88	0.79	0.18	0.24	0.53	0.17	*0.00*	0.32	0.08	0.72	0.25	*0.01*	0.69	0.40	*0.03*	0.68
CommunityCondition_s	0.14	1.00	*0.00*	0.34	0.81	0.66	0.80	0.71	0.58	0.55	0.05	*0.00*	0.22	*0.00*	0.09	0.30	0.32	0.07	*0.00*	0.74	*0.00*	0.32	0.87	*0.02*	*0.03*	0.09	0.19	0.12	*0.01*	0.33	0.08
CCMediumBenthivore_s	0.08	0.16	1.00	0.64	0.78	0.58	*0.02*	*0.00*	0.30	*0.00*	0.50	0.08	0.12	0.08	0.52	*0.00*	0.38	0.83	*0.00*	*0.00*	*0.00*	0.24	0.09	*0.00*	*0.00*	*0.00*	0.35	*0.01*	0.15	0.95	*0.00*
CCPiscivore_s	-0.53	-0.05	-0.07	1.00	0.12	0.28	*0.00*	0.99	0.74	0.11	*0.02*	*0.02*	0.70	*0.00*	0.09	0.80	0.89	0.34	0.67	0.39	0.74	0.14	0.31	*0.00*	0.14	0.06	*0.00*	0.28	*0.01*	0.19	*0.00*
CCZoopiscivore_s	0.13	0.69	0.25	-0.07	1.00	*0.02*	0.53	*0.00*	*0.00*	*0.03*	*0.01*	0.62	*0.00*	0.53	0.28	*0.00*	0.21	*0.00*	0.77	*0.00*	0.98	0.41	0.46	*0.02*	*0.00*	0.12	*0.00*	*0.02*	0.66	*0.00*	0.69
Heips_s	-0.14	-0.37	0.27	0.20	-0.16	1.00	0.37	0.43	*0.01*	0.05	0.07	0.09	0.13	0.27	0.29	0.32	*0.03*	*0.00*	0.33	*0.00*	0.59	0.10	*0.01*	*0.00*	*0.00*	0.90	*0.01*	*0.00*	*0.00*	0.83	*0.00*
HillN1Diversity_s	-0.07	-0.28	0.21	0.10	-0.07	**0.86**	1.00	0.34	0.06	0.41	0.86	0.07	0.61	0.29	0.92	0.31	0.33	0.21	0.66	0.79	*0.00*	0.96	*0.00*	*0.00*	*0.00*	0.31	*0.00*	*0.02*	0.29	0.61	0.35
HillN2Dominance_s	-0.10	-0.26	0.24	0.13	-0.04	**0.85**	**0.97**	1.00	0.08	*0.00*	0.57	0.17	*0.00*	0.15	0.46	0.57	0.93	0.49	0.42	*0.00*	0.44	0.87	0.16	*0.01*	*0.00*	0.69	*0.00*	*0.00*	*0.00*	0.44	0.37
InverseCVBiomass_s	-0.04	0.16	-0.03	-0.14	0.12	-0.19	-0.08	-0.03	1.00	*0.00*	0.65	0.11	*0.04*	0.07	0.06	0.24	0.92	*0.00*	0.06	*0.00*	*0.00*	0.14	0.53	*0.00*	*0.00*	*0.00*	*0.04*	*0.00*	*0.00*	0.57	0.12
KemptonQ_s	-0.04	0.09	-0.13	0.25	0.03	0.10	0.28	0.20	-0.18	1.00	0.35	0.85	*0.02*	0.63	0.82	0.30	0.58	*0.00*	*0.01*	0.49	*0.00*	*0.01*	0.66	*0.00*	0.64	*0.00*	0.33	0.11	0.30	0.62	*0.00*
LargeFishIndicator_s	0.23	-0.41	0.36	-0.10	-0.13	**0.72**	0.55	0.50	-0.22	-0.15	1.00	0.39	0.07	0.18	0.24	0.63	0.53	*0.00*	*0.00*	0.36	0.52	0.60	0.31	0.67	0.59	0.98	*0.00*	*0.04*	*0.00*	0.37	*0.00*
LargeSpeciesIndicator_s	0.55	-0.24	0.18	-0.25	-0.04	0.57	0.54	0.45	-0.12	0.11	**0.75**	1.00	*0.03*	0.49	*0.00*	0.77	0.36	0.15	*0.00*	0.45	*0.00*	0.21	0.86	*0.00*	*0.00*	*0.00*	0.26	0.19	*0.00*	*0.00*	0.22
MargalefRichness_s	0.07	0.33	-0.23	-0.16	0.15	-0.41	-0.04	-0.05	0.25	0.37	-0.51	-0.28	1.00	0.39	0.35	0.42	0.40	0.06	*0.00*	0.40	*0.00*	0.60	0.70	*0.00*	0.73	0.06	*0.00*	0.13	0.89	*0.00*	0.58
MargalefGroundfish_s	0.08	0.29	-0.06	0.16	0.13	-0.22	0.09	0.00	0.01	0.60	-0.33	-0.05	0.57	1.00	0.78	0.87	0.30	*0.00*	0.59	0.73	0.39	0.49	0.29	0.93	*0.00*	*0.04*	*0.01*	*0.00*	0.11	*0.02*	0.54
MeanLengthAbundance_s	0.16	-0.13	0.56	0.02	-0.02	0.28	0.05	0.08	-0.02	-0.21	0.55	0.32	-0.46	-0.28	1.00	0.40	0.44	*0.02*	0.06	0.81	0.32	0.07	0.43	*0.01*	0.44	*0.05*	*0.00*	0.35	*0.01*	0.89	0.97
MeanLengthBiomass_s	0.33	-0.44	0.23	-0.11	-0.19	**0.71**	0.52	0.46	-0.22	-0.10	**0.94**	**0.85**	-0.54	-0.31	0.55	1.00	0.33	*0.00*	*0.00*	*0.02*	0.35	0.76	0.61	*0.01*	0.16	*0.03*	0.24	0.06	0.26	*0.03*	0.92
MeanLifespan_s	0.18	0.53	-0.08	-0.28	0.32	-0.34	-0.13	-0.12	0.37	0.07	-0.40	-0.22	0.59	0.29	-0.36	-0.41	1.00	*0.00*	*0.00*	*0.00*	0.40	0.36	0.49	*0.02*	*0.00*	0.11	*0.00*	0.53	*0.01*	0.09	*0.00*
MMLengthAbundance_s	0.04	-0.14	0.55	-0.04	0.15	**0.71**	0.51	0.52	-0.08	-0.15	**0.84**	0.52	-0.40	-0.32	0.57	0.69	-0.24	1.00	0.78	0.32	0.58	0.67	0.44	0.09	*0.02*	0.22	0.10	0.37	*0.00*	0.07	0.53
MMLengthBiomass_s	0.34	-0.29	0.31	-0.17	-0.01	**0.73**	0.61	0.56	-0.19	-0.03	**0.93**	**0.87**	-0.43	-0.24	0.42	**0.92**	-0.31	**0.80**	1.00	0.85	0.76	0.72	0.26	*0.00*	*0.00*	0.72	0.97	0.23	0.10	0.30	0.41
MeanTrophicLevel_s	0.63	0.10	-0.34	-0.43	0.02	-0.18	-0.04	-0.10	0.08	0.06	-0.06	0.47	0.17	0.18	-0.31	0.16	0.20	-0.34	0.15	1.00	*0.03*	0.81	0.87	*0.03*	*0.00*	*0.03*	*0.00*	*0.01*	*0.00*	*0.00*	0.29
PielouEvenness_s	-0.10	-0.34	0.27	0.14	-0.08	**0.94**	**0.95**	**0.92**	-0.10	0.16	0.65	0.58	-0.25	-0.05	0.15	0.63	-0.22	0.62	**0.71**	-0.08	1.00	0.15	0.42	*0.00*	*0.00*	0.84	*0.00*	*0.00*	*0.00*	*0.01*	0.44
PropPredatoryFish_s	0.14	-0.40	0.32	-0.04	-0.09	**0.74**	0.58	0.54	-0.27	-0.12	**0.93**	0.69	-0.55	-0.33	0.42	**0.85**	-0.51	**0.81**	**0.93**	-0.09	**0.70**	1.00	0.59	*0.00*	*0.00*	0.70	*0.00*	0.64	0.60	*0.00*	0.34
BiomassFlatfish_s	0.09	-0.27	0.08	0.02	-0.14	-0.07	-0.10	-0.13	-0.05	-0.08	-0.01	0.07	-0.28	-0.03	0.17	0.06	-0.14	-0.13	-0.02	-0.02	-0.03	0.02	1.00	0.06	*0.01*	0.80	*0.00*	*0.00*	0.57	*0.00*	0.84
BiomassGadoids_s	0.06	-0.03	0.46	0.16	0.13	-0.04	-0.14	-0.15	-0.14	-0.10	0.36	0.08	-0.23	-0.06	0.61	0.23	-0.28	0.38	0.24	-0.37	-0.08	0.32	0.17	1.00	*0.00*	0.65	0.30	*0.00*	0.91	0.25	0.62
BiomassGroundfish_s	**0.90**	0.09	0.26	-0.46	0.16	-0.15	-0.11	-0.14	-0.06	-0.12	0.37	0.47	-0.02	0.04	0.40	0.39	0.09	0.22	0.39	0.35	-0.12	0.25	0.20	0.44	1.00	0.53	*0.00*	*0.02*	*0.01*	0.18	0.32
BTGMediumBenthivore_s	0.00	-0.07	0.42	0.04	0.12	-0.07	-0.13	-0.13	-0.05	-0.17	0.35	-0.05	-0.15	-0.07	0.56	0.16	-0.13	0.40	0.17	-0.50	-0.09	0.27	0.27	**0.87**	0.45	1.00	*0.00*	*0.00*	*0.02*	0.07	0.93
BTGPiscivore_s	**1.00**	0.14	0.10	-0.53	0.15	-0.12	-0.05	-0.08	-0.04	-0.02	0.25	0.57	0.06	0.09	0.18	0.35	0.18	0.07	0.36	0.62	-0.08	0.16	0.10	0.06	**0.90**	0.02	1.00	*0.00*	*0.00*	0.53	*0.00*
BiomassSkates_s	-0.12	-0.29	0.16	0.15	-0.20	0.28	0.04	0.05	-0.21	-0.12	0.53	0.12	-0.42	-0.36	0.51	0.47	-0.37	0.48	0.41	-0.32	0.13	0.49	0.06	0.63	0.19	0.61	-0.12	1.00	*0.00*	0.70	*0.01*
BTGZoopiscivore_s	0.14	0.51	-0.16	-0.15	0.27	-0.36	-0.33	-0.32	0.15	0.08	-0.31	-0.21	0.42	0.19	-0.25	-0.33	0.64	-0.16	-0.25	0.15	-0.43	-0.38	-0.17	-0.14	0.08	-0.09	0.14	-0.15	1.00	0.26	*0.00*
ShannonDiversity_s	-0.05	-0.26	0.22	0.09	-0.03	**0.81**	**0.97**	**0.94**	-0.03	0.26	0.51	0.53	0.00	0.14	0.01	0.48	-0.07	0.48	0.59	0.01	**0.95**	0.55	-0.06	-0.14	-0.09	-0.12	-0.03	-0.01	-0.38	1.00	0.48
SpeciesRichness_s	0.08	0.35	-0.27	-0.18	0.15	-0.50	-0.15	-0.15	0.25	0.34	-0.57	-0.33	**0.99**	0.55	-0.47	-0.59	0.60	-0.47	-0.49	0.20	-0.35	-0.62	-0.26	-0.23	-0.01	-0.16	0.08	-0.42	0.47	-0.11	1.00

Table S 60. Spearman rank correlation coefficients (r) for indicators in strata 477. The upper triangle of the matrix represents p-values (p ≤ 0.05 highlighted in blue italics). The lower triangle of the matrix represents the r values (r ≥ 0.7 highlighted in red).

Indicator	BiomassTL4_s	CommunityCondition_s	CCMediumBenthivore_s	CCPiscivore_s	CCZoopiscivore_s	Heips_s	HillN1Diversity_s	HillN2Dominance_s	InverseCVBiomass_s	KemptonQ_s	LargeFishIndicator_s	LargeSpeciesIndicator_s	MargalefRichness_s	MargalefGroundfish_s	MeanLengthAbundance_s	MeanLengthBiomass_s	MeanLifespan_s	MMLengthAbundance_s	MMLengthBiomass_s	MeanTrophicLevel_s	PielouEvenness_s	PropPredatoryFish_s	BiomassFlatfish_s	BiomassGadoids_s	BiomassGroundfish_s	BTGMediumBenthivore_s	BTGPiscivore_s	BiomassSkates_s	BTGZoopiscivore_s	ShannonDiversity_s	SpeciesRichness_s
BiomassTL4_s	1.00	0.57	0.73	0.93	0.13	*0.00*	0.16	0.79	0.13	0.86	0.85	0.59	0.31	*0.00*	0.20	0.89	0.63	0.24	0.80	*0.00*	*0.04*	*0.00*	0.20	*0.01*	0.87	0.60	0.37	0.83	0.23	0.26	*0.01*
CommunityCondition_s	0.09	1.00	0.06	0.83	0.18	0.10	0.14	*0.00*	0.10	0.18	0.64	0.06	0.21	0.87	0.45	0.19	0.33	0.44	*0.00*	0.72	*0.01*	0.49	0.24	*0.00*	*0.02*	0.09	0.57	0.33	0.18	*0.01*	*0.03*
CCMediumBenthivore_s	-0.05	0.38	1.00	0.05	0.97	0.43	0.07	*0.00*	*0.01*	0.51	0.61	0.16	0.15	0.74	0.33	0.15	0.34	0.10	*0.00*	*0.01*	*0.00*	0.26	0.20	*0.00*	*0.00*	*0.00*	*0.00*	0.17	0.13	0.86	*0.00*
CCPiscivore_s	0.28	-0.09	-0.05	1.00	0.11	*0.04*	*0.00*	0.44	0.55	0.84	*0.04*	*0.00*	0.07	0.72	*0.03*	*0.01*	0.86	0.30	0.81	0.50	0.31	0.55	0.05	*0.00*	0.60	*0.02*	*0.00*	0.52	0.81	0.54	0.71
CCZoopiscivore_s	-0.01	0.61	0.13	-0.09	1.00	0.14	0.60	*0.00*	*0.00*	*0.00*	*0.02*	0.76	0.35	0.48	0.22	0.10	0.29	*0.00*	0.57	0.33	*0.00*	0.44	0.53	0.10	*0.00*	0.07	*0.00*	0.06	*0.05*	*0.00*	*0.00*
Heips_s	-0.03	-0.26	-0.12	0.36	-0.09	1.00	0.37	0.47	0.08	0.49	0.19	0.39	0.33	0.64	0.58	0.31	*0.01*	*0.00*	0.69	*0.00*	0.90	0.22	*0.00*	*0.00*	*0.00*	0.06	0.48	0.98	0.49	0.21	0.81
HillN1Diversity_s	0.29	-0.20	-0.48	0.18	-0.19	0.59	1.00	0.50	0.18	0.51	0.46	0.42	0.75	0.43	0.14	0.33	0.07	*0.03*	0.27	0.44	*0.00*	0.97	*0.00*	*0.00*	*0.00*	0.45	*0.01*	*0.01*	*0.03*	0.77	0.58
HillN2Dominance_s	0.23	-0.27	-0.45	0.17	-0.23	0.67	**0.98**	1.00	0.07	0.36	0.54	*0.00*	0.87	*0.00*	0.26	0.23	0.41	0.16	1.00	*0.00*	0.47	0.07	*0.00*	0.87	*0.00*	0.07	0.05	*0.02*	0.29	0.59	0.17
InverseCVBiomass_s	-0.20	-0.03	-0.07	0.19	0.21	0.32	0.14	0.10	1.00	*0.00*	0.93	*0.00*	0.19	0.22	0.75	0.21	0.51	*0.00*	0.79	*0.01*	0.23	0.50	*0.02*	*0.00*	*0.00*	0.08	0.34	*0.00*	*0.00*	0.83	0.07
KemptonQ_s	0.01	0.20	-0.38	-0.11	0.07	-0.21	0.40	0.30	0.17	1.00	0.29	0.65	0.96	0.56	0.57	0.53	0.15	*0.00*	*0.04*	*0.01*	*0.00*	0.67	0.07	*0.00*	0.75	*0.04*	0.30	0.77	0.89	0.46	0.58
LargeFishIndicator_s	0.24	-0.10	-0.15	0.15	0.09	0.64	0.33	0.37	0.09	-0.29	1.00	*0.01*	0.09	*0.01*	0.29	0.21	0.55	*0.00*	*0.00*	0.10	0.36	0.46	0.09	0.66	*0.00*	0.10	0.06	0.65	*0.00*	0.69	*0.00*
LargeSpeciesIndicator_s	0.61	-0.03	-0.19	0.31	0.07	0.45	0.48	0.49	-0.12	-0.10	0.70	1.00	0.41	0.24	*0.02*	0.13	0.31	0.31	*0.00*	*0.05*	*0.00*	0.78	0.64	*0.00*	*0.00*	*0.00*	0.11	0.64	*0.00*	*0.05*	0.95
MargalefRichness_s	0.24	0.44	-0.21	-0.18	0.15	-0.50	0.27	0.15	-0.19	0.70	-0.43	-0.10	1.00	0.25	0.05	0.16	0.99	*0.02*	*0.00*	0.85	*0.00*	0.14	0.46	*0.00*	0.07	*0.01*	*0.04*	0.38	0.99	*0.00*	0.60
MargalefGroundfish_s	0.12	0.10	-0.27	-0.08	-0.14	-0.15	0.55	0.45	0.01	**0.77**	-0.24	0.02	0.69	1.00	0.56	0.65	0.92	*0.00*	0.35	*0.03*	*0.05*	0.06	0.84	0.66	*0.00*	0.11	*0.03*	0.13	0.16	*0.04*	0.09
MeanLengthAbundance_s	0.31	-0.10	0.14	0.22	-0.03	0.33	-0.06	-0.02	0.27	-0.43	0.44	0.33	-0.50	-0.40	1.00	0.55	0.72	0.56	*0.01*	0.35	0.25	0.74	0.25	0.19	0.22	0.26	0.66	0.91	0.08	0.74	0.06
MeanLengthBiomass_s	0.22	-0.14	-0.15	0.17	0.16	0.67	0.37	0.43	0.10	-0.34	**0.91**	**0.79**	-0.44	-0.24	0.45	1.00	0.80	*0.00*	*0.03*	0.14	0.13	0.98	*0.01*	0.11	0.17	*0.02*	*0.04*	0.08	0.68	0.39	0.58
MeanLifespan_s	-0.21	0.53	-0.05	-0.05	0.40	-0.09	-0.10	-0.11	-0.06	0.27	-0.03	0.08	0.29	0.17	-0.11	0.00	1.00	*0.00*	*0.00*	*0.00*	0.65	0.26	0.83	0.98	*0.00*	0.50	0.64	0.14	*0.02*	0.29	*0.01*
MMLengthAbundance_s	0.22	0.03	0.03	0.09	0.27	0.53	0.15	0.18	0.11	-0.26	**0.86**	0.63	-0.43	-0.34	0.40	**0.82**	0.05	1.00	0.07	0.13	0.08	0.28	0.77	*0.03*	0.41	0.61	0.56	0.66	0.84	0.56	0.36
MMLengthBiomass_s	0.27	-0.07	-0.20	0.16	0.12	0.63	0.46	0.49	0.04	-0.07	**0.87**	**0.81**	-0.28	-0.10	0.29	**0.89**	0.07	**0.87**	1.00	0.52	0.60	0.31	0.31	0.58	*0.00*	0.28	0.45	0.34	*0.01*	0.34	0.68
MeanTrophicLevel_s	0.49	-0.08	0.01	0.34	-0.10	-0.04	0.12	0.14	-0.22	-0.11	-0.07	0.47	0.08	0.08	0.14	0.12	0.07	-0.15	-0.02	1.00	0.09	0.27	0.69	*0.00*	*0.00*	0.24	*0.00*	0.99	*0.00*	0.67	0.41
PielouEvenness_s	0.08	-0.31	-0.26	0.29	-0.22	**0.91**	**0.80**	**0.84**	0.28	0.03	0.60	0.47	-0.25	0.16	0.16	0.60	-0.13	0.45	0.64	-0.06	1.00	*0.01*	0.14	*0.02*	*0.00*	*0.00*	0.98	*0.00*	*0.03*	*0.05*	0.36
PropPredatoryFish_s	0.14	-0.34	-0.12	0.09	-0.09	0.63	0.40	0.44	0.05	-0.17	**0.73**	0.52	-0.44	-0.18	0.28	**0.73**	-0.23	**0.77**	**0.84**	-0.16	0.65	1.00	0.47	*0.00*	0.05	0.41	*0.00*	0.51	0.70	*0.00*	0.85
BiomassFlatfish_s	0.04	-0.20	-0.42	0.02	-0.15	-0.04	0.36	0.30	0.00	0.38	-0.07	-0.05	0.34	0.47	-0.24	-0.03	-0.02	-0.18	0.00	-0.08	0.19	0.05	1.00	0.53	*0.00*	0.26	*0.00*	0.06	0.30	*0.00*	0.08
BiomassGadoids_s	**0.97**	0.11	-0.02	0.20	0.00	-0.09	0.25	0.17	-0.17	0.03	0.20	0.50	0.27	0.13	0.30	0.15	-0.26	0.20	0.21	0.35	0.05	0.13	0.09	1.00	0.06	0.19	0.44	*0.00*	0.60	0.54	0.08
BiomassGroundfish_s	**0.98**	0.09	-0.05	0.21	-0.02	-0.06	0.30	0.22	-0.16	0.04	0.24	0.56	0.27	0.17	0.32	0.21	-0.22	0.23	0.26	0.40	0.08	0.16	0.13	**0.99**	1.00	0.31	*0.00*	0.33	*0.02*	0.37	0.36
BTGMediumBenthivore_s	-0.12	0.01	0.06	-0.36	-0.05	-0.17	-0.03	-0.07	0.15	0.15	0.00	-0.27	0.11	0.20	0.07	-0.10	-0.07	0.04	-0.06	-0.48	-0.03	0.09	0.39	0.06	0.08	1.00	*0.00*	*0.00*	*0.01*	*0.01*	0.25
BTGPiscivore_s	**0.98**	0.16	-0.11	0.25	0.04	0.00	0.33	0.26	-0.16	0.06	0.32	0.67	0.27	0.15	0.30	0.28	-0.15	0.29	0.35	0.40	0.11	0.14	0.03	**0.95**	**0.96**	-0.08	1.00	*0.00*	*0.00*	0.84	0.09
BiomassSkates_s	-0.11	0.08	-0.07	-0.15	0.18	-0.04	0.14	0.08	0.37	0.22	-0.08	-0.18	0.26	0.14	-0.07	0.00	0.00	-0.10	-0.03	-0.17	0.06	0.06	0.33	-0.04	-0.01	0.36	-0.14	1.00	*0.01*	*0.02*	0.20
BTGZoopiscivore_s	0.10	0.27	0.12	0.15	0.12	-0.30	-0.22	-0.25	-0.19	0.11	-0.41	-0.21	0.30	0.09	-0.09	-0.37	0.50	-0.32	-0.36	0.39	-0.30	-0.29	0.07	0.08	0.08	-0.14	-0.03	0.14	1.00	0.62	*0.03*
ShannonDiversity_s	0.23	-0.21	-0.41	0.18	-0.25	0.61	**0.97**	**0.94**	0.18	0.41	0.33	0.41	0.24	0.58	-0.11	0.34	-0.10	0.16	0.45	0.03	**0.85**	0.42	0.40	0.21	0.25	0.06	0.26	0.17	-0.19	1.00	0.19
SpeciesRichness_s	0.24	0.45	-0.18	-0.19	0.16	-0.54	0.22	0.10	-0.19	0.68	-0.47	-0.12	**1.00**	0.68	-0.51	-0.48	0.28	-0.46	-0.32	0.09	-0.30	-0.48	0.33	0.27	0.28	0.13	0.26	0.25	0.32	0.20	1.00

Table S 61. Spearman rank correlation coefficients (r) for indicators in strata 478. The upper triangle of the matrix represents p-values (p ≤ 0.05 highlighted in blue italics). The lower triangle of the matrix represents the r values (r ≥ 0.7 highlighted in red).

Indicator	BiomassTL4_s	CommunityCondition_s	CCMediumBenthivore_s	CCPiscivore_s	CCZoopiscivore_s	Heips_s	HillN1Diversity_s	HillN2Dominance_s	InverseCVBiomass_s	KemptonQ_s	LargeFishIndicator_s	LargeSpeciesIndicator_s	MargalefRichness_s	MargalefGroundfish_s	MeanLengthAbundance_s	MeanLengthBiomass_s	MeanLifespan_s	MMLengthAbundance_s	MMLengthBiomass_s	MeanTrophicLevel_s	PielouEvenness_s	PropPredatoryFish_s	BiomassFlatfish_s	BiomassGadoids_s	BiomassGroundfish_s	BTGMediumBenthivore_s	BTGPiscivore_s	BTGZoopiscivore_s	ShannonDiversity_s	SpeciesRichness_s
BiomassTL4_s	1.00	*0.01*	0.58	*0.00*	0.15	0.12	*0.03*	0.85	0.90	0.82	0.73	0.18	*0.00*	0.78	*0.04*	0.72	0.82	*0.00*	0.14	*0.00*	*0.05*	0.79	0.06	*0.04*	0.17	0.29	*0.01*	*0.05*	*0.01*	0.29
CommunityCondition_s	-0.38	1.00	0.18	0.09	0.79	0.82	0.26	*0.00*	*0.03*	0.38	0.98	*0.04*	0.21	*0.00*	0.84	0.06	*0.00*	0.71	0.68	*0.00*	*0.04*	0.72	0.90	0.07	0.21	*0.02*	0.46	0.28	0.36	0.68
CCMediumBenthivore_s	0.08	0.31	1.00	0.12	0.42	0.36	0.41	*0.00*	0.15	0.94	0.53	0.28	*0.00*	0.50	0.53	0.69	0.93	0.15	0.88	*0.00*	*0.03*	0.98	0.41	0.12	*0.00*	0.72	*0.01*	*0.03*	*0.00*	0.99
CCPiscivore_s	0.20	-0.22	-0.16	1.00	0.61	0.20	*0.02*	0.92	*0.00*	*0.03*	0.10	0.79	*0.04*	0.33	0.48	0.20	0.13	0.13	0.07	0.39	*0.01*	0.88	0.70	*0.04*	0.06	0.47	*0.00*	*0.01*	*0.00*	0.48
CCZoopiscivore_s	-0.45	**0.74**	0.04	-0.39	1.00	0.63	0.06	*0.00*	0.67	0.60	0.41	0.41	0.12	*0.04*	0.14	0.90	0.20	0.43	*0.00*	0.14	*0.00*	0.21	0.25	0.60	0.06	0.38	*0.01*	0.05	0.79	0.11
Heips_s	-0.26	-0.06	-0.12	-0.12	-0.03	1.00	*0.03*	*0.00*	0.25	0.05	*0.01*	0.10	*0.00*	*0.00*	*0.04*	0.82	0.67	0.26	0.13	0.18	*0.00*	0.88	0.20	0.73	0.13	1.00	0.96	0.56	*0.03*	0.54
HillN1Diversity_s	-0.23	0.17	0.24	-0.18	0.07	**0.78**	1.00	0.10	0.64	0.42	*0.01*	0.20	0.35	*0.01*	*0.05*	0.64	*0.00*	0.68	*0.00*	0.56	0.43	0.68	0.87	0.09	0.19	0.17	0.06	1.00	*0.03*	0.34
HillN2Dominance_s	-0.22	0.07	0.19	-0.22	0.01	**0.82**	**0.96**	1.00	0.55	*0.03*	*0.01*	0.41	0.14	0.43	*0.01*	0.96	0.83	*0.04*	0.99	0.66	0.18	0.34	0.35	*0.00*	*0.01*	0.96	*0.00*	0.06	0.18	0.63
InverseCVBiomass_s	0.04	-0.09	0.12	-0.08	-0.06	-0.06	0.00	-0.04	1.00	0.26	0.31	0.25	0.45	0.24	0.62	0.70	*0.00*	0.35	0.87	0.07	0.22	0.78	0.49	0.75	0.53	0.25	0.33	0.22	*0.02*	*0.00*
KemptonQ_s	-0.12	0.03	-0.17	0.04	0.09	-0.22	-0.02	-0.13	-0.02	1.00	0.48	0.49	0.31	0.15	0.25	0.55	*0.00*	0.07	0.07	*0.00*	0.81	0.92	0.88	0.07	0.54	0.46	0.48	0.15	0.34	0.85
LargeFishIndicator_s	-0.08	0.13	-0.10	0.19	0.18	0.23	0.27	0.24	-0.03	-0.01	1.00	*0.02*	0.07	0.60	0.07	0.22	0.60	0.84	0.06	*0.01*	0.83	0.40	0.14	0.64	*0.00*	0.39	0.25	0.07	*0.00*	*0.00*
LargeSpeciesIndicator_s	0.23	0.01	0.35	0.30	-0.21	0.12	0.28	0.21	0.16	-0.22	0.52	1.00	0.55	0.80	0.19	0.16	0.11	*0.04*	*0.00*	0.77	0.09	0.70	0.48	0.11	0.24	0.12	*0.01*	0.27	0.29	*0.00*
MargalefRichness_s	-0.03	0.33	0.59	-0.03	0.12	-0.17	0.44	0.32	0.14	0.22	0.12	0.24	1.00	0.20	0.17	0.43	0.21	*0.02*	0.42	0.39	*0.00*	0.81	0.68	0.10	0.22	0.59	0.73	0.17	*0.00*	0.12
MargalefGroundfish_s	-0.14	0.08	-0.19	-0.09	0.28	-0.06	0.12	0.04	-0.16	**0.76**	0.08	-0.25	0.20	1.00	0.15	0.06	0.49	*0.00*	*0.00*	0.12	0.07	0.74	0.16	*0.02*	0.36	0.53	0.54	0.11	0.24	0.86
MeanLengthAbundance_s	0.19	-0.29	-0.43	0.11	0.03	-0.30	-0.47	-0.46	0.07	0.19	0.02	-0.33	-0.40	0.15	1.00	0.86	0.58	*0.00*	0.53	0.16	0.89	0.38	*0.00*	*0.00*	0.22	0.25	*0.00*	0.15	0.08	0.94
MeanLengthBiomass_s	0.07	-0.12	-0.31	0.22	0.04	0.14	0.09	0.08	-0.04	0.03	**0.87**	0.41	-0.09	0.16	0.28	1.00	*0.00*	0.29	*0.04*	*0.03*	0.82	0.93	0.44	*0.00*	0.73	0.06	*0.00*	0.19	0.10	*0.00*
MeanLifespan_s	-0.32	0.32	-0.23	-0.31	0.66	-0.27	-0.31	-0.29	-0.05	0.28	-0.01	-0.59	-0.09	0.36	0.43	0.01	1.00	0.10	0.08	0.79	0.29	0.15	0.59	0.37	0.85	*0.00*	0.89	*0.04*	0.82	*0.00*
MMLengthAbundance_s	0.17	-0.17	-0.48	0.30	0.01	-0.03	-0.26	-0.30	0.00	0.02	0.06	-0.14	-0.49	0.05	**0.76**	0.28	0.17	1.00	*0.01*	*0.00*	0.35	0.14	0.90	*0.00*	0.82	*0.00*	0.66	*0.00*	0.85	0.15
MMLengthBiomass_s	0.12	-0.05	0.14	0.40	-0.23	0.30	0.41	0.33	0.02	-0.12	0.65	**0.90**	0.18	-0.11	-0.30	0.59	-0.62	0.00	1.00	0.58	0.28	*0.00*	*0.00*	*0.00*	0.17	*0.04*	0.35	*0.00*	0.08	0.91
MeanTrophicLevel_s	0.34	0.00	0.22	0.07	-0.19	0.36	0.42	0.39	0.19	-0.06	0.30	0.56	0.18	-0.13	-0.49	0.15	-0.54	-0.28	0.55	1.00	0.65	0.20	0.96	0.14	0.95	*0.00*	0.26	*0.01*	*0.00*	0.53
PielouEvenness_s	-0.28	0.10	0.12	-0.17	0.07	**0.93**	**0.91**	**0.91**	0.02	-0.17	0.27	0.22	0.14	0.00	-0.47	0.11	-0.28	-0.18	0.37	0.45	1.00	0.85	0.70	*0.00*	0.67	*0.00*	*0.00*	*0.00*	0.62	0.30
PropPredatoryFish_s	0.31	-0.24	0.15	0.27	-0.51	0.47	0.53	0.51	0.06	-0.19	0.23	0.62	0.19	-0.21	-0.51	0.17	-0.88	-0.22	**0.72**	**0.78**	0.52	1.00	*0.00*	0.27	*0.00*	*0.00*	*0.00*	*0.04*	0.45	0.45
BiomassFlatfish_s	-0.03	-0.12	-0.27	0.20	0.03	0.16	0.13	0.12	0.14	-0.02	0.30	0.17	-0.05	0.01	0.15	0.40	-0.02	0.27	0.30	0.04	0.18	0.11	1.00	0.14	*0.00*	0.31	0.06	0.48	*0.04*	0.12
BiomassGadoids_s	**1.00**	-0.37	0.09	0.21	-0.46	-0.24	-0.22	-0.20	0.04	-0.14	-0.08	0.22	-0.03	-0.17	0.18	0.05	-0.32	0.17	0.11	0.33	-0.26	0.31	*-0.06*	1.00	0.30	0.22	*0.00*	0.43	*0.04*	0.47
BiomassGroundfish_s	**0.99**	-0.36	0.04	0.22	-0.43	-0.22	-0.20	-0.18	0.02	-0.10	-0.05	0.21	-0.03	-0.11	0.21	0.09	-0.30	0.21	0.12	0.33	-0.24	0.31	0.00	**0.99**	1.00	0.15	0.88	0.96	0.77	0.78
BTGMediumBenthivore_s	0.02	0.36	0.47	-0.05	0.08	-0.06	0.09	0.04	0.13	-0.02	-0.25	0.19	0.20	-0.13	-0.39	-0.45	-0.16	-0.24	-0.01	0.20	0.03	0.04	-0.11	0.03	0.01	1.00	*0.03*	*0.00*	*0.01*	0.86
BTGPiscivore_s	0.55	-0.15	0.10	0.28	-0.24	0.02	0.07	0.03	0.06	-0.22	0.51	**0.77**	0.01	-0.23	0.11	0.51	-0.32	0.22	0.66	0.35	0.03	0.36	0.24	0.55	0.56	0.09	1.00	*0.03*	0.14	0.10
BTGZoopiscivore_s	0.51	0.11	-0.15	-0.06	0.19	-0.27	-0.27	-0.25	0.04	0.11	0.05	-0.27	-0.06	0.08	0.37	0.02	0.36	0.20	-0.32	0.14	-0.26	-0.22	-0.09	0.53	0.55	-0.16	0.11	1.00	*0.00*	0.83
ShannonDiversity_s	-0.25	0.20	0.30	-0.19	0.10	**0.77**	**0.98**	**0.94**	0.05	-0.06	0.27	0.28	0.45	0.10	-0.54	0.07	-0.29	-0.31	0.40	0.47	**0.94**	0.53	0.15	-0.23	-0.22	0.11	0.04	-0.25	1.00	*0.01*
SpeciesRichness_s	0.02	0.30	0.60	-0.02	0.08	-0.23	0.38	0.27	0.13	0.21	0.07	0.23	**0.99**	0.17	-0.39	-0.14	-0.09	-0.50	0.14	0.16	0.08	0.16	-0.07	0.03	0.02	0.23	0.03	-0.03	0.39	1.00

Table S 62. Spearman rank correlation coefficients (r) for indicators in strata 480. The upper triangle of the matrix represents p-values (p ≤ 0.05 highlighted in blue italics). The lower triangle of the matrix represents the r values (r ≥ 0.7 highlighted in red).

Indicator	BiomassTL4_s	CommunityCondition_s	CCLargeBenthivore_s	CCMediumBenthivore_s	CCPiscivore_s	Heips_s	HillN1Diversity_s	HillN2Dominance_s	InverseCVBiomass_s	KemptonQ_s	LargeFishIndicator_s	LargeSpeciesIndicator_s	MargalefRichness_s	MargalefGroundfish_s	MeanLengthAbundance_s	MeanLengthBiomass_s	MeanLifespan_s	MMLengthAbundance_s	MMLengthBiomass_s	MeanTrophicLevel_s	PielouEvenness_s	PropPredatoryFish_s	BiomassFlatfish_s	BiomassGadoids_s	BiomassGroundfish_s	BTGLargeBenthivore_s	BTGMediumBenthivore_s	BTGPiscivore_s	BiomassSkates_s	ShannonDiversity_s	SpeciesRichness_s
BiomassTL4_s	1.00	*0.03*	0.75	*0.00*	0.47	*0.00*	*0.00*	0.19	0.28	0.77	0.40	*0.04*	0.08	0.33	0.05	*0.01*	*0.00*	*0.00*	0.92	*0.00*	0.53	*0.00*	0.99	0.40	*0.00*	0.05	*0.01*	*0.00*	*0.03*	*0.00*	*0.00*
CommunityCondition_s	-0.31	1.00	0.13	0.67	0.24	0.27	*0.01*	0.27	0.35	0.75	0.88	0.27	0.08	0.26	0.05	0.51	1.00	0.23	*0.00*	0.24	0.82	0.48	*0.02*	*0.04*	*0.00*	0.17	0.32	0.07	0.93	*0.04*	*0.00*
CCLargeBenthivore_s	0.05	0.31	1.00	0.26	*0.02*	*0.01*	*0.00*	*0.00*	*0.04*	0.86	0.27	0.24	*0.00*	0.76	*0.00*	0.33	0.09	0.59	*0.00*	0.90	0.85	0.08	*0.03*	*0.00*	*0.00*	*0.00*	*0.00*	0.11	0.08	0.07	*0.00*
CCMediumBenthivore_s	0.23	0.32	0.23	1.00	*0.04*	*0.00*	*0.00*	0.94	*0.03*	0.36	0.09	*0.00*	*0.03*	0.26	*0.02*	0.09	*0.00*	0.95	0.70	0.23	0.29	*0.03*	0.12	*0.00*	*0.00*	*0.00*	*0.00*	0.90	0.77	0.10	0.81
CCPiscivore_s	-0.59	0.35	0.15	-0.08	1.00	*0.00*	0.50	0.93	*0.02*	*0.00*	0.63	0.12	0.10	0.27	*0.00*	0.79	*0.02*	*0.00*	0.07	0.48	*0.00*	0.05	*0.00*	*0.00*	*0.00*	*0.04*	*0.00*	*0.02*	0.39	*0.00*	*0.00*
Heips_s	-0.06	0.24	0.22	0.10	0.03	1.00	0.37	*0.00*	0.11	0.44	0.71	0.33	*0.04*	0.37	*0.00*	0.10	*0.00*	*0.00*	0.16	0.73	0.31	*0.02*	*0.03*	*0.00*	*0.00*	0.60	*0.00*	*0.00*	*0.00*	0.20	0.82
HillN1Diversity_s	-0.17	0.14	-0.16	-0.35	0.08	0.67	1.00	0.13	0.34	0.88	0.69	0.13	0.08	0.53	*0.00*	*0.04*	*0.04*	0.88	0.79	0.11	0.89	*0.00*	*0.00*	*0.00*	*0.00*	0.76	*0.00*	0.78	0.83	0.70	0.68
HillN2Dominance_s	-0.11	0.12	-0.08	-0.32	0.06	**0.70**	**0.97**	1.00	0.42	0.75	0.05	0.29	0.10	0.37	*0.02*	*0.04*	*0.05*	0.21	*0.05*	*0.00*	0.28	0.06	*0.00*	*0.00*	0.21	*0.00*	*0.00*	0.65	0.93	0.54	0.45
InverseCVBiomass_s	-0.18	0.04	-0.18	-0.29	0.03	-0.02	0.31	0.33	1.00	0.79	0.76	0.60	*0.03*	*0.00*	*0.01*	*0.00*	*0.00*	*0.00*	0.87	*0.05*	0.54	*0.01*	*0.04*	*0.00*	*0.01*	0.12	*0.00*	*0.00*	*0.00*	0.75	*0.04*
KemptonQ_s	-0.35	0.05	-0.24	-0.29	0.24	-0.19	0.16	0.10	0.26	1.00	0.84	0.24	0.34	0.60	*0.00*	0.85	0.74	*0.02*	0.40	*0.00*	0.67	0.06	*0.02*	*0.00*	*0.02*	0.33	0.33	*0.00*	*0.00*	0.90	0.48
LargeFishIndicator_s	0.30	-0.03	0.26	0.43	-0.15	0.48	0.05	0.03	-0.33	-0.23	1.00	0.11	0.60	0.49	*0.01*	0.58	0.66	*0.00*	*0.00*	0.80	0.31	0.40	*0.03*	0.21	0.16	0.32	*0.00*	*0.00*	*0.01*	0.57	*0.00*
LargeSpeciesIndicator_s	**0.74**	-0.14	0.26	0.33	-0.47	0.34	-0.05	0.03	-0.29	-0.48	0.64	1.00	0.14	*0.02*	0.14	0.71	0.23	0.72	*0.00*	0.74	*0.00*	0.09	*0.03*	*0.01*	*0.00*	*0.00*	*0.01*	*0.00*	*0.00*	0.50	*0.00*
MargalefRichness_s	-0.17	-0.47	-0.68	-0.54	0.00	-0.41	0.22	0.16	0.34	0.32	-0.53	-0.47	1.00	*0.03*	0.60	0.84	0.89	*0.05*	*0.00*	0.56	0.08	*0.02*	*0.00*	*0.00*	0.78	*0.00*	0.57	0.95	*0.02*	*0.00*	0.60
MargalefGroundfish_s	-0.40	-0.12	-0.32	-0.58	0.26	-0.05	0.45	0.42	0.46	0.44	-0.44	-0.47	0.61	1.00	0.11	0.10	*0.00*	*0.00*	*0.03*	0.29	*0.00*	0.24	0.78	*0.01*	*0.01*	*0.00*	*0.00*	0.06	0.51	0.07	0.91
MeanLengthAbundance_s	0.67	-0.02	0.25	0.51	-0.41	0.29	-0.18	-0.15	-0.28	-0.42	0.66	**0.73**	-0.63	-0.60	1.00	0.32	0.81	0.59	0.29	0.25	0.90	0.70	0.86	0.35	*0.00*	*0.00*	0.72	*0.01*	*0.04*	0.48	0.53
MeanLengthBiomass_s	0.49	-0.05	0.30	0.34	-0.35	0.45	0.02	0.02	-0.37	-0.30	**0.91**	**0.80**	-0.59	-0.46	**0.74**	1.00	0.47	*0.02*	0.74	0.90	0.89	*0.00*	*0.03*	0.32	0.24	*0.00*	0.20	0.34	0.83	0.77	0.56
MeanLifespan_s	**0.76**	0.04	0.26	0.38	-0.51	0.08	-0.18	-0.16	-0.28	-0.35	0.54	**0.83**	-0.50	-0.53	**0.76**	**0.73**	1.00	*0.00*	0.74	*0.00*	0.36	0.18	0.99	0.73	0.81	*0.00*	*0.00*	*0.00*	0.15	0.42	0.69
MMLengthAbundance_s	0.40	0.13	0.25	0.44	-0.31	0.35	-0.11	-0.09	-0.13	-0.32	**0.71**	0.61	-0.60	-0.68	**0.74**	0.69	0.56	1.00	0.15	0.31	0.46	0.53	0.23	0.21	*0.00*	*0.01*	0.37	0.63	*0.00*	0.64	*0.00*
MMLengthBiomass_s	0.49	0.02	0.32	0.40	-0.30	0.48	0.05	0.06	-0.26	-0.33	**0.89**	**0.83**	-0.60	-0.51	**0.74**	**0.92**	**0.72**	**0.83**	1.00	*0.02*	0.46	0.20	0.74	*0.01*	*0.00*	0.27	0.41	0.16	0.78	0.99	0.71
MeanTrophicLevel_s	**0.81**	-0.17	0.14	0.22	-0.55	-0.02	-0.24	-0.15	-0.34	-0.44	0.19	**0.81**	-0.29	-0.40	0.56	0.45	**0.78**	0.27	0.41	1.00	0.83	*0.00*	0.16	0.74	*0.00*	0.10	*0.00*	*0.00*	0.37	0.30	0.81
PielouEvenness_s	-0.10	0.26	0.08	-0.08	0.05	**0.90**	**0.85**	**0.84**	0.18	-0.04	0.38	0.19	-0.20	0.17	0.15	0.33	0.01	0.25	0.40	-0.15	1.00	0.24	*0.02*	0.44	*0.00*	*0.00*	*0.00*	0.07	*0.00*	0.78	0.73
PropPredatoryFish_s	0.14	0.07	0.22	0.24	-0.07	0.55	0.29	0.26	-0.06	-0.03	**0.79**	0.39	-0.46	-0.25	0.47	**0.71**	0.27	**0.71**	**0.80**	-0.09	0.61	1.00	0.26	*0.00*	*0.00*	0.89	*0.00*	0.30	0.31	*0.00*	0.34
BiomassFlatfish_s	-0.20	0.06	-0.15	-0.39	0.18	-0.06	0.44	0.45	**0.83**	0.31	-0.36	-0.35	0.45	0.63	-0.40	-0.44	-0.37	-0.32	-0.35	-0.38	0.19	-0.11	1.00	*0.00*	*0.00*	0.24	*0.00*	*0.00*	0.54	*0.00*	0.15
BiomassGadoids_s	0.17	-0.06	-0.17	0.10	-0.02	-0.27	0.04	0.02	0.20	0.00	-0.14	-0.21	0.30	0.02	-0.09	-0.27	-0.14	0.01	-0.10	-0.14	-0.06	0.04	0.27	1.00	*0.00*	0.11	*0.00*	*0.00*	*0.01*	0.07	*0.01*
BiomassGroundfish_s	**0.85**	-0.29	-0.05	0.15	-0.45	-0.21	-0.05	-0.02	0.09	-0.18	0.15	0.43	0.08	-0.18	0.47	0.24	0.53	0.26	0.31	0.49	-0.09	0.12	0.15	0.59	1.00	0.06	*0.02*	0.07	0.37	0.32	0.21
BTGLargeBenthivore_s	0.01	-0.05	0.17	-0.25	0.04	0.04	0.09	0.14	0.19	0.05	-0.05	0.04	-0.05	0.24	0.05	0.02	-0.07	-0.04	0.03	-0.05	0.05	0.07	0.36	-0.04	0.11	1.00	*0.00*	0.09	*0.00*	*0.01*	0.24
BTGMediumBenthivore_s	-0.01	-0.03	-0.17	-0.04	0.11	-0.29	0.16	0.11	0.45	0.21	-0.19	-0.38	0.41	0.28	-0.19	-0.34	-0.21	-0.13	-0.22	-0.36	-0.02	0.00	0.56	**0.86**	0.52	0.09	1.00	*0.00*	0.74	*0.00*	0.17
BTGPiscivore_s	**0.96**	-0.30	0.13	0.24	-0.51	-0.02	-0.17	-0.11	-0.18	-0.35	0.39	**0.79**	-0.23	-0.38	**0.72**	0.56	**0.82**	0.41	0.56	**0.79**	-0.09	0.16	-0.17	0.03	**0.80**	0.06	-0.05	1.00	*0.01*	0.26	0.69
BiomassSkates_s	-0.23	-0.17	-0.10	-0.30	0.18	-0.13	-0.02	-0.03	0.00	0.17	0.05	-0.18	0.15	0.15	-0.13	0.04	-0.27	-0.03	-0.04	-0.30	-0.10	0.04	0.15	0.06	-0.08	0.41	0.15	-0.19	1.00	0.33	0.32
ShannonDiversity_s	-0.16	0.18	-0.13	-0.31	0.08	0.68	**0.96**	**0.92**	0.34	0.13	0.12	-0.04	0.15	0.42	-0.12	0.07	-0.16	-0.01	0.14	-0.27	**0.91**	0.42	0.43	0.11	-0.02	0.06	0.22	-0.18	-0.06	1.00	0.61
SpeciesRichness_s	-0.14	-0.50	-0.67	-0.53	-0.01	-0.45	0.15	0.11	0.32	0.30	-0.56	-0.46	**1.00**	0.59	-0.62	-0.61	-0.49	-0.61	-0.62	-0.25	-0.27	-0.51	0.43	0.30	0.10	-0.04	0.40	-0.21	0.15	0.08	1.00

Table S 63. Spearman rank correlation coefficients (r) for indicators in strata 481. The upper triangle of the matrix represents p-values (p ≤ 0.05 highlighted in blue italics). The lower triangle of the matrix represents the r values (r ≥ 0.7 highlighted in red).

Indicator	BiomassTL4_s	CommunityCondition_s	CCMediumBenthivore_s	CCPiscivore_s	CCZoopiscivore_s	Heips_s	HillN1Diversity_s	HillN2Dominance_s	InverseCVBiomass_s	KemptonQ_s	LargeFishIndicator_s	LargeSpeciesIndicator_s	MargalefRichness_s	MargalefGroundfish_s	MeanLengthAbundance_s	MeanLengthBiomass_s	MeanLifespan_s	MMLengthAbundance_s	MMLengthBiomass_s	MeanTrophicLevel_s	PielouEvenness_s	PropPredatoryFish_s	BiomassFlatfish_s	BiomassGadoids_s	BiomassGroundfish_s	BTGLargeBenthivore_s	BTGMediumBenthivore_s	BTGPiscivore_s	BiomassSkates_s	BTGZoopiscivore_s	ShannonDiversity_s	SpeciesRichness_s
BiomassTL4_s	1.00	0.10	0.35	0.94	0.77	*0.00*	0.72	0.76	*0.00*	0.48	*0.00*	0.49	0.60	*0.02*	0.22	0.27	0.75	0.18	*0.01*	*0.00*	0.14	0.20	0.85	0.38	0.30	0.32	*0.00*	0.98	0.27	*0.00*	0.14	*0.00*
CommunityCondition_s	-0.25	1.00	0.47	0.92	0.30	0.13	0.10	*0.00*	0.47	0.22	*0.05*	0.23	0.54	0.76	0.20	0.24	0.90	0.80	*0.00*	0.18	0.62	0.40	0.24	*0.00*	0.56	*0.00*	*0.00*	*0.00*	0.91	*0.00*	0.44	0.45
CCMediumBenthivore_s	0.14	-0.02	1.00	0.56	*0.02*	0.40	0.06	*0.00*	0.17	*0.02*	0.14	0.21	0.49	*0.00*	0.23	0.48	0.77	0.57	0.36	0.40	0.18	0.97	0.75	0.41	0.13	0.35	0.12	*0.03*	*0.00*	0.57	0.37	0.59
CCPiscivore_s	-0.11	0.12	-0.36	1.00	0.15	*0.00*	*0.00*	0.49	0.92	*0.04*	0.40	*0.03*	0.69	0.38	0.54	0.52	0.91	0.47	*0.00*	*0.01*	0.35	0.20	0.55	0.41	0.27	0.06	*0.00*	0.33	0.79	0.35	0.10	0.73
CCZoopiscivore_s	-0.01	0.61	0.17	-0.33	1.00	*0.02*	0.71	0.75	0.42	0.10	0.87	0.21	0.86	0.28	0.39	0.12	0.48	0.19	*0.00*	*0.03*	*0.00*	0.31	0.36	0.06	0.45	*0.04*	*0.01*	*0.00*	*0.01*	0.06	*0.00*	0.28
Heips_s	-0.02	-0.13	-0.31	0.18	-0.07	1.00	*0.01*	*0.00*	*0.00*	*0.00*	*0.02*	*0.00*	*0.01*	0.89	0.62	0.54	0.56	0.46	0.68	0.22	0.41	0.42	*0.00*	*0.00*	*0.00*	*0.00*	0.70	0.14	0.52	0.54	0.24	*0.00*
HillN1Diversity_s	-0.09	0.16	-0.38	0.19	-0.04	**0.75**	1.00	0.57	0.37	*0.02*	0.94	*0.01*	0.31	0.27	0.17	0.21	0.41	0.38	*0.00*	*0.04*	0.31	0.26	0.74	0.16	0.72	*0.00*	0.95	0.12	*0.01*	0.76	0.84	0.80
HillN2Dominance_s	-0.05	0.11	-0.38	0.18	-0.05	**0.79**	**0.98**	1.00	0.29	*0.01*	0.61	0.26	0.45	0.41	0.80	0.90	0.31	0.80	*0.00*	0.91	0.82	0.27	0.21	*0.03*	*0.01*	*0.00*	*0.00*	0.94	0.16	*0.00*	*0.02*	*0.00*
InverseCVBiomass_s	-0.16	0.18	0.08	-0.09	-0.02	-0.14	0.20	0.15	1.00	*0.02*	0.14	*0.04*	0.94	0.81	0.07	*0.02*	0.74	0.57	0.47	*0.03*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.02*	*0.00*	0.06	0.86	*0.00*	0.80
KemptonQ_s	-0.34	0.33	-0.09	0.13	-0.04	-0.37	0.13	0.03	0.59	1.00	0.14	*0.01*	0.43	0.92	0.10	0.99	*0.00*	*0.00*	0.43	0.37	*0.01*	0.84	0.49	0.23	*0.00*	*0.00*	0.67	0.74	0.26	*0.03*	0.19	0.30
LargeFishIndicator_s	0.21	-0.31	0.10	-0.08	-0.02	**0.77**	0.40	0.43	-0.19	-0.48	1.00	*0.01*	0.61	*0.02*	0.30	0.92	0.40	*0.00*	0.99	*0.04*	0.56	*0.00*	0.14	0.31	*0.01*	*0.00*	0.56	*0.00*	*0.04*	*0.00*	0.06	0.35
LargeSpeciesIndicator_s	0.45	-0.24	0.06	-0.21	0.11	0.57	0.32	0.36	-0.19	-0.47	**0.81**	1.00	0.91	0.86	*0.00*	0.26	0.50	0.35	0.37	*0.00*	0.11	0.20	*0.00*	*0.00*	0.06	*0.00*	0.06	*0.00*	0.42	*0.00*	0.14	0.75
MargalefRichness_s	-0.23	0.47	-0.03	-0.04	0.09	-0.39	0.18	0.09	0.58	**0.80**	-0.48	-0.39	1.00	*0.03*	0.10	0.76	0.86	*0.01*	0.70	0.84	0.57	0.19	*0.00*	*0.00*	*0.00*	0.56	0.27	*0.00*	*0.00*	0.87	0.89	*0.00*
MargalefGroundfish_s	-0.13	0.34	-0.40	0.27	-0.12	-0.23	0.31	0.24	0.20	0.64	-0.45	-0.28	0.69	1.00	0.32	0.63	0.70	*0.00*	0.31	*0.00*	*0.01*	*0.00*	*0.00*	*0.00*	*0.00*	0.46	0.71	*0.00*	*0.00*	0.12	0.42	0.23
MeanLengthAbundance_s	0.47	-0.37	0.15	-0.25	0.15	0.41	0.02	0.09	-0.29	-0.55	0.65	**0.77**	-0.56	-0.52	1.00	0.80	0.18	*0.00*	0.82	*0.00*	0.44	0.18	*0.00*	*0.00*	0.45	*0.00*	0.54	*0.00*	0.06	0.58	*0.00*	0.07
MeanLengthBiomass_s	0.34	-0.33	0.11	-0.16	0.05	0.69	0.32	0.36	-0.23	-0.53	**0.96**	**0.91**	-0.52	-0.46	**0.77**	1.00	0.50	*0.01*	*0.02*	0.10	*0.03*	0.05	*0.00*	*0.00*	*0.00*	0.91	0.20	0.35	*0.00*	*0.04*	*0.00*	*0.00*
MeanLifespan_s	-0.05	0.44	-0.01	-0.42	0.57	-0.14	0.13	0.12	0.14	0.24	-0.14	0.11	0.41	0.23	0.02	-0.05	1.00	0.12	*0.00*	0.38	*0.00*	0.12	*0.00*	*0.00*	*0.00*	0.52	0.06	0.50	*0.00*	*0.00*	0.80	0.38
MMLengthAbundance_s	0.25	-0.29	0.12	-0.24	0.13	0.68	0.30	0.33	-0.20	-0.49	**0.88**	**0.78**	-0.47	-0.55	**0.72**	**0.86**	0.00	1.00	*0.00*	0.82	0.57	0.37	*0.00*	0.34	*0.00*	0.25	*0.00*	*0.03*	0.61	0.83	0.85	0.60
MMLengthBiomass_s	0.28	-0.22	0.08	-0.15	0.10	**0.76**	0.47	0.50	-0.20	-0.47	**0.94**	**0.91**	-0.42	-0.37	0.68	**0.95**	0.04	**0.91**	1.00	0.10	*0.00*	0.18	0.10	*0.00*	*0.00*	*0.00*	*0.00*	0.31	0.63	0.09	0.91	0.51
MeanTrophicLevel_s	**0.79**	-0.13	0.02	-0.17	0.03	0.06	0.03	0.09	0.03	-0.24	0.23	0.63	-0.09	-0.06	0.56	0.41	0.16	0.28	0.36	1.00	*0.00*	0.18	*0.00*	*0.00*	*0.00*	0.15	0.90	0.88	0.10	*0.00*	*0.04*	*0.04*
PielouEvenness_s	-0.06	0.02	-0.34	0.18	-0.06	**0.91**	**0.90**	**0.89**	0.03	-0.13	0.64	0.47	-0.11	-0.01	0.21	0.54	-0.02	0.57	0.68	0.03	1.00	0.85	*0.00*	0.12	0.49	0.15	*0.00*	*0.00*	0.23	0.56	0.63	0.17
PropPredatoryFish_s	0.36	-0.34	0.05	0.11	-0.20	**0.75**	0.43	0.45	-0.18	-0.47	**0.82**	0.59	-0.48	-0.45	0.48	**0.74**	-0.43	**0.79**	**0.78**	0.23	0.69	1.00	0.10	*0.00*	0.34	*0.02*	*0.00*	0.64	0.66	*0.04*	0.94	0.52
BiomassFlatfish_s	-0.05	-0.01	-0.45	0.10	-0.10	0.11	0.24	0.19	-0.05	0.12	-0.16	-0.11	0.02	0.34	-0.11	-0.14	-0.04	-0.08	-0.09	-0.08	0.20	0.03	1.00	*0.00*	*0.01*	*0.02*	*0.00*	*0.01*	*0.00*	0.97	0.66	0.58
BiomassGadoids_s	0.69	-0.08	0.13	0.23	-0.20	-0.12	-0.13	-0.13	-0.09	-0.12	-0.09	-0.14	-0.10	-0.06	0.00	-0.10	-0.40	-0.07	-0.14	0.30	-0.11	0.33	*0.04*	1.00	0.40	0.14	0.16	*0.04*	0.62	0.60	0.09	0.73
BiomassGroundfish_s	**0.98**	-0.22	0.16	-0.09	-0.04	0.00	-0.03	-0.01	-0.14	-0.28	0.23	0.40	-0.17	-0.09	0.42	0.32	-0.10	0.25	0.28	**0.72**	0.00	0.41	0.03	**0.75**	1.00	*0.00*	*0.00*	*0.00*	0.14	*0.00*	0.87	0.18
BTGLargeBenthivore_s	-0.10	0.22	0.02	-0.19	0.09	-0.14	0.25	0.19	0.50	0.54	-0.17	-0.13	0.55	0.28	-0.33	-0.15	0.37	-0.18	-0.09	-0.03	0.07	-0.19	0.02	-0.10	-0.05	1.00	0.45	0.99	*0.02*	0.17	*0.00*	0.32
BTGMediumBenthivore_s	-0.05	0.10	0.17	0.02	-0.11	0.06	0.22	0.15	0.05	0.21	0.12	-0.15	0.21	0.16	-0.15	-0.02	-0.21	0.07	0.05	-0.25	0.22	0.28	0.31	0.27	0.16	0.14	1.00	0.81	*0.00*	0.47	0.53	0.12
BTGPiscivore_s	0.64	-0.18	0.12	-0.33	0.19	0.15	0.08	0.12	-0.19	-0.33	0.46	**0.81**	-0.21	-0.06	0.65	0.62	0.28	0.44	0.61	**0.72**	0.12	0.22	-0.07	-0.06	0.59	-0.05	-0.13	1.00	*0.01*	0.98	0.07	*0.03*
BiomassSkates_s	-0.09	0.19	0.04	0.00	0.11	0.03	0.20	0.17	0.41	0.43	-0.05	-0.14	0.34	0.09	-0.22	-0.07	0.17	-0.08	-0.03	-0.09	0.13	-0.02	-0.01	0.00	-0.04	**0.78**	0.08	-0.10	1.00	0.64	0.71	0.43
BTGZoopiscivore_s	0.45	0.33	-0.02	0.02	0.13	-0.33	-0.14	-0.17	0.10	0.18	-0.38	-0.28	0.36	0.19	-0.23	-0.36	0.30	-0.22	-0.33	0.30	-0.24	-0.12	0.07	0.62	0.48	0.18	0.10	-0.08	0.15	1.00	1.00	*0.01*
ShannonDiversity_s	-0.11	0.19	-0.36	0.17	-0.04	**0.74**	**0.97**	**0.93**	0.22	0.15	0.41	0.30	0.22	0.28	-0.01	0.31	0.12	0.34	0.49	-0.01	**0.93**	0.48	0.25	-0.11	-0.04	0.27	0.30	0.05	0.23	-0.12	1.00	0.30
SpeciesRichness_s	-0.21	0.46	-0.03	-0.05	0.09	-0.45	0.12	0.03	0.56	**0.80**	-0.53	-0.42	**1.00**	**0.71**	-0.57	-0.56	0.41	-0.51	-0.47	-0.08	-0.18	-0.52	0.02	-0.08	-0.16	0.54	0.20	-0.20	0.32	0.38	0.16	1.00

Table S 64. Spearman rank correlation coefficients (r) for indicators in strata 482. The upper triangle of the matrix represents p-values (p ≤ 0.05 highlighted in blue italics). The lower triangle of the matrix represents the r values (r ≥ 0.7 highlighted in red).

Indicator	BiomassTL4_s	CommunityCondition_s	CCMediumBenthivore_s	CCPiscivore_s	CCPlanktivore_s	CCZoopiscivore_s	Heips_s	HillN1Diversity_s	HillN2Dominance_s	InverseCVBiomass_s	KemptonQ_s	LargeFishIndicator_s	LargeSpeciesIndicator_s	MargalefRichness_s	MargalefGroundfish_s	MeanLengthAbundance_s	MeanLengthBiomass_s	MeanLifespan_s	MMLengthAbundance_s	MMLengthBiomass_s	MeanTrophicLevel_s	PielouEvenness_s	PropPredatoryFish_s	BiomassGadoids_s	BiomassGroundfish_s	BTGMediumBenthivore_s	BTGPiscivore_s	BiomassSkates_s	BTGZoopiscivore_s	ShannonDiversity_s	SpeciesRichness_s
BiomassTL4_s	1.00	0.05	0.88	0.81	0.53	0.40	*0.04*	*0.02*	0.66	0.58	0.47	0.06	0.84	0.90	0.47	0.46	0.78	*0.01*	0.36	0.33	0.77	*0.00*	0.92	0.68	0.56	*0.00*	0.21	*0.01*	*0.00*	0.74	*0.00*
CommunityCondition_s	-0.29	1.00	0.26	0.18	0.63	*0.00*	0.36	*0.00*	0.45	0.50	0.20	0.60	0.08	0.55	0.17	0.21	0.33	0.92	0.48	0.76	0.07	*0.00*	*0.00*	0.27	0.27	*0.00*	0.79	0.32	*0.01*	0.48	0.10
CCMediumBenthivore_s	0.02	0.23	1.00	0.69	0.39	0.37	*0.01*	*0.00*	0.13	0.07	0.62	0.61	0.41	0.55	0.23	0.33	*0.00*	0.15	0.80	0.55	*0.02*	0.96	*0.00*	0.68	*0.01*	*0.00*	*0.00*	0.40	0.09	*0.00*	*0.00*
CCPiscivore_s	0.17	-0.24	0.03	1.00	0.63	0.95	*0.00*	0.47	0.10	0.29	0.20	0.10	*0.03*	*0.04*	0.24	0.71	*0.00*	*0.00*	0.68	*0.00*	*0.02*	0.16	0.43	0.47	*0.00*	*0.00*	*0.00*	0.17	*0.01*	0.85	*0.00*
CCPlanktivore_s	-0.04	0.65	0.34	-0.20	1.00	0.56	*0.02*	*0.00*	*0.00*	0.94	0.83	0.82	0.18	0.67	0.81	0.26	*0.02*	0.99	0.31	0.58	*0.00*	*0.02*	0.96	*0.00*	0.96	*0.00*	*0.01*	0.46	0.92	*0.00*	*0.00*
CCZoopiscivore_s	-0.20	**0.71**	-0.03	-0.19	0.25	1.00	0.75	0.82	*0.00*	0.10	0.52	*0.02*	*0.00*	0.92	0.08	0.24	0.74	0.88	0.27	*0.01*	*0.04*	*0.02*	0.58	*0.00*	*0.01*	*0.00*	0.74	0.70	0.18	*0.00*	0.66
Heips_s	-0.06	0.02	-0.17	0.05	0.05	0.00	1.00	*0.00*	0.87	0.13	0.51	0.82	*0.03*	0.20	0.82	0.99	*0.00*	0.93	0.76	*0.00*	*0.00*	*0.00*	0.27	0.10	*0.00*	0.80	*0.00*	0.32	0.14	*0.04*	0.19
HillN1Diversity_s	-0.10	0.08	0.06	-0.12	0.23	0.02	**0.76**	1.00	0.61	0.59	0.29	0.25	*0.01*	0.47	0.09	0.61	*0.03*	0.91	0.82	*0.02*	0.15	0.07	0.25	0.90	0.28	*0.00*	0.20	*0.00*	*0.02*	*0.03*	0.84
HillN2Dominance_s	-0.07	0.08	0.05	-0.11	0.23	-0.01	**0.81**	**0.98**	1.00	0.59	0.07	0.69	0.15	*0.02*	0.41	0.09	0.79	0.45	0.56	*0.00*	0.05	*0.00*	0.52	*0.01*	*0.00*	0.51	0.81	*0.00*	*0.00*	0.58	0.89
InverseCVBiomass_s	0.13	-0.10	-0.05	0.20	0.02	-0.02	-0.07	0.04	0.01	1.00	0.36	0.75	0.20	0.19	0.08	0.09	*0.00*	0.08	0.31	*0.00*	0.42	0.17	0.60	*0.03*	*0.00*	0.85	*0.02*	0.95	*0.00*	0.11	*0.00*
KemptonQ_s	-0.07	0.27	-0.03	-0.18	0.44	0.12	-0.04	0.27	0.21	0.12	1.00	0.74	0.62	0.22	0.52	0.76	0.47	0.54	0.92	0.84	*0.00*	0.06	0.79	0.87	0.20	*0.01*	0.56	*0.00*	0.93	0.14	*0.00*
LargeFishIndicator_s	0.13	0.16	-0.26	0.17	0.04	0.26	0.58	0.34	0.35	0.01	-0.06	1.00	0.95	0.72	0.67	0.12	0.21	0.72	0.83	0.52	*0.02*	0.16	0.60	*0.00*	0.39	0.66	0.46	*0.00*	*0.04*	0.07	0.74
LargeSpeciesIndicator_s	0.61	-0.01	-0.12	0.04	0.15	0.09	0.41	0.34	0.35	0.08	0.11	0.56	1.00	0.42	*0.03*	0.12	0.46	0.53	*0.00*	0.64	*0.00*	*0.00*	0.63	0.70	0.80	*0.00*	0.13	0.08	*0.00*	*0.00*	*0.01*
MargalefRichness_s	-0.13	0.24	0.32	-0.26	0.50	0.05	0.15	0.67	0.59	0.17	0.68	-0.09	0.11	1.00	0.99	0.92	0.62	*0.03*	*0.00*	0.81	*0.00*	*0.02*	0.63	0.63	0.08	*0.00*	0.28	*0.01*	0.23	*0.00*	0.74
MargalefGroundfish_s	0.01	0.23	0.20	-0.03	0.45	0.10	-0.05	0.31	0.27	0.17	0.68	-0.17	0.18	0.65	1.00	*0.00*	0.06	*0.04*	0.65	0.28	0.80	*0.00*	0.90	0.93	0.76	0.36	*0.02*	*0.00*	*0.05*	*0.00*	0.90
MeanLengthAbundance_s	-0.09	0.08	-0.41	0.25	-0.34	0.32	-0.09	-0.48	-0.47	-0.10	-0.25	0.41	-0.07	-0.69	-0.36	1.00	0.88	0.18	0.78	0.89	0.57	*0.00*	0.63	0.84	0.16	*0.00*	0.97	0.10	0.61	0.85	0.97
MeanLengthBiomass_s	0.31	0.08	-0.31	0.12	-0.05	0.31	0.45	0.22	0.21	0.08	-0.02	**0.86**	**0.76**	-0.14	-0.05	0.44	1.00	0.81	*0.00*	*0.00*	0.65	0.91	0.10	0.99	*0.01*	*0.02*	0.13	0.07	*0.01*	0.69	0.51
MeanLifespan_s	-0.14	-0.11	-0.37	0.26	-0.61	0.20	-0.08	-0.29	-0.28	-0.04	-0.39	-0.01	-0.28	-0.58	-0.43	0.61	0.01	1.00	*0.01*	0.67	0.59	0.69	0.30	0.58	0.27	0.78	0.50	0.93	0.60	0.89	0.93
MMLengthAbundance_s	0.36	-0.19	-0.21	0.10	-0.32	-0.04	0.38	0.12	0.21	-0.08	-0.32	0.38	0.56	-0.35	-0.19	0.13	0.47	0.19	1.00	*0.00*	0.47	0.60	0.55	*0.00*	0.47	*0.00*	0.08	*0.00*	0.79	0.66	0.53
MMLengthBiomass_s	0.47	-0.08	-0.19	0.06	-0.04	0.14	0.53	0.42	0.43	0.07	-0.03	0.68	**0.92**	0.04	0.04	0.03	**0.86**	-0.15	0.68	1.00	0.77	0.61	0.72	0.67	0.22	*0.01*	*0.00*	1.00	0.21	0.28	0.10
MeanTrophicLevel_s	0.34	0.19	0.08	-0.31	0.51	0.11	0.33	0.35	0.35	0.07	0.42	0.16	0.55	0.43	0.33	-0.39	0.27	-0.64	-0.01	0.39	1.00	0.56	0.55	0.16	0.62	*0.03*	*0.00*	0.16	*0.01*	0.93	0.44
PielouEvenness_s	-0.05	0.03	-0.01	0.00	0.11	-0.04	**0.95**	**0.85**	**0.87**	0.02	0.06	0.49	0.41	0.37	0.09	-0.30	0.38	-0.24	0.30	0.53	0.43	1.00	0.76	*0.00*	*0.00*	0.98	*0.00*	0.07	*0.01*	*0.00*	*0.04*
PropPredatoryFish_s	0.36	-0.10	0.02	-0.11	0.19	-0.06	0.57	0.56	0.58	0.07	0.07	0.50	**0.72**	0.31	0.11	-0.36	0.55	-0.60	0.44	**0.79**	0.66	0.66	1.00	*0.00*	0.06	0.74	0.40	0.16	*0.00*	0.05	0.56
BiomassGadoids_s	0.67	-0.10	0.09	0.19	0.11	-0.15	-0.03	-0.04	-0.02	0.25	0.01	0.19	0.44	0.00	0.22	-0.15	0.25	-0.36	0.18	0.33	0.30	0.03	0.37	1.00	*0.00*	0.14	0.83	0.21	*0.00*	*0.01*	0.30
BiomassGroundfish_s	**0.91**	-0.16	0.09	0.15	0.07	-0.17	-0.10	-0.09	-0.06	0.15	-0.03	0.13	0.54	-0.05	0.16	-0.13	0.27	-0.25	0.29	0.40	0.31	-0.06	0.34	**0.85**	1.00	0.29	*0.01*	0.31	*0.03*	*0.02*	0.82
BTGMediumBenthivore_s	0.11	0.27	0.30	-0.06	0.28	0.05	-0.07	0.07	0.08	0.09	0.00	0.04	0.04	0.22	0.33	-0.21	-0.01	-0.38	-0.08	0.01	0.08	0.02	0.14	0.65	0.49	1.00	*0.04*	*0.00*	*0.01*	0.36	0.42
BTGPiscivore_s	**0.89**	-0.14	-0.06	0.17	-0.02	0.03	-0.04	-0.08	-0.08	0.06	-0.08	0.26	0.69	-0.16	0.01	0.11	0.49	0.02	0.38	0.57	0.24	-0.07	0.29	0.43	**0.77**	-0.01	1.00	0.11	0.97	0.05	0.12
BiomassSkates_s	0.03	0.27	0.02	-0.18	0.36	0.09	-0.16	-0.11	-0.09	-0.09	0.52	-0.05	0.10	0.19	0.23	-0.06	0.00	-0.20	-0.08	-0.05	0.22	-0.16	-0.05	-0.07	0.05	-0.10	0.12	1.00	*0.00*	0.72	0.96
BTGZoopiscivore_s	0.44	0.08	0.19	0.00	-0.02	0.15	-0.02	-0.04	-0.01	0.05	-0.06	-0.21	-0.03	-0.04	-0.10	-0.15	-0.21	0.22	-0.04	-0.11	0.27	0.01	-0.08	0.19	0.36	-0.01	0.30	0.03	1.00	0.59	0.95
ShannonDiversity_s	-0.07	0.08	0.11	-0.08	0.22	-0.02	**0.84**	**0.95**	**0.95**	0.06	0.21	0.38	0.39	0.60	0.26	-0.47	0.27	-0.35	0.19	0.48	0.46	**0.96**	0.66	0.03	-0.05	0.10	-0.09	-0.12	0.01	1.00	*0.00*
SpeciesRichness_s	-0.11	0.24	0.35	-0.25	0.52	0.03	0.06	0.60	0.52	0.17	**0.71**	-0.17	0.07	**0.99**	0.67	-0.70	-0.21	-0.59	-0.40	-0.03	0.42	0.29	0.24	0.02	-0.02	0.24	-0.16	0.23	-0.01	0.53	1.00

Table S 65. Spearman rank correlation coefficients (r) for indicators in strata 483. The upper triangle of the matrix represents p-values (p ≤ 0.05 highlighted in blue italics). The lower triangle of the matrix represents the r values (r ≥ 0.7 highlighted in red).

Indicator	BiomassTL4_s	CommunityCondition_s	CCMediumBenthivore_s	CCPiscivore_s	CCPlanktivore_s	CCZoopiscivore_s	Heips_s	HillN1Diversity_s	HillN2Dominance_s	InverseCVBiomass_s	KemptonQ_s	LargeFishIndicator_s	LargeSpeciesIndicator_s	MargalefRichness_s	MargalefGroundfish_s	MeanLengthAbundance_s	MeanLengthBiomass_s	MeanLifespan_s	MMLengthAbundance_s	MMLengthBiomass_s	MeanTrophicLevel_s	PielouEvenness_s	PropPredatoryFish_s	BiomassFlatfish_s	BiomassGadoids_s	BiomassGroundfish_s	BTGMediumBenthivore_s	BTGPiscivore_s	BiomassSkates_s	BTGZoopiscivore_s	ShannonDiversity_s	SpeciesRichness_s
BiomassTL4_s	1.00	0.90	0.49	0.07	0.78	0.15	0.62	0.09	0.34	0.23	0.88	0.38	0.87	0.67	0.61	0.91	0.47	0.79	0.80	*0.00*	*0.01*	*0.00*	0.38	0.96	0.59	*0.00*	*0.00*	0.07	*0.00*	0.57	0.20	0.68
CommunityCondition_s	0.02	1.00	0.43	0.85	0.43	*0.01*	0.13	*0.00*	0.81	0.16	0.13	0.57	0.11	0.79	0.29	0.73	0.60	0.49	*0.02*	*0.00*	0.22	0.41	*0.00*	0.35	0.11	*0.02*	*0.00*	0.16	0.66	*0.00*	0.21	0.63
CCMediumBenthivore_s	0.11	0.38	1.00	0.55	0.33	0.92	*0.04*	*0.00*	0.93	0.84	0.94	0.39	0.65	0.45	0.53	0.32	0.45	0.17	*0.01*	0.53	0.30	0.32	*0.00*	0.64	0.18	0.19	0.10	0.34	*0.00*	*0.00*	0.98	0.41
CCPiscivore_s	0.12	0.36	0.20	1.00	0.23	0.10	0.18	*0.00*	*0.01*	0.95	0.68	0.27	0.20	0.50	0.69	0.78	0.29	0.93	0.18	0.30	0.50	0.25	0.17	0.61	0.47	0.15	*0.00*	0.61	*0.00*	0.09	0.23	*0.00*
CCPlanktivore_s	0.27	0.02	-0.01	-0.16	1.00	*0.00*	*0.04*	*0.00*	*0.01*	0.99	0.06	0.37	0.15	0.41	0.75	0.41	0.91	0.13	0.08	*0.00*	*0.00*	*0.03*	0.11	0.53	0.34	*0.00*	*0.02*	0.18	0.24	*0.04*	0.24	*0.00*
CCZoopiscivore_s	-0.03	0.39	0.14	0.08	-0.13	1.00	0.70	*0.00*	0.90	0.44	0.52	0.40	0.43	0.40	0.20	0.17	*0.00*	0.45	0.08	*0.01*	0.58	0.47	0.09	0.45	0.26	0.77	0.05	0.08	0.26	*0.02*	0.15	*0.00*
Heips_s	0.09	-0.10	-0.03	0.16	-0.09	0.20	1.00	0.70	*0.01*	0.41	0.19	0.17	0.35	0.13	0.32	0.44	*0.01*	0.44	*0.01*	0.88	*0.00*	0.13	*0.01*	0.71	*0.01*	*0.04*	0.15	*0.04*	0.05	0.12	*0.00*	0.82
HillN1Diversity_s	0.04	-0.18	0.00	-0.09	0.11	0.07	**0.84**	1.00	0.53	0.83	0.40	0.96	0.91	0.41	0.82	0.51	0.55	0.60	0.30	1.00	0.23	0.13	0.22	0.25	0.17	0.81	0.15	0.26	*0.01*	*0.01*	0.46	0.69
HillN2Dominance_s	0.12	-0.21	-0.02	-0.06	0.08	0.09	**0.88**	**0.98**	1.00	0.35	0.47	0.34	0.36	0.73	*0.00*	0.55	0.78	*0.01*	0.24	0.06	0.53	*0.00*	0.20	0.84	0.49	0.05	*0.03*	*0.00*	0.17	0.30	0.20	0.30
InverseCVBiomass_s	-0.15	-0.03	0.24	-0.05	-0.12	-0.03	0.10	0.18	0.20	1.00	0.53	0.84	0.73	0.44	0.07	0.29	0.21	0.18	*0.04*	*0.00*	*0.00*	*0.01*	0.18	0.74	*0.00*	*0.00*	0.44	*0.04*	*0.00*	0.76	0.23	0.59
KemptonQ_s	-0.18	-0.01	-0.07	-0.19	0.16	-0.05	-0.16	0.09	0.01	0.18	1.00	0.99	0.58	0.72	*0.02*	0.14	*0.05*	0.62	0.28	0.54	*0.00*	0.17	*0.00*	0.20	*0.00*	*0.01*	0.58	0.20	*0.03*	*0.05*	*0.02*	*0.00*
LargeFishIndicator_s	0.21	0.00	0.19	0.15	0.02	0.42	0.63	0.52	0.53	0.03	-0.06	1.00	0.36	0.48	0.95	0.95	0.99	0.57	0.23	*0.00*	*0.00*	0.96	0.07	0.09	0.71	*0.00*	0.94	*0.00*	*0.00*	*0.00*	0.41	*0.00*
LargeSpeciesIndicator_s	0.38	-0.12	0.22	0.04	0.54	0.07	0.37	0.47	0.44	-0.06	0.17	0.58	1.00	0.28	0.28	*0.00*	*0.03*	0.84	*0.00*	*0.00*	0.21	*0.00*	0.22	0.69	0.81	*0.00*	0.59	*0.03*	0.31	*0.04*	0.42	0.32
MargalefRichness_s	-0.02	-0.12	0.12	-0.47	0.37	-0.18	0.02	0.46	0.37	0.26	0.58	0.06	0.31	1.00	*0.02*	0.38	*0.01*	0.74	0.34	0.56	0.59	*0.00*	0.86	0.26	*0.00*	*0.00*	0.90	0.65	0.29	*0.00*	0.55	0.83
MargalefGroundfish_s	-0.25	-0.03	-0.14	-0.27	0.09	-0.04	0.00	0.19	0.12	0.19	0.65	-0.04	0.04	0.52	1.00	0.53	0.88	*0.00*	0.13	*0.00*	*0.00*	*0.01*	0.67	*0.00*	*0.00*	*0.00*	0.35	0.51	0.07	*0.00*	*0.00*	0.30
MeanLengthAbundance_s	0.43	0.14	-0.02	0.35	-0.04	0.34	0.28	-0.08	0.00	-0.14	-0.06	0.53	0.29	-0.46	-0.18	1.00	0.16	0.66	0.77	*0.00*	*0.04*	0.42	0.08	*0.00*	0.75	*0.00*	*0.02*	0.17	*0.01*	0.25	0.52	0.89
MeanLengthBiomass_s	0.07	0.02	0.14	-0.01	0.19	0.37	0.61	0.65	0.63	0.05	0.22	**0.77**	0.70	0.25	0.27	0.31	1.00	0.22	0.53	0.18	0.10	0.98	0.20	0.68	*0.00*	0.19	*0.00*	*0.00*	0.54	0.16	0.19	*0.00*
MeanLifespan_s	-0.22	0.23	-0.05	0.16	-0.29	0.20	-0.09	-0.30	-0.31	-0.15	-0.27	0.05	-0.38	-0.49	-0.19	0.19	-0.22	1.00	0.13	0.12	*0.00*	*0.00*	0.35	0.15	*0.00*	0.08	*0.00*	*0.00*	*0.01*	*0.02*	*0.04*	0.84
MMLengthAbundance_s	0.30	0.01	-0.08	0.35	0.00	0.26	0.58	0.25	0.31	-0.13	-0.05	0.62	0.46	-0.33	-0.06	**0.79**	0.44	0.16	1.00	0.13	0.31	*0.04*	0.75	0.07	1.00	*0.01*	0.23	*0.00*	0.77	*0.03*	*0.01*	0.19
MMLengthBiomass_s	0.20	-0.06	0.14	0.02	0.32	0.26	0.60	0.65	0.62	0.00	0.23	**0.75**	**0.89**	0.29	0.18	0.32	**0.91**	-0.27	0.56	1.00	*0.00*	*0.04*	0.32	0.72	*0.00*	0.10	0.07	*0.02*	0.15	*0.04*	*0.00*	*0.02*
MeanTrophicLevel_s	0.30	-0.28	0.06	-0.05	0.40	-0.37	0.09	0.15	0.13	-0.01	0.00	0.00	0.53	0.22	-0.12	-0.07	0.07	-0.39	0.09	0.30	1.00	*0.00*	0.39	0.12	*0.00*	*0.00*	0.20	*0.00*	0.07	*0.00*	*0.03*	0.73
PielouEvenness_s	0.06	-0.10	0.04	0.15	-0.02	0.16	**0.93**	**0.89**	**0.88**	0.14	-0.03	0.62	0.41	0.21	0.07	0.10	0.59	-0.09	0.45	0.63	0.14	1.00	1.00	0.98	*0.02*	*0.02*	0.69	0.43	0.08	*0.03*	0.18	0.92
PropPredatoryFish_s	0.25	-0.19	0.11	0.04	0.21	0.18	**0.74**	**0.76**	**0.75**	0.07	0.08	**0.73**	**0.71**	0.32	0.15	0.20	**0.77**	-0.40	0.51	**0.86**	0.37	**0.78**	1.00	0.85	*0.03*	0.06	0.23	0.84	0.18	*0.00*	0.06	0.96
BiomassFlatfish_s	**0.71**	0.13	0.10	0.13	0.04	0.31	0.20	0.12	0.20	-0.08	-0.24	0.35	0.20	-0.12	-0.27	0.47	0.18	-0.04	0.25	0.17	-0.11	0.11	0.19	1.00	*0.01*	*0.00*	0.42	0.67	0.35	0.20	*0.00*	0.54
BiomassGadoids_s	**0.91**	0.11	0.12	0.21	0.11	0.16	0.23	0.15	0.24	-0.10	-0.20	0.32	0.26	-0.08	-0.21	0.46	0.17	-0.21	0.31	0.21	-0.01	0.19	0.31	**0.80**	1.00	0.11	0.66	*0.00*	*0.03*	0.35	0.14	0.96
BiomassGroundfish_s	**0.94**	0.09	0.13	0.12	0.21	0.18	0.23	0.17	0.25	-0.11	-0.11	0.36	0.40	0.01	-0.14	0.48	0.29	-0.27	0.35	0.34	0.12	0.18	0.38	**0.79**	**0.96**	1.00	0.33	0.14	0.16	*0.01*	*0.00*	0.85
BTGMediumBenthivore_s	0.65	0.13	0.23	0.10	0.01	0.43	0.37	0.33	0.40	0.06	-0.14	0.50	0.25	0.08	-0.08	0.36	0.38	-0.26	0.23	0.33	-0.19	0.35	0.46	**0.76**	**0.86**	**0.83**	1.00	*0.00*	*0.00*	0.48	*0.00*	0.34
BTGPiscivore_s	**0.96**	0.09	0.13	0.09	0.22	0.14	0.19	0.11	0.19	-0.17	-0.17	0.33	0.42	-0.02	-0.20	0.51	0.21	-0.20	0.39	0.30	0.19	0.12	0.32	**0.78**	**0.92**	**0.96**	**0.75**	1.00	*0.00*	0.95	*0.00*	0.38
BiomassSkates_s	-0.06	0.13	-0.05	-0.16	0.11	0.22	0.16	0.22	0.19	-0.03	0.40	0.20	0.35	0.14	0.26	0.12	0.59	-0.14	0.16	0.51	0.00	0.12	0.20	0.04	-0.03	0.15	0.03	0.01	1.00	0.44	*0.00*	0.29
BTGZoopiscivore_s	0.14	0.17	-0.12	0.22	-0.12	-0.04	-0.10	-0.23	-0.20	-0.05	-0.21	-0.21	-0.28	-0.33	-0.31	0.03	-0.32	0.32	-0.05	-0.31	0.18	-0.09	-0.28	-0.06	0.06	0.03	-0.20	-0.01	-0.03	1.00	0.81	*0.05*
ShannonDiversity_s	0.04	-0.14	0.05	0.01	0.08	0.09	**0.85**	**0.95**	**0.91**	0.19	0.10	0.55	0.45	0.43	0.17	-0.06	0.59	-0.21	0.30	0.65	0.18	**0.97**	**0.78**	0.07	0.15	0.16	0.33	0.09	0.15	-0.16	1.00	*0.03*
SpeciesRichness_s	0.01	-0.13	0.11	-0.51	0.38	-0.23	-0.08	0.36	0.27	0.25	0.56	-0.04	0.24	**0.99**	0.51	-0.49	0.15	-0.49	-0.41	0.19	0.22	0.10	0.22	-0.12	-0.08	0.02	0.05	-0.01	0.13	-0.29	0.32	1.00

Table S 66. Spearman rank correlation coefficients (r) for indicators in strata 484. The upper triangle of the matrix represents p-values (p ≤ 0.05 highlighted in blue italics). The lower triangle of the matrix represents the r values (r ≥ 0.7 highlighted in red).

Indicator	BiomassTL3_s	BiomassTL4_s	BPelagicToDemersal_s	CommunityCondition_s	CCMediumBenthivore_s	CCPiscivore_s	CCPlanktivore_s	CCZoopiscivore_s	Heips_s	HillN1Diversity_s	HillN2Dominance_s	InverseCVBiomass_s	KemptonQ_s	LargeFishIndicator_s	LargeSpeciesIndicator_s	MargalefRichness_s	MargalefGroundfish_s	MeanLengthAbundance_s	MeanLengthBiomass_s	MeanLifespan_s	MMLengthAbundance_s	MMLengthBiomass_s	MeanTrophicLevel_s	PielouEvenness_s	PropPredatoryFish_s	Biomass_s	BiomassClupeids_s	BiomassFinfish_s	BiomassFlatfish_s	BiomassForage_s	BiomassGadoids_s	BiomassGroundfish_s	BTGMediumBenthivore_s	BTGPiscivore_s	BTGPlanktivore_s	BiomassSkates_s	BTGZoopiscivore_s	ShannonDiversity_s	SpeciesRichness_s
BiomassTL3_s	1.00	0.56	*0.00*	0.06	0.60	0.30	0.52	*0.00*	*0.00*	*0.00*	0.19	0.39	*0.00*	0.31	0.25	0.39	0.55	0.79	0.71	0.10	0.28	0.07	0.60	*0.03*	*0.00*	0.66	*0.02*	0.07	0.32	0.34	*0.00*	*0.00*	0.21	0.41	0.57	*0.02*	0.24	0.78	*0.00*
BiomassTL4_s	-0.09	1.00	0.64	0.29	*0.02*	0.38	0.68	*0.00*	0.63	*0.04*	0.46	*0.00*	*0.00*	0.93	0.44	*0.00*	0.98	0.86	0.49	0.08	0.83	0.72	0.89	*0.01*	*0.00*	*0.03*	0.83	0.90	*0.02*	*0.02*	0.75	0.99	*0.01*	*0.01*	0.35	*0.00*	*0.00*	0.86	0.14
BPelagicToDemersal_s	**0.96**	-0.13	1.00	0.53	*0.02*	0.93	0.10	*0.00*	0.62	0.39	0.96	*0.00*	0.99	0.09	*0.04*	0.24	*0.01*	0.40	*0.05*	0.24	0.85	*0.01*	0.63	0.14	0.68	0.75	0.16	*0.04*	0.26	0.18	0.58	0.56	0.43	0.79	0.51	*0.00*	0.85	0.61	*0.00*
CommunityCondition_s	0.07	-0.14	-0.04	1.00	*0.03*	0.09	0.14	*0.00*	0.40	0.36	0.16	*0.00*	*0.00*	0.06	*0.00*	0.85	*0.00*	0.26	*0.00*	0.11	0.25	0.06	0.69	*0.00*	0.45	*0.04*	0.07	0.81	0.85	0.90	0.11	*0.00*	0.97	0.32	0.34	0.30	0.20	0.76	0.69
CCMediumBenthivore_s	0.27	0.24	0.23	0.20	1.00	0.12	0.18	0.08	0.53	0.10	*0.01*	0.29	0.52	0.10	*0.01*	*0.02*	0.67	0.45	0.18	0.13	0.70	0.64	0.31	0.23	*0.00*	*0.00*	0.16	0.43	0.92	0.16	*0.00*	0.97	0.29	*0.00*	0.45	*0.00*	*0.00*	0.10	*0.00*
CCPiscivore_s	-0.16	-0.28	-0.09	-0.05	-0.04	1.00	*0.01*	*0.00*	*0.00*	0.06	*0.00*	*0.00*	0.59	0.25	*0.01*	0.13	0.65	0.79	0.34	0.08	0.70	0.63	0.11	0.24	*0.01*	0.06	*0.02*	0.15	0.11	0.34	0.52	0.60	0.09	*0.00*	0.12	*0.02*	0.59	0.80	0.58
CCPlanktivore_s	-0.09	0.05	-0.15	0.48	0.04	-0.03	1.00	0.54	0.13	0.72	0.38	0.12	0.77	0.64	*0.00*	0.18	*0.00*	0.24	0.35	0.06	0.46	0.66	0.74	0.40	0.22	*0.00*	0.38	0.41	0.98	0.27	0.13	0.72	0.68	*0.00*	*0.00*	0.43	*0.01*	0.29	0.26
CCZoopiscivore_s	0.08	0.02	-0.01	**0.82**	0.18	-0.09	0.28	1.00	0.12	0.91	0.63	0.87	0.13	0.44	0.75	0.72	0.53	*0.00*	*0.04*	0.50	0.25	0.43	0.55	0.18	0.43	0.87	0.45	*0.04*	0.26	0.87	0.45	0.88	0.37	*0.00*	0.07	0.25	*0.00*	*0.00*	0.66
Heips_s	-0.35	0.04	-0.25	-0.09	-0.16	0.23	-0.07	0.20	1.00	0.79	*0.00*	0.09	0.36	0.09	*0.00*	*0.00*	0.60	0.70	0.64	*0.00*	0.98	0.77	0.65	0.67	*0.00*	0.07	*0.00*	0.52	0.05	*0.04*	*0.00*	0.69	0.64	*0.00*	*0.00*	*0.00*	*0.03*	0.63	0.51
HillN1Diversity_s	-0.35	0.20	-0.28	0.05	0.06	0.03	-0.07	0.29	**0.88**	1.00	*0.00*	0.50	0.78	0.25	0.59	*0.00*	0.06	*0.02*	0.41	0.82	0.09	0.72	0.31	0.45	*0.00*	*0.00*	0.40	0.35	0.86	*0.00*	*0.00*	0.19	0.29	0.40	*0.00*	0.95	0.07	0.40	0.79
HillN2Dominance_s	-0.31	0.11	-0.25	0.01	0.02	0.06	-0.07	0.26	**0.90**	**0.97**	1.00	0.52	0.12	0.65	*0.00*	0.54	0.82	0.81	0.59	0.54	0.28	0.76	0.77	0.69	0.95	*0.00*	0.76	*0.00*	0.75	*0.00*	0.34	0.29	0.29	*0.00*	*0.00*	*0.03*	*0.00*	*0.00*	0.79
InverseCVBiomass_s	-0.16	0.01	-0.17	-0.04	0.26	0.38	-0.12	-0.12	-0.06	-0.03	-0.05	1.00	0.57	0.39	0.34	0.74	0.06	0.80	0.88	0.13	0.09	1.00	*0.05*	0.59	*0.00*	0.13	0.12	0.77	0.75	0.80	*0.00*	0.07	*0.05*	0.71	*0.00*	*0.00*	*0.02*	0.22	*0.00*
KemptonQ_s	-0.13	-0.21	-0.07	0.14	0.06	0.01	-0.04	0.11	0.12	0.27	0.23	-0.07	1.00	0.24	0.43	0.93	0.89	0.24	0.71	0.85	*0.04*	0.71	0.82	0.98	*0.00*	0.41	*0.00*	0.66	0.50	0.42	*0.00*	0.17	0.15	0.82	*0.00*	0.15	*0.00*	0.07	0.56
LargeFishIndicator_s	0.01	0.40	0.12	-0.09	0.10	0.11	0.05	0.18	0.63	0.58	0.55	0.03	-0.10	1.00	0.50	0.78	0.84	0.28	0.07	0.70	0.47	0.56	0.97	0.95	0.12	*0.00*	*0.00*	0.87	0.95	*0.00*	*0.00*	0.32	*0.00*	0.13	0.89	0.46	0.25	0.42	0.84
LargeSpeciesIndicator_s	-0.25	**0.77**	-0.25	0.00	0.29	-0.23	-0.05	0.20	0.40	0.60	0.55	0.09	-0.01	0.55	1.00	0.34	0.89	0.70	0.67	*0.01*	0.69	0.86	0.18	0.47	*0.00*	*0.00*	0.36	0.54	*0.00*	*0.00*	*0.00*	0.72	*0.00*	*0.01*	*0.00*	0.11	*0.00*	0.09	0.72
MargalefRichness_s	0.23	0.13	0.17	0.36	0.47	-0.36	0.00	0.35	-0.19	0.23	0.14	-0.06	0.49	-0.04	0.23	1.00	0.52	0.87	*0.02*	0.97	*0.04*	0.52	0.05	0.84	*0.00*	0.23	0.78	0.71	*0.00*	0.26	*0.00*	0.30	*0.05*	*0.00*	0.84	0.41	*0.00*	*0.00*	0.11
MargalefGroundfish_s	-0.10	-0.07	-0.07	0.42	0.20	-0.16	0.06	0.33	-0.12	0.12	0.04	0.04	0.62	-0.12	0.11	0.66	1.00	0.08	*0.01*	0.45	*0.00*	0.34	0.08	0.09	*0.02*	*0.00*	*0.01*	0.78	0.26	*0.00*	0.81	0.08	*0.00*	0.25	0.55	*0.00*	0.98	0.20	0.28
MeanLengthAbundance_s	0.06	0.59	0.13	0.06	0.14	0.03	0.09	0.39	0.45	0.42	0.39	-0.09	-0.17	**0.77**	0.62	0.00	-0.04	1.00	0.13	0.13	0.07	0.53	0.42	0.73	*0.00*	*0.00*	*0.00*	0.54	0.84	*0.00*	0.07	0.45	*0.00*	*0.00*	0.23	*0.00*	*0.02*	0.10	0.98
MeanLengthBiomass_s	-0.25	0.53	-0.18	-0.07	0.14	-0.03	0.03	0.22	0.64	0.69	0.65	0.15	-0.03	**0.88**	**0.78**	0.09	0.04	**0.71**	1.00	*0.01*	0.47	0.23	0.45	0.94	*0.03*	*0.05*	0.51	0.33	0.34	*0.04*	0.90	0.32	0.11	0.12	*0.00*	*0.00*	*0.00*	*0.03*	0.49
MeanLifespan_s	0.22	0.13	0.17	0.45	0.30	-0.17	0.10	0.44	-0.01	0.18	0.10	0.12	0.14	0.17	0.14	0.50	0.42	0.29	0.15	1.00	*0.04*	0.83	0.24	0.24	0.50	*0.00*	*0.00*	0.43	0.80	*0.00*	0.68	*0.00*	*0.00*	0.15	*0.00*	0.39	0.36	*0.02*	*0.02*
MMLengthAbundance_s	-0.20	0.66	-0.12	-0.09	0.07	-0.06	0.14	0.18	0.61	0.62	0.55	-0.11	0.04	**0.77**	**0.71**	0.01	0.01	**0.77**	**0.79**	1.00	0.17	1.00	0.87	0.19	*0.00*	*0.03*	*0.00*	*0.00*	0.47	0.80	*0.00*	0.08	*0.00*	*0.01*	0.21	0.57	*0.00*	0.06	0.65	0.80
MMLengthBiomass_s	-0.37	0.62	-0.31	-0.08	0.12	-0.06	0.10	0.18	0.63	**0.71**	0.65	0.11	0.04	**0.77**	**0.83**	0.08	0.05	0.62	**0.92**	0.07	**0.87**	1.00	*0.02*	0.08	0.95	*0.03*	0.09	0.48	0.59	0.68	*0.00*	0.07	0.16	*0.00*	*0.00*	*0.00*	*0.00*	0.24	0.07
MeanTrophicLevel_s	-0.47	0.63	-0.48	-0.28	-0.08	-0.11	0.18	-0.13	0.23	0.29	0.25	0.17	-0.08	0.31	0.60	-0.05	-0.07	0.24	0.53	-0.17	0.55	**0.71**	1.00	*0.03*	0.79	*0.00*	*0.00*	0.25	0.18	*0.00*	*0.00*	*0.00*	*0.01*	0.89	0.23	0.63	0.41	0.53	0.10
PielouEvenness_s	-0.46	0.16	-0.36	-0.03	-0.02	0.17	-0.03	0.20	**0.91**	**0.93**	**0.89**	0.04	0.20	0.66	0.50	0.02	0.05	0.44	**0.71**	0.15	0.65	**0.73**	0.32	1.00	0.39	0.07	*0.00*	0.80	0.41	0.32	0.31	0.77	0.08	0.27	0.63	0.60	*0.00*	*0.00*	0.49
PropPredatoryFish_s	-0.48	0.44	-0.38	-0.28	-0.06	0.00	0.02	-0.06	0.65	0.65	0.61	0.03	0.12	0.65	0.64	-0.06	0.03	0.38	**0.78**	-0.20	**0.77**	**0.89**	**0.72**	**0.72**	1.00	0.93	*0.04*	0.87	0.10	0.91	*0.00*	0.79	0.43	0.63	0.26	*0.03*	0.22	0.54	0.56
Biomass_s	**0.88**	0.23	**0.82**	0.02	0.27	-0.25	-0.08	0.11	-0.36	-0.31	-0.30	-0.18	-0.25	0.06	-0.04	0.20	-0.19	0.21	-0.13	0.20	-0.02	-0.18	-0.22	-0.44	-0.37	1.00	*0.00*	0.24	*0.03*	0.75	0.08	*0.00*	0.60	0.26	*0.00*	0.63	0.10	0.65	0.79
BiomassClupeids_s	0.26	-0.02	0.05	0.03	-0.06	-0.16	0.02	-0.06	-0.46	-0.50	-0.43	-0.10	-0.32	-0.52	-0.27	-0.16	-0.39	-0.37	-0.50	-0.30	-0.46	-0.49	-0.11	-0.63	-0.49	0.28	1.00	0.50	0.18	*0.01*	0.73	0.95	*0.00*	0.31	0.67	*0.00*	0.66	0.31	0.11
BiomassFinfish_s	**0.94**	0.26	**0.88**	0.02	0.35	-0.25	-0.07	0.08	-0.33	-0.27	-0.27	-0.15	-0.20	0.15	0.02	0.27	-0.12	0.26	-0.06	0.26	0.03	-0.14	-0.24	-0.39	-0.31	**0.93**	0.24	1.00	1.00	*0.01*	0.95	0.76	*0.00*	0.18	*0.00*	*0.00*	0.12	0.23	0.43
BiomassFlatfish_s	-0.09	-0.10	-0.08	-0.10	-0.38	-0.31	-0.06	0.00	0.10	0.01	0.02	-0.33	0.00	-0.02	-0.06	-0.21	0.01	-0.12	-0.03	-0.20	0.09	0.05	0.12	0.04	0.27	-0.12	0.07	-0.13	1.00	0.28	*0.00*	0.64	0.79	0.19	*0.00*	*0.00*	*0.00*	0.91	0.23
BiomassForage_s	**0.98**	-0.10	**0.97**	-0.04	0.22	-0.11	-0.15	-0.01	-0.32	-0.34	-0.30	-0.17	-0.14	0.05	-0.26	0.15	-0.16	0.08	-0.23	0.11	-0.18	-0.36	-0.47	-0.44	-0.43	**0.87**	0.25	**0.92**	-0.07	1.00	0.22	0.72	*0.00*	*0.04*	*0.00*	*0.01*	0.24	0.15	0.70
BiomassGadoids_s	-0.07	**0.75**	-0.14	0.03	0.25	0.06	0.24	0.11	0.01	0.03	-0.04	0.03	-0.33	0.36	0.49	-0.05	-0.25	0.44	0.38	-0.09	0.48	0.49	0.52	0.10	0.35	0.18	0.04	0.19	-0.18	-0.08	1.00	0.82	0.60	0.08	0.24	0.81	0.17	0.58	*0.00*
BiomassGroundfish_s	-0.08	**1.00**	-0.12	-0.13	0.26	-0.31	0.05	0.03	0.04	0.21	0.12	0.02	-0.20	0.41	**0.77**	0.16	-0.06	0.59	0.55	0.14	0.66	0.63	0.63	0.16	0.44	0.24	-0.03	0.27	-0.10	-0.09	**0.74**	1.00	0.5	0.18	*0.00*	*0.00*	*0.01*	0.56	0.14
BTGMediumBenthivore_s	0.13	0.00	0.10	0.17	0.18	-0.47	-0.09	0.25	0.13	0.27	0.22	-0.24	-0.02	0.16	0.15	0.26	0.13	0.04	0.17	0.10	0.09	0.16	-0.13	0.20	0.17	0.07	-0.08	0.12	0.48	0.11	-0.06	0.04	1.00	0.45	0.34	0.52	0.06	0.48	0.20
BTGPiscivore_s	-0.09	**1.00**	-0.13	-0.11	0.24	-0.27	0.07	0.05	0.07	0.21	0.12	0.00	-0.21	0.42	**0.77**	0.12	-0.07	0.62	0.55	0.14	0.68	0.64	0.63	0.18	0.45	0.23	-0.05	0.25	-0.09	-0.10	**0.75**	**1.00**	0.00	1.00	0.72	0.28	0.10	0.49	0.38
BTGPlanktivore_s	**0.98**	-0.10	**0.97**	-0.04	0.22	-0.11	-0.15	-0.01	-0.32	-0.34	-0.30	-0.17	-0.14	0.05	-0.26	0.15	-0.16	0.08	-0.23	0.11	-0.18	-0.36	-0.47	-0.44	-0.43	**0.87**	0.25	**0.92**	-0.07	**1.00**	-0.08	-0.09	0.11	-0.10	1.00	0.17	0.63	*0.00*	*0.00*
BiomassSkates_s	0.23	-0.08	0.18	0.18	0.26	-0.31	-0.04	0.18	-0.05	0.13	0.10	0.29	0.16	0.08	0.05	0.43	0.16	-0.10	0.22	0.24	-0.07	0.12	-0.07	0.03	0.00	0.18	-0.04	0.19	-0.15	0.18	-0.17	-0.03	0.35	-0.09	0.18	1.00	0.10	0.23	0.67
BTGZoopiscivore_s	0.24	0.05	0.03	0.55	0.28	-0.27	0.30	0.42	-0.30	-0.11	-0.14	0.03	0.03	-0.24	-0.01	0.45	0.29	-0.12	-0.19	0.58	-0.17	-0.17	-0.08	-0.19	-0.34	0.20	0.16	0.24	-0.18	0.06	0.07	0.05	0.04	0.04	0.06	0.19	1.00	0.70	*0.00*
ShannonDiversity_s	-0.42	0.23	-0.35	0.06	0.10	0.05	-0.03	0.26	**0.81**	**0.95**	**0.89**	0.05	0.30	0.60	0.58	0.27	0.21	0.41	**0.71**	0.27	0.62	**0.74**	0.32	**0.96**	0.68	-0.39	-0.62	-0.33	-0.02	-0.43	0.10	0.24	0.27	0.24	-0.43	0.13	-0.06	1.00	0.256
SpeciesRichness_s	0.31	0.14	0.23	0.34	0.48	-0.40	-0.01	0.32	-0.28	0.13	0.04	-0.05	0.44	-0.10	0.18	**0.99**	0.62	-0.04	0.02	0.48	-0.06	0.01	-0.07	-0.08	-0.14	0.28	-0.07	0.34	-0.22	0.22	-0.04	0.16	0.25	0.12	0.22	0.44	0.49	0.17	1.00

Table S 67. Spearman rank correlation coefficients (r) for indicators in strata 485. The upper triangle of the matrix represents p-values (p ≤ 0.05 highlighted in blue italics). The lower triangle of the matrix represents the r values (r ≥ 0.7 highlighted in red).

Indicator	BiomassTL3_s	BiomassTL4_s	BPelagicToDemersal_s	CommunityCondition_s	CCMediumBenthivore_s	CCPiscivore_s	CCPlanktivore_s	CCZoopiscivore_s	Heips_s	HillN1Diversity_s	HillN2Dominance_s	InverseCVBiomass_s	KemptonQ_s	LargeFishIndicator_s	LargeSpeciesIndicator_s	MargalefRichness_s	MargalefGroundfish_s	MeanLengthAbundance_s	MeanLengthBiomass_s	MeanLifespan_s	MMLengthAbundance_s	MMLengthBiomass_s	MeanTrophicLevel_s	PielouEvenness_s	PropPredatoryFish_s	Biomass_s	BiomassClupeids_s	BiomassFinfish_s	BiomassFlatfish_s	BiomassForage_s	BiomassGadoids_s	BiomassGroundfish_s	BTGMediumBenthivore_s	BTGPiscivore_s	BTGPlanktivore_s	BiomassSkates_s	BTGZoopiscivore_s	ShannonDiversity_s	SpeciesRichness_s
BiomassTL3_s	1.00	0.25	*0.00*	0.13	0.27	0.20	0.88	0.11	*0.00*	*0.00*	0.11	0.35	*0.00*	0.08	0.14	0.25	0.45	0.39	0.87	0.54	0.21	0.11	*0.04*	*0.00*	*0.00*	0.13	*0.00*	*0.00*	0.25	0.20	0.38	*0.00*	0.91	*0.04*	*0.01*	*0.00*	0.16	0.91	*0.00*
BiomassTL4 s	0.17	1.00	0.74	0.19	*0.00*	0.18	*0.04*	*0.00*	0.83	0.58	0.09	0.94	*0.00*	0.39	*0.00*	*0.00*	0.29	0.88	*0.01*	0.44	0.93	0.54	*0.04*	0.14	*0.00*	*0.00*	0.65	0.22	0.45	0.68	*0.00*	*0.00*	0.86	0.06	0.66	0.26	*0.00*	0.37	0.96
BPelagicToDemersal_s	**0.85**	-0.18	1.00	*0.04*	*0.00*	*0.00*	*0.00*	*0.00*	0.24	0.24	0.93	0.07	0.55	*0.00*	*0.00*	0.79	0.80	0.35	0.11	0.18	0.85	0.15	*0.04*	0.62	0.75	0.35	0.22	*0.00*	0.07	0.58	0.67	0.16	0.91	*0.00*	0.15	0.09	0.69	0.78	*0.00*
CommunityCondition_s	-0.05	-0.11	-0.07	1.00	*0.00*	*0.00*	0.21	*0.00*	0.86	0.47	0.53	*0.00*	*0.00*	*0.00*	0.17	0.50	0.36	0.32	0.64	0.31	*0.01*	0.51	0.87	*0.01*	0.23	*0.02*	0.41	0.56	0.77	0.82	*0.03*	0.87	*0.00*	0.93	0.33	0.81	0.18	0.37	*0.00*
CCMediumBenthivore s	-0.22	-0.17	-0.08	-0.28	1.00	0.98	*0.00*	*0.00*	0.32	0.26	0.54	0.10	0.31	*0.00*	*0.00*	*0.00*	0.60	0.52	0.58	0.31	0.60	*0.04*	*0.03*	0.19	*0.00*	*0.00*	0.16	0.16	0.53	0.58	*0.00*	0.08	0.82	*0.00*	0.07	*0.03*	*0.00*	*0.00*	*0.00*
CCPiscivore_s	-0.20	-0.13	-0.11	0.05	0.14	1.00	*0.00*	*0.00*	*0.00*	0.39	*0.01*	0.41	0.30	0.11	*0.00*	0.31	0.28	0.38	*0.03*	0.84	0.85	0.07	0.60	0.70	*0.00*	*0.00*	*0.00*	0.55	*0.00*	0.20	0.25	0.37	0.26	*0.00*	0.13	*0.00*	0.40	0.42	0.91
CCPlanktivore_s	-0.30	-0.11	-0.26	0.44	-0.16	-0.05	1.00	0.40	0.31	0.47	0.76	*0.00*	0.71	0.52	*0.00*	0.06	0.13	0.92	*0.03*	*0.00*	*0.04*	*0.05*	0.53	0.74	*0.02*	*0.00*	0.81	0.13	0.68	0.62	0.09	*0.04*	0.23	*0.00*	*0.00*	0.44	*0.00*	0.49	0.74
CCZoopiscivore_s	-0.17	-0.15	-0.13	0.69	-0.11	-0.13	0.10	1.00	0.74	0.33	0.46	0.33	0.16	*0.00*	*0.00*	0.73	0.64	*0.00*	*0.02*	*0.01*	0.31	0.23	0.80	0.44	*0.03*	0.40	0.22	*0.00*	0.09	0.73	0.25	0.84	0.18	*0.00*	0.72	0.07	*0.00*	*0.00*	0.61
Heips_s	-0.65	-0.28	-0.44	-0.14	0.38	0.16	0.30	0.10	1.00	0.06	0.26	*0.00*	0.59	*0.00*	*0.00*	*0.00*	0.25	0.46	0.07	0.84	0.35	0.91	0.51	0.79	*0.00*	0.75	*0.00*	0.92	0.89	0.64	*0.00*	0.21	0.44	*0.00*	0.96	*0.00*	*0.00*	0.98	0.85
HillN1Diversity_s	-0.63	-0.24	-0.51	-0.20	0.43	0.08	0.27	-0.10	**0.73**	1.00	0.18	0.14	0.63	0.15	0.36	*0.00*	0.14	0.78	0.06	0.73	0.15	0.11	*0.03*	0.19	*0.00*	*0.00*	0.30	0.12	0.15	0.11	*0.00*	0.93	0.80	*0.00*	*0.00*	0.16	0.82	0.21	0.42
HillN2Dominance_s	-0.59	-0.25	-0.45	-0.24	0.40	0.06	0.29	-0.14	**0.79**	**0.97**	1.00	0.30	0.61	0.37	*0.00*	0.36	0.56	0.35	0.50	0.40	0.27	0.49	0.72	0.16	0.87	*0.01*	0.37	*0.00*	0.22	*0.00*	0.42	0.60	0.12	*0.00*	*0.00*	0.23	*0.00*	*0.00*	*0.03*
InverseCVBiomass s	-0.19	-0.01	-0.24	-0.10	-0.11	-0.32	0.18	-0.20	-0.05	0.13	0.13	1.00	0.47	0.26	0.16	0.18	0.15	0.30	*0.01*	0.28	0.15	0.71	0.68	0.19	*0.00*	0.10	0.58	0.85	0.05	0.51	*0.00*	0.94	0.66	*0.00*	*0.00*	*0.00*	0.20	0.19	*0.00*
KemptonQ_s	-0.20	-0.10	-0.10	0.00	-0.02	0.29	-0.02	-0.19	-0.18	0.05	-0.08	0.08	1.00	*0.00*	0.17	0.10	0.59	0.48	*0.01*	0.61	0.19	0.48	0.06	*0.02*	*0.00*	0.22	*0.00*	0.60	0.98	0.62	*0.00*	*0.00*	0.32	0.38	*0.00*	0.78	0.34	*0.00*	0.35
LargeFishIndicator_s	-0.60	0.09	-0.54	-0.11	0.37	0.02	0.24	0.11	**0.72**	0.56	0.53	-0.07	0.00	1.00	0.26	0.51	0.48	*0.01*	0.09	0.70	0.31	0.55	0.56	0.15	0.09	0.10	*0.01*	0.66	0.96	*0.00*	*0.00*	0.55	*0.00*	*0.00*	*0.00*	0.19	0.44	0.72	0.62
LargeSpeciesIndicator s	-0.51	0.40	-0.44	-0.16	0.24	0.03	0.10	0.09	0.56	0.38	0.37	-0.11	-0.01	**0.76**	1.00	0.99	0.60	*0.00*	0.31	*0.03*	0.08	0.08	0.52	0.38	*0.00*	*0.00*	0.46	0.45	0.08	*0.00*	*0.00*	0.51	*0.00*	0.47	*0.00*	0.78	0.27	*0.00*	0.71
MargalefRichness_s	0.00	0.05	-0.21	-0.04	0.07	-0.20	-0.06	-0.12	-0.35	0.25	0.11	0.28	0.26	-0.10	-0.25	1.00	0.47	*0.01*	0.09	*0.05*	0.40	0.96	0.52	0.14	*0.00*	0.92	0.84	0.06	*0.00*	0.46	*0.00*	0.30	0.90	0.24	*0.00*	*0.02*	*0.00*	*0.00*	0.30
MargalefGroundfish_s	-0.02	0.11	-0.14	-0.14	0.08	0.19	-0.11	-0.41	-0.32	0.18	0.03	0.03	0.56	-0.08	-0.17	0.60	1.00	0.47	0.43	0.91	0.81	0.32	0.37	*0.04*	*0.00*	*0.00*	0.07	0.82	0.42	*0.00*	*0.03*	*0.01*	*0.00*	0.70	0.25	0.19	0.17	0.58	0.19
MeanLengthAbundance_s	-0.31	0.17	-0.17	-0.08	0.32	-0.01	0.09	0.22	0.62	0.25	0.27	-0.25	-0.12	**0.77**	**0.74**	-0.44	-0.32	1.00	0.30	0.86	0.48	0.15	0.19	0.40	*0.00*	*0.00*	*0.00*	0.09	0.46	*0.00*	*0.00*	1.00	*0.00*	0.10	*0.00*	0.80	*0.01*	0.68	0.88
MeanLengthBiomass s	-0.55	0.20	-0.47	-0.16	0.32	-0.03	0.26	0.08	**0.73**	0.53	0.52	-0.10	-0.11	**0.94**	**0.83**	-0.21	-0.14	**0.82**	1.00	0.18	0.31	0.95	0.20	0.15	*0.00*	0.76	0.85	0.52	0.84	*0.00*	*0.03*	0.56	*0.00*	*0.00*	0.37	*0.01*	*0.00*	*0.00*	0.80
MeanLifespan_s	-0.19	0.14	-0.22	0.23	-0.34	-0.36	-0.01	0.36	-0.03	-0.02	-0.03	0.27	-0.03	-0.11	0.12	0.02	-0.12	-0.02	-0.01	1.00	0.43	*0.03*	0.47	0.93	0.33	*0.00*	*0.00*	0.07	0.87	*0.00*	0.20	*0.00*	*0.00*	0.83	1.00	*0.04*	0.07	0.51	0.43
MMLengthAbundance_s	-0.58	0.01	-0.44	-0.07	0.27	0.08	0.15	0.20	**0.75**	0.51	0.51	-0.13	-0.03	**0.79**	**0.77**	-0.26	-0.25	**0.78**	**0.80**	0.06	1.00	0.10	0.55	*0.00*	*0.00*	*0.00*	*0.00*	0.40	0.98	*0.00*	*0.00*	*0.04*	*0.00*	*0.02*	0.86	*0.00*	*0.00*	0.60	0.96
MMLengthBiomass s	-0.66	0.27	-0.61	-0.17	0.28	0.03	0.22	0.06	**0.71**	0.59	0.57	-0.03	0.00	**0.90**	**0.92**	-0.14	-0.06	**0.74**	**0.94**	0.09	**0.85**	1.00	0.42	0.86	0.53	*0.00*	0.64	0.82	0.53	*0.00*	0.16	0.05	0.16	*0.00*	0.80	0.17	*0.00*	*0.01*	0.32
MeanTrophicLevel_s	-0.24	0.50	-0.21	-0.22	-0.10	-0.30	0.01	0.05	0.26	0.05	0.07	-0.05	-0.09	0.42	**0.75**	-0.31	-0.19	0.55	0.60	0.43	0.51	0.66	1.00	0.33	0.05	*0.00*	*0.00*	0.75	0.80	*0.00*	*0.02*	*0.00*	0.10	0.06	*0.00*	*0.02*	0.21	*0.01*	*0.01*
PielouEvenness_s	-0.81	-0.25	-0.66	-0.09	0.40	0.15	0.32	0.12	**0.91**	**0.87**	**0.86**	0.09	-0.04	**0.76**	0.56	-0.03	-0.10	0.49	**0.71**	0.05	**0.72**	**0.76**	0.18	1.00	0.55	*0.00*	*0.00*	0.56	0.99	*0.00*	0.31	*0.03*	0.16	0.71	0.46	0.55	*0.00*	*0.00*	0.35
PropPredatoryFish_s	-0.70	0.13	-0.59	-0.22	0.40	0.14	0.24	-0.04	**0.79**	0.69	0.67	0.00	0.00	**0.81**	**0.80**	-0.19	-0.03	0.65	**0.87**	-0.01	**0.82**	**0.93**	0.53	**0.81**	1.00	0.12	*0.00*	0.98	0.16	0.43	*0.00*	0.37	*0.02*	0.53	0.31	0.66	0.19	0.21	0.25
Biomass s	**0.94**	0.49	0.69	-0.08	-0.26	-0.22	-0.30	-0.20	-0.67	-0.64	-0.60	-0.17	-0.21	-0.50	-0.31	0.01	0.02	-0.21	-0.42	-0.12	-0.50	-0.49	-0.04	-0.80	-0.57	1.00	*0.00*	0.25	0.21	*0.00*	*0.00*	0.43	0.11	*0.00*	*0.00*	*0.02*	*0.00*	0.57	0.92
BiomassClupeids_s	**0.98**	0.15	**0.87**	-0.11	-0.15	-0.17	-0.30	-0.21	-0.59	-0.61	-0.55	-0.26	-0.19	-0.55	-0.45	-0.08	-0.03	-0.24	-0.48	-0.27	-0.54	-0.61	-0.19	-0.78	-0.64	**0.92**	1.00	0.09	0.16	0.32	0.10	0.10	0.65	0.75	*0.02*	*0.00*	0.72	*0.03*	0.20
BiomassFinfish_s	**0.94**	0.49	0.69	-0.08	-0.25	-0.22	-0.30	-0.20	-0.67	-0.64	-0.60	-0.17	-0.21	-0.50	-0.31	0.01	0.02	-0.21	-0.42	-0.12	-0.50	-0.49	-0.04	-0.80	-0.57	**1.00**	**0.92**	1.00	0.74	0.52	0.06	0.69	0.49	0.97	*0.00*	*0.00*	*0.00*	0.79	0.84
BiomassFlatfish s	0.13	0.22	-0.14	-0.11	0.12	0.20	0.03	-0.35	-0.15	0.23	0.19	0.11	0.05	-0.12	-0.19	0.50	0.43	-0.33	-0.13	-0.27	-0.17	-0.09	-0.35	-0.04	0.03	0.19	0.09	0.19	1.00	0.91	*0.00*	0.20	0.14	0.43	*0.00*	*0.00*	*0.00*	0.36	0.45
BiomassForage_s	**0.98**	0.15	**0.87**	-0.13	-0.15	-0.15	-0.32	-0.21	-0.58	-0.61	-0.56	-0.27	-0.19	-0.55	-0.45	-0.09	-0.03	-0.24	-0.49	-0.26	-0.54	-0.61	-0.20	-0.77	-0.65	**0.92**	**1.00**	**0.92**	0.08	1.00	*0.04*	0.51	0.14	0.06	*0.00*	*0.00*	0.58	*0.00*	0.45
BiomassGadoids_s	0.03	0.49	-0.21	-0.02	0.09	0.26	-0.08	-0.13	-0.09	-0.07	-0.09	0.04	-0.06	0.15	0.21	0.10	0.17	0.07	0.11	-0.39	0.14	0.17	-0.04	-0.06	0.19	0.20	0.02	0.20	0.38	0.01	1.00	0.86	0.11	0.43	*0.00*	0.79	0.67	0.96	*0.00*
BiomassGroundfish_s	0.18	**0.97**	-0.21	-0.14	-0.12	-0.13	-0.10	-0.22	-0.29	-0.19	-0.21	0.09	-0.08	0.10	0.34	0.16	0.18	0.10	0.18	0.07	0.00	0.25	0.39	-0.23	0.14	0.49	0.13	0.48	0.37	0.14	0.60	1.00	0.54	0.07	*0.00*	*0.00*	*0.00*	0.36	0.98
BTGMediumBenthivore_s	0.03	0.09	-0.17	-0.15	0.20	-0.04	0.04	-0.30	-0.09	0.12	0.09	0.50	-0.04	0.02	-0.15	0.39	0.20	-0.22	-0.06	-0.22	-0.03	-0.04	-0.31	0.03	0.12	0.05	-0.04	0.05	0.59	-0.06	0.52	0.31	1.00	0.08	*0.00*	0.70	0.50	0.71	0.51
BTGPiscivore_s	0.15	**0.99**	-0.17	-0.10	-0.15	-0.11	-0.10	-0.13	-0.23	-0.21	-0.23	-0.06	-0.08	0.13	0.44	0.00	0.12	0.22	0.25	0.15	0.04	0.32	0.54	-0.21	0.17	0.47	0.14	0.47	0.19	0.14	0.46	**0.95**	0.02	1.00	0.56	0.13	*0.00*	0.34	0.74
BTGPlanktivore_s	**0.98**	0.15	**0.87**	-0.13	-0.15	-0.15	-0.32	-0.22	-0.59	-0.61	-0.56	-0.26	-0.19	-0.55	-0.45	-0.09	-0.04	-0.24	-0.49	-0.27	-0.54	-0.62	-0.20	-0.78	-0.65	**0.92**	**1.00**	**0.92**	0.09	**1.00**	0.02	0.14	-0.04	0.14	1.00	0.85	0.53	*0.00*	*0.00*
BiomassSkates s	0.15	-0.16	0.04	-0.02	-0.03	-0.12	0.05	-0.01	-0.14	0.04	-0.02	-0.02	0.07	0.07	-0.24	0.49	0.23	-0.09	-0.03	-0.22	-0.11	-0.12	-0.34	-0.06	-0.20	0.08	0.12	0.08	0.31	0.11	-0.05	-0.07	0.12	-0.17	0.11	1.00	*0.00*	0.45	0.52
BTGZoopiscivore_s	0.05	0.06	-0.10	0.55	-0.49	-0.24	0.06	0.43	-0.35	-0.19	-0.23	0.21	-0.05	-0.33	-0.28	0.31	-0.07	-0.31	-0.34	0.56	-0.15	-0.27	-0.09	-0.20	-0.36	0.06	-0.10	0.06	-0.04	-0.12	-0.08	0.06	0.01	0.01	-0.11	0.10	1.00	0.44	*0.03*
ShannonDiversity_s	-0.77	-0.21	-0.68	-0.11	0.40	0.09	0.28	0.03	**0.73**	**0.95**	**0.88**	0.19	0.07	0.66	0.44	0.29	0.15	0.28	0.58	0.05	0.57	0.67	0.07	**0.94**	**0.71**	-0.75	-0.76	-0.75	0.14	-0.76	-0.03	-0.16	0.15	-0.19	-0.76	0.05	-0.10	1.00	0.191
SpeciesRichness_s	0.08	0.08	-0.15	-0.04	0.03	-0.22	-0.09	-0.15	-0.43	0.16	0.03	0.29	0.24	-0.17	-0.30	**0.99**	0.58	-0.49	-0.28	0.01	-0.34	-0.21	-0.33	-0.13	-0.27	0.10	0.00	0.10	0.52	-0.01	0.12	0.20	0.41	0.03	0.00	0.49	0.32	0.20	1.00

Table S 68. Spearman rank correlation coefficients (r) for indicators in strata 490. The upper triangle of the matrix represents p-values (p ≤ 0.05 highlighted in blue italics). The lower triangle of the matrix represents the r values (r ≥ 0.7 highlighted in red).

Indicator	BiomassTL3_s	BiomassTL4_s	BPelagicToDemersal_s	CommunityCondition_s	CCMediumBenthivore_s	CCPiscivore_s	CCPlanktivore_s	CCZoopiscivore_s	Heips_s	HillN1Diversity_s	HillN2Dominance_s	InverseCVBiomass_s	KemptonQ_s	LargeFishIndicator_s	LargeSpeciesIndicator_s	MargalefRichness_s	MargalefGroundfish_s	MeanLengthAbundance_s	MeanLengthBiomass_s	MeanLifespan_s	MMLengthAbundance_s	MMLengthBiomass_s	MeanTrophicLevel_s	PielouEvenness_s	PropPredatoryFish_s	Biomass_s	BiomassClupeids_s	BiomassFinfish_s	BiomassFlatfish_s	BiomassForage_s	BiomassGadoids_s	BiomassGroundfish_s	BTGLargeBenthivore_s	BTGMediumBenthivore_s	BTGPiscivore_s	BTGPlanktivore_s	BiomassSkates_s	BTGZoopiscivore_s	ShannonDiversity_s	SpeciesRichness_s
BiomassTL3_s	1.00	0.57	*0.00*	0.62	0.87	0.08	0.52	0.09	*0.00*	0.48	0.93	0.71	0.60	0.99	0.80	*0.04*	0.59	0.63	0.37	0.71	0.25	0.14	0.68	0.28	*0.04*	*0.00*	*0.00*	0.79	0.28	0.58	*0.00*	0.06	*0.03*	0.18	0.41	*0.00*	0.05	*0.00*	*0.00*	*0.00*
BiomassTL4_s	-0.09	1.00	0.57	0.13	*0.00*	0.40	0.75	*0.00*	0.47	*0.00*	0.67	0.07	*0.00*	0.34	0.15	0.75	*0.01*	0.72	0.70	0.63	0.67	0.55	*0.01*	0.34	0.92	*0.00*	*0.00*	*0.00*	*0.01*	0.97	*0.00*	*0.05*	0.74	*0.05*	0.12	*0.01*	*0.03*	0.54	0.88	0.39
BPelagicToDemersal_s	**0.82**	-0.17	1.00	0.70	*0.00*	*0.03*	0.16	*0.00*	0.48	0.23	0.73	0.53	*0.00*	0.53	0.29	0.09	0.25	0.36	0.55	0.13	0.94	0.73	0.07	*0.04*	0.99	*0.00*	*0.04*	0.18	*0.04*	0.81	0.35	0.06	0.46	*0.02*	0.46	0.48	*0.00*	*0.05*	0.91	0.26
CommunityCondition_s	0.09	-0.30	0.04	1.00	*0.00*	*0.04*	0.21	*0.00*	0.34	0.25	0.43	0.27	0.82	0.97	*0.01*	0.22	*0.03*	0.63	0.06	0.71	0.20	*0.01*	0.48	0.75	0.87	0.73	*0.00*	*0.00*	*0.03*	0.88	*0.00*	0.12	0.05	0.55	0.26	*0.00*	0.05	0.26	0.35	0.40
CCMediumBenthivore_s	0.07	-0.01	0.00	0.23	1.00	*0.05*	*0.01*	*0.00*	0.76	*0.04*	0.41	*0.00*	0.69	*0.01*	*0.00*	*0.00*	0.62	0.62	0.53	0.49	0.48	0.14	0.59	*0.03*	*0.00*	*0.00*	*0.00*	*0.00*	0.83	0.89	*0.00*	*0.05*	0.10	0.60	0.15	*0.04*	0.07	*0.00*	0.72	*0.00*
CCPiscivore_s	-0.23	-0.23	-0.15	0.46	-0.20	1.00	*0.00*	*0.00*	0.67	0.93	0.71	0.64	*0.00*	*0.00*	0.08	0.18	*0.00*	0.42	0.12	0.36	0.12	0.20	0.14	0.72	0.41	0.75	*0.00*	0.10	0.56	0.44	*0.03*	0.37	0.65	0.19	0.05	*0.02*	0.14	0.36	0.44	*0.00*
CCPlanktivore_s	-0.06	-0.01	-0.09	**0.78**	0.03	0.44	1.00	0.47	*0.00*	0.12	0.10	*0.02*	0.59	*0.01*	*0.00*	0.49	0.15	0.18	0.24	0.61	0.14	0.63	0.69	*0.00*	0.21	0.94	*0.00*	*0.00*	*0.04*	0.91	*0.03*	0.15	*0.00*	0.85	0.24	0.93	0.42	0.10	*0.00*	0.34
CCZoopiscivore_s	-0.02	-0.14	0.01	0.42	-0.12	0.13	0.38	1.00	0.22	0.96	0.82	0.88	0.21	0.15	*0.00*	*0.00*	*0.00*	0.11	0.80	*0.04*	0.98	0.41	0.68	0.15	*0.00*	0.32	*0.00*	*0.00*	0.14	0.53	*0.03*	0.52	*0.00*	0.78	*0.01*	*0.00*	*0.00*	*0.00*	0.28	0.09
Heips_s	-0.44	-0.01	-0.39	0.10	0.14	-0.15	0.26	0.05	1.00	0.36	0.47	0.60	*0.00*	0.16	*0.00*	0.17	*0.02*	0.87	0.52	0.80	0.22	0.45	0.70	*0.00*	*0.00*	0.97	0.25	*0.00*	0.56	0.45	*0.04*	0.96	0.66	0.83	*0.00*	0.37	*0.04*	0.68	0.93	*0.00*
HillN1Diversity_s	-0.48	-0.06	-0.42	-0.11	0.06	-0.21	-0.01	-0.16	**0.90**	1.00	0.31	0.88	0.56	*0.04*	*0.00*	0.12	*0.01*	0.64	0.34	0.70	0.61	*0.01*	0.16	*0.01*	*0.00*	0.58	*0.00*	*0.00*	0.06	0.40	*0.03*	*0.01*	0.68	*0.01*	0.78	*0.00*	0.05	*0.00*	*0.00*	0.84
HillN2Dominance_s	-0.43	-0.05	-0.37	-0.08	0.09	-0.24	0.02	-0.14	**0.90**	**0.99**	1.00	0.86	0.98	*0.04*	*0.00*	*0.00*	0.28	0.27	0.15	0.19	0.34	0.09	0.68	0.09	0.97	*0.00*	0.33	*0.00*	0.08	0.46	0.16	*0.04*	0.68	0.78	0.15	0.84	0.15	*0.00*	0.22	0.75
InverseCVBiomass_s	-0.26	-0.12	-0.22	-0.36	-0.28	0.17	-0.23	-0.30	0.01	0.18	0.10	1.00	0.80	*0.04*	*0.04*	*0.00*	0.37	*0.01*	0.13	0.40	0.38	0.96	0.20	0.82	0.73	0.67	0.73	0.44	0.06	0.45	0.30	0.25	0.93	0.52	0.05	0.77	*0.00*	0.47	0.34	0.21
KemptonQ_s	-0.13	0.12	-0.21	-0.17	-0.09	-0.06	-0.13	0.05	-0.05	0.01	0.02	-0.18	1.00	0.19	*0.00*	*0.00*	0.29	0.40	0.29	0.67	0.47	0.91	0.62	0.62	*0.00*	0.23	0.12	*0.00*	0.14	0.40	0.52	0.41	0.27	0.88	0.65	*0.00*	*0.00*	*0.00*	0.89	0.29
LargeFishIndicator_s	-0.32	0.06	-0.30	0.32	0.24	0.01	0.49	0.32	**0.73**	0.47	0.47	-0.22	0.02	1.00	0.17	0.52	0.80	*0.00*	0.17	0.77	0.51	0.12	0.89	0.70	*0.00*	*0.00*	0.97	0.35	0.08	0.28	0.22	*0.00*	0.69	*0.04*	0.17	0.30	*0.05*	0.87	0.15	0.41
LargeSpeciesIndicator_s	-0.31	0.25	-0.30	0.08	0.18	-0.19	0.12	0.05	**0.78**	0.63	0.65	-0.18	-0.02	0.69	1.00	0.45	0.55	0.19	0.54	*0.00*	0.09	0.41	0.27	0.48	0.99	0.33	0.66	0.71	0.28	0.36	0.41	*0.04*	0.44	0.25	0.30	0.27	*0.00*	0.90	0.38	*0.00*
MargalefRichness_s	-0.29	-0.04	-0.30	-0.50	-0.04	-0.11	-0.44	-0.53	0.00	0.34	0.28	0.55	0.16	-0.34	-0.20	1.00	0.73	0.87	0.52	0.38	0.14	*0.00*	0.59	0.81	0.73	*0.00*	*0.00*	0.15	0.40	0.24	*0.03*	0.22	0.32	0.84	0.20	*0.00*	*0.00*	0.36	*0.00*	0.39
MargalefGroundfish_s	-0.10	0.11	-0.20	-0.22	-0.10	-0.23	-0.27	-0.22	0.05	0.16	0.15	-0.16	0.58	0.04	0.18	0.19	1.00	0.44	0.73	0.33	0.09	0.45	0.65	0.78	0.09	0.24	0.31	0.93	0.09	0.94	0.19	*0.00*	0.57	0.81	0.28	*0.00*	*0.00*	0.72	0.74	0.12
MeanLengthAbundance_s	0.05	-0.15	0.04	0.51	0.14	0.22	0.58	0.47	0.26	-0.05	-0.04	-0.38	-0.08	0.67	0.24	-0.63	-0.07	1.00	0.63	0.17	0.53	*0.00*	0.47	0.88	*0.00*	0.96	0.22	0.59	0.82	0.28	0.36	*0.00*	0.50	0.14	*0.01*	*0.00*	*0.00*	0.46	0.35	*0.03*
MeanLengthBiomass_s	-0.21	0.06	-0.22	0.34	0.22	0.00	0.46	0.39	0.68	0.40	0.41	-0.31	0.01	**0.94**	**0.73**	-0.46	0.06	**0.78**	1.00	0.11	0.14	0.07	0.99	0.80	0.10	*0.00*	*0.00*	*0.00*	0.29	0.38	*0.00*	*0.01*	0.58	0.17	0.20	*0.00*	0.30	*0.00*	*0.05*	0.28
MeanLifespan_s	0.19	-0.27	0.16	0.37	0.23	-0.18	0.06	0.25	0.24	0.13	0.20	-0.32	-0.04	0.22	0.38	-0.38	0.06	0.20	0.29	1.00	0.70	*0.00*	0.88	*0.00*	*0.00*	*0.00*	0.19	0.28	0.08	*0.00*	*0.00*	0.78	0.58	0.74	*0.02*	*0.00*	*0.00*	0.27	0.98	0.43
MMLengthAbundance_s	-0.41	0.09	-0.40	0.16	0.16	-0.08	0.36	0.04	**0.75**	0.65	0.63	0.03	-0.02	0.69	0.56	-0.04	0.01	0.29	0.58	0.04	1.00	*0.00*	*0.00*	0.88	*0.00*	*0.02*	0.51	0.24	0.13	0.19	0.18	0.48	0.50	*0.00*	0.08	0.83	0.56	0.94	0.10	0.77
MMLengthBiomass_s	-0.49	0.16	-0.48	0.13	0.21	-0.14	0.27	0.08	**0.88**	**0.75**	**0.75**	-0.09	0.02	**0.82**	**0.87**	-0.11	0.17	0.34	**0.77**	0.22	**0.85**	1.00	0.73	0.93	0.19	0.30	0.90	*0.00*	0.83	0.97	0.22	*0.01*	0.93	0.05	0.28	*0.00*	0.95	*0.00*	*0.00*	0.33
MeanTrophicLevel_s	0.25	0.58	0.26	-0.16	-0.09	-0.13	-0.11	0.06	-0.20	-0.31	-0.24	-0.31	0.12	-0.14	0.22	-0.36	0.06	-0.09	0.00	0.29	-0.41	-0.17	1.00	0.49	*0.00*	0.72	*0.00*	0.36	*0.04*	0.34	0.11	0.08	0.31	*0.00*	0.74	0.12	0.19	0.24	0.37	0.64
PielouEvenness_s	-0.58	-0.07	-0.53	-0.04	0.10	-0.11	0.08	-0.11	**0.92**	**0.95**	**0.92**	0.22	-0.02	0.60	0.65	0.26	0.12	0.08	0.51	0.07	**0.73**	**0.83**	-0.39	1.00	*0.00*	*0.01*	*0.00*	0.24	*0.00*	*0.00*	*0.00*	0.68	0.81	*0.00*	*0.02*	*0.04*	0.59	*0.00*	0.35	0.68
PropPredatoryFish_s	-0.59	0.34	-0.58	-0.09	0.05	-0.10	0.22	-0.04	**0.73**	0.67	0.64	0.09	0.09	0.65	0.58	0.06	0.15	0.20	0.55	-0.21	**0.84**	**0.85**	-0.28	**0.77**	1.00	0.39	0.06	0.14	0.92	*0.02*	*0.01*	*0.05*	0.90	0.98	0.20	0.87	0.74	0.34	0.39	0.75
Biomass_s	**0.99**	0.02	**0.81**	0.05	0.07	-0.25	-0.06	-0.04	-0.45	-0.49	-0.44	-0.28	-0.11	-0.32	-0.28	-0.29	-0.09	0.03	-0.21	0.16	-0.40	-0.47	0.32	-0.59	-0.55	1.00	0.31	0.23	0.88	0.77	*0.00*	*0.05*	*0.00*	*0.00*	0.92	0.08	*0.00*	*0.00*	0.44	0.15
BiomassClupeids_s	**1.00**	-0.08	**0.83**	0.07	0.06	-0.22	-0.06	-0.02	-0.44	-0.48	-0.43	-0.26	-0.13	-0.33	-0.30	-0.29	-0.10	0.04	-0.21	0.19	-0.43	-0.50	0.29	-0.59	-0.60	**0.99**	1.00	*0.00*	0.30	*0.00*	*0.00*	*0.04*	0.49	*0.00*	*0.00*	0.05	0.59	0.37	0.73	0.56
BiomassFinfish_s	**0.99**	0.02	**0.80**	0.05	0.07	-0.25	-0.06	-0.04	-0.45	-0.49	-0.44	-0.28	-0.11	-0.31	-0.28	-0.30	-0.08	0.03	-0.20	0.16	-0.40	-0.47	0.32	-0.59	-0.55	**1.00**	**0.99**	1.00	*0.00*	*0.00*	0.14	*0.00*	0.16	0.17	0.95	*0.00*	0.20	0.35	*0.00*	0.82
BiomassFlatfish_s	-0.11	-0.03	-0.30	-0.14	0.22	-0.10	-0.21	-0.46	-0.05	0.17	0.12	0.22	-0.11	-0.30	-0.23	0.57	0.08	-0.36	-0.38	-0.40	0.11	-0.03	-0.56	0.16	0.18	-0.11	-0.14	-0.11	1.00	0.15	*0.00*	*0.05*	0.96	0.16	*0.00*	0.33	*0.00*	0.39	0.21	0.46
BiomassForage_s	**1.00**	-0.08	**0.83**	0.07	0.06	-0.22	-0.06	-0.02	-0.44	-0.48	-0.43	-0.26	-0.13	-0.33	-0.30	-0.29	-0.10	0.04	-0.21	0.19	-0.43	-0.50	0.29	-0.59	-0.60	**0.99**	**1.00**	**0.99**	-0.14	1.00	*0.00*	0.21	0.33	0.18	*0.00*	0.52	0.46	0.44	0.53	0.19
BiomassGadoids_s	-0.11	**0.78**	-0.20	-0.08	0.10	-0.06	0.19	0.01	-0.05	-0.15	-0.14	-0.16	0.16	0.21	0.14	-0.19	0.01	0.10	0.17	-0.33	0.30	0.23	0.27	-0.09	0.42	-0.02	-0.14	-0.02	-0.02	-0.14	1.00	0.66	0.32	*0.01*	*0.01*	*0.00*	*0.00*	0.73	*0.00*	0.52
BiomassGroundfish_s	-0.11	**0.82**	-0.31	-0.12	0.14	-0.22	0.08	-0.11	-0.01	-0.05	-0.06	-0.13	0.14	0.16	0.22	-0.07	0.15	-0.02	0.13	-0.26	0.33	0.30	0.22	-0.01	0.47	-0.02	-0.14	-0.02	0.22	-0.14	**0.92**	1.00	0	0.16	*0.00*	0.10	*0.00*	*0.00*	0.22	*0.00*
BTGLargeBenthivore_s	0.14	-0.04	-0.05	0.20	0.08	0.09	0.02	0.31	-0.15	-0.23	-0.22	-0.26	0.18	0.10	0.10	-0.32	0.04	0.30	0.23	0.16	-0.01	0.02	0.12	-0.19	-0.09	0.14	0.13	0.14	-0.13	0.13	0.11	0.13	1.00	0.25	*0.00*	*0.01*	*0.00*	0.21	*0.00*	0.23
BTGMediumBenthivore_s	-0.05	-0.06	-0.25	0.24	0.31	-0.05	0.17	-0.01	0.01	0.01	-0.01	-0.03	-0.01	0.19	-0.01	-0.05	0.02	0.17	0.11	-0.05	0.44	0.26	-0.48	0.08	0.29	-0.05	-0.12	-0.05	0.42	-0.12	0.44	0.52	0.19	1.00	*0.01*	0.06	0.24	0.53	0.47	0.39
BTGPiscivore_s	0.07	0.44	-0.19	-0.02	-0.04	-0.40	-0.08	0.00	0.08	0.07	0.08	-0.16	0.16	0.12	0.37	-0.11	0.44	-0.03	0.17	0.34	0.14	0.29	0.30	0.05	0.17	0.11	0.05	0.12	0.05	0.05	0.20	0.51	0.16	0.16	1.00	*0.03*	*0.00*	*0.00*	*0.00*	0.44
BTGPlanktivore_s	**1.00**	-0.08	**0.84**	0.07	0.06	-0.22	-0.07	-0.03	-0.44	-0.48	-0.43	-0.26	-0.13	-0.33	-0.30	-0.29	-0.10	0.04	-0.21	0.19	-0.44	-0.50	0.29	-0.59	-0.61	**0.99**	**1.00**	**0.99**	-0.14	**1.00**	-0.14	-0.15	0.12	-0.12	0.05	1.00	*0.00*	0.22	0.17	0.08
BiomassSkates_s	-0.18	0.19	-0.20	0.17	-0.20	0.19	0.11	0.53	-0.06	-0.15	-0.16	-0.22	0.44	0.20	0.17	-0.24	0.21	0.22	0.29	-0.02	0.03	0.15	0.22	-0.08	0.14	-0.17	-0.19	-0.16	-0.30	-0.19	0.29	0.25	0.66	0.05	0.22	-0.19	1.00	0.45	0.36	0.23
BTGZoopiscivore_s	-0.11	**0.87**	-0.11	-0.38	-0.13	-0.07	0.00	-0.13	-0.18	-0.18	-0.18	-0.03	0.20	-0.14	-0.12	0.07	-0.01	-0.21	-0.18	-0.50	-0.04	-0.10	0.45	-0.19	0.24	-0.01	-0.10	-0.01	0.00	-0.10	**0.73**	0.65	-0.13	-0.15	0.09	-0.10	0.13	1.00	0.05	0.46
ShannonDiversity_s	-0.59	-0.09	-0.53	-0.13	0.06	-0.12	-0.02	-0.19	**0.86**	**0.96**	**0.92**	0.30	0.01	0.48	0.57	0.41	0.15	-0.05	0.38	0.01	0.67	**0.76**	-0.43	**0.98**	**0.73**	-0.60	-0.59	-0.60	0.25	-0.59	-0.13	-0.03	-0.23	0.07	0.03	-0.59	-0.12	-0.18	1.00	0.08
SpeciesRichness_s	-0.18	0.00	-0.20	-0.51	-0.05	-0.11	-0.47	-0.54	-0.15	0.20	0.14	0.53	0.14	-0.45	-0.30	**0.98**	0.15	-0.68	-0.56	-0.42	-0.16	-0.24	-0.30	0.11	-0.06	-0.18	-0.18	-0.19	0.57	-0.18	-0.17	-0.05	-0.31	-0.06	-0.11	-0.18	-0.26	0.11	0.26	1.00

Table S 69. Spearman rank correlation coefficients (r) for indicators in strata 491. The upper triangle of the matrix represents p-values (p ≤ 0.05 highlighted in blue italics). The lower triangle of the matrix represents the r values (r ≥ 0.7 highlighted in red).

Indicator	BiomassTL3_s	BiomassTL4_s	BPelagicToDemersal_s	CommunityCondition_s	CCMediumBenthivore_s	CCPiscivore_s	CCZoopiscivore_s	Heips_s	HillN1Diversity_s	HillN2Dominance_s	InverseCVBiomass_s	KemptonQ_s	LargeFishIndicator_s	LargeSpeciesIndicator_s	MargalefRichness_s	MargalefGroundfish_s	MeanLengthAbundance_s	MeanLengthBiomass_s	MeanLifespan_s	MMLengthAbundance_s	MMLengthBiomass_s	MeanTrophicLevel_s	PielouEvenness_s	PropPredatoryFish_s	Biomass_s	BiomassClupeids_s	BiomassFinfish_s	BiomassFlatfish_s	BiomassForage_s	BiomassGadoids_s	BiomassGroundfish_s	BTGMediumBenthivore_s	BTGPiscivore_s	BTGPlanktivore_s	BiomassSkates_s	BTGZoopiscivore_s	ShannonDiversity_s	SpeciesRichness_s
BiomassTL3_s	1.00	0.55	*0.00*	0.66	*0.00*	0.14	0.13	*0.00*	0.06	0.61	0.99	0.09	0.52	*0.00*	0.67	0.32	0.18	0.90	0.39	0.35	*0.00*	0.21	*0.03*	*0.00*	*0.00*	*0.03*	0.22	0.46	*0.00*	*0.00*	0.91	0.05	0.18	0.31	0.06	0.78	0.66	0.41
BiomassTL4_s	0.09	1.00	0.83	0.78	*0.00*	*0.00*	*0.00*	*0.00*	0.51	0.80	0.28	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	0.27	0.90	0.44	0.50	0.64	0.54	0.38	*0.00*	0.58	*0.01*	0.17	0.91	0.06	*0.04*	0.17	0.80	*0.00*	*0.00*	*0.00*	*0.00*	0.47	*0.01*
BPelagicToDemersal_s	**0.96**	-0.04	1.00	0.50	*0.00*	*0.00*	0.10	*0.00*	0.99	0.69	0.56	0.09	0.50	0.41	*0.00*	0.45	0.44	0.61	0.71	0.27	0.17	0.07	0.62	*0.00*	*0.00*	0.59	0.97	0.93	0.10	*0.00*	0.17	0.26	*0.00*	0.26	0.11	0.66	*0.00*	0.16
CommunityCondition_s	-0.03	-0.06	0.03	1.00	0.52	0.28	*0.00*	*0.00*	0.54	0.11	*0.00*	0.44	0.46	0.14	*0.00*	0.56	0.34	0.25	0.87	0.05	0.56	0.42	0.12	*0.00*	*0.00*	0.18	0.52	*0.00*	*0.00*	*0.00*	0.17	0.39	*0.00*	0.13	0.18	*0.00*	0.11	0.07
CCMediumBenthivore_s	0.07	0.24	0.01	0.09	1.00	0.34	*0.00*	*0.00*	*0.00*	*0.00*	0.27	*0.01*	0.91	*0.00*	*0.00*	0.78	0.51	0.62	0.66	0.91	0.84	*0.03*	0.17	0.27	0.86	*0.00*	0.56	*0.00*	*0.00*	*0.00*	*0.02*	0.82	*0.00*	*0.00*	*0.00*	*0.00*	0.33	0.07
CCPiscivore_s	0.04	-0.49	0.09	0.04	-0.30	1.00	0.76	0.22	0.12	0.71	0.73	0.50	0.07	*0.00*	*0.00*	*0.00*	0.49	0.09	0.77	0.90	0.50	0.54	0.31	*0.00*	*0.00*	0.69	0.75	0.14	*0.03*	*0.00*	0.17	0.37	*0.00*	*0.04*	*0.04*	*0.00*	*0.00*	0.17
CCZoopiscivore_s	-0.10	0.06	-0.04	0.52	0.03	-0.02	1.00	*0.00*	0.67	0.08	0.48	*0.01*	0.37	0.21	0.67	0.47	0.93	*0.04*	0.62	0.92	0.26	*0.01*	*0.01*	0.16	*0.00*	*0.00*	0.39	0.85	*0.00*	*0.00*	0.27	*0.00*	*0.03*	*0.00*	0.76	0.27	0.41	0.87
Heips_s	-0.58	-0.26	-0.50	0.11	-0.05	-0.02	0.04	1.00	*0.00*	*0.04*	0.95	0.46	0.86	0.47	*0.00*	0.94	0.87	0.87	0.69	0.90	0.84	*0.02*	*0.00*	0.06	*0.00*	*0.00*	0.15	0.26	*0.00*	*0.04*	0.56	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	0.36	*0.05*
HillN1Diversity_s	-0.54	-0.30	-0.48	0.01	-0.26	-0.02	-0.15	**0.74**	1.00	0.08	0.29	0.50	0.97	0.24	0.46	0.86	0.79	0.73	0.36	0.48	0.24	*0.04*	*0.00*	0.81	*0.00*	0.92	0.08	0.37	0.31	*0.00*	*0.01*	*0.02*	0.24	*0.00*	0.76	0.83	*0.00*	0.43
HillN2Dominance_s	-0.51	-0.26	-0.44	0.03	-0.24	-0.02	-0.17	**0.78**	**0.98**	1.00	0.97	*0.04*	0.57	*0.00*	0.71	0.70	0.90	0.08	0.68	0.51	*0.00*	0.26	0.09	0.11	*0.00*	*0.00*	0.37	0.95	*0.00*	0.06	0.15	*0.00*	0.64	*0.00*	0.86	0.43	*0.02*	0.32
InverseCVBiomass_s	-0.10	0.00	-0.12	-0.06	-0.01	-0.11	-0.19	-0.26	-0.13	-0.13	1.00	*0.00*	0.80	0.11	0.42	0.34	0.75	0.10	0.37	0.12	0.94	0.24	0.88	*0.00*	0.78	*0.00*	0.59	0.47	*0.00*	*0.03*	0.17	*0.00*	0.10	*0.00*	0.50	0.67	*0.01*	*0.00*
KemptonQ_s	-0.22	-0.16	-0.22	-0.14	-0.26	0.10	-0.09	0.02	0.33	0.30	0.19	1.00	*0.00*	*0.00*	0.90	0.21	0.16	0.93	0.77	*0.00*	*0.00*	0.98	*0.00*	0.56	*0.00*	*0.00*	0.24	0.23	*0.00*	*0.00*	0.09	0.34	0.80	0.21	0.22	0.40	0.84	0.54
LargeFishIndicator_s	-0.59	-0.09	-0.52	0.19	0.08	-0.23	0.27	**0.83**	0.50	0.54	-0.21	0.02	1.00	*0.00*	*0.00*	0.72	0.90	0.08	0.69	0.98	0.84	0.76	*0.00*	0.49	0.06	*0.00*	0.24	0.50	*0.00*	0.83	0.19	*0.01*	*0.00*	*0.00*	0.86	*0.00*	*0.01*	0.68
LargeSpeciesIndicator_s	-0.46	0.51	-0.46	0.05	0.10	-0.42	0.12	0.47	0.27	0.32	-0.01	-0.01	0.58	1.00	0.06	0.13	0.25	0.60	0.85	0.15	*0.03*	0.94	0.41	*0.00*	*0.05*	*0.00*	0.56	0.08	*0.00*	*0.00*	*0.00*	*0.03*	0.39	0.64	0.56	0.22	*0.00*	0.97
MargalefRichness_s	-0.16	-0.17	-0.19	-0.23	-0.29	0.00	-0.33	-0.13	0.50	0.39	0.10	0.43	-0.28	-0.25	1.00	0.92	0.59	0.50	0.15	0.21	1.00	0.64	0.23	0.14	0.51	0.65	0.51	0.11	0.09	0.16	*0.00*	0.10	0.23	0.94	*0.00*	0.26	0.21	0.11
MargalefGroundfish_s	-0.14	-0.05	-0.11	-0.02	-0.23	0.22	-0.09	-0.18	0.13	0.08	0.09	0.42	-0.24	-0.17	0.48	1.00	0.53	*0.05*	0.71	0.10	0.64	0.62	*0.00*	*0.00*	*0.05*	*0.00*	0.54	0.09	*0.00*	*0.00*	*0.00*	0.21	*0.00*	0.68	0.12	*0.00*	0.71	0.74
MeanLengthAbundance_s	-0.22	-0.11	-0.18	0.20	0.13	-0.19	0.40	0.61	0.14	0.20	-0.05	-0.22	**0.70**	0.30	-0.46	-0.43	1.00	0.12	0.10	0.05	0.97	0.61	*0.00*	0.39	*0.00*	0.13	0.73	*0.04*	0.11	*0.00*	*0.04*	0.11	*0.00*	0.87	*0.00*	0.50	*0.00*	0.39
MeanLengthBiomass_s	-0.54	0.01	-0.47	0.17	0.12	-0.24	0.33	**0.79**	0.43	0.48	-0.13	-0.03	**0.95**	0.66	-0.37	-0.31	**0.74**	1.00	0.69	0.25	0.77	0.07	*0.04*	*0.02*	0.11	0.07	0.50	0.11	0.39	0.08	0.37	0.26	*0.04*	*0.00*	0.86	*0.00*	0.44	0.66
MeanLifespan_s	-0.25	0.16	-0.24	0.12	0.06	-0.29	0.30	0.30	0.08	0.06	-0.22	-0.17	0.33	0.30	-0.19	-0.14	0.35	0.31	1.00	*0.03*	0.30	0.62	*0.00*	*0.00*	0.82	0.76	0.74	0.84	0.54	0.17	0.26	0.21	*0.01*	0.87	0.47	*0.00*	0.37	0.71
MMLengthAbundance_s	-0.49	0.01	-0.45	0.14	-0.03	-0.17	0.17	**0.76**	0.46	0.49	-0.26	-0.13	**0.83**	0.57	-0.18	-0.17	0.55	**0.79**	0.30	1.00	0.27	0.10	*0.00*	0.07	*0.00*	0.08	0.97	0.51	0.67	*0.02*	0.41	0.46	*0.00*	0.41	0.80	0.37	0.36	0.92
MMLengthBiomass_s	-0.67	0.25	-0.64	0.10	0.07	-0.31	0.18	**0.71**	0.47	0.50	-0.14	0.01	**0.82**	**0.89**	-0.22	-0.12	0.45	**0.85**	0.38	**0.75**	1.00	0.95	0.40	*0.00*	*0.00*	*0.00*	0.76	0.07	*0.00*	*0.04*	0.33	0.25	0.07	*0.00*	0.87	*0.00*	0.69	0.24
MeanTrophicLevel_s	-0.05	0.49	-0.06	-0.10	0.05	-0.43	0.00	0.13	-0.03	0.02	-0.08	-0.11	0.15	0.61	-0.23	-0.15	0.14	0.20	0.43	0.30	0.39	1.00	*0.00*	0.39	0.39	0.10	0.80	0.21	0.44	*0.00*	0.91	0.14	0.07	0.09	0.13	*0.02*	*0.00*	*0.00*
PielouEvenness_s	-0.75	-0.26	-0.70	-0.01	-0.08	-0.07	-0.05	**0.91**	**0.84**	**0.83**	-0.18	0.18	**0.77**	0.45	0.17	-0.02	0.41	0.69	0.27	0.70	**0.71**	0.05	1.00	0.35	*0.04*	0.62	0.50	0.11	0.33	*0.00*	0.97	0.58	0.19	*0.01*	*0.00*	*0.01*	0.31	0.47
PropPredatoryFish_s	-0.68	0.12	-0.65	-0.02	-0.06	-0.21	-0.01	**0.75**	0.60	0.62	-0.18	0.10	**0.70**	**0.75**	-0.02	0.01	0.31	0.68	0.27	**0.75**	**0.88**	0.47	**0.76**	1.00	*0.00*	*0.00*	0.06	0.66	*0.00*	*0.01*	0.31	0.21	0.06	*0.00*	*0.00*	0.81	0.37	0.81
Biomass_s	**0.96**	0.37	**0.89**	-0.04	0.14	-0.09	-0.07	-0.62	-0.60	-0.56	-0.09	-0.26	-0.58	-0.30	-0.21	-0.15	-0.24	-0.50	-0.19	-0.47	-0.56	0.05	-0.79	-0.62	1.00	*0.04*	0.57	0.82	*0.01*	0.20	0.26	0.99	0.23	*0.00*	*0.00*	*0.01*	0.86	0.59
BiomassClupeids_s	**0.99**	0.10	**0.97**	-0.02	0.06	0.03	-0.07	-0.56	-0.54	-0.50	-0.10	-0.24	-0.56	-0.42	-0.21	-0.17	-0.19	-0.50	-0.28	-0.48	-0.64	-0.03	-0.76	-0.66	**0.96**	1.00	0.46	*0.03*	0.09	0.24	0.31	0.50	0.15	*0.00*	*0.00*	*0.00*	0.84	0.07
BiomassFinfish_s	**0.96**	0.37	**0.88**	-0.05	0.13	-0.10	-0.08	-0.61	-0.59	-0.55	-0.09	-0.25	-0.57	-0.28	-0.20	-0.15	-0.24	-0.50	-0.18	-0.46	-0.55	0.10	-0.78	-0.60	**1.00**	**0.95**	1.00	*0.00*	0.27	0.15	0.35	0.21	0.06	*0.00*	0.47	0.21	0.90	0.21
BiomassFlatfish_s	0.19	-0.11	0.06	-0.21	-0.04	0.17	-0.27	-0.17	-0.04	-0.07	0.05	0.30	-0.25	-0.32	0.35	0.14	-0.17	-0.31	-0.21	-0.19	-0.31	-0.19	-0.11	-0.17	0.14	0.14	0.14	1.00	*0.04*	0.13	0.26	*0.00*	*0.02*	*0.00*	*0.00*	0.68	*0.01*	0.11
BiomassForage_s	**0.99**	0.10	**0.97**	-0.02	0.06	0.03	-0.07	-0.56	-0.54	-0.50	-0.10	-0.24	-0.56	-0.42	-0.21	-0.17	-0.19	-0.50	-0.28	-0.48	-0.64	-0.03	-0.76	-0.66	**0.96**	**1.00**	**0.95**	0.14	1.00	0.27	0.79	*0.04*	0.51	*0.03*	0.06	*0.00*	0.07	0.33
BiomassGadoids_s	0.28	0.30	0.11	-0.17	-0.03	0.18	-0.25	-0.21	-0.28	-0.23	0.05	-0.03	-0.24	0.03	-0.17	-0.04	-0.11	-0.18	-0.33	-0.07	-0.14	0.09	-0.28	-0.03	0.34	0.27	0.35	0.14	0.27	1.00	0.86	*0.00*	0.21	*0.00*	0.10	0.43	0.54	*0.00*
BiomassGroundfish_s	0.10	**0.97**	-0.06	-0.08	0.22	-0.45	-0.01	-0.28	-0.29	-0.27	-0.01	-0.10	-0.13	0.44	-0.09	0.03	-0.17	-0.07	0.10	0.01	0.20	0.42	-0.25	0.12	0.36	0.09	0.37	0.06	0.09	0.37	1.00	*0.00*	0.25	0.35	0.59	*0.00*	0.66	0.41
BTGMediumBenthivore_s	0.00	-0.10	-0.12	-0.09	-0.06	0.01	-0.32	-0.04	0.10	0.05	0.05	0.27	-0.09	-0.21	0.40	0.29	-0.22	-0.24	-0.19	0.06	-0.14	-0.23	0.08	0.06	-0.04	-0.07	-0.03	**0.70**	-0.07	0.21	0.15	1.00	0.06	0.19	0.09	0.37	0.47	0.15
BTGPiscivore_s	0.09	**0.98**	-0.02	0.25	-0.46	0.13	-0.24	-0.29	-0.26	-0.04	-0.19	-0.06	0.53	-0.22	-0.04	-0.08	0.04	0.17	0.02	0.28	0.49	-0.25	0.13	0.36	0.11	0.37	-0.15	0.11	0.27	**0.95**	-0.1	1.00	0.36	*0.00*	*0.00*	*0.00*	*0.00*	0.09
BTGPlanktivore_s	**0.99**	0.10	**0.97**	-0.02	0.06	0.03	-0.07	-0.56	-0.54	-0.50	-0.10	-0.24	-0.56	-0.42	-0.21	-0.17	-0.19	-0.50	-0.28	-0.48	-0.64	-0.03	-0.76	-0.66	**0.96**	**1.00**	**0.95**	0.14	**1.00**	0.27	0.09	-0.07	0.11	1.00	0.21	0.07	0.11	0.12
BiomassSkates_s	0.24	-0.11	0.28	0.08	-0.14	0.32	0.23	-0.09	-0.24	-0.25	-0.27	-0.07	-0.12	-0.26	-0.25	0.13	0.00	-0.13	-0.15	-0.03	-0.24	-0.11	-0.19	-0.18	0.19	0.24	0.19	-0.03	0.24	0.21	-0.06	-0.06	-0.04	0.24	1.00	0.54	0.33	0.55
BTGZoopiscivore_s	-0.07	0.02	-0.15	-0.17	0.10	0.00	-0.21	-0.10	-0.03	-0.07	0.08	0.03	-0.15	-0.21	0.20	-0.03	-0.10	-0.18	0.43	-0.12	-0.20	0.04	0.04	-0.17	-0.06	-0.15	-0.06	0.03	-0.15	0.03	0.01	-0.01	-0.08	-0.15	-0.22	1.00	*0.00*	0.16
ShannonDiversity_s	-0.72	-0.27	-0.68	-0.08	-0.17	-0.07	-0.15	**0.77**	**0.93**	**0.89**	-0.11	0.32	0.60	0.34	0.46	0.14	0.19	0.50	0.17	0.55	0.57	-0.02	**0.95**	0.68	-0.76	-0.73	-0.75	-0.02	-0.73	-0.29	-0.24	0.18	-0.27	-0.73	-0.25	0.09	1.00	*0.01*
SpeciesRichness_s	-0.08	-0.13	-0.11	-0.25	-0.29	0.01	-0.36	-0.22	0.41	0.30	0.11	0.41	-0.37	-0.31	**0.99**	0.48	-0.51	-0.46	-0.23	-0.26	-0.30	-0.23	0.07	-0.10	-0.12	-0.12	-0.12	0.39	-0.12	-0.12	-0.05	0.41	-0.19	-0.12	-0.23	0.21	0.36	1.00

Table S 70. Spearman rank correlation coefficients (r) for indicators in strata 492. The upper triangle of the matrix represents p-values (p ≤ 0.05 highlighted in blue italics). The lower triangle of the matrix represents the r values (r ≥ 0.7 highlighted in red).

Indicator	BiomassTL3_s	BiomassTL4_s	BPelagicToDemersal_s	CommunityCondition_s	CCMediumBenthivore_s	CCPiscivore_s	CCPlanktivore_s	CCZoopiscivore_s	Heips_s	HillN1Diversity_s	HillN2Dominance_s	InverseCVBiomass_s	KemptonQ_s	LargeFishIndicator_s	LargeSpeciesIndicator_s	MargalefRichness_s	MargalefGroundfish_s	MeanLengthAbundance_s	MeanLengthBiomass_s	MeanLifespan_s	MMLengthAbundance_s	MMLengthBiomass_s	MeanTrophicLevel_s	PielouEvenness_s	PropPredatoryFish_s	Biomass_s	BiomassClupeids_s	BiomassFinfish_s	BiomassFlatfish_s	BiomassForage_s	BiomassGadoids_s	BiomassGroundfish_s	BTGMediumBenthivore_s	BTGPiscivore_s	BTGPlanktivore_s	BiomassSkates_s	BTGZoopiscivore_s	ShannonDiversity_s	SpeciesRichness_s
BiomassTL3_s	1.00	0.68	*0.00*	0.42	0.67	0.19	0.27	*0.04*	*0.00*	*0.00*	0.17	*0.01*	*0.00*	0.41	0.20	0.19	0.28	*0.04*	0.10	0.45	0.28	0.64	0.95	0.80	*0.00*	0.53	*0.00*	*0.00*	0.36	0.20	*0.00*	*0.04*	0.86	0.28	*0.00*	*0.00*	0.24	0.67	*0.00*
BiomassTL4_s	-0.06	1.00	*0.03*	0.76	*0.00*	0.15	0.16	*0.00*	0.72	0.51	0.21	0.90	*0.00*	0.44	*0.00*	*0.00*	0.06	0.06	0.75	0.65	0.61	0.35	0.34	0.05	*0.00*	*0.00*	0.18	0.12	0.65	0.77	*0.00*	0.07	0.30	*0.02*	*0.01*	0.14	*0.00*	0.60	0.62
BPelagicToDemersal_s	**0.93**	-0.15	1.00	0.35	*0.00*	*0.00*	*0.00*	*0.00*	0.63	0.32	0.95	0.31	0.70	*0.00*	*0.00*	0.74	0.10	*0.03*	0.77	0.36	0.90	0.22	0.94	0.39	0.20	0.75	0.20	*0.00*	0.16	0.62	0.53	*0.05*	0.86	*0.03*	0.17	0.33	0.90	0.15	*0.00*
CommunityCondition_s	0.31	-0.32	0.33	1.00	*0.00*	*0.00*	0.06	*0.00*	0.30	*0.03*	0.62	*0.01*	0.99	*0.00*	*0.04*	0.52	0.16	0.60	0.47	0.09	0.37	*0.04*	0.80	*0.02*	0.22	0.15	0.13	0.25	0.75	0.85	0.07	0.10	0.88	*0.00*	*0.00*	0.48	0.07	0.49	0.31
CCMediumBenthivore_s	0.12	-0.07	0.09	0.11	1.00	0.93	*0.00*	*0.00*	0.44	0.63	0.22	0.11	0.67	*0.01*	*0.00*	*0.00*	0.56	0.23	0.69	0.45	0.89	0.15	0.34	0.99	*0.00*	*0.00*	0.62	0.25	0.91	0.94	*0.00*	0.35	0.30	*0.00*	0.07	*0.00*	*0.00*	*0.00*	0.28
CCPiscivore_s	0.05	-0.14	0.04	0.11	-0.16	1.00	*0.00*	*0.00*	*0.00*	0.37	0.38	0.05	0.28	0.22	*0.00*	0.24	0.49	*0.04*	0.11	0.22	0.52	0.65	0.34	0.77	*0.00*	*0.05*	*0.00*	0.20	0.38	0.18	*0.03*	0.12	0.23	*0.00*	0.05	*0.00*	0.35	0.79	0.68
CCPlanktivore_s	0.14	-0.13	0.13	0.69	0.13	-0.05	1.00	0.50	0.82	0.40	*0.02*	*0.00*	*0.00*	*0.04*	*0.00*	0.47	0.41	*0.04*	0.77	0.43	*0.02*	0.34	0.42	0.34	0.19	*0.00*	0.94	0.80	0.33	0.73	0.18	0.87	0.20	0.10	*0.00*	0.29	*0.02*	0.77	0.25
CCZoopiscivore_s	0.06	-0.21	0.12	0.56	-0.02	0.16	0.30	1.00	0.82	0.17	0.17	0.66	0.13	*0.00*	*0.00*	0.47	0.28	0.07	0.87	0.71	0.19	0.53	0.91	0.81	0.66	0.59	0.14	*0.00*	0.16	0.59	0.34	0.89	0.34	*0.00*	*0.01*	0.09	*0.00*	*0.00*	*0.00*
Heips_s	-0.48	-0.20	-0.43	-0.05	-0.12	0.34	0.22	0.07	1.00	0.19	0.73	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	0.07	0.19	0.82	0.46	0.65	0.64	0.28	0.22	*0.00*	0.77	*0.00*	0.98	0.82	0.80	*0.00*	0.88	0.51	*0.00*	*0.03*	*0.00*	*0.02*	0.62	0.11
HillN1Diversity_s	-0.50	-0.21	-0.45	-0.13	-0.11	0.24	0.07	-0.07	**0.92**	1.00	0.18	0.92	*0.03*	0.50	0.45	*0.00*	*0.03*	0.11	0.61	0.76	0.67	0.19	0.35	0.50	*0.00*	*0.00*	0.76	0.19	0.79	*0.00*	*0.00*	0.08	0.30	*0.00*	*0.00*	*0.02*	0.18	0.67	*0.00*
HillN2Dominance_s	-0.44	-0.19	-0.40	-0.08	-0.10	0.31	0.14	-0.04	**0.95**	**0.97**	1.00	0.66	0.54	0.25	*0.00*	0.76	0.29	0.29	0.31	0.29	0.75	0.73	0.10	0.75	*0.03*	*0.00*	0.52	*0.00*	0.69	*0.00*	*0.00*	0.94	0.50	*0.00*	0.09	0.76	*0.00*	*0.00*	0.41
InverseCVBiomass_s	-0.20	0.01	-0.18	0.09	-0.01	0.27	0.09	0.24	0.19	0.08	0.10	1.00	0.78	0.17	0.37	0.38	*0.00*	0.38	0.61	*0.02*	0.68	*0.05*	0.30	0.50	*0.00*	0.63	0.41	0.44	0.24	0.13	*0.00*	0.08	0.23	*0.00*	*0.00*	*0.00*	0.07	*0.00*	0.98
KemptonQ_s	0.21	0.08	0.31	-0.06	0.25	-0.17	-0.07	0.04	-0.18	-0.04	-0.13	0.01	1.00	*0.00*	0.28	0.59	0.98	0.87	0.15	0.10	0.84	0.96	0.95	0.86	*0.00*	0.41	*0.00*	0.93	0.21	0.26	*0.00*	0.77	0.45	*0.02*	*0.00*	0.68	*0.04*	*0.00*	0.61
LargeFishIndicator_s	-0.53	-0.19	-0.51	-0.16	0.05	0.01	0.19	0.01	**0.77**	0.70	0.68	0.03	-0.19	1.00	0.20	0.54	*0.04*	0.43	0.81	*0.03*	0.75	*0.00*	*0.04*	0.75	0.93	*0.01*	*0.00*	0.83	0.71	*0.00*	*0.00*	0.94	0.06	*0.00*	*0.03*	0.07	0.06	0.62	0.32
LargeSpeciesIndicator_s	-0.54	-0.13	-0.49	-0.28	-0.04	-0.25	0.05	-0.08	0.59	0.55	0.50	-0.09	-0.06	**0.79**	1.00	0.70	0.99	0.48	0.45	0.07	0.76	0.08	0.64	0.22	*0.00*	*0.00*	0.92	0.56	*0.00*	*0.00*	*0.00*	*0.02*	*0.00*	0.09	*0.00*	0.68	0.19	0.58	*0.00*
MargalefRichness_s	0.01	0.34	0.10	-0.25	0.11	-0.18	-0.29	-0.27	-0.19	0.07	-0.01	-0.17	0.49	-0.23	-0.20	1.00	0.42	0.53	0.81	0.25	0.39	0.91	0.65	0.16	*0.00*	*0.02*	0.79	0.25	*0.01*	*0.00*	*0.00*	*0.02*	0.06	0.21	*0.03*	0.10	*0.00*	*0.00*	0.15
MargalefGroundfish_s	0.17	-0.20	0.17	0.21	0.06	0.16	0.01	-0.04	-0.07	0.12	0.04	-0.16	0.40	-0.17	-0.14	0.31	1.00	0.93	0.72	0.94	0.61	*0.01*	0.77	0.27	*0.00*	*0.00*	*0.01*	0.30	0.85	*0.00*	*0.00*	0.66	*0.00*	0.24	0.08	0.07	0.75	0.34	*0.00*
MeanLengthAbundance_s	-0.21	-0.05	-0.20	0.09	0.24	-0.08	0.55	0.29	0.48	0.36	0.39	0.22	0.03	0.61	0.53	-0.27	-0.09	1.00	0.45	0.10	*0.02*	0.63	0.10	0.62	*0.00*	*0.00*	*0.00*	0.14	0.39	*0.00*	*0.00*	0.21	*0.00*	*0.00*	*0.00*	0.07	0.12	*0.00*	0.43
MeanLengthBiomass_s	-0.50	-0.20	-0.47	-0.10	0.04	-0.02	0.26	0.13	**0.75**	0.65	0.64	0.03	-0.13	**0.97**	**0.81**	-0.29	-0.14	**0.71**	1.00	0.23	0.76	0.39	0.80	0.73	*0.00*	0.80	0.08	0.83	0.73	0.17	*0.00*	0.98	0.36	*0.00*	0.76	*0.01*	*0.00*	*0.00*	0.15
MeanLifespan_s	-0.27	-0.40	-0.19	0.12	0.02	-0.13	0.02	0.34	0.32	0.34	0.26	-0.01	0.05	0.43	0.62	-0.24	0.08	0.28	0.48	1.00	0.08	0.60	0.95	*0.02*	0.08	*0.00*	*0.00*	0.93	0.59	*0.00*	*0.01*	*0.03*	*0.00*	0.14	0.83	*0.00*	0.74	*0.01*	0.81
MMLengthAbundance_s	-0.45	0.02	-0.43	-0.16	0.03	-0.02	0.38	0.00	0.69	0.61	0.61	0.18	-0.08	**0.84**	0.69	-0.14	-0.15	**0.81**	**0.83**	0.32	1.00	0.56	0.59	0.27	*0.00*	*0.00*	*0.00*	0.22	0.23	*0.00*	*0.00*	*0.01*	*0.03*	*0.05*	0.12	*0.00*	*0.00*	0.53	0.62
MMLengthBiomass_s	-0.66	-0.15	-0.62	-0.27	-0.08	-0.10	0.07	-0.05	**0.72**	0.68	0.63	0.03	-0.18	**0.91**	**0.93**	-0.23	-0.16	0.54	**0.90**	0.55	**0.78**	1.00	0.06	0.50	0.21	*0.00*	0.71	0.84	0.86	*0.00*	0.10	0.37	0.20	*0.00*	*0.00*	0.07	*0.00*	0.88	0.18
MeanTrophicLevel_s	-0.31	0.40	-0.30	-0.33	-0.15	-0.34	-0.13	-0.14	0.01	-0.04	-0.06	-0.18	-0.03	0.21	0.61	-0.02	-0.30	0.14	0.25	0.37	0.25	0.44	1.00	0.06	0.23	*0.00*	*0.00*	0.23	0.41	*0.00*	0.37	*0.00*	0.16	*0.01*	*0.00*	0.79	0.67	0.99	0.81
PielouEvenness_s	-0.61	-0.24	-0.54	-0.16	-0.08	0.20	0.08	-0.04	**0.92**	**0.95**	**0.91**	0.12	-0.12	**0.82**	0.66	-0.02	0.03	0.41	**0.76**	0.39	0.69	**0.81**	*0.05*	1.00	0.24	*0.00*	*0.00*	0.43	0.47	*0.00*	0.56	0.55	0.20	*0.03*	0.58	0.05	*0.00*	0.14	0.48
PropPredatoryFish_s	-0.75	0.29	-0.72	-0.46	-0.22	-0.07	-0.09	-0.18	0.57	0.54	0.49	0.05	-0.11	0.69	0.67	0.02	-0.20	0.31	0.66	0.24	0.64	**0.80**	0.50	0.63	1.00	0.09	*0.00*	0.74	0.15	*0.03*	*0.00*	0.34	0.09	*0.00*	0.57	0.88	*0.00*	0.12	0.32
Biomass_s	0.69	0.68	0.58	0.00	0.04	-0.06	0.01	-0.10	-0.49	-0.52	-0.46	-0.14	0.21	-0.53	-0.49	0.26	-0.03	-0.19	-0.52	-0.49	-0.32	-0.60	0.06	-0.62	-0.34	1.00	*0.00*	0.36	0.20	*0.00*	*0.00*	0.60	0.16	*0.01*	*0.00*	0.92	*0.00*	0.53	0.21
BiomassClupeids_s	**1.00**	-0.07	**0.92**	0.31	0.11	0.05	0.14	0.05	-0.48	-0.51	-0.44	-0.21	0.19	-0.54	-0.52	-0.01	0.16	-0.21	-0.50	-0.27	-0.45	-0.65	-0.27	-0.61	-0.75	0.68	1.00	0.16	0.16	0.12	0.17	0.33	0.40	*0.01*	0.14	*0.00*	0.63	0.93	0.29
BiomassFinfish_s	0.69	0.68	0.58	0.00	0.04	-0.06	0.01	-0.10	-0.49	-0.52	-0.46	-0.14	0.21	-0.53	-0.49	0.26	-0.03	-0.19	-0.51	-0.49	-0.32	-0.60	0.06	-0.62	-0.35	**1.00**	0.68	1.00	0.98	0.26	0.08	0.27	0.78	0.11	*0.00*	*0.00*	0.58	0.87	0.16
BiomassFlatfish_s	0.10	-0.02	0.11	0.12	0.05	-0.03	0.04	-0.03	-0.26	-0.25	-0.23	-0.07	0.00	-0.33	-0.36	-0.04	0.02	-0.25	-0.34	-0.12	-0.26	-0.34	-0.25	-0.35	-0.20	0.06	0.09	0.06	1.00	0.10	*0.00*	*0.04*	0.50	*0.00*	*0.00*	*0.00*	*0.00*	*0.02*	0.78
BiomassForage_s	**1.00**	-0.07	**0.92**	0.31	0.11	0.05	0.14	0.05	-0.48	-0.51	-0.44	-0.21	0.19	-0.54	-0.52	-0.01	0.16	-0.21	-0.50	-0.27	-0.45	-0.65	-0.27	-0.61	-0.75	0.68	**1.00**	0.68	0.09	1.00	0.05	0.86	*0.00*	0.07	*0.00*	*0.00*	0.34	0.97	0.79
BiomassGadoids_s	-0.05	**0.98**	-0.13	-0.28	-0.11	-0.05	-0.15	-0.18	-0.19	-0.20	-0.17	0.05	0.04	-0.23	-0.24	0.35	-0.18	-0.13	-0.25	-0.48	-0.05	-0.22	0.27	-0.25	0.27	0.67	-0.06	0.67	0.02	-0.06	1.00	0.18	0.16	*0.00*	*0.00*	*0.02*	*0.00*	0.67	*0.00*
BiomassGroundfish_s	-0.07	**1.00**	-0.16	-0.32	-0.07	-0.13	-0.12	-0.21	-0.18	-0.19	-0.17	0.02	0.07	-0.17	-0.14	0.34	-0.19	-0.04	-0.19	-0.40	0.03	-0.15	0.36	-0.23	0.30	0.67	-0.08	0.67	0.00	-0.08	**0.99**	1.00	0.05	0.42	*0.00*	*0.00*	*0.00*	0.60	0.58
BTGMediumBenthivore_s	-0.16	0.06	-0.19	-0.08	0.14	0.08	0.02	-0.17	0.18	0.23	0.19	0.13	0.03	0.24	-0.09	0.07	0.15	0.10	0.18	-0.21	0.24	0.11	-0.46	0.19	0.28	-0.07	-0.21	-0.07	0.22	-0.21	0.15	0.12	1.00	0.07	*0.00*	0.10	*0.01*	0.15	0.23
BTGPiscivore_s	-0.12	0.00	-0.20	-0.18	0.25	-0.35	0.16	-0.08	0.10	0.07	0.04	-0.15	0.01	0.43	0.64	-0.19	-0.10	0.55	0.45	0.43	0.52	0.50	0.51	0.18	0.20	-0.08	-0.10	-0.08	-0.23	-0.10	-0.16	0.00	-0.12	1.00	*0.02*	0.13	*0.00*	0.49	0.68
BTGPlanktivore_s	**1.00**	-0.07	**0.93**	0.30	0.11	0.05	0.14	0.05	-0.48	-0.51	-0.44	-0.21	0.20	-0.54	-0.52	0.00	0.15	-0.21	-0.50	-0.27	-0.45	-0.66	-0.27	-0.61	-0.75	0.68	**1.00**	0.69	0.09	**1.00**	-0.06	-0.08	-0.22	-0.11	1.00	0.22	0.53	*0.00*	*0.03*
BiomassSkates_s	-0.03	-0.16	-0.05	0.31	-0.18	-0.26	0.24	0.34	0.05	-0.01	0.00	0.03	-0.05	0.09	0.21	-0.32	0.10	0.29	0.22	0.29	0.08	0.16	0.04	-0.02	-0.05	-0.14	-0.04	-0.14	0.01	-0.04	-0.17	-0.15	-0.04	0.15	-0.04	1.00	*0.00*	0.79	0.09
BTGZoopiscivore_s	-0.03	**0.98**	-0.10	-0.27	-0.12	-0.07	-0.16	-0.17	-0.22	-0.22	-0.20	0.04	0.08	-0.27	-0.26	0.38	-0.18	-0.16	-0.29	-0.46	-0.09	-0.26	0.29	-0.27	0.23	0.69	-0.04	0.69	0.03	-0.04	**0.99**	**0.98**	0.08	-0.19	-0.04	-0.18	1.00	0.77	*0.00*
ShannonDiversity_s	-0.60	-0.23	-0.53	-0.20	-0.06	0.14	0.01	-0.10	**0.85**	**0.95**	**0.89**	0.06	-0.04	**0.76**	0.62	0.14	0.11	0.34	0.69	0.37	0.63	**0.75**	0.02	**0.98**	0.60	-0.60	-0.61	-0.60	-0.34	-0.61	-0.24	-0.21	0.20	0.16	-0.61	-0.06	-0.25	1.00	0.95
SpeciesRichness_s	0.10	0.41	0.18	-0.24	0.11	-0.18	-0.30	-0.28	-0.29	-0.05	-0.12	-0.18	0.48	-0.33	-0.29	**0.99**	0.28	-0.32	-0.39	-0.32	-0.22	-0.33	-0.02	-0.14	-0.05	0.38	0.08	0.37	-0.01	0.08	0.41	0.41	0.04	-0.21	0.08	-0.33	0.45	0.01	1.00

Table S 71. Spearman rank correlation coefficients (r) for indicators in strata 493. The upper triangle of the matrix represents p-values (p ≤ 0.05 highlighted in blue italics). The lower triangle of the matrix represents the r values (r ≥ 0.7 highlighted in red).

Indicator	BiomassTL3_s	BiomassTL4_s	BPelagicToDemersal_s	CommunityCondition_s	CCLargeBenthivore_s	CCMediumBenthivore_s	CCPiscivore_s	CCPlanktivore_s	CCZoopiscivore_s	Heips_s	HillN1Diversity_s	HillN2Dominance_s	InverseCVBiomass_s	KemptonQ_s	LargeFishIndicator_s	LargeSpeciesIndicator_s	MargalefRichness_s	MargalefGroundfish_s	MeanLengthAbundance_s	MeanLengthBiomass_s	MeanLifespan_s	MMLengthAbundance_s	MMLengthBiomass_s	MeanTrophicLevel_s	PielouEvenness_s	PropPredatoryFish_s	Biomass_s	BiomassClupeids_s	BiomassFinfish_s	BiomassFlatfish_s	BiomassForage_s	BiomassGadoids_s	BiomassGroundfish_s	BTGLargeBenthivore_s	BTGMediumBenthivore_s	BTGPiscivore_s	BTGPlanktivore_s	BiomassSkates_s	BTGZoopiscivore_s	ShannonDiversity_s	SpeciesRichness_s
BiomassTL3_s	1.00	0.37	*0.00*	0.08	0.38	*0.00*	*0.04*	*0.00*	0.28	0.71	0.51	0.39	0.16	0.67	*0.01*	0.74	*0.00*	0.57	*0.02*	0.87	0.33	0.21	0.86	*0.01*	0.58	0.05	*0.00*	0.11	0.41	0.57	0.35	0.63	0.17	0.37	0.27	0.19	*0.00*	0.20	0.66	0.13	0.65
BiomassTL4_s	0.14	1.00	0.44	0.24	0.17	0.23	0.70	0.86	*0.00*	0.20	0.58	0.69	0.48	0.10	*0.02*	*0.00*	*0.00*	0.12	0.20	0.36	0.51	0.24	0.05	0.07	0.41	0.11	0.32	0.50	0.63	0.71	0.15	0.44	0.17	*0.04*	0.65	0.16	0.42	0.71	*0.00*	0.32	*0.00*
BPelagicToDemersal_s	0.68	-0.18	1.00	0.07	*0.00*	0.50	0.53	*0.00*	0.60	*0.00*	0.90	0.06	0.36	*0.01*	0.31	0.30	0.36	0.38	0.08	0.11	0.23	0.21	*0.00*	0.54	0.35	0.92	0.78	*0.00*	*0.00*	0.69	0.22	0.42	*0.00*	*0.03*	0.32	0.19	*0.00*	0.06	0.38	*0.00*	0.92
CommunityCondition_s	0.12	-0.16	0.25	1.00	*0.00*	*0.03*	0.14	*0.00*	0.27	0.15	0.72	*0.01*	*0.00*	0.46	0.75	0.21	0.09	0.50	*0.00*	0.18	0.66	0.62	0.95	0.57	0.40	0.34	*0.00*	0.69	0.85	*0.00*	0.75	*0.00*	*0.00*	*0.03*	0.64	*0.01*	*0.00*	0.62	0.12	0.47	0.16
CCLargeBenthivore_s	0.26	-0.11	0.36	0.41	1.00	*0.04*	0.86	*0.00*	0.77	0.23	0.81	0.79	*0.00*	0.12	0.05	0.81	0.07	0.40	*0.00*	0.10	0.63	0.24	0.70	0.10	*0.04*	0.09	*0.00*	*0.00*	*0.00*	0.94	0.77	0.06	*0.00*	*0.00*	0.05	0.29	0.16	*0.02*	0.81	0.71	0.11	*0.00*
CCMediumBenthivore_s	-0.18	-0.18	-0.11	0.18	-0.19	1.00	*0.01*	*0.00*	0.53	0.30	0.52	*0.01*	*0.00*	0.09	0.70	0.51	*0.01*	0.49	0.98	0.07	0.86	0.18	0.77	0.92	0.35	0.12	0.69	*0.02*	*0.00*	0.85	*0.01*	0.07	*0.00*	*0.03*	*0.00*	0.76	*0.01*	0.60	0.81	0.96	0.76
CCPiscivore_s	0.27	-0.40	0.23	0.27	0.26	-0.15	1.00	*0.00*	0.18	0.46	0.29	*0.00*	0.53	0.07	*0.00*	0.43	0.35	*0.04*	0.05	0.09	0.42	0.16	0.13	*0.00*	0.87	0.91	0.31	0.73	*0.01*	*0.00*	*0.00*	0.05	*0.00*	0.21	*0.00*	0.11	*0.02*	*0.01*	0.20	0.58	*0.00*
CCPlanktivore_s	0.13	-0.10	0.25	**0.83**	0.47	-0.10	0.24	1.00	*0.00*	0.22	0.08	0.74	*0.00*	*0.00*	*0.00*	*0.00*	0.79	0.40	0.09	0.08	0.49	0.87	*0.00*	0.73	0.35	*0.01*	*0.01*	*0.01*	*0.01*	*0.01*	0.47	*0.00*	*0.00*	0.68	0.20	0.09	0.37	0.81	*0.00*	0.06	0.27
CCZoopiscivore_s	0.20	-0.08	0.27	**0.70**	0.54	-0.18	0.40	**0.72**	1.00	*0.01*	*0.00*	0.10	0.36	*0.00*	0.94	0.54	0.39	0.49	*0.00*	0.07	0.57	0.15	0.14	0.14	0.10	*0.02*	*0.00*	*0.01*	0.73	0.11	0.46	*0.00*	*0.00*	0.20	*0.00*	*0.02*	*0.01*	0.15	0.84	*0.00*	0.23
Heips_s	-0.43	-0.02	-0.48	-0.14	0.00	-0.07	-0.21	0.05	-0.25	1.00	0.59	0.16	0.12	*0.00*	*0.00*	0.13	*0.02*	0.18	0.06	*0.02*	0.65	0.20	*0.00*	0.18	*0.03*	0.19	0.32	*0.00*	*0.01*	0.33	*0.00*	*0.00*	0.08	*0.01*	*0.02*	*0.02*	0.91	*0.00*	0.29	0.63	0.08
HillN1Diversity_s	-0.46	-0.05	-0.52	-0.26	-0.29	0.07	-0.17	-0.22	-0.40	**0.83**	1.00	0.36	0.06	0.44	*0.00*	*0.00*	*0.04*	0.05	0.22	0.36	*0.02*	0.23	*0.00*	*0.05*	0.77	0.16	*0.00*	0.56	*0.01*	0.30	*0.01*	*0.00*	*0.04*	0.13	0.92	0.15	0.85	*0.02*	*0.00*	0.26	0.77
HillN2Dominance_s	-0.44	-0.04	-0.50	-0.27	-0.25	0.03	-0.17	-0.20	-0.39	**0.83**	**0.98**	1.00	0.82	0.50	*0.00*	0.08	*0.02*	0.08	0.45	0.17	*0.03*	0.05	0.08	0.08	0.35	0.19	*0.00*	0.97	*0.00*	*0.00*	0.34	*0.00*	0.08	*0.03*	0.36	0.14	0.91	*0.00*	0.92	*0.00*	0.77
InverseCVBiomass_s	-0.18	-0.10	-0.12	-0.36	-0.42	-0.12	0.01	-0.29	-0.32	0.15	0.34	0.40	1.00	*0.01*	*0.00*	*0.00*	0.40	0.55	*0.00*	*0.03*	0.22	0.75	*0.02*	0.20	0.34	0.16	0.95	0.07	0.73	0.20	0.25	*0.01*	0.09	*0.05*	0.07	0.23	0.47	*0.00*	*0.00*	0.14	0.22
KemptonQ_s	-0.10	-0.16	-0.10	-0.14	-0.28	0.10	0.03	-0.26	-0.18	-0.04	0.05	0.05	0.24	1.00	*0.00*	0.22	0.93	0.42	*0.02*	0.57	0.27	0.33	0.12	0.78	0.51	0.16	*0.00*	0.64	0.93	0.27	0.87	*0.00*	*0.04*	*0.01*	0.52	*0.04*	0.73	0.81	*0.00*	0.32	*0.00*
LargeFishIndicator_s	-0.31	0.26	-0.39	0.04	0.18	-0.09	-0.29	0.19	-0.16	**0.74**	0.39	0.39	-0.15	-0.11	1.00	0.07	0.93	0.79	*0.00*	0.07	0.92	*0.02*	0.07	*0.00*	0.09	0.61	*0.00*	*0.00*	0.05	0.10	0.94	*0.00*	0.63	*0.00*	0.58	*0.00*	*0.01*	0.17	0.31	0.90	0.79
LargeSpeciesIndicator_s	-0.31	0.58	-0.40	-0.13	0.11	-0.07	-0.52	-0.04	-0.15	0.58	0.37	0.38	-0.16	-0.11	**0.76**	1.00	0.54	0.31	*0.01*	0.26	0.97	0.11	0.11	*0.00*	*0.00*	0.51	*0.00*	*0.00*	0.61	*0.02*	0.83	0.05	*0.00*	*0.00*	0.53	*0.01*	0.16	0.15	*0.00*	0.88	0.26
MargalefRichness_s	-0.31	-0.08	-0.35	-0.34	-0.65	0.34	-0.01	-0.47	-0.45	0.06	0.48	0.47	0.55	0.41	-0.27	-0.18	1.00	0.06	0.15	*0.00*	0.99	*0.01*	0.57	*0.00*	0.09	0.18	*0.00*	0.18	*0.00*	0.41	0.41	*0.04*	*0.02*	*0.00*	*0.03*	*0.00*	0.72	0.39	0.46	0.08	0.25
MargalefGroundfish_s	-0.06	-0.13	-0.15	-0.30	-0.34	0.32	0.06	-0.42	-0.29	-0.15	0.09	0.05	0.19	0.39	-0.29	-0.21	0.62	1.00	0.89	*0.02*	0.49	0.16	0.07	*0.04*	*0.01*	0.14	*0.00*	*0.00*	*0.00*	0.74	0.67	0.05	0.14	*0.00*	0.58	*0.00*	*0.00*	*0.03*	0.11	*0.00*	0.82
MeanLengthAbundance_s	-0.10	-0.06	-0.05	0.35	0.49	-0.18	0.04	0.52	0.24	0.38	0.00	0.01	-0.17	-0.15	0.60	0.21	-0.54	-0.57	1.00	*0.00*	0.57	0.26	0.61	0.88	*0.01*	0.95	0.85	*0.00*	0.26	*0.02*	0.67	0.07	*0.00*	0.28	0.39	0.66	0.24	*0.00*	0.96	0.43	0.21
MeanLengthBiomass_s	-0.22	0.28	-0.28	0.13	0.36	-0.17	-0.22	0.30	0.02	0.67	0.27	0.29	-0.25	-0.17	**0.95**	**0.72**	-0.44	-0.41	**0.74**	1.00	0.70	0.26	*0.01*	0.58	*0.03*	0.16	*0.00*	*0.00*	*0.00*	*0.05*	0.45	*0.04*	*0.04*	0.16	0.52	*0.00*	*0.00*	*0.00*	0.56	0.32	0.52
MeanLifespan_s	-0.03	0.38	-0.06	-0.01	0.21	0.02	-0.53	0.02	-0.14	0.15	-0.07	-0.08	-0.36	-0.02	0.55	0.68	-0.38	-0.16	0.19	0.52	1.00	0.93	*0.00*	0.90	0.23	0.27	0.64	*0.00*	*0.00*	0.45	0.48	0.83	0.78	0.24	0.34	0.99	*0.00*	*0.00*	0.07	0.48	0.60
MMLengthAbundance_s	-0.36	0.04	-0.42	0.01	0.02	0.00	-0.22	0.08	-0.26	**0.81**	0.58	0.57	0.12	0.01	**0.87**	0.61	-0.07	-0.21	0.54	**0.78**	0.37	1.00	0.74	0.91	0.28	0.38	0.89	*0.00*	*0.00*	0.22	0.45	0.13	0.96	0.18	*0.02*	0.89	*0.00*	*0.00*	*0.00*	0.94	0.62
MMLengthBiomass_s	-0.43	0.37	-0.52	-0.09	0.03	0.00	-0.44	-0.02	-0.23	**0.76**	0.55	0.54	-0.05	-0.03	**0.87**	**0.92**	-0.09	-0.18	0.33	**0.79**	0.62	**0.83**	1.00	0.31	0.31	*0.00*	0.79	0.37	*0.00*	0.22	0.44	0.20	*0.00*	0.77	0.90	0.97	*0.01*	0.82	0.63	0.52	0.73
MeanTrophicLevel_s	0.03	0.64	-0.01	-0.09	0.14	-0.10	-0.42	-0.02	-0.02	0.01	-0.20	-0.17	-0.35	-0.13	0.37	**0.72**	-0.33	-0.20	0.01	0.41	**0.70**	0.12	0.48	1.00	*0.00*	*0.00*	0.74	*0.00*	*0.00*	0.21	0.48	0.12	0.10	0.44	0.57	0.18	*0.00*	*0.00*	0.26	*0.05*	0.31
PielouEvenness_s	-0.58	0.05	-0.65	-0.23	-0.24	0.09	-0.26	-0.15	-0.38	**0.91**	**0.92**	**0.91**	0.29	0.06	0.60	0.56	0.36	0.04	0.14	0.46	0.07	**0.71**	**0.74**	-0.06	1.00	*0.00*	0.98	0.71	0.56	0.22	0.60	*0.04*	*0.00*	0.65	*0.01*	0.89	*0.01*	0.95	*0.00*	0.61	*0.01*
PropPredatoryFish_s	-0.53	0.24	-0.62	-0.13	-0.20	0.06	-0.35	-0.08	-0.34	**0.81**	0.70	0.67	0.11	0.06	**0.79**	**0.76**	0.14	-0.12	0.27	0.66	0.41	**0.85**	**0.93**	0.27	**0.85**	1.00	*0.00*	0.79	*0.00*	0.22	0.30	*0.04*	*0.00*	0.63	0.16	0.22	0.24	0.73	0.15	0.27	0.17
Biomass_s	**1.00**	0.21	0.66	0.10	0.25	-0.19	0.24	0.12	0.19	-0.42	-0.46	-0.44	-0.18	-0.11	-0.29	-0.26	-0.31	-0.07	-0.10	-0.20	0.00	-0.35	-0.39	0.08	-0.56	-0.50	1.00	0.66	0.77	0.18	0.46	0.25	*0.00*	0.64	0.90	*0.02*	*0.00*	0.93	*0.00*	0.79	0.28
BiomassClupeids_s	**1.00**	0.14	0.68	0.13	0.27	-0.18	0.27	0.14	0.21	-0.43	-0.46	-0.44	-0.18	-0.11	-0.31	-0.30	-0.32	-0.07	-0.08	-0.21	-0.02	-0.36	-0.42	0.04	-0.58	-0.52	**1.00**	1.00	0.84	0.60	0.44	0.38	*0.01*	0.08	*0.00*	*0.00*	0.88	0.60	0.32	0.60	0.97
BiomassFinfish_s	**1.00**	0.21	0.66	0.10	0.25	-0.19	0.24	0.13	0.20	-0.42	-0.46	-0.44	-0.19	-0.11	-0.29	-0.26	-0.32	-0.07	-0.10	-0.20	0.01	-0.35	-0.39	0.08	-0.57	-0.50	**1.00**	**1.00**	1.00	0.09	0.17	*0.00*	0.64	0.64	*0.00*	0.21	*0.02*	0.87	*0.00*	0.17	0.93
BiomassFlatfish_s	0.16	-0.11	-0.05	-0.30	-0.26	-0.07	0.09	-0.30	-0.21	-0.03	0.14	0.09	0.18	0.12	-0.27	-0.26	0.29	0.26	-0.32	-0.37	-0.20	-0.14	-0.18	-0.37	0.04	-0.07	0.15	0.15	0.15	1.00	0.49	*0.01*	0.57	0.99	*0.00*	*0.00*	0.14	*0.00*	0.61	*0.00*	0.15
BiomassForage_s	**1.00**	0.14	0.68	0.13	0.27	-0.18	0.27	0.14	0.21	-0.43	-0.46	-0.44	-0.18	-0.11	-0.31	-0.30	-0.32	-0.07	-0.08	-0.21	-0.02	-0.36	-0.42	0.04	-0.58	-0.52	**1.00**	**1.00**	**1.00**	0.15	1.00	0.24	*0.03*	0.53	*0.00*	0.89	0.42	0.64	0.27	0.68	0.70
BiomassGadoids_s	0.08	0.44	-0.16	-0.11	-0.33	-0.20	-0.08	-0.02	0.08	-0.07	-0.06	-0.05	0.20	0.08	-0.03	0.07	0.19	0.00	-0.13	-0.05	-0.18	-0.02	0.02	0.21	-0.01	0.13	0.11	0.08	0.11	0.02	0.08	1.00	0.01	0.24	*0.00*	0.79	*0.01*	0.85	0.79	0.20	0.20
BiomassGroundfish_s	0.17	**0.99**	-0.19	-0.20	-0.14	-0.21	-0.39	-0.14	-0.10	-0.02	-0.04	-0.03	-0.08	-0.16	0.23	0.54	-0.06	-0.10	-0.10	0.24	0.35	0.03	0.35	0.58	0.05	0.23	0.24	0.17	0.24	0.02	0.17	0.45	1.00	*0.01*	*0.00*	0.17	*0.00*	*0.00*	0.60	*0.00*	*0.00*
BTGLargeBenthivore_s	-0.04	0.47	0.04	0.29	0.21	0.03	-0.42	0.25	0.20	-0.04	-0.07	-0.09	-0.25	-0.11	0.19	0.34	-0.19	-0.18	0.14	0.25	0.43	-0.02	0.22	0.35	-0.01	0.06	-0.01	-0.04	-0.01	-0.26	-0.04	-0.06	0.43	1.00	*0.00*	0.87	0.70	0.10	0.17	0.13	0.14
BTGMediumBenthivore_s	0.10	-0.09	-0.10	-0.26	-0.33	0.22	-0.05	-0.33	-0.22	-0.05	0.12	0.06	0.14	0.12	-0.23	-0.22	0.36	0.39	-0.35	-0.35	-0.19	-0.11	-0.12	-0.42	0.08	-0.04	0.09	0.08	0.08	**0.80**	0.08	0.07	0.05	-0.18	1.00	*0.01*	0.82	*0.00*	*0.00*	*0.00*	0.23
BTGPiscivore_s	0.20	**0.95**	-0.12	-0.09	0.09	-0.19	-0.37	-0.04	-0.01	0.00	-0.07	-0.06	-0.21	-0.21	0.30	0.60	-0.23	-0.17	0.02	0.35	0.47	0.05	0.40	0.61	0.02	0.19	0.27	0.21	0.27	-0.12	0.21	0.22	**0.95**	0.54	-0.10	1.00	*0.00*	*0.00*	0.68	0.71	0.94
BTGPlanktivore_s	**1.00**	0.14	0.68	0.12	0.27	-0.18	0.27	0.14	0.21	-0.43	-0.47	-0.45	-0.19	-0.10	-0.31	-0.30	-0.32	-0.07	-0.09	-0.21	-0.02	-0.36	-0.42	0.04	-0.58	-0.52	**1.00**	**1.00**	**1.00**	0.15	**1.00**	0.08	0.17	-0.04	0.08	0.21	1.00	*0.00*	0.20	0.63	*0.03*
BiomassSkates_s	-0.06	-0.23	-0.09	-0.04	0.17	-0.28	-0.09	0.14	0.16	0.24	0.03	0.04	-0.05	-0.07	0.17	-0.04	-0.29	-0.15	0.40	0.22	-0.04	0.21	0.06	-0.21	0.07	0.03	-0.07	-0.06	-0.07	0.11	-0.06	-0.07	-0.18	-0.17	0.08	-0.16	-0.06	1.00	*0.00*	0.14	0.54
BTGZoopiscivore_s	-0.19	0.28	-0.23	-0.15	-0.58	-0.05	-0.09	-0.10	-0.13	-0.10	0.01	0.03	0.28	0.12	-0.13	-0.01	0.39	0.07	-0.21	-0.18	-0.20	-0.05	-0.03	0.22	0.03	0.16	-0.17	-0.19	-0.17	-0.01	-0.19	**0.73**	0.26	-0.17	-0.05	-0.01	-0.19	-0.18	1.00	0.61	*0.01*
ShannonDiversity_s	-0.58	0.04	-0.65	-0.28	-0.35	0.15	-0.24	-0.25	-0.43	**0.82**	**0.95**	**0.93**	0.37	0.12	0.45	0.46	0.54	0.16	-0.02	0.30	-0.02	0.60	0.64	-0.13	**0.98**	**0.78**	-0.57	-0.58	-0.57	0.10	-0.58	0.02	0.04	-0.03	0.15	-0.01	-0.58	-0.01	0.09	1.00	*0.00*
SpeciesRichness_s	-0.21	-0.06	-0.26	-0.34	-0.65	0.33	0.02	-0.47	-0.43	-0.06	0.38	0.37	0.54	0.42	-0.37	-0.25	**0.99**	0.63	-0.60	-0.52	-0.40	-0.18	-0.19	-0.31	0.24	0.02	-0.22	-0.22	-0.22	0.29	-0.22	0.21	-0.04	-0.19	0.36	-0.21	-0.22	-0.32	0.40	0.43	1

Table S 72. Spearman rank correlation coefficients (r) for indicators in strata 494. The upper triangle of the matrix represents p-values (p ≤ 0.05 highlighted in blue italics). The lower triangle of the matrix represents the r values (r ≥ 0.7 highlighted in red).

Indicator	BiomassTL3_s	BiomassTL4_s	BPelagicToDemersal_s	CommunityCondition_s	CCMediumBenthivore_s	CCPiscivore_s	CCPlanktivore_s	CCZoopiscivore_s	Heips_s	HillN1Diversity_s	HillN2Dominance_s	InverseCVBiomass_s	KemptonQ_s	LargeFishIndicator_s	LargeSpeciesIndicator_s	MargalefRichness_s	MargalefGroundfish_s	MeanLengthAbundance_s	MeanLengthBiomass_s	MeanLifespan_s	MMLengthAbundance_s	MMLengthBiomass_s	MeanTrophicLevel_s	PielouEvenness_s	PropPredatoryFish_s	Biomass_s	BiomassClupeids_s	BiomassFinfish_s	BiomassFlatfish_s	BiomassForage_s	BiomassGadoids_s	BiomassGroundfish_s	BTGMediumBenthivore_s	BTGPiscivore_s	BTGPlanktivore_s	BiomassSkates_s	BTGZoopiscivore_s	ShannonDiversity_s	SpeciesRichness_s
BiomassTL3_s	1.00	0.32	*0.00*	0.47	0.94	*0.05*	0.90	0.71	*0.00*	*0.01*	0.08	*0.00*	0.90	0.38	0.78	0.36	0.58	*0.02*	0.76	0.51	0.39	0.87	0.38	*0.03*	*0.00*	*0.02*	*0.03*	0.08	0.06	0.26	*0.00*	*0.00*	0.86	0.13	0.09	*0.02*	*0.04*	0.32	*0.00*
BiomassTL4_s	-0.15	1.00	*0.02*	*0.01*	*0.04*	0.26	0.42	*0.00*	0.35	0.49	*0.03*	*0.02*	*0.00*	0.58	0.31	*0.00*	*0.04*	0.74	0.54	0.61	0.78	*0.04*	0.32	*0.00*	*0.00*	*0.04*	*0.00*	0.53	0.28	0.68	0.14	*0.00*	0.86	0.22	*0.03*	0.30	*0.00*	0.24	0.40
BPelagicToDemersal_s	**0.86**	-0.15	1.00	0.35	*0.04*	0.14	0.06	*0.01*	0.31	0.33	*0.00*	*0.00*	0.68	0.19	0.13	0.67	0.09	0.07	0.92	0.77	*0.01*	0.52	0.38	0.24	*0.00*	0.70	*0.01*	0.06	*0.04*	0.14	0.83	*0.03*	0.86	*0.00*	0.13	*0.00*	0.70	0.54	0.24
CommunityCondition_s	0.34	-0.28	0.39	1.00	0.07	0.07	0.80	*0.00*	0.72	0.06	0.10	*0.00*	*0.00*	0.17	0.72	0.43	0.79	0.67	0.20	0.22	*0.02*	*0.01*	0.24	0.75	0.20	0.90	0.11	*0.00*	0.89	0.60	0.42	0.11	0.46	*0.01*	*0.00*	0.31	0.59	0.41	0.18
CCMediumBenthivore_s	0.11	0.18	0.13	0.10	1.00	0.24	0.10	*0.00*	0.39	0.22	*0.00*	*0.02*	0.34	0.23	0.05	0.06	0.12	0.05	0.91	0.46	*0.04*	0.44	0.32	*0.03*	*0.01*	*0.00*	0.11	*0.01*	*0.00*	0.11	0.12	0.41	0.86	*0.00*	0.75	*0.00*	*0.00*	*0.00*	0.81
CCPiscivore_s	0.38	-0.60	0.43	0.27	-0.10	1.00	*0.02*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	0.34	0.15	0.09	0.61	0.59	*0.02*	0.41	*0.04*	*0.00*	0.39	0.46	*0.05*	*0.00*	0.83	*0.03*	0.19	0.21	0.26	0.10	0.81	0.41	*0.00*	0.36	*0.02*	0.16	0.92	0.32
CCPlanktivore_s	0.14	-0.25	0.13	**0.84**	-0.01	0.25	1.00	0.78	0.88	0.10	1.00	0.46	0.65	0.31	*0.00*	0.52	*0.05*	0.44	0.30	0.79	*0.03*	0.59	*0.03*	0.29	0.76	*0.00*	0.81	*0.04*	*0.00*	0.20	0.36	*0.01*	0.75	*0.01*	0.10	0.90	*0.02*	0.26	0.19
CCZoopiscivore_s	0.01	-0.21	-0.08	0.37	-0.15	0.33	0.39	1.00	0.27	0.17	0.18	0.34	*0.05*	0.35	*0.00*	0.07	*0.01*	0.19	0.64	0.75	*0.02*	*0.04*	0.23	*0.00*	0.94	*0.00*	0.37	0.06	*0.04*	0.91	0.14	*0.04*	0.41	0.11	0.61	0.40	*0.01*	*0.00*	*0.00*
Heips_s	-0.30	0.33	-0.20	-0.21	-0.06	-0.30	-0.12	-0.32	1.00	*0.02*	0.24	0.46	0.87	0.24	*0.00*	*0.00*	*0.02*	0.06	0.52	0.15	*0.00*	0.53	*0.04*	*0.00*	0.86	0.37	*0.00*	0.72	0.58	0.25	0.46	0.29	0.15	*0.00*	0.11	*0.00*	*0.02*	0.40	*0.00*
HillN1Diversity_s	-0.31	0.26	-0.21	-0.22	-0.05	-0.21	-0.13	-0.45	**0.90**	1.00	*0.00*	0.66	*0.01*	0.39	0.67	*0.01*	0.16	0.14	0.80	0.10	*0.01*	0.61	0.33	0.98	*0.03*	0.10	*0.04*	0.43	0.50	0.27	*0.00*	0.24	0.87	0.08	*0.00*	0.45	*0.00*	0.76	0.59
HillN2Dominance_s	-0.27	0.32	-0.18	-0.18	-0.05	-0.25	-0.08	-0.36	**0.95**	**0.97**	1.00	0.34	0.41	0.73	*0.00*	0.17	0.06	0.52	0.68	*0.02*	*0.01*	*0.04*	0.57	0.86	0.33	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	0.18	0.38	0.07	0.30	0.51	*0.01*	*0.00*	*0.00*
InverseCVBiomass_s	-0.29	0.41	-0.21	-0.28	-0.06	-0.51	-0.30	-0.42	0.56	0.52	0.54	1.00	*0.00*	0.10	0.32	0.14	*0.02*	0.96	0.66	*0.04*	*0.01*	*0.05*	*0.00*	0.97	*0.00*	*0.01*	0.39	0.24	0.19	0.16	*0.00*	0.23	0.67	0.08	*0.00*	0.74	0.12	0.34	*0.00*
KemptonQ_s	0.17	-0.25	0.15	-0.02	-0.05	0.22	-0.10	0.01	-0.19	-0.14	-0.13	-0.28	1.00	0.06	0.24	0.23	*0.02*	0.33	0.72	0.16	0.72	0.66	0.17	*0.05*	*0.00*	0.16	*0.05*	0.06	0.15	0.31	*0.00*	*0.01*	0.15	0.65	*0.00*	0.59	*0.00*	0.39	0.23
LargeFishIndicator_s	-0.22	0.46	-0.14	-0.08	-0.09	-0.32	-0.08	0.06	0.38	0.24	0.29	0.32	-0.22	1.00	0.63	0.06	*0.02*	0.68	0.44	0.10	*0.01*	*0.03*	0.06	0.86	0.57	0.27	*0.00*	*0.03*	0.11	0.17	*0.00*	0.18	*0.00*	0.07	0.12	0.60	*0.00*	0.70	0.80
LargeSpeciesIndicator_s	-0.27	**0.85**	-0.18	-0.31	-0.02	-0.58	-0.31	-0.21	0.57	0.41	0.47	0.59	-0.24	0.60	1.00	0.90	*0.02*	0.75	0.47	*0.00*	0.60	0.80	*0.03*	0.45	*0.00*	0.29	0.09	*0.00*	0.34	*0.00*	*0.00*	0.44	*0.00*	0.44	0.09	0.58	*0.00*	0.55	0.95
MargalefRichness_s	-0.18	0.00	-0.13	-0.25	0.19	-0.12	-0.30	-0.59	0.05	0.39	0.25	0.24	0.14	-0.21	-0.14	1.00	0.69	0.75	0.44	0.15	*0.00*	*0.02*	*0.00*	*0.01*	*0.00*	0.98	0.39	0.11	*0.00*	*0.01*	*0.00*	0.07	0.22	*0.03*	0.12	*0.00*	*0.01*	*0.00*	*0.00*
MargalefGroundfish_s	-0.02	-0.20	0.05	0.04	0.02	0.13	0.07	-0.32	0.01	0.21	0.13	0.04	0.48	-0.15	-0.22	0.49	1.00	0.70	0.81	*0.03*	0.51	*0.00*	*0.01*	*0.03*	0.05	*0.00*	0.41	0.79	0.56	*0.00*	0.12	*0.01*	0.10	0.86	0.22	0.60	0.91	0.92	0.11
MeanLengthAbundance_s	-0.12	-0.18	-0.25	0.23	-0.12	0.04	0.32	0.48	-0.03	-0.17	-0.12	-0.29	0.09	0.21	-0.11	-0.44	-0.23	1.00	0.47	*0.00*	*0.00*	*0.01*	*0.00*	0.23	*0.04*	*0.00*	0.13	0.05	0.29	*0.00*	0.08	0.79	0.46	*0.00*	0.09	0.06	0.75	0.26	0.66
MeanLengthBiomass_s	-0.28	0.48	-0.28	-0.08	-0.16	-0.38	-0.04	0.18	0.32	0.16	0.23	0.31	-0.16	**0.91**	0.62	-0.32	-0.21	0.43	1.00	0.43	*0.01*	0.27	0.93	0.87	*0.05*	0.59	0.68	*0.04*	0.46	*0.02*	0.12	0.20	0.46	0.06	0.12	0.65	*0.00*	*0.01*	0.54
MeanLifespan_s	0.04	0.64	0.04	-0.30	0.07	-0.34	-0.35	0.05	0.15	0.00	0.06	0.36	-0.11	0.37	0.69	-0.24	-0.19	-0.19	0.37	1.00	0.88	0.19	0.70	0.34	0.81	*0.00*	*0.00*	*0.01*	0.27	*0.04*	0.59	0.74	0.43	0.69	*0.00*	*0.00*	0.65	0.47	0.54
MMLengthAbundance_s	-0.24	0.35	-0.15	-0.39	-0.10	-0.30	-0.42	-0.33	0.69	0.65	0.65	0.56	-0.16	0.51	0.60	0.12	-0.03	-0.25	0.46	0.28	1.00	*0.02*	0.17	0.25	*0.04*	*0.00*	*0.00*	*0.00*	0.09	*0.00*	0.08	0.65	0.42	0.73	0.09	*0.00*	*0.00*	0.60	0.78
MMLengthBiomass_s	-0.34	**0.73**	-0.23	-0.34	-0.04	-0.55	-0.37	-0.30	**0.72**	0.59	0.62	0.62	-0.25	0.64	**0.94**	-0.04	-0.16	-0.11	0.62	0.55	**0.77**	1.00	*0.00*	*0.00*	*0.01*	*0.04*	0.99	*0.00*	0.85	0.17	0.85	*0.00*	0.39	0.30	*0.01*	0.60	*0.00*	0.97	*0.05*
MeanTrophicLevel_s	0.06	0.64	0.05	-0.21	0.06	-0.32	-0.17	0.16	0.09	-0.08	0.00	0.23	-0.03	0.34	0.66	-0.36	-0.23	-0.11	0.38	**0.88**	0.16	0.43	1.00	*0.00*	*0.02*	*0.03*	*0.00*	0.12	0.14	0.14	*0.00*	*0.00*	0.44	*0.01*	0.09	0.80	0.76	*0.00*	*0.02*
PielouEvenness_s	-0.41	0.33	-0.29	-0.28	-0.07	-0.34	-0.20	-0.51	**0.92**	**0.93**	**0.91**	0.57	-0.22	0.30	0.51	0.30	0.12	-0.12	0.24	-0.02	0.67	0.69	*-0.10*	1.00	0.34	*0.04*	*0.00*	*0.00*	0.10	0.17	0.66	0.12	0.39	0.06	0.89	0.22	*0.00*	*0.00*	0.41
PropPredatoryFish_s	-0.37	0.49	-0.25	-0.33	-0.05	-0.43	-0.35	-0.44	**0.79**	**0.74**	**0.74**	0.60	-0.24	0.43	**0.71**	0.16	-0.01	-0.12	0.41	0.29	**0.78**	**0.88**	0.05	**0.81**	1.00	0.35	0.08	*0.00*	0.29	0.53	*0.00*	0.16	0.85	*0.00*	0.51	0.25	0.35	0.62	0.40
Biomass_s	**1.00**	-0.11	**0.86**	0.33	0.12	0.36	0.13	0.00	-0.29	-0.30	-0.26	-0.28	0.16	-0.21	-0.23	-0.18	-0.03	-0.13	-0.26	0.06	-0.23	-0.31	0.08	-0.40	-0.35	1.00	0.06	0.06	0.26	0.14	0.08	0.20	0.44	*0.00*	*0.00*	*0.02*	0.39	0.60	0.29
BiomassClupeids_s	**1.00**	-0.14	**0.86**	0.34	0.11	0.38	0.15	0.03	-0.31	-0.32	-0.28	-0.30	0.17	-0.22	-0.26	-0.20	-0.03	-0.12	-0.27	0.05	-0.25	-0.34	0.08	-0.42	-0.38	**1.00**	1.00	*0.04*	0.29	0.19	0.64	0.82	0.29	0.91	0.72	*0.00*	0.70	0.87	0.08
BiomassFinfish_s	**1.00**	-0.11	**0.86**	0.33	0.12	0.36	0.13	0.01	-0.29	-0.30	-0.26	-0.28	0.16	-0.21	-0.23	-0.18	-0.03	-0.13	-0.26	0.07	-0.23	-0.31	0.08	-0.40	-0.35	**1.00**	**1.00**	1.00	0.79	*0.03*	0.30	0.29	0.29	0.05	*0.00*	*0.01*	0.54	0.89	0.68
BiomassFlatfish_s	-0.04	-0.07	-0.07	-0.06	-0.04	-0.05	-0.18	-0.30	0.04	0.14	0.10	0.16	-0.04	-0.10	-0.08	0.38	0.11	-0.03	-0.07	-0.22	0.19	0.09	-0.53	0.15	0.42	-0.05	-0.08	-0.05	1.00	0.99	*0.00*	0.12	0.86	0.68	*0.00*	*0.00*	*0.00*	0.18	0.93
BiomassForage_s	**1.00**	-0.14	**0.86**	0.34	0.11	0.38	0.15	0.03	-0.31	-0.32	-0.28	-0.30	0.17	-0.22	-0.26	-0.20	-0.03	-0.12	-0.27	0.05	-0.25	-0.34	0.08	-0.42	-0.38	**1.00**	**1.00**	**1.00**	-0.08	1.00	0.20	0.41	0.27	0.75	*0.00*	*0.01*	0.91	*0.01*	0.26
BiomassGadoids_s	-0.14	0.02	-0.15	-0.05	-0.10	-0.08	0.11	-0.11	0.40	0.47	0.45	-0.02	-0.06	0.20	-0.03	0.12	0.12	0.16	0.12	-0.25	0.24	0.16	-0.28	0.46	0.23	-0.14	-0.15	-0.14	0.01	-0.15	1.00	0.93	0.43	0.67	*0.03*	0.33	0.27	0.32	*0.00*
BiomassGroundfish_s	-0.15	0.68	-0.18	-0.27	0.08	-0.51	-0.32	-0.37	0.36	0.37	0.39	0.44	-0.22	0.33	0.57	0.27	-0.05	-0.16	0.33	0.31	0.45	0.64	0.07	0.42	**0.71**	-0.13	-0.18	-0.13	0.65	-0.18	0.18	1.00	0.41	0.14	*0.02*	*0.00*	*0.01*	0.24	0.43
BTGMediumBenthivore_s	-0.06	-0.06	-0.07	-0.06	-0.04	-0.10	-0.18	-0.33	0.14	0.24	0.20	0.19	-0.08	0.00	-0.07	0.38	0.12	-0.03	-0.03	-0.23	0.25	0.15	-0.56	0.24	0.47	-0.06	-0.09	-0.06	**0.97**	-0.09	0.20	0.68	1.00	0.75	*0.03*	*0.00*	0.49	0.54	0.74
BTGPiscivore_s	-0.13	**0.99**	-0.14	-0.29	0.18	-0.61	-0.30	-0.18	0.34	0.24	0.31	0.42	-0.24	0.48	**0.87**	-0.04	-0.22	-0.17	0.50	0.69	0.37	**0.75**	0.67	0.31	0.50	-0.09	-0.12	-0.09	-0.08	-0.12	-0.04	0.67	-0.07	1.00	0.55	*0.00*	*0.00*	0.41	0.69
BTGPlanktivore_s	**1.00**	-0.14	**0.86**	0.34	0.11	0.38	0.15	0.02	-0.31	-0.32	-0.28	-0.30	0.17	-0.22	-0.26	-0.19	-0.02	-0.12	-0.27	0.05	-0.25	-0.34	0.08	-0.42	-0.39	**1.00**	**1.00**	**1.00**	-0.08	**1.00**	-0.15	-0.18	-0.09	-0.12	1.00	0.10	0.60	*0.00*	0.81
BiomassSkates_s	0.02	-0.15	-0.06	-0.12	-0.31	-0.02	-0.08	0.14	0.06	0.04	0.06	0.08	0.19	-0.03	-0.07	-0.05	0.13	-0.12	-0.06	0.14	0.02	-0.02	0.04	-0.06	0.02	0.02	0.02	0.02	0.02	0.02	0.20	0.04	0.09	-0.13	0.01	1.00	*0.00*	0.92	0.42
BTGZoopiscivore_s	-0.16	-0.07	-0.12	0.20	-0.04	0.02	0.41	0.17	0.02	0.14	0.12	-0.10	-0.02	-0.12	-0.16	0.07	-0.06	0.22	-0.05	-0.25	-0.10	-0.13	-0.18	0.08	-0.05	-0.17	-0.17	-0.17	0.02	-0.17	0.43	-0.01	0.04	-0.16	-0.17	0.05	1.00	0.26	0.70
ShannonDiversity_s	-0.40	0.29	-0.28	-0.28	-0.05	-0.31	-0.21	-0.57	**0.85**	**0.95**	**0.90**	0.55	-0.17	0.23	0.43	0.46	0.22	-0.18	0.16	-0.08	0.64	0.61	-0.17	**0.98**	**0.77**	-0.39	-0.42	-0.40	0.20	-0.42	0.47	0.43	0.29	0.26	-0.41	-0.06	0.12	1.00	*0.01*
SpeciesRichness_s	-0.10	-0.02	-0.08	-0.22	0.22	-0.10	-0.28	-0.56	-0.03	0.31	0.18	0.20	0.17	-0.25	-0.19	**0.99**	0.49	-0.44	-0.36	-0.24	0.06	-0.11	-0.35	0.21	0.07	-0.11	-0.13	-0.11	0.36	-0.13	0.08	0.24	0.35	-0.06	-0.12	-0.04	0.06	0.37	1.00

Table S 73. Spearman rank correlation coefficients (r) for indicators in strata 495. The upper triangle of the matrix represents p-values (p ≤ 0.05 highlighted in blue italics). The lower triangle of the matrix represents the r values (r ≥ 0.7 highlighted in red).

Indicator	BiomassTL3_s	BiomassTL4_s	BPelagicToDemersal_s	CommunityCondition_s	CCMediumBenthivore_s	CCPiscivore_s	Heips_s	HillN1Diversity_s	HillN2Dominance_s	InverseCVBiomass_s	KemptonQ_s	LargeFishIndicator_s	LargeSpeciesIndicator_s	MargalefRichness_s	MargalefGroundfish_s	MeanLengthAbundance_s	MeanLengthBiomass_s	MeanLifespan_s	MMLengthAbundance_s	MMLengthBiomass_s	MeanTrophicLevel_s	PielouEvenness_s	PropPredatoryFish_s	Biomass_s	BiomassClupeids_s	BiomassFinfish_s	BiomassFlatfish_s	BiomassForage_s	BiomassGadoids_s	BiomassGroundfish_s	BTGMediumBenthivore_s	BTGPiscivore_s	BTGPlanktivore_s	BiomassSkates_s	BTGZoopiscivore_s	ShannonDiversity_s	SpeciesRichness_s
BiomassTL3_s	1.00	0.43	*0.00*	0.73	*0.01*	*0.03*	0.13	*0.00*	0.34	0.49	*0.00*	0.17	0.44	0.72	*0.00*	0.08	0.87	0.25	0.84	0.61	0.47	*0.00*	*0.00*	0.61	*0.02*	*0.04*	0.08	*0.00*	0.08	*0.00*	*0.00*	*0.03*	*0.00*	*0.00*	*0.00*	*0.00*	0.39
BiomassTL4_s	-0.12	1.00	0.93	0.46	*0.02*	*0.04*	0.77	*0.00*	0.38	0.50	*0.00*	*0.01*	0.16	0.13	*0.00*	0.08	0.98	*0.02*	0.28	0.55	0.47	0.31	*0.00*	0.46	0.86	*0.02*	0.53	*0.04*	0.12	0.42	*0.00*	0.14	*0.00*	0.24	*0.00*	0.80	0.43
BPelagicToDemersal_s	**0.91**	-0.10	1.00	*0.03*	*0.02*	0.05	*0.05*	*0.00*	0.45	0.82	0.51	0.67	0.57	0.18	*0.00*	0.92	0.45	0.07	0.46	0.19	0.14	*0.00*	*0.02*	*0.01*	*0.02*	*0.02*	0.71	*0.03*	*0.05*	*0.05*	0.19	0.31	*0.00*	0.71	*0.00*	0.77	0.51
CommunityCondition_s	-0.01	-0.10	-0.11	1.00	0.74	0.45	*0.01*	*0.00*	*0.00*	*0.00*	0.23	0.44	0.23	0.14	0.27	0.43	0.80	0.35	0.72	0.33	*0.01*	*0.00*	*0.00*	0.69	0.53	*0.02*	0.72	*0.04*	0.18	0.38	*0.04*	*0.00*	0.07	*0.03*	0.96	*0.00*	0.79
CCMediumBenthivore_s	0.05	0.03	-0.03	0.26	1.00	0.51	0.93	0.29	0.81	0.42	*0.02*	0.67	0.42	0.49	*0.00*	0.82	0.90	0.34	0.73	0.07	0.50	0.35	*0.00*	0.10	0.49	*0.01*	0.71	0.22	*0.00*	0.40	*0.00*	*0.05*	*0.05*	0.73	*0.00*	0.12	0.19
CCPiscivore_s	0.11	-0.43	-0.04	0.26	-0.27	1.00	*0.00*	*0.00*	0.77	0.47	*0.00*	0.46	0.46	0.63	0.56	0.23	0.94	0.40	0.72	*0.04*	*0.00*	*0.00*	0.06	*0.00*	0.91	*0.02*	*0.03*	*0.03*	0.18	*0.01*	0.37	*0.00*	0.07	0.90	0.34	0.27	*0.02*
Heips_s	-0.33	0.12	-0.21	0.01	-0.14	-0.08	1.00	0.78	*0.00*	0.48	*0.00*	0.44	0.82	0.30	0.33	0.35	0.90	0.98	0.57	0.62	0.47	*0.00*	0.07	0.22	0.46	0.69	0.72	0.32	*0.00*	*0.00*	0.20	0.14	0.34	0.73	*0.01*	*0.00*	0.62
HillN1Diversity_s	-0.39	0.11	-0.26	-0.12	-0.14	-0.08	**0.88**	1.00	0.13	0.27	*0.00*	0.53	0.79	0.86	0.20	0.57	0.28	0.17	0.73	0.43	0.22	*0.03*	0.48	*0.02*	*0.02*	0.09	0.96	*0.00*	*0.05*	*0.00*	0.44	0.81	*0.05*	*0.00*	0.91	0.76	0.21
HillN2Dominance_s	-0.35	0.11	-0.23	-0.03	-0.13	-0.09	**0.92**	**0.98**	1.00	0.50	*0.00*	*0.00*	0.15	0.19	0.49	0.85	0.94	0.63	0.48	0.41	0.47	*0.03*	*0.00*	0.06	0.65	*0.00*	0.94	0.32	0.84	0.22	0.49	0.11	0.16	0.90	*0.01*	0.54	0.42
InverseCVBiomass_s	-0.35	0.17	-0.29	-0.18	0.00	-0.20	0.14	0.43	0.33	1.00	*0.00*	0.57	0.08	0.10	*0.00*	*0.01*	0.05	0.74	0.86	0.07	0.43	*0.03*	0.91	*0.00*	0.12	0.30	*0.02*	*0.00*	0.08	0.08	0.43	*0.00*	*0.00*	0.23	*0.00*	0.36	*0.00*
KemptonQ_s	-0.05	-0.10	-0.05	-0.14	-0.20	0.15	0.18	0.33	0.28	0.22	1.00	*0.00*	0.12	0.92	0.52	0.07	0.39	0.57	0.86	0.05	0.52	0.48	*0.00*	*0.00*	*0.00*	*0.02*	0.52	*0.03*	*0.00*	0.63	*0.01*	*0.01*	0.39	*0.00*	0.28	0.69	0.33
LargeFishIndicator_s	-0.33	0.52	-0.23	0.09	-0.07	-0.27	**0.72**	0.58	0.61	0.18	-0.06	1.00	0.05	*0.04*	0.67	*0.02*	0.65	0.21	0.86	0.53	*0.00*	*0.03*	*0.00*	0.37	0.81	0.81	0.72	0.59	0.13	0.95	0.49	*0.00*	*0.00*	*0.00*	0.05	*0.00*	0.32
LargeSpeciesIndicator_s	-0.30	0.67	-0.20	0.03	-0.05	-0.30	0.59	0.51	0.52	0.21	-0.09	**0.95**	1.00	*0.05*	*0.03*	0.29	0.50	0.93	0.73	0.08	*0.00*	0.50	0.84	0.30	0.13	0.49	*0.03*	0.06	*0.00*	0.07	0.46	*0.00*	*0.05*	*0.00*	*0.00*	0.75	0.58
MargalefRichness_s	-0.29	-0.10	-0.22	-0.36	-0.09	0.07	-0.06	0.28	0.14	0.59	0.40	-0.14	-0.15	1.00	0.23	1.00	0.94	0.75	0.42	*0.04*	0.36	0.48	*0.00*	0.13	0.22	*0.00*	0.71	*0.00*	*0.00*	0.16	0.10	*0.00*	0.54	0.90	0.68	0.79	0.14
MargalefGroundfish_s	-0.11	-0.18	-0.10	-0.27	-0.19	0.12	0.03	0.27	0.16	0.56	0.51	-0.05	-0.08	**0.71**	1.00	0.37	0.67	0.87	*0.04*	0.38	0.24	0.54	*0.00*	*0.00*	0.16	*0.00*	*0.03*	0.13	*0.04*	0.53	*0.01*	0.42	0.06	0.44	*0.00*	*0.00*	0.95
MeanLengthAbundance_s	0.10	0.34	0.07	0.34	0.01	-0.12	0.35	0.11	0.23	-0.24	-0.40	0.38	0.37	-0.57	-0.45	1.00	*0.01*	0.73	0.29	0.29	*0.00*	0.38	*0.01*	0.74	*0.00*	0.68	*0.01*	0.31	0.06	0.41	*0.02*	*0.01*	*0.00*	0.69	*0.00*	0.12	0.52
MeanLengthBiomass_s	-0.23	0.58	-0.16	0.16	-0.05	-0.27	0.64	0.46	0.51	0.06	-0.19	**0.96**	**0.94**	-0.30	-0.18	0.54	1.00	0.63	0.62	0.55	*0.00*	*0.03*	*0.01*	*0.00*	*0.00*	0.56	*0.00*	0.60	0.67	0.42	0.49	0.98	0.36	0.84	0.28	0.26	0.34
MeanLifespan_s	-0.04	**0.77**	-0.03	0.00	0.03	-0.29	0.15	0.02	0.05	-0.01	-0.29	0.63	**0.78**	-0.28	-0.26	0.47	**0.72**	1.00	0.62	0.47	0.71	0.36	*0.01*	*0.00*	0.10	*0.01*	0.34	*0.01*	0.55	0.41	0.08	0.79	*0.00*	*0.01*	*0.00*	0.26	0.49
MMLengthAbundance_s	-0.29	0.46	-0.20	0.13	-0.05	-0.09	0.57	0.50	0.51	0.10	-0.03	**0.87**	**0.87**	-0.07	-0.07	0.20	**0.85**	0.53	1.00	0.55	0.84	0.10	0.69	0.91	0.70	*0.00*	0.76	*0.00*	*0.01*	*0.00*	0.99	0.99	*0.00*	*0.00*	0.76	0.59	0.91
MMLengthBiomass_s	-0.36	0.57	-0.25	0.02	-0.07	-0.26	**0.72**	0.64	0.65	0.25	-0.01	**0.97**	**0.97**	-0.09	-0.01	0.31	**0.93**	0.64	**0.90**	1.00	*0.02*	*0.00*	*0.01*	*0.00*	0.93	*0.01*	*0.01*	*0.00*	0.12	0.42	0.96	*0.03*	*0.00*	*0.00*	0.54	*0.00*	0.24
MeanTrophicLevel_s	0.01	**0.72**	0.01	0.00	0.03	-0.31	0.14	-0.03	0.02	-0.09	-0.27	0.59	**0.73**	-0.36	-0.27	0.52	0.69	**0.96**	0.46	0.57	1.00	0.31	0.43	*0.00*	0.51	0.20	*0.00*	*0.00*	0.82	0.66	*0.00*	0.79	*0.02*	*0.00*	0.36	0.40	*0.00*
PielouEvenness_s	-0.46	0.20	-0.31	-0.11	-0.16	-0.13	**0.91**	**0.96**	**0.94**	0.42	0.26	**0.70**	0.62	0.23	0.21	0.14	0.57	0.12	0.60	**0.75**	0.06	1.00	0.39	*0.02*	0.09	0.05	*0.00*	*0.00*	*0.05*	0.70	*0.00*	0.27	*0.01*	*0.00*	0.69	0.26	0.46
PropPredatoryFish_s	-0.43	0.39	-0.29	-0.04	-0.11	-0.16	**0.82**	**0.77**	**0.76**	0.30	0.09	**0.89**	**0.85**	0.03	0.09	0.19	**0.80**	0.40	**0.86**	**0.94**	0.31	**0.87**	1.00	*0.02*	0.55	0.85	*0.00*	*0.00*	*0.05*	*0.00*	*0.00*	*0.00*	*0.02*	0.59	*0.00*	0.96	0.26
Biomass_s	**1.00**	-0.06	**0.91**	-0.02	0.05	0.09	-0.32	-0.39	-0.34	-0.34	-0.06	-0.30	-0.26	-0.29	-0.12	0.12	-0.20	0.00	-0.27	-0.34	0.05	-0.45	*-0.41*	1.00	*0.00*	0.97	*0.00*	*0.00*	*0.05*	0.24	*0.00*	*0.04*	0.30	*0.00*	0.75	0.49	0.52
BiomassClupeids_s	**1.00**	-0.12	**0.91**	-0.01	0.05	0.11	-0.32	-0.39	-0.35	-0.35	-0.06	-0.32	-0.30	-0.29	-0.12	0.10	-0.22	-0.04	-0.29	-0.36	0.02	-0.46	-0.43	**1.00**	1.00	0.07	*0.00*	*0.00*	*0.00*	0.42	*0.00*	*0.00*	*0.01*	0.59	0.79	0.24	0.24
BiomassFinfish_s	**1.00**	-0.06	**0.91**	-0.02	0.05	0.09	-0.32	-0.39	-0.34	-0.34	-0.06	-0.30	-0.26	-0.29	-0.13	0.12	-0.20	0.00	-0.27	-0.34	0.05	-0.45	-0.41	**1.00**	**1.00**	1.00	*0.00*	0.08	*0.05*	0.10	*0.00*	0.79	0.20	0.13	*0.00*	*0.00*	0.34
BiomassFlatfish_s	-0.16	-0.11	-0.17	-0.16	-0.08	0.11	-0.11	0.06	-0.03	0.38	0.33	-0.19	-0.23	0.62	0.50	-0.40	-0.31	-0.32	-0.14	-0.16	-0.43	0.08	-0.01	-0.16	-0.17	-0.17	1.00	*0.05*	0.23	0.15	*0.00*	0.40	*0.00*	0.56	0.12	0.79	0.79
BiomassForage_s	**1.00**	-0.12	**0.91**	-0.01	0.05	0.11	-0.32	-0.39	-0.35	-0.35	-0.06	-0.32	-0.30	-0.29	-0.12	0.10	-0.22	-0.04	-0.29	-0.36	0.02	-0.46	-0.43	**1.00**	**1.00**	**1.00**	-0.17	1.00	0.94	*0.03*	0.19	0.50	0.43	0.17	*0.00*	0.33	0.77
BiomassGadoids_s	0.04	0.09	-0.09	0.29	0.11	0.22	0.10	0.12	0.10	0.06	0.01	0.15	0.20	-0.18	-0.07	0.11	0.15	0.17	0.21	0.19	0.18	0.08	0.14	0.05	0.04	0.05	-0.17	0.04	1.00	*0.00*	0.14	0.76	*0.00*	*0.00*	0.26	0.34	*0.00*
BiomassGroundfish_s	-0.14	**0.98**	-0.15	-0.13	0.03	-0.39	0.11	0.13	0.11	0.26	-0.01	0.49	0.63	0.01	-0.06	0.25	0.52	**0.70**	0.44	0.55	0.64	0.23	0.40	-0.09	-0.15	-0.09	0.08	-0.15	0.13	1.00	0.19	*0.04*	*0.01*	0.81	*0.00*	0.46	0.12
BTGMediumBenthivore_s	-0.13	-0.09	-0.19	-0.07	0.03	0.10	-0.09	0.08	-0.02	0.43	0.35	-0.15	-0.20	0.54	0.47	-0.40	-0.29	-0.30	-0.13	-0.12	-0.41	0.09	0.02	-0.14	-0.14	-0.14	**0.93**	-0.14	0.12	0.12	1.00	*0.00*	0.54	*0.05*	0.79	*0.00*	0.45
BTGPiscivore_s	-0.11	**1.00**	-0.10	-0.10	0.03	-0.42	0.13	0.11	0.11	0.16	-0.10	0.53	0.68	-0.12	-0.18	0.35	0.59	**0.77**	0.47	0.58	**0.73**	0.21	0.41	-0.06	-0.11	-0.06	-0.13	-0.11	0.10	**0.97**	-0.10	1.00	0.05	*0.00*	0.33	0.80	0.99
BTGPlanktivore_s	**1.00**	-0.12	**0.91**	-0.01	0.05	0.11	-0.32	-0.39	-0.35	-0.35	-0.06	-0.32	-0.30	-0.29	-0.12	0.10	-0.22	-0.04	-0.29	-0.36	0.02	-0.46	-0.43	**1.00**	**1.00**	**1.00**	-0.17	**1.00**	0.04	-0.15	-0.14	-0.1	1.00	0.39	0.34	0.77	0.36
BiomassSkates_s	-0.04	-0.21	-0.10	-0.06	0.12	0.19	0.14	0.06	0.07	-0.04	0.33	0.08	0.03	-0.13	0.24	-0.26	0.04	-0.13	0.09	0.09	-0.12	0.04	0.16	-0.05	-0.04	-0.05	0.01	-0.04	0.20	-0.15	0.10	-0.17	-0.04	1.00	0.46	*0.00*	0.06
BTGZoopiscivore_s	0.05	-0.09	-0.06	0.36	0.30	0.11	-0.24	-0.25	-0.23	-0.11	0.06	-0.28	-0.26	-0.13	-0.22	0.00	-0.24	-0.10	-0.27	-0.29	-0.06	-0.30	-0.29	0.04	0.04	0.04	-0.11	0.04	0.36	-0.08	0.02	-0.10	0.04	0.11	1.00	0.12	0.52
ShannonDiversity_s	-0.47	0.18	-0.32	-0.17	-0.16	-0.12	**0.82**	**0.97**	**0.91**	0.53	0.33	0.61	0.54	0.40	0.33	0.01	0.46	0.05	0.53	0.67	-0.03	**0.98**	**0.81**	-0.46	-0.47	-0.46	0.18	-0.47	0.07	0.22	0.18	0.18	-0.47	0.00	-0.28	1.00	*0.04*
SpeciesRichness_s	-0.22	-0.12	-0.18	-0.35	-0.07	0.10	-0.15	0.18	0.04	0.56	0.39	-0.23	-0.23	**0.99**	**0.71**	-0.59	-0.37	-0.30	-0.14	-0.18	-0.37	0.13	-0.06	-0.23	-0.23	-0.23	0.63	-0.23	-0.19	-0.01	0.55	-0.14	-0.23	-0.14	-0.10	0.31	1.00

Table S74. Summary of Spearman rank correlations results for invertebrate-based indicators at the large scale (1999–2015, Figure S6). LInvertebrates was included in the HCA (See Table S19) but was included in this table to show high correlation values with FPInvertebrates.

		r					p-values				
SHELF		BInvertebrateToDemersal_s	BiomassInvertebrates_s	BiomassTL2_s	FPInvertebrates.L_s	LInvertebrates.L_s	BInvertebrateToDemersal_s	BiomassInvertebrates_s	BiomassTL2_s	FPInvertebrates.L_s	LInvertebrates.L_s
	BInvertebrateToDemersal_s	1.00	*0.61*	*0.36*	*-0.47*	*-0.14*	NA	0.01	0.15	0.05	0.60
	BiomassInvertebrates_s	*0.61*	1.00	*0.36*	*-0.79*	*-0.32*	0.01	NA	0.15	0.00	0.21
	BiomassTL2_s	*0.36*	*0.36*	1.00	*-0.02*	*0.37*	0.15	0.15	NA	0.93	0.15
	FPInvertebrates.L_s	*-0.47*	*-0.79*	*-0.02*	1.00	0.79	0.05	0.00	0.93	NA	0.00
	LInvertebrates.L_s	*-0.14*	*-0.32*	*0.37*	**0.79**	1.00	0.60	0.21	0.15	0.00	NA
WSS											
	BInvertebrateToDemersal_s	1.00	0.81	*0.24*	*-0.69*	*-0.28*	NA	0.00	0.35	0.00	0.28
	BiomassInvertebrates_s	**0.81**	1.00	*0.08*	*-0.84*	*-0.49*	0.00	NA	0.77	0.00	0.05
	BiomassTL2_s	*0.24*	*0.08*	1.00	*-0.37*	*-0.41*	0.35	0.77	NA	0.15	0.10
	FPInvertebrates.L_s	*-0.69*	*-0.84*	*-0.37*	1.00	*0.70*	0.00	0.00	0.15	NA	0.00
	LInvertebrates.L_s	*-0.28*	*-0.49*	*-0.41*	*0.70*	1.00	0.28	0.05	0.10	0.00	NA
4X											
	BInvertebrateToDemersal_s	1.00	0.81	*0.24*	*-0.69*	*-0.28*	NA	0.00	0.35	0.00	0.28
	BiomassInvertebrates_s	**0.81**	1.00	*0.08*	*-0.84*	*-0.49*	0.00	NA	0.77	0.00	0.05
	BiomassTL2_s	*0.24*	*0.08*	1.00	*-0.37*	*-0.41*	0.35	0.77	NA	0.15	0.10
	FPInvertebrates.L_s	*-0.69*	*-0.84*	*-0.37*	1.00	*0.70*	0.00	0.00	0.15	NA	0.00
	LInvertebrates.L_s	*-0.28*	*-0.49*	*-0.41*	*0.70*	1.00	0.28	0.05	0.10	0.00	NA
ESS											
	BInvertebrateToDemersal_s	1.00	0.71	0.79	*-0.57*	*-0.14*	NA	0.00	0.00	0.02	0.60
	BiomassInvertebrates_s	**0.71**	1.00	*0.58*	*-0.83*	*-0.42*	0.00	NA	0.02	0.00	0.09
	BiomassTL2_s	**0.79**	*0.58*	1.00	*-0.38*	*0.01*	0.00	0.02	NA	0.13	0.98
	FPInvertebrates.L_s	*-0.57*	*-0.83*	*-0.38*	1.00	0.74	0.02	0.00	0.13	NA	0.00
	LInvertebrates.L_s	*-0.14*	*-0.42*	*0.01*	**0.74**	1.00	0.60	0.09	0.98	0.00	NA
4W											
	BInvertebrateToDemersal_s	1.00	0.90	0.80	*-0.75*	*-0.51*	NA	0.00	0.00	0.00	0.04
	BiomassInvertebrates_s	**0.90**	1.00	0.70	*-0.87*	*-0.48*	0.00	NA	0.00	0.00	0.05
	BiomassTL2_s	**0.80**	**0.70**	1.00	*-0.57*	*-0.43*	0.00	0.00	NA	0.02	0.08
	FPInvertebrates.L_s	*-0.75*	*-0.87*	*-0.57*	1.00	*0.60*	0.00	0.00	0.02	NA	0.01
	LInvertebrates.L_s	*-0.51*	*-0.48*	*-0.43*	*0.60*	1.00	0.04	0.05	0.08	0.01	NA
4VS											
	BInvertebrateToDemersal_s	1.00	*0.63*	*0.43*	*-0.34*	*0.02*	NA	0.01	0.08	0.18	0.94
	BiomassInvertebrates_s	*0.63*	1.00	*0.37*	*-0.63*	*-0.27*	0.01	NA	0.14	0.01	0.29
	BiomassTL2_s	*0.43*	*0.37*	1.00	*-0.33*	*0.07*	0.08	0.14	NA	0.20	0.80
	FPInvertebrates.L_s	*-0.34*	*-0.63*	*-0.33*	1.00	0.82	0.18	0.01	0.20	NA	0.00
	LInvertebrates.L_s	*0.02*	*-0.27*	*0.07*	**0.82**	1.00	0.94	0.29	0.80	0.00	NA
4VN											
	BInvertebrateToDemersal_s	1.00	*0.61*	*0.39*	*-0.57*	*-0.55*	NA	0.01	0.12	0.02	0.02
	BiomassInvertebrates_s	*0.61*	1.00	0.82	*-0.61*	*-0.25*	0.01	NA	0.00	0.01	0.33
	BiomassTL2_s	*0.39*	**0.82**	1.00	*-0.38*	*-0.05*	0.12	0.00	NA	0.13	0.84
	FPInvertebrates.L_s	*-0.57*	*-0.61*	*-0.38*	1.00	**0.79**	0.02	0.01	0.13	NA	0.00
	LInvertebrates.L_s	*-0.55*	*-0.25*	*-0.05*	**0.79**	1.00	0.02	0.33	0.84	0.00	NA

Table S75. Summary of Spearman rank correlation coefficients results for the suite of indicators selected in the ESS (upper triangle of the matrix) and WSS (lower triangle of the matrix). Significant correlations (r ≥ 0.7, r ≤ - 0.7) are highlighted in red.

Indicator	MargalefRichness_s	Heips_s	LargeFishIndicator_s	BTGZoopiscivore_s	BTGPiscivore_s	Biomass_s	BiomassSkates_s	BiomassFlatfish_s	MeanLengthAbundance_	MeanTrophicLevel_s	BiomassGadoids_s	BiomassInvertebrates_s	CommunityCondition_s	CCMediumBenthivore_s	CCPiscivore_s	CCZoopiscivore_s	CCLargeBenthivore_s	MeanLifespan_s	Intrinsicvulnerabilityindex	BiomassTL2_s	InverseCVBiomass_s	MeanTrophicLevel.L_s	MarineTrophicIndex.L_s	DiversityTargetSpp.L_s	FishingPressure.L_s	FPClupeids.L_s	Landings.L_s	LSkates.L_s	LFlatfish.L_s	LLargePelagic.L_s
MargalefRichness_s	*1.00*	-0.59	-0.58	-0.44	-0.41	0.05	-0.28	-0.28	0.36	0.29	-0.53	0.65	**0.71**	0.69	0.26	-0.26	0.43	-0.51	-0.66	-0.54	0.16	0.42	0.01	-0.29	0.43	0.34	0.25	0.26	-0.65	-0.68
Heips_s	0.18	*1.00*	0.18	0.35	-0.49	-0.55	-0.37	0.58	**0.87**	0.38	-0.64	-0.63	0.39	0.47	0.37	0.02	0.33	-0.44	-0.32	0.22	0.47	0.31	0.33	0.03	0.57	0.48	0.40	0.21	0.44	-0.44
LargeFishIndicator_s	0.23	0.52	*1.00*	-0.54	-0.06	-0.20	0.55	-0.54	0.01	0.26	0.12	0.05	0.42	0.64	0.10	0.01	0.56	-0.03	-0.53	0.69	-0.67	0.62	0.17	0.42	0.02	0.47	0.36	0.18	0.17	0.17
BTGZoopiscivore_s	**0.73**	0.02	-0.14	*1.00*	-0.09	-0.27	0.62	-0.18	**0.73**	0.66	**0.75**	**0.83**	0.44	0.25	0.09	-0.02	-0.32	-0.23	-0.33	0.19	-0.30	-0.49	-0.49	0.56	-0.03	-0.01	0.46	0.16	**-0.73**	0.04
BTGPiscivore_s	-0.08	0.31	0.56	-0.19	*1.00*	-0.25	0.33	-0.58	**-0.70**	0.44	0.36	**-0.73**	0.37	0.63	0.46	-0.21	-0.53	-0.25	-0.56	**-0.79**	0.14	-0.54	-0.04	-0.32	-0.25	-0.40	-0.29	0.26	-0.42	0.28
Biomass_s	-0.15	-0.53	-0.33	0.17	-0.03	*1.00*	-0.65	-0.34	0.65	0.46	**-0.78**	0.65	0.65	-0.66	-0.30	-0.55	-0.01	-0.65	0.52	**0.80**	0.54	0.36	0.22	-0.01	-0.42	0.06	0.18	-0.19	0.66	-0.14
BiomassSkates_s	0.30	-0.28	-0.03	0.34	-0.28	0.17	*1.00*	-0.57	0.57	0.41	**0.72**	0.49	-0.49	0.16	0.57	0.45	**0.75**	-0.28	0.66	0.30	-0.09	0.70	0.43	0.07	0.59	0.37	**0.74**	-0.30	-0.55	0.20
BiomassFlatfish_s	0.61	0.30	0.48	0.44	0.03	0.02	0.15	*1.00*	**0.73**	0.33	0.29	**0.75**	-0.64	-0.15	0.27	0.26	0.64	-0.47	**0.73**	**0.82**	-0.60	0.46	-0.18	0.04	0.45	0.28	-0.29	-0.60	-0.21	-0.38
MeanLengthAbundance_s	-0.58	-0.19	0.01	-0.53	0.10	0.19	0.05	-0.26	*1.00*	0.70	0.63	0.25	0.12	0.14	-0.18	0.59	-0.69	-0.54	0.02	0.62	0.69	**-0.82**	-0.01	-0.36	0.69	-0.44	-0.31	0.14	-0.57	**-0.82**
MeanTrophicLevel_s	0.05	0.25	0.38	0.01	**0.71**	-0.30	-0.16	-0.07	-0.07	*1.00*	0.37	0.53	**0.85**	-0.05	0.05	0.50	0.47	-0.35	-0.03	**0.82**	0.40	0.64	-0.17	-0.04	0.39	0.27	0.07	**0.70**	-0.31	-0.33
BiomassGadoids_s	0.27	-0.14	0.07	0.32	0.02	0.32	0.27	0.18	0.07	-0.01	*1.00*	0.51	0.54	0.10	0.21	**0.79**	0.19	-0.68	0.12	-0.60	0.58	0.37	0.09	-0.28	**0.80**	0.10	0.53	0.22	-0.57	**-0.81**
BiomassInvertebrates_s	0.58	-0.58	-0.54	0.49	-0.51	0.12	0.28	-0.02	-0.33	-0.26	0.41	*1.00*	**-0.80**	0.37	0.02	0.44	0.52	0.39	0.54	0.49	0.53	0.66	-0.14	-0.09	-0.18	0.26	0.15	**-0.72**	0.42	-0.48
CommunityCondition_s	-0.17	-0.50	-0.48	0.00	-0.12	0.18	0.15	-0.35	0.01	-0.21	-0.11	0.25	*1.00*	0.26	-0.12	0.65	0.07	0.56	0.32	-0.35	0.63	0.37	0.01	-0.24	**-0.77**	0.09	-0.55	0.59	0.03	**-0.82**
CCMediumBenthivore_s	0.25	-0.10	-0.06	0.24	-0.25	-0.14	0.26	0.13	-0.20	-0.20	0.19	0.07	0.37	*1.00*	-0.10	0.46	0.46	-0.07	0.57	-0.10	-0.50	0.66	-0.10	0.00	-0.08	0.28	0.47	0.17	-0.03	**0.76**
CCPiscivore_s	-0.23	-0.20	-0.36	-0.13	-0.19	0.27	-0.14	-0.07	0.31	-0.35	-0.05	0.49	0.04	-0.31	*1.00*	0.34	-0.51	**-0.73**	0.55	0.67	0.21	**-0.75**	0.34	0.54	**0.79**	-0.28	0.12	0.54	-0.31	0.39
CCZoopiscivore_s	-0.03	-0.40	-0.33	0.16	-0.12	0.04	0.23	-0.21	0.03	-0.13	-0.25	0.13	**0.73**	0.38	-0.08	*1.00*	-0.55	-0.26	0.24	0.31	0.32	0.60	0.39	-0.20	0.42	0.42	0.46	0.43	0.15	**0.92**
CCLargeBenthivore_s	-0.61	-0.47	-0.06	-0.51	0.05	0.19	-0.16	-0.40	0.51	-0.03	0.04	0.00	0.15	-0.04	0.06	0.13	*1.00*	0.66	0.69	0.26	-0.07	-0.40	0.37	0.24	-0.69	0.39	0.35	0.58	0.34	**0.77**
MeanLifespan_s	0.59	0.40	0.23	0.59	0.11	-0.15	0.12	0.50	-0.55	-0.02	-0.28	-0.01	0.02	0.14	-0.26	0.25	-0.57	*1.00*	-0.67	0.48	0.53	0.42	0.02	-0.25	0.53	0.50	0.51	-0.62	0.06	**0.96**
Intrinsicvulnerabilityindex.L_s	0.64	0.41	0.26	0.37	0.25	-0.24	-0.18	0.42	-0.45	0.28	0.14	0.57	-0.32	0.02	-0.02	-0.31	-0.44	0.37	*1.00*	0.44	0.41	0.39	0.13	0.58	0.14	-0.26	-0.50	0.30	0.00	-0.64
BiomassTL2_s	0.32	0.04	0.00	0.41	-0.10	0.05	0.12	0.07	-0.39	-0.05	-0.11	0.08	-0.01	0.12	-0.27	0.26	-0.21	0.46	-0.13	*1.00*	0.45	0.00	0.16	0.03	0.52	-0.40	0.25	-0.08	0.08	0.20
InverseCVBiomass_s	-0.55	0.04	0.03	-0.56	-0.06	-0.08	-0.09	-0.38	0.46	-0.25	0.10	-0.44	0.05	0.10	0.17	-0.14	0.35	-0.42	-0.40	-0.58	*1.00*	0.03	0.29	0.60	0.29	0.16	-0.29	-0.46	-0.34	0.11
MeanTrophicLevel.L_s	**-0.76**	-0.45	-0.39	-0.44	-0.13	0.49	0.03	-0.51	0.57	-0.24	-0.11	-0.57	0.31	-0.19	0.34	0.17	0.50	-0.54	**-0.76**	-0.15	0.36	*1.00*	0.06	-0.59	0.57	0.49	-0.26	-0.16	0.50	0.25
MarineTrophicIndex.L_s	-0.67	-0.06	-0.15	-0.36	0.21	0.31	-0.42	-0.33	0.38	0.09	-0.14	-0.52	-0.09	-0.39	0.44	-0.19	0.59	-0.37	-0.29	-0.22	0.24	0.57	*1.00*	-0.03	-0.56	0.12	0.10	0.57	**-0.86**	-0.15
DiversityTargetSpp.L_s	0.62	0.69	0.54	0.37	0.28	-0.49	-0.10	0.51	-0.50	0.29	0.00	-0.40	-0.42	0.18	-0.37	-0.26	-0.57	0.60	**0.74**	0.11	-0.28	**-0.86**	-0.40	*1.00*	0.58	-0.50	0.30	-0.68	0.69	**0.71**
FishingPressure.L_s	-0.54	0.24	0.17	-0.62	0.03	-0.58	-0.30	-0.29	0.23	0.19	-0.45	-0.47	-0.16	-0.09	0.01	-0.14	0.28	-0.32	-0.16	-0.33	0.30	0.10	0.23	0.02	*1.00*	0.43	0.41	-0.31	0.27	**0.94**
FPClupeids.L_s	0.02	**0.73**	0.55	-0.23	0.24	-0.65	-0.14	0.16	-0.12	0.25	-0.31	-0.54	-0.44	-0.15	-0.23	-0.34	-0.28	0.29	0.28	-0.13	0.07	-0.42	-0.15	0.61	0.62	*1.00*	-0.40	-0.65	**0.70**	-0.62
Landings.L_s	**-0.88**	-0.26	-0.22	-0.65	0.06	0.22	-0.20	-0.46	0.55	-0.02	-0.27	-0.70	0.11	-0.31	0.35	-0.01	0.57	-0.58	-0.54	-0.38	0.33	0.70	0.67	-0.60	0.60	0.02	*1.00*	-0.53	0.34	**0.82**
LSkates.L_s	-0.19	-0.26	-0.21	-0.11	-0.20	0.13	0.44	-0.28	0.32	-0.04	-0.12	0.21	0.02	-0.07	0.01	0.15	0.17	-0.22	-0.40	0.13	-0.14	0.37	0.15	-0.32	0.08	-0.12	0.29	*1.00*	0.69	-0.39
LFlatfish.L_s	-0.58	-0.30	-0.23	-0.40	0.07	0.38	-0.31	-0.25	0.38	-0.11	0.14	0.60	0.07	-0.23	0.57	-0.22	0.61	-0.56	-0.33	-0.31	0.38	0.57	0.70	-0.60	0.11	-0.35	0.59	-0.10	*1.00*	-0.68
LLargePelagic.L_s	0.00	0.26	-0.01	-0.11	-0.01	-0.10	-0.01	0.02	-0.11	-0.24	-0.14	0.19	0.12	-0.09	0.14	-0.07	-0.43	0.24	0.08	-0.15	0.22	-0.05	0.00	0.19	0.07	0.34	0.00	-0.06	-0.07	*1.00*

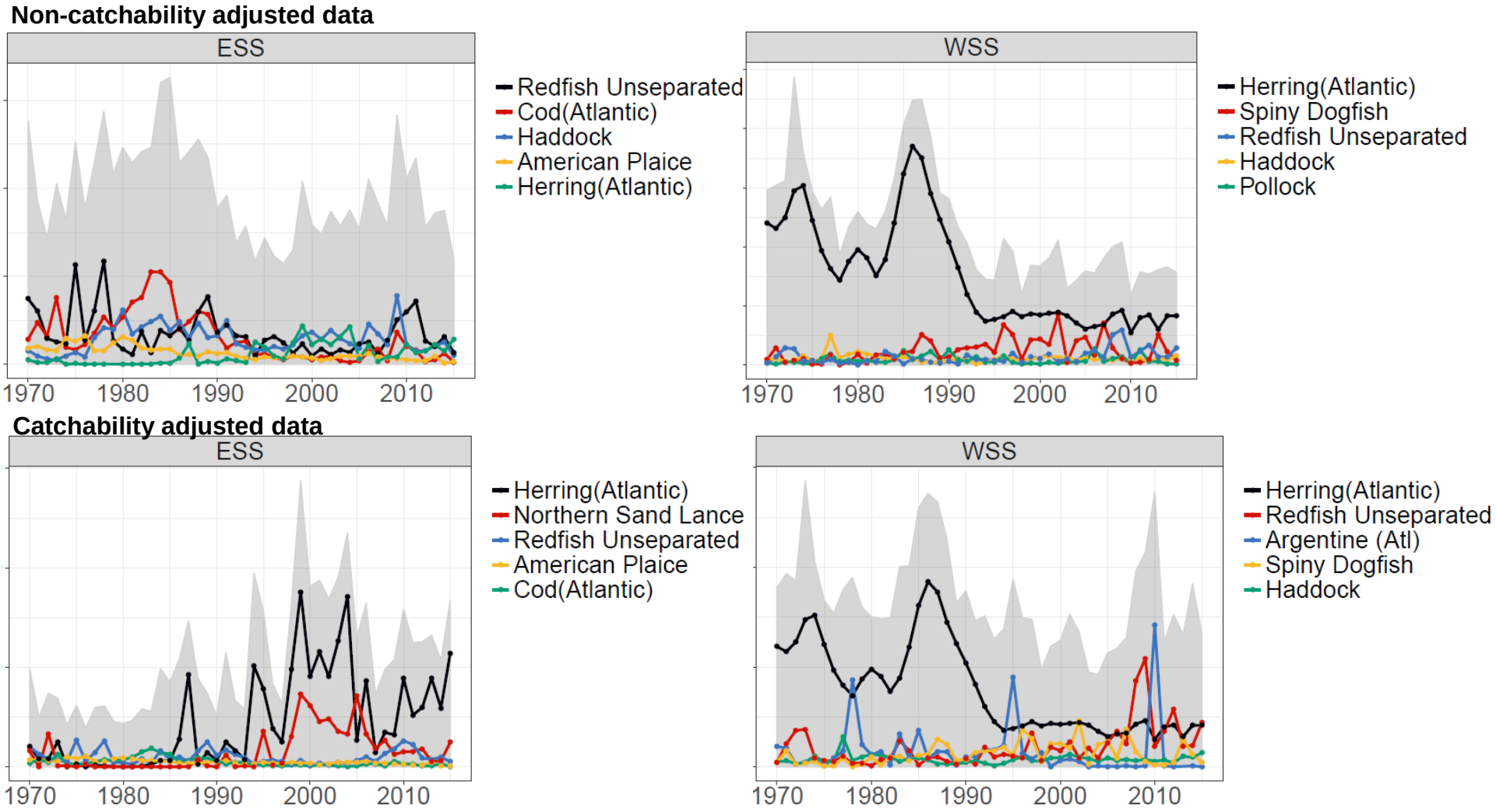

Figure S1. Top five species (coloured lines) driving important trends of Biomass (light grey area) in the ESS and WSS. Top panels are for non-catchability adjusted data and bottom panels are for biomass calculated using catchability adjusted data. Different signals in the time series can lead to different interpretation of ecosystem attributes and trends.

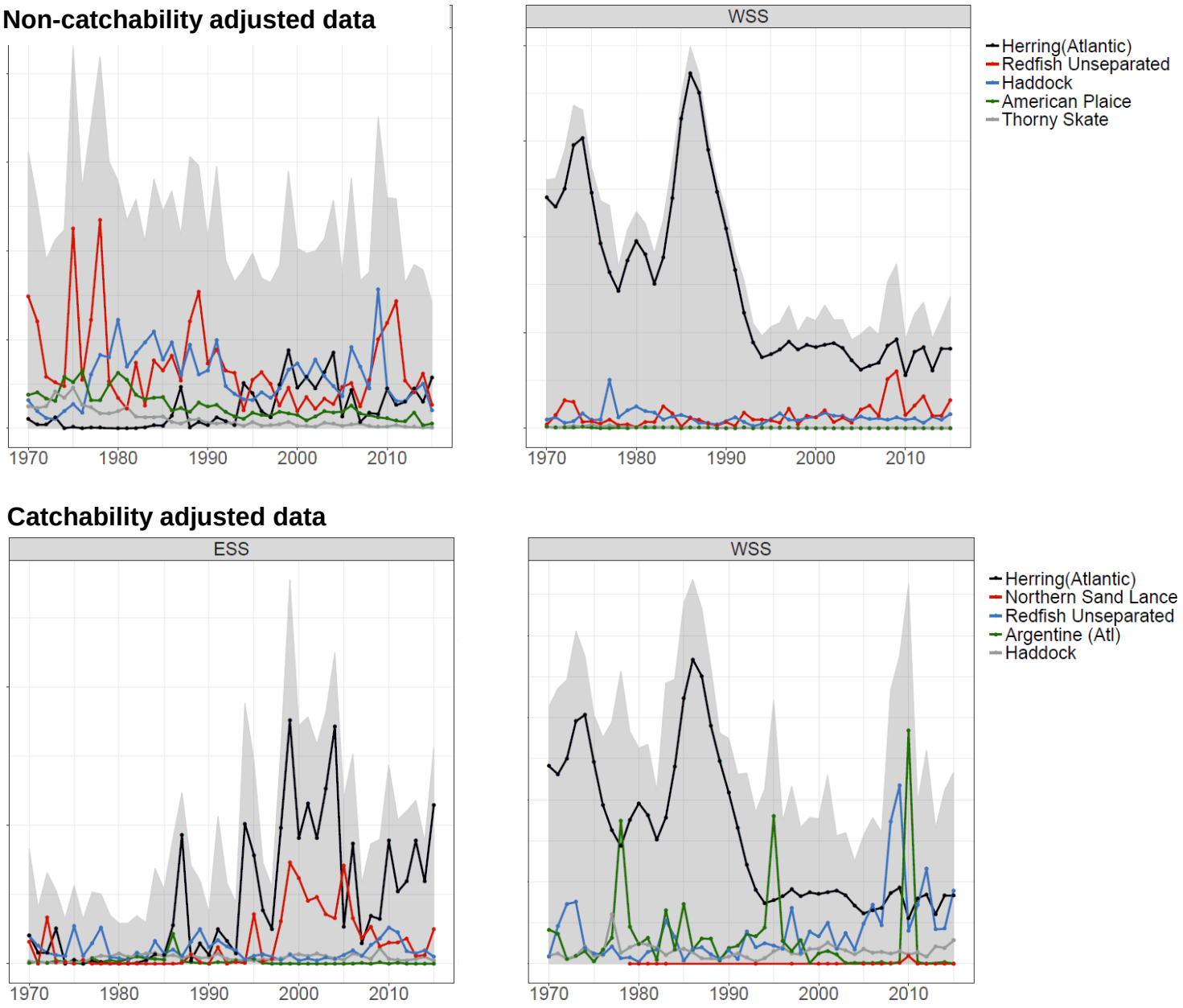

Figure S2. Top five species (coloured lines) driving trends of BiomassTL3 (light grey area) in the ESS and WSS. Top panels are for non-catchability adjusted data and bottom panels are for biomass calculated using catchability adjusted data. Different signals in the time series can lead to different interpretation of ecosystem attributes and trends.

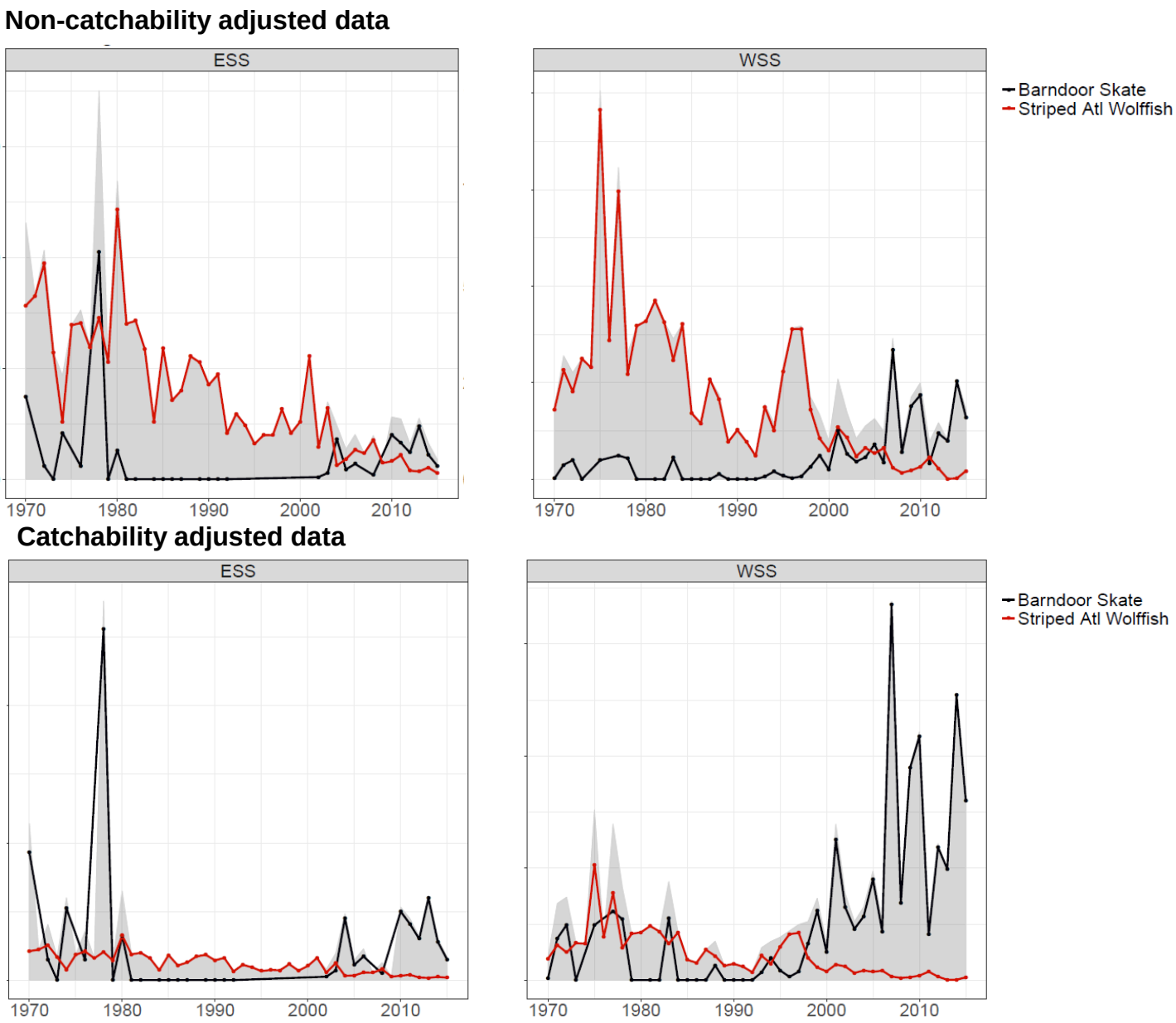

Figure S3. Species (coloured lines) driving trends of BTGLargeBenthivore (light grey area) in the ESS and WSS. Top panels are for non-catchability adjusted data and bottom panels are for biomass calculated using catchability adjusted data. Different signals in the time series can lead to different interpretation of ecosystem attributes and trends.

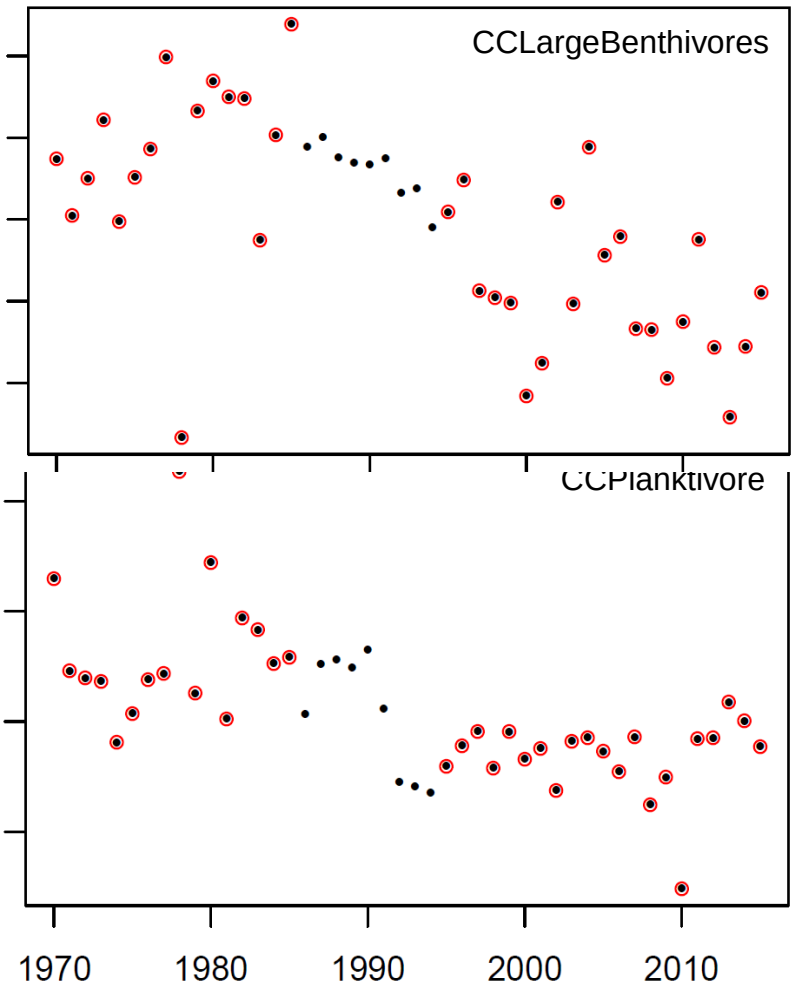

Figure S4. Examples of interpolation (black dots) drawn from indicators calculated in the WSS. To replace NAs we used the non-parametric missing value imputation via Random Forest [function missForest ()] (Stekhoven and Buhlmann 2011). This imputation uses the relationship between all rows of indicators (year) to fill in the NA for that specific row (year), which should lead to an "average" response for that NA value given the information from all other indicators.

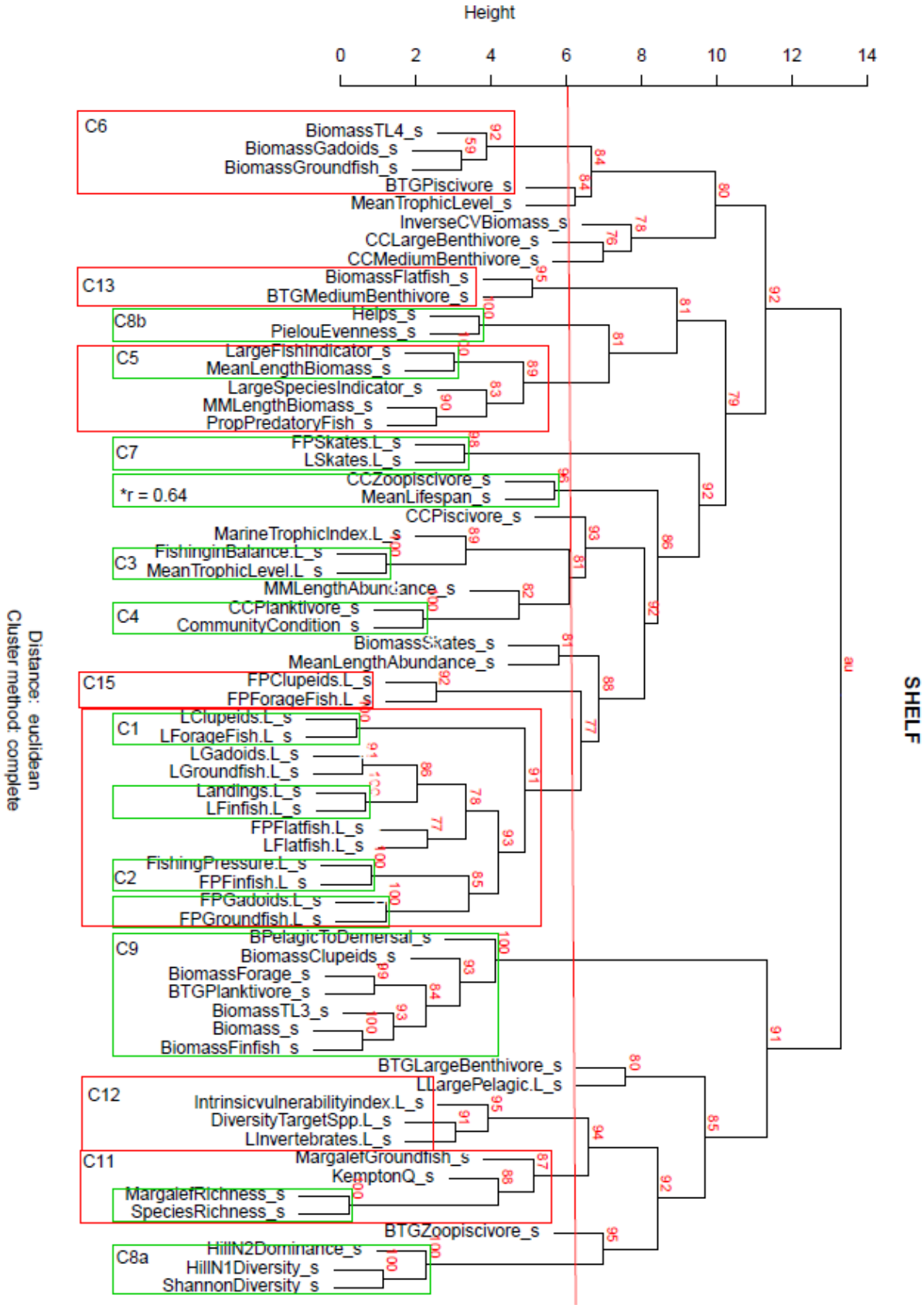

Figure S5. Dendrogram of indicators for the Scotian Shelf based on results from Hierarchical Cluster Analysis using the Euclidean distance and complete agglomeration method. Clusters of redundant indicators are highlighted by green rectangles (AU p-values ≥ 95) and red rectangles.

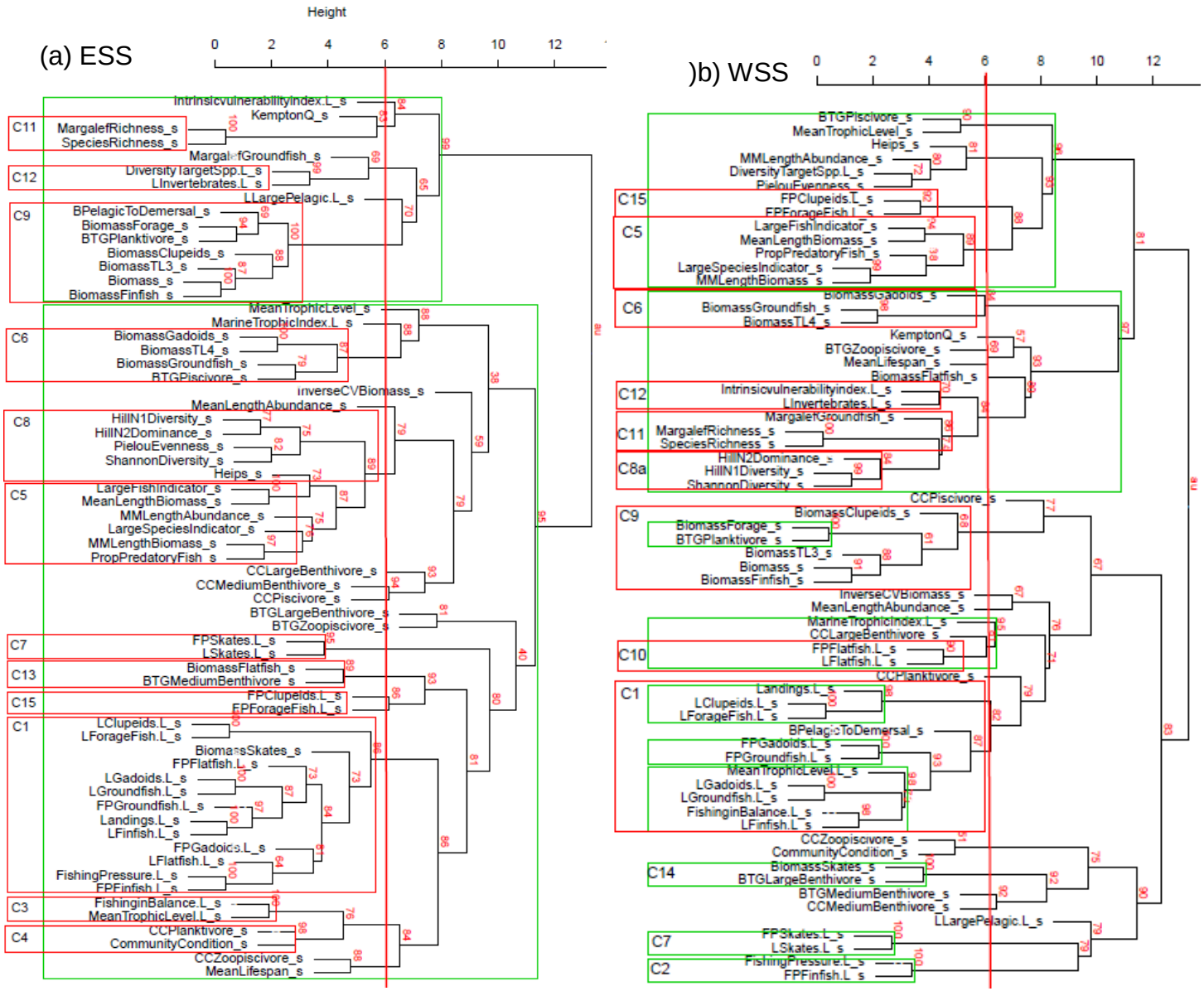

Figure S6. Dendrogram of indicators for the (a) Eastern Scotian Shelf and (b) Western Scotian Shelf (based on results from Hierarchical Cluster Analysis (HCA). See Figure S5 for further details.

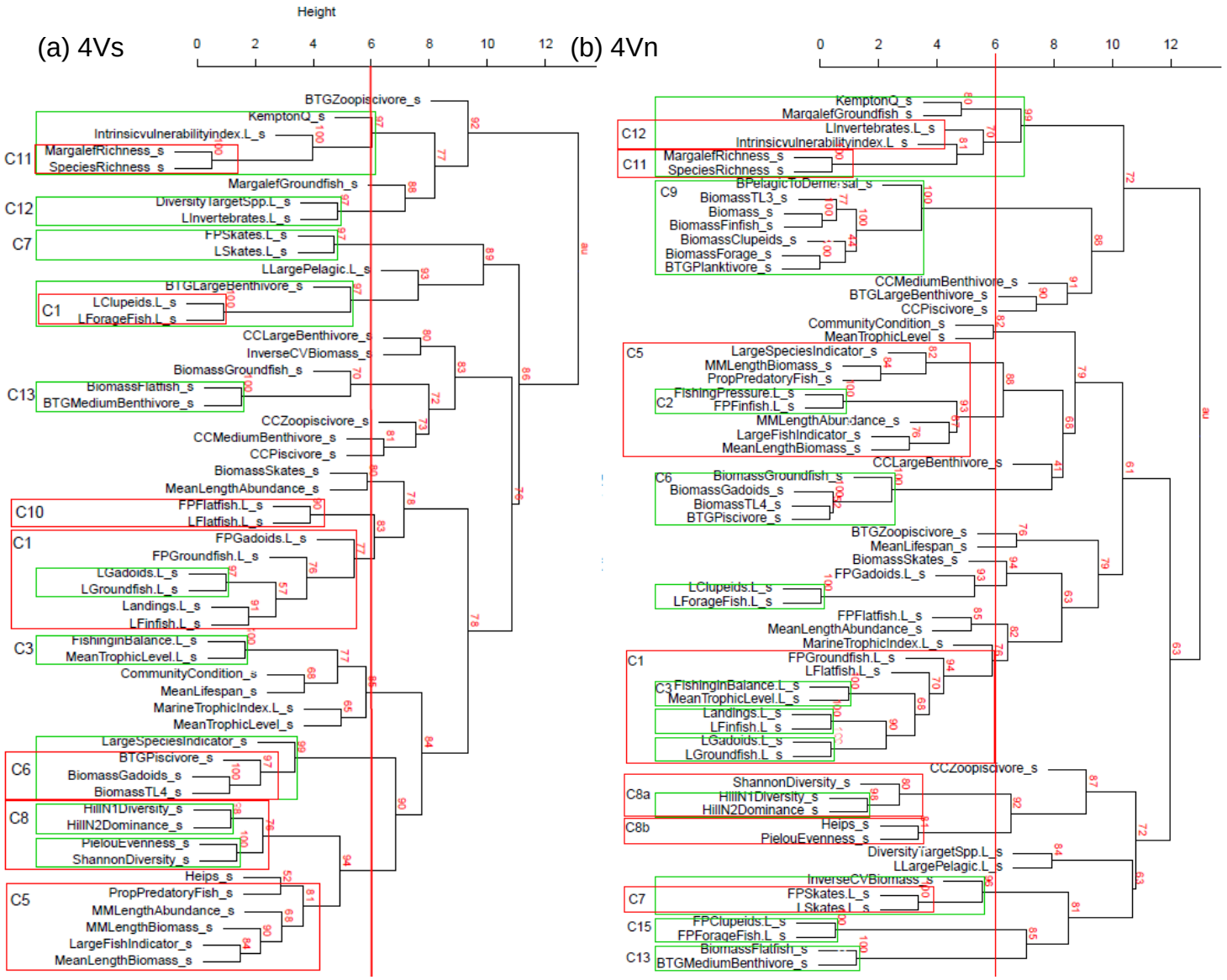

Figure S7. Dendrogram of indicators for the NAFO regions (a) 4Vs and (b) 4Vn, based on results from Hierarchical Cluster Analysis (HCA). See Figure S5 for further details. Note that for regions 4Vs the HCA did not include BiomassForage, BPelagicToDemersal, BTGPlanktivore, BiomassTL3, FPClupeids.L, FPForageFish.L, Biomass, BiomassFinfish, FishingPressure.L, FPFinfish.L.

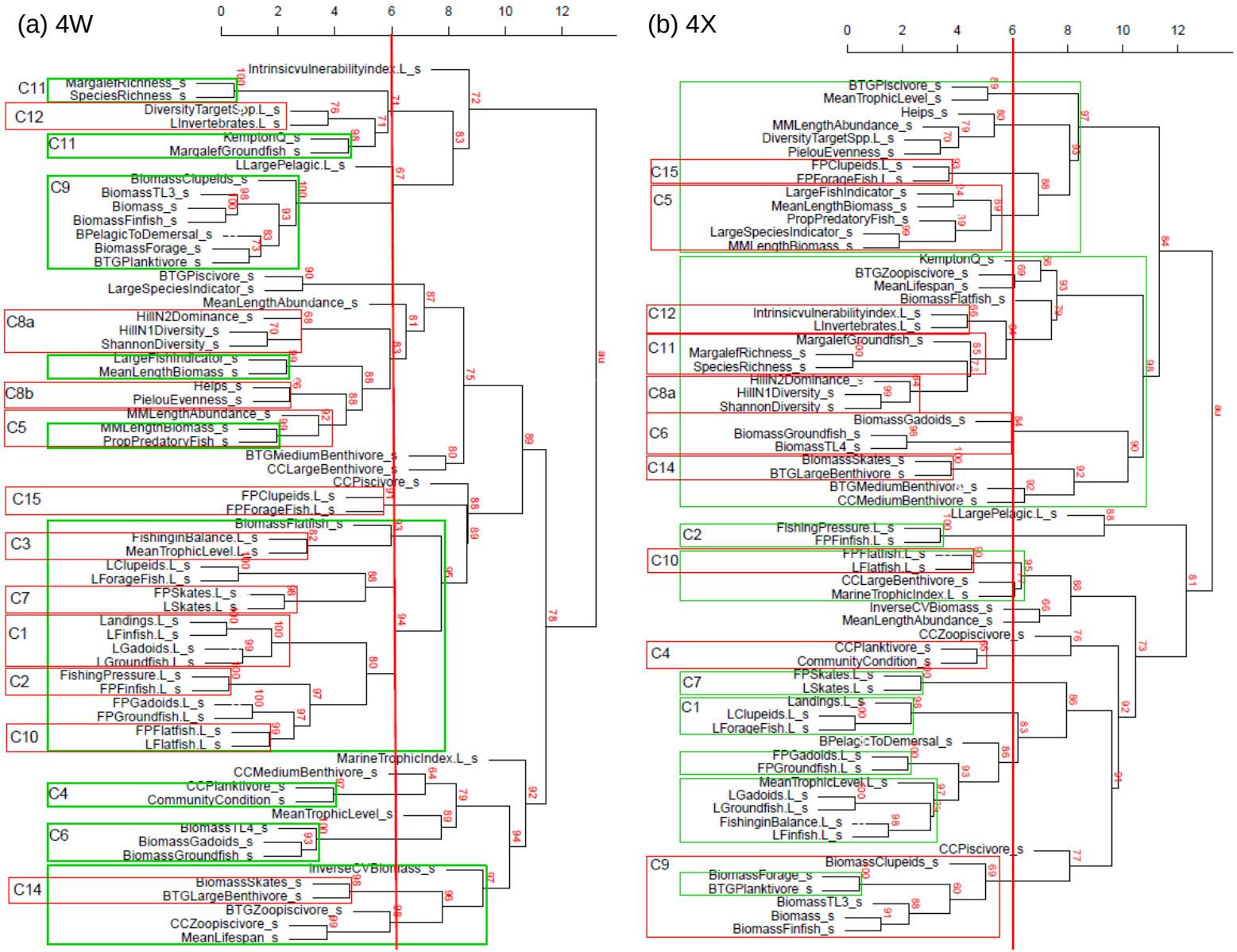

Figure S8. Dendrogram of indicators for the NAFO regions (a) 4W and (b)(4X, based on results from Hierarchical Cluster Analysis (HCA). See Figure S5 for further details..

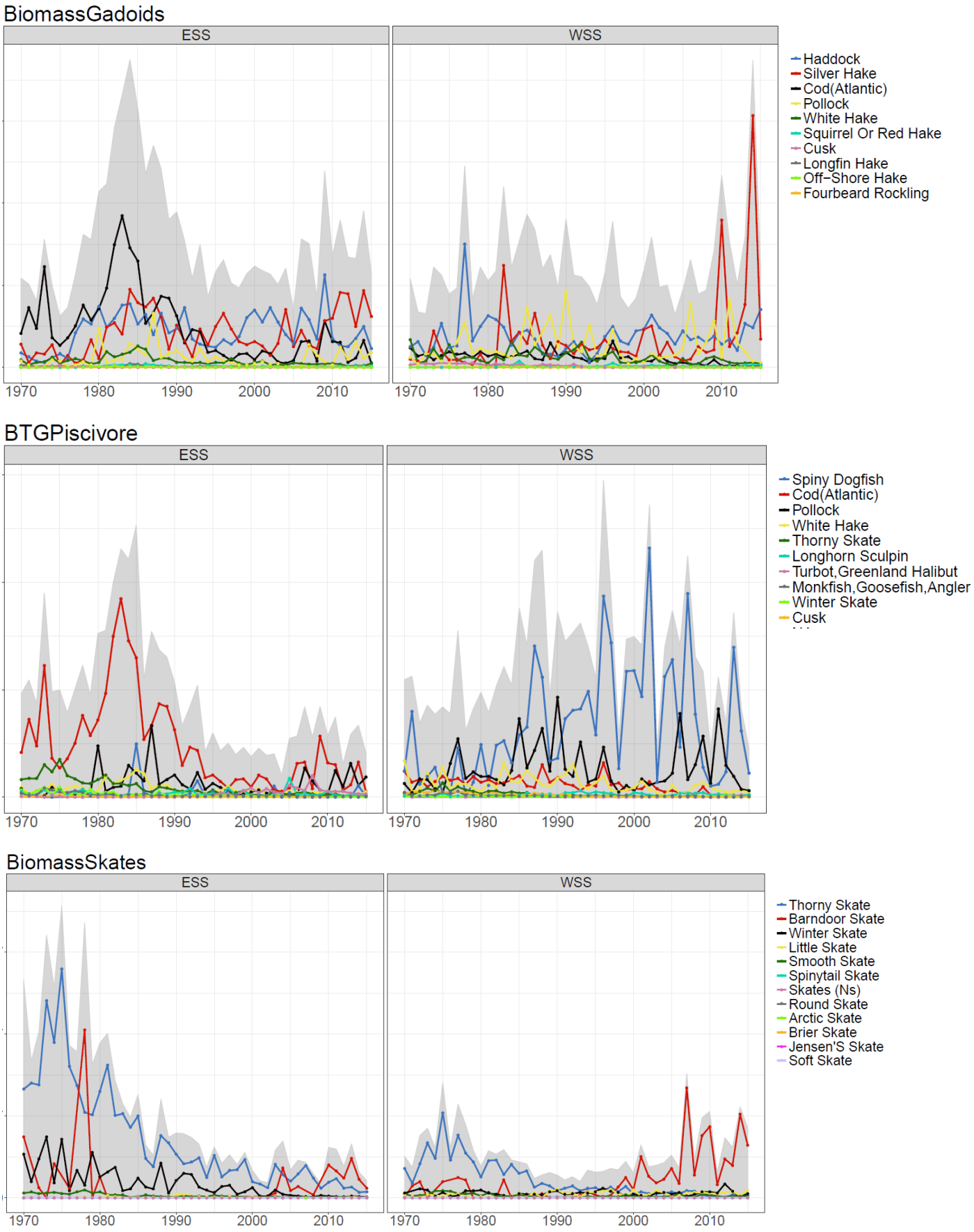

Figure S 9. Biomass indicators decomposed per species (coloured lines, see Table S6). The light grey area represents tBiomassGadoids, BTGPiscivore and BiomassSkates for the ESS (left) and WSS (right).

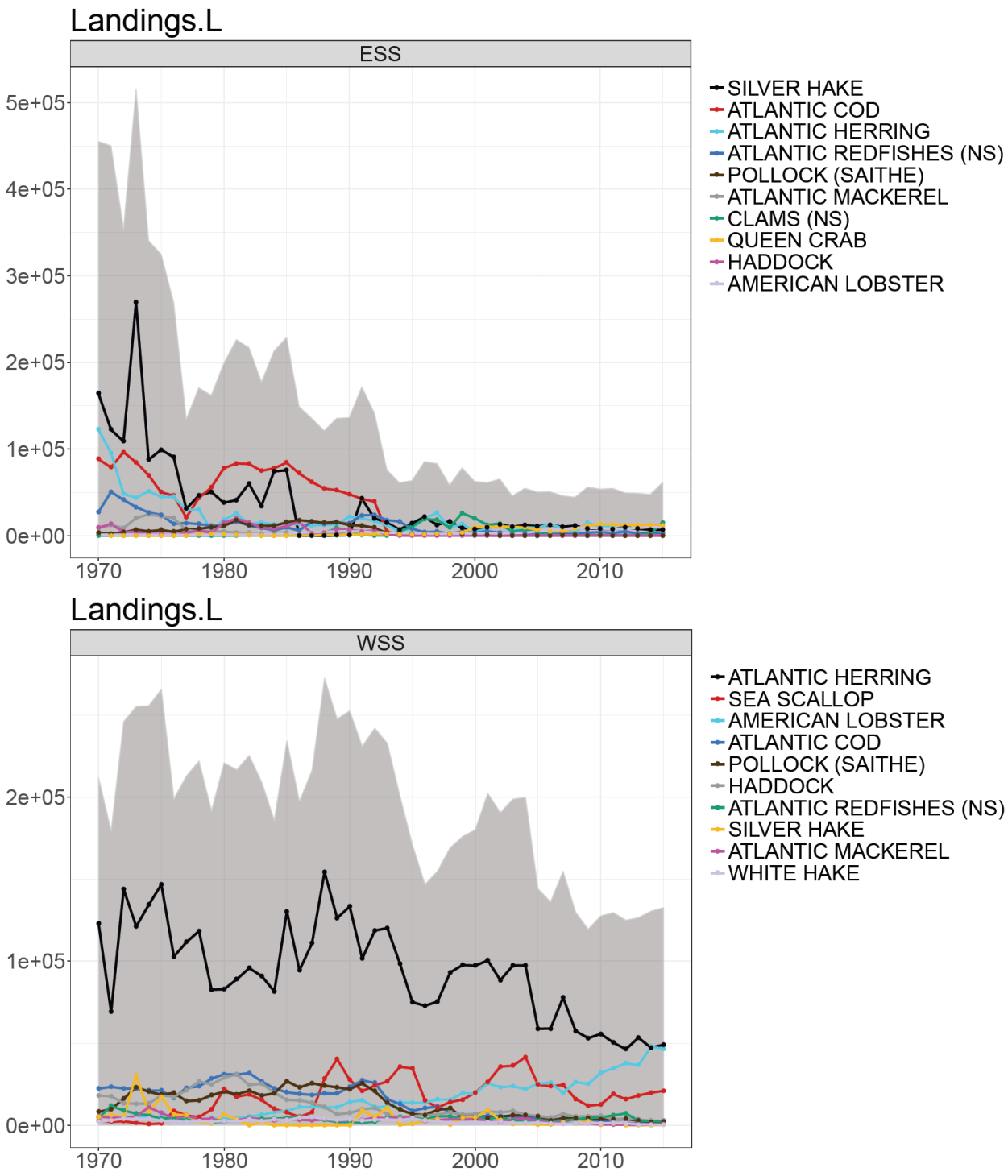

Figure S10. Top ten species (coloured lines) driving important trends of Landings.L (light grey area) in the ESS (top panel) and WSS (bottom panel).

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