Report on Marine Protected Area Network Analysis for the Maritimes Region of Canada

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ABSTRACT

We identified a network of Marine Protected Areas (MPAs) using the criteria of uniqueness, diversity, importance for threatened, endangered or declining species and/or habitats, sensitive habitat, and abundance of key species. The areas identified are distributed across an array of representative habitat. Importantly, we applied a systematic planning approach using the conservation planning software, Marxan, which improved upon a previous Delphic approach that identified approximately 60% of the shelf and slope regions as ecologically significant. Given the near infinite number of solutions in *any* identification process for marine protected areas, our thorough systematic planning approach, based on over 500 iterations, allowed us to constrain the spatial configuration of potential MPAs, while at the same time, fulfilling the criteria for both *Canada's Oceans Act* MPA objectives and the criteria for MPA networks laid out by the Convention of Parties (COP) to the Convention on Biological Diversity (CBD). The final configuration is robust. Our results are available for use in the pilot Integrated Management plan on the Eastern Scotian Shelf. Examples of areas that were consistently identified as candidates for MPAs include: St. Anns' Bank, Misaine Bank/Eastern Shoal, Middle Bank and the Northern Spur.

RÉSUMÉ

Nous avons établi un réseau de zones de protection marines (ZPM) à l'aide de différents critères : le caractère unique, la diversité, l'importance pour les espèces ou les habitats menacés, en péril ou en déclin, la présence d'habitats vulnérables et l'abondance d'espèces clés. Les zones relevées sont réparties dans une gamme d'habitats représentatifs. Nous avons appliqué une approche de planification systématique à l'aide d'un logiciel de planification de la conservation (Marxan), ce qui a permis d'améliorer les résultats obtenus précédemment avec une approche delphique qui a désigné environ 60 % du plateau et du talus continentaux comme étant important sur le plan écologique. Étant donné le nombre presque infini de solutions dans *tout* processus d'identification de ZPM, notre approche de planification systématique et minutieuse, fondée sur plus de 500 répétitions, nous a permis de limiter la configuration spatiale des ZPM potentielles tout en respectant les critères des objectifs de la *Loi sur les océans* du Canada relatifs aux ZPM et les critères relatifs aux réseaux de ZPM énoncés dans la Convention sur la diversité biologique (CDB) de la Conférence des Parties (COP). La configuration finale est solide. Nos résultats peuvent être utilisés dans le plan pilote de gestion intégrée dans l'est du plateau néo-écossais. Voici des exemples de zones régulièrement identifiées comme candidates à la désignation en tant que ZPM : le banc de Sainte-Anne, le banc de Misaine, le haut-fond est, le banc du Milieu et l'éperon Northern.

BACKGROUND

The Government of Canada recognizes that healthy and productive ocean ecosystems are the foundation for all ocean and marine resource management actions. The government of Canada also recognizes that "[a]ll indicators point to the reality that the health and quality of the marine environment are at risk or declining."[1] Despite the challenges, solutions exist to deal with many of the problems we face. "Scientists and oceans managers around the world are in agreement that we need a greater commitment to […] protection measures, especially the designation of marine protected areas in the ocean to protect the most important, productive and biologically diverse areas and vulnerable species."[1]

Fisheries and Oceans Canada is responsible, under a combination of national (e.g. DFO, 2005a) and international (e.g. UNEP/CBD/COP, 2004) commitments to develop networks of marine protected areas and to oversee the implementation of *Canada's Oceans Act.*

The Health of the Oceans Initiative announced in October 2007 calls on the Department of Fisheries and Oceans to create new marine protected areas under *Canada's Oceans Act* for the purpose of protecting and conserving ecologically and biologically significant areas.[2]

[1] http://www.dfo-mpo.gc.ca/oceans-habitat/oceans/oap-pao/page04_e.asp (accessed on December 30, 2008)

[2] http://www.dfo-mpo.gc.ca/oceans/management-gestion/healthyoceans-santedesoceans/initiatives-eng.htm#mpa (accessed on December 30, 2008)

INTRODUCTION

This work identifies areas in the offshore portion of Canada's Maritimes Region that would contribute to both a regional and national marine protected area network. It is a joint effort of Oceans, Habitat and Species at Risk Branch and Science Branch of Fisheries and Oceans Canada in the Maritimes Region. It draws heavily on existing guidelines for conservation planning and management and employs conservation objectives that have been negotiated and/or discussed in the context of integrated management initiatives developed with stakeholder engagement, in particular the pilot Eastern Scotian Shelf Integrated Management (ESSIM) initiative. These initiatives acknowledge the importance of healthy ocean ecosystems as an essential component to both social and economic well-being.

MPA DEVELOPMENT FRAMEWORK

During the period when this work was taking place (2007-2008), two frameworks or guidelines for identifying and implementing Canada's network of MPAs were proposed. These two guidelines are quite general and very similar (see comparison in Table 1). In this document we demonstrate how and where our work fits into these guidelines by linking back to the process that was adopted in the region (Table 1).

Table 1. Marine protected area planning and implementation work flow status for the ESSIM area and DFO Maritimes region.

DFO Maritimes Process	Federal Guidelines[3]	WWF-Canada Policy and Planning Framework[4]
A		**Step 1.** Coordinate among government departments and agencies. Identify and involve stakeholders
B		**Step 2**. Define the purpose of the network (identify conservation goals)
C	**Step 1**. Gather best available information	**Step 3**. Identify and compile data to be used
D	**Step 2**. Identify conservation and operational objectives	**Step 4**. Set quantitative conservation objectives, management standards and design criteria
E	**Step 3**. Identify sites that will contribute to network based on conservation objectives	**Step 5**. Review existing objective attainments and identify network gaps
F	**Step 4**. Identify a feasible MPA network	**Step 6**. Select new sites to meet conservation objectives
G	**Step 5**. Establish marine protected areas	**Step 7**. Implement new protected areas
H	**Step 6**. Manage, monitor and report on marine protected areas and network	**Step 8**. Monitor and manage adaptively

[3] The steps presented here appeared in draft guidelines circulated among MPA practitioners in DFO in 2007 that were never formalized. In June 2009, DFO held a CSAS review to provide guidance on the application of the criteria for MPA networks adopted by COP 9. That information is intended to be incorporated into a technical document, currently being drafted, that will replace the document refered to here and will also provided guidance for MPA practitioners on bioregional planning. (pers.comm. P. Doherty, DFO, 2010).

[4] Smith et al. 2006.

A. Coordination and Stakeholder Involvement

Fisheries and Oceans Canada has responsibility to deliver on the combination of national (e.g. DFO, 2005a) and international (e.g. UNEP/CBD/COP, 2004) commitments to develop networks of marine protected areas and to oversee the implementation of *Canada's Oceans Act.*

In the Maritimes Region, the Oceans and Coastal Management Division (OCMD) assumes the role of overseeing and/or coordinating much of this responsibility. This includes implementing and managing MPAs designated under *Canada's Oceans Act* and, more broadly, coordinating initiatives that will provide for improved management of Canada's oceans through integrated management (IM) with the various sectors of ocean users and regulators. The Eastern Scotian Shelf has been identified as large ocean management area (LOMA) by DFO. Stakeholders within the Eastern Scotian Shelf are engaged in integrated management through a collaborative ocean management and planning process known as the ESSIM initiative[5].

B. Definition of Purpose and Intent

This work will be useful to all three federal partners with MPA programs[6] and will assist ocean planners and managers in the three federal agencies to reduce redundancy in their respective conservation initiatives, in turn minimizing the impacts on stakeholders. It is important to note that this work is not prescriptive in terms of the management tools that should be implemented at particular sites (i.e., the legislation used for protection and management).

The International Union for Conservation of Nature (IUCN) provides guidance on how areas are to be evaluated, in terms of their protected area status (Dudley 2008). We recommend that these guidelines be considered when implementing and evaluating the overall effectiveness and conservation status of a marine protected area network. A network dominated by MPAs that either fail to meet the IUCN qualifications or are within the lowest level of conservation status is likely to be at severe risk of failure to achieve the overall ecological objectives.

We define a network as a cohesive set of sites that address all of the identified conservation objectives. We limit this to conservation objectives with a reasonably discrete spatial component. Conservation objectives that are poorly constrained in space, e.g. protection for declining populations of highly migratory species with wide-spread threats, will be better addressed using other types of management tools. We have limited the spatial extent of our network to the offshore areas of DFO's Maritimes Region. Guidance for these conservation objectives comes from international scientific experts (UNEP/CBD, 2008), Government of Canada commitments for marine conservation and the strategic objectives determined through integrated management processes (i.e. ESSIM).

International best practices as interpreted by IUCN state that the ecological criteria for MPA networks should consider: representation, replication, viability, precautionary design, permanence, maximum connectivity, resilience and size/shape (WCPA/IUCN. 2007).

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[5] http://www.mar.dfo-mpo.gc.ca/oceans/e/essim/essim-intro-e.html

[6] The three federal agencies with MPA programs in Canada are Fisheries and Oceans Canada, Parks Canada and Environment Canada.

"The best available scientific information tells us that, to protect biodiversity and manage resources, we must establish *representative* MPA networks across 20 to 30 percent of our seas and oceans. These networks may have different uses and levels of protection within them, but all should include reserves or no-take areas and *should include representative examples of the different ecosystems, habitats and communities in our seas and oceans*." (WCPA/IUCN. 2007)

C. Compilation of Best Available Data

To support integrated management, ecosystem-based management and MPA planning, DFO has under-taken a variety of initiatives in recent years to improve our understanding of the regional ecosystems and to compile or develop data to support this work. This includes: the acquisition of scientific expert opinion (SEO) and local ecological knowledge (LEK) of ecologically and biologically significant areas (EBSAs). Initiative outcomes include:

- production of atlases and geographic information systems that illustrate both human activities and important habitat for key fish species for the region;
- development of maps describing benthic habitat sensitivity and also prominent seabed features based on geomorphology; and the
- development of geo-databases that contain a variety of region-wide physical and biological information.

To the extent possible, the best available data, described in detail in the following section, has been incorporated into this analysis.

D. Identification Conservation and Operational Objectives

The objective of our work was to use the best available data to perform objective and systematic analyses (i.e. data-driven and repeatable) to identify marine areas that, when combined, may be expected to achieve the various ecological objectives in a spatially-efficient manner (i.e. occupy the least space possible while meeting all the stated objectives). The ecological objectives have been derived from a variety of processes, including national and international scientific guidance for MPA network design (See Appendix 1) and also draw upon the objectives for Healthy Ecosystems outlined in the Eastern Scotian Shelf integrated ocean management plan – Strategic Plan (Government of Canada, 2007).

Specifically, our conservation objectives are consistent with the Convention on Biological Diversity (CBD) guidance in that we set specific objectives for: 1) examples of representative habitat types; 2) ecologically and biologically significant areas as identified from available data using criteria described by the CBD (Appendix 1). Connectivity between sites, size of sites (so as to meet criteria for adequacy and viability) and replication of features within the network were also considered when reviewing the results of the analysis.

E. Identification of Sites that will Contribute to a Network Based on Conservation Objectives

Because of the multiple criteria for networks and the even more numerable data layers which must be used as the basis for evaluating these criteria, it quickly becomes evident that this

problem that is not well-suited to a purely Delphic approach whereby experts are asked to identify ecologically important areas. We employed a systematic planning approach which is recognized as a robust and defensible process for identifying areas for conservation purposes (Margules and Pressey 2000, Pressey et al. 1993, Noss 2003, Davey 1998, Noss and Cooperrider 1994, Groves 2003, Leslie 2005). To facilitate the use of this approach we used the decision-support tool Marxan (Ball et al. 2009) to undertake the analysis. Marxan uses a simulated annealing algorithm to find solutions that minimize total planning unit costs while meeting specified conservation targets.

The main goal of this exercise was to identify sites that will contribute to a network in a spatially efficient manner and that aims to reduce the economic impact by minimizing the conservation footprint. Therefore, **Steps F through H** in Table 1 are beyond the scope of this exercise.

METHODS

STUDY AREA

The Maritimes Region of DFO is part of the Northwest Atlantic Large Marine Ecosystem (LME) and includes, the Scotian Shelf, Georges Bank and Bay of Fundy which are among the richest fishing areas in the world. The area comprises a variety of habitat types and unique features including the highly productive large macro-tidal basin (the Bay of Fundy) and the largest submarine canyon on the continental shelf (The Gully). Both areas are important to a variety of endangered species. The region also includes several sensitive benthic habitats important for coldwater coral (i.e. The Northeast Channel, The Gully, and the Stone Fence) and other structure providing species. The diverse geology and geomorphology in the region includes many offshore banks, basins, slopes, canyons and bifurcated areas that support a wide variety of commercially important species. The region supports a fishing industry that has existed for centuries. Historic and recent collapses in many of the dominant species, primarily due to fishing pressure, have resulted in major ecosystem shifts (e.g. Zwanenburg 2000) and in some cases extirpation of once influential species. Despite the historical, ecological and economic importance of this marine environment, only small portions are considered as “protected areas” for conservation purposes.

The work focuses primarily on offshore areas of the DFO Maritimes Region (Figure 1). The coastal zone, especially the nearshore zone, will require a separate assessment due to the special nature of the land-water interface, which includes a variety of habitat and community types not observed in the offshore. Planning for marine protection in the coastal zone will also require working at a very different scale. In the offshore, management and compliance with management measures, are facilitated by working in areas that are much larger than would be feasible in most of the developed coastlines of the world. Analysis of coastal areas for MPA network planning is further encumbered by the intensity of human presence, complicated jurisdictional authority, and, ironically, a paucity of region-wide biological and ecological data sets that can be used for this type of assessment.

The total study area, including deep water areas is approximately 483,962 km^2 (calculated in universal transverse Mercator projection for zone 20 north) and is located between 54.883 degrees and 67.704 degrees west and 40.050 and 47.884 degrees north. The area of primary focus for the analysis, due to available data, is where depths are less than 3000 metres,

representing roughly 66% or 319,127 km^2 of the total study area. The remainder of the study area is composed of the more remote abyssal plain region, an area for which very limited biological and geophysical information exists.

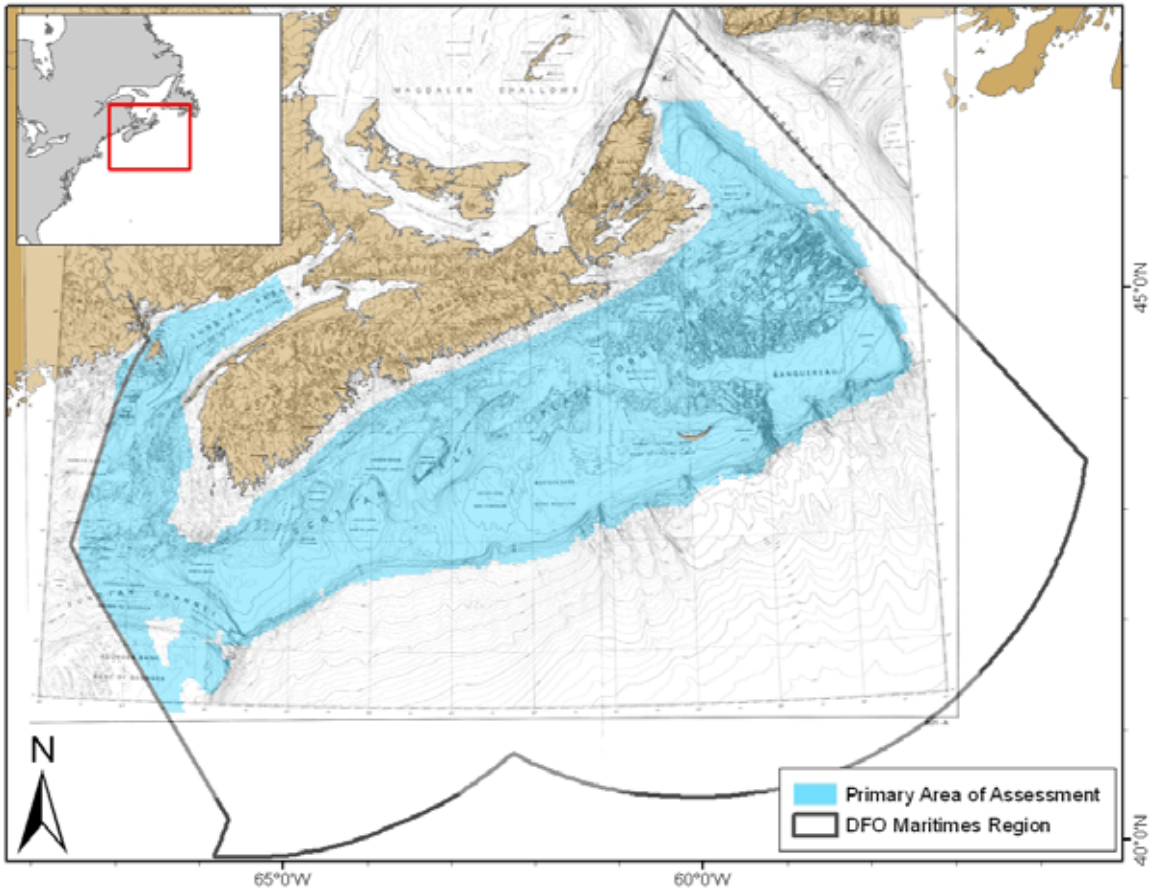


Figure 1. A map that illustrates the study area for this assessment and highlights the primary areas of assessment as determined by available biological data.

Within the study area several areas already identified for habitat conservation currently exist. These include The Gully MPA and the Lophelia Coral Conservation Area in the Eastern Scotian Shelf and the Northeast Channel Coral Conservation Area in the Western Scotian Shelf (Figure 2).

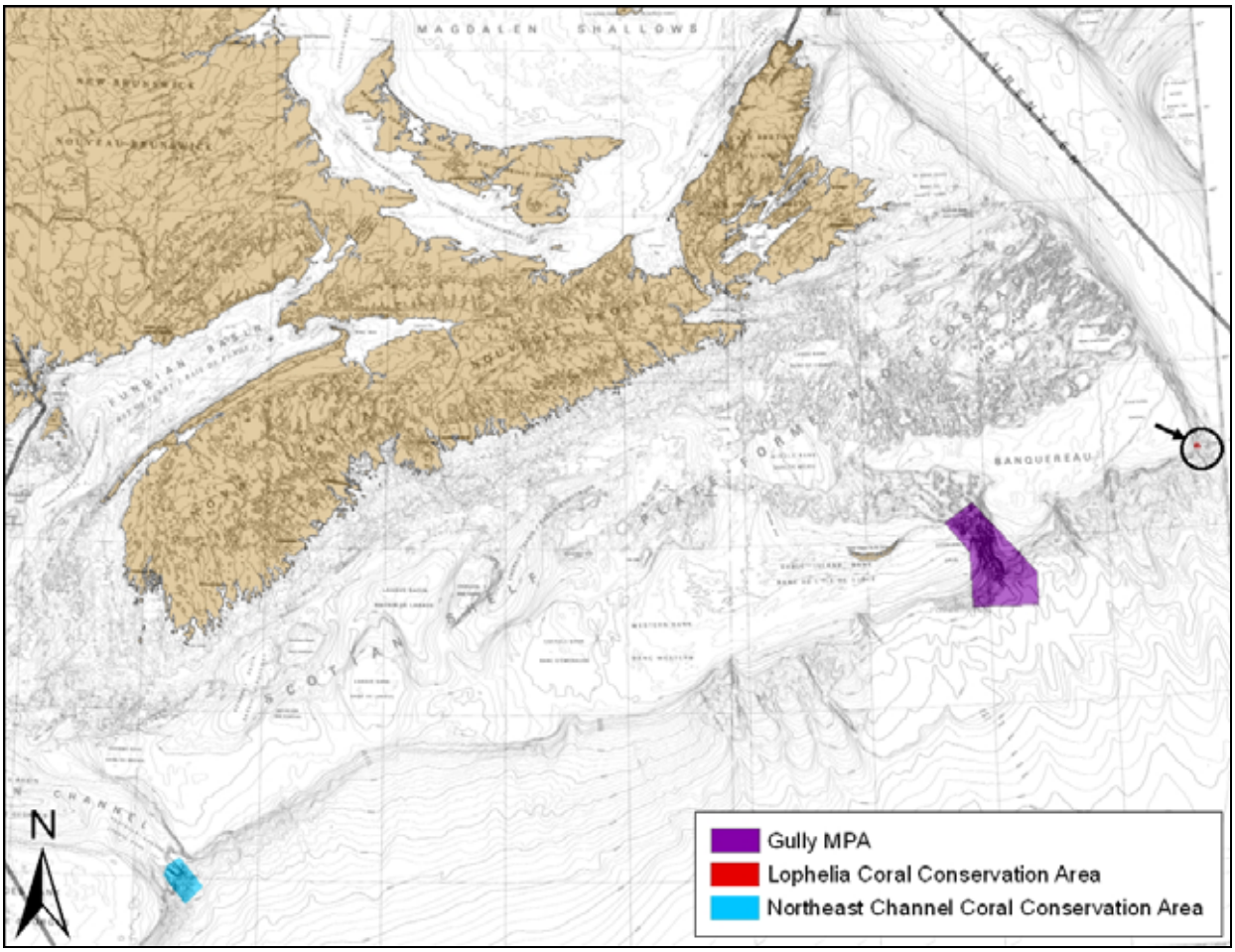


Figure 2. This map illustrates areas managed for habitat conservation in the study area.

UNITS OF ANALYSIS

The data used in this analysis was aggregated on rectangular areas or grid cells (2 arc minutes by 2 arc minutes) distributed over the entire study area. Each planning unit is approximately 10 km^2. These same 2 minute grid cells are used in "GISMO"[7] which will facilitate the evaluation of socio-economic data that has already been aggregated and compiled for the region.

PLANNING UNIT COST

Each planning unit (i.e. two minute grid cell) received the same "cost" assignment equivalent to the mean area of planning units in the study area. It is possible to assign variable costs to planning units, that can be based on planning considerations such as the economic benefits derived from current activities, or the environmental quality of an area (e.g. low cost for pristine areas through high cost for areas that would require remediation). However, given the fluctuating values of resources in the dominant offshore industries, it would be difficult to apply any value that would be agreeable to all stakeholders or reflective of the changes observed within the last

[7] GISMO (GIS for Management of the Ocean) is a geospatial database compiled for internal use by the Oceans and Coastal Management Division (DFO-Maritimes). It aggregates data primarily on human activities, but also includes a limited selection of ecological features, in the Maritimes Region. It is designed to be accessible with ArcGIS®. The data can be visualized or queried based on location or attribute information.

40 years, calling into question our ability to predict and apply a reasonable economic value in the future. Rather, we concluded that minimizing the "conservation footprint" would be the fairest solution in the best interest of all stakeholders with a direct economic interest.

DATA

It will never be possible to adequately recreate historical information. Nor is it possible to accurately predict future ecological and societal environments. However, MPAs have been routinely established in regions with much less data than the Scotian Shelf. The lack of sufficient information is frequently cited as a barrier to management action and stakeholder buy-in. While data and knowledge gaps will always persist, we illustrate the abundance of information available to assist in conservation planning and marine management in the region.

We used the design principles for MPA networks outlined in Appendix 1 to guide the selection of data used in our analyses. The following section describes the data obtained and compiled and how these data are expected to support the established design criteria (see Table 2).

Table 2. Data used in the conservation network design.

Data Layer	Description	Origin data	Origin data type	Origin data units	Origin data resolution	Data treatment	Analysis units	Spatial Extent
Scope for Growth	Delineation of areas that represent various scope for growth regimes within the region.	Benthic Habitat Sensitivity Map – Scope for Growth component	Raster	Dimension-less	500 m	Data was classified using Jenk's natural breaks into 5 classes.	presence / absence	continental shelf portions of Maritimes Region, excluding nearshore zones
Natural Disturbance	Delineation of areas that represent various natural benthic disturbance regimes within the region.	Benthic Habitat Sensitivity Map – Natural Disturbance component	Raster	Dimension-less	500 m	Data was classified using Jenk's natural breaks into 4 classes.	presence / absence	continental shelf portions of Maritimes Region, excluding nearshore zones
Seabed features	Delineation of seabed features (surrogate for major habitat types) based primarily of depth and substrate data.	Seabeds of the Scotian Shelf and Bay of Fundy. Gordon Fader (commisioned by WWF Canada)	Vector	Presence / absence	variable	Refinement of seabed features in the inner Bay of Fundy to delineate large inter-tidal areas and distinguish these areas from subtidal areas in the same region.	presence / absence	entire Maritimes Region, including nearshore zones
Topographic Roughness Index	Variation in depth and aspect based on 15 arc second (~500 m) bathymetric data	15 arc second bathymetric	Raster	Dimension-less	15 arc seconds (~ 500 m)	Nearest neighbour analysis with 5 by 5 window claculates the standard deviation of slope and aspect for each cell.	Presence / absence	entire Maritimes Region, excluding nearshore zones
Coral	Density and diversity information from coral observation	ERD Coral Database	Vector	Presence / absence	opportunistic observations		presence / absence	Atlantic Region

Data Layer	Description	Origin data	Origin data type	Origin data units	Origin data resolution	Data treatment	Analysis units	Spatial Extent
Whales	critical habitat areas and "areas to be avoided" (ATBA) in "Notice to Mariners" due to the presence of and importance to endangered whale	Registered coordinates for these areas	Vector	Presence / absence	Primarily opportunistic observations	the delineation of critical habitat and ATBA incorporated a variety of techniques based primarily observations of whales and their use of particular areas.	presence / absence	entire Maritimes Region
Biodiversity index – groundfish trawl survey	Areas of statistically significant biodiversity hotspots.	DFO Summer Scientific Groundfish (Ecosystem) Trawl Survey (1970-2006)	Vector	Number of species / tow		Getis-Ord hotspot analysis in ArcMap (ESRI)	presence / absence	Scotian Shelf and Bay of Fundy, excluding nearshore zones along the Atlantic Coast and shallow areas in SW Nova.
Biodiversity index – snow crab survey	Areas of statistically significant biodiversity hotspots.	DFO Scientific Trawl Survey for snow crab (2000-200?)	Vector	Number of species / tow		Getis-Ord hotspot analysis in ArcMap (ESRI)	presence / absence	Eastern Scotian Shelf
Biodiversity index – Scotian Slope survey	Areas of statistically significant biodiversity hotspots.	DFO Scientific Trawl Survey (19xx-198x)	Vector	Number of species / tow		Getis-Ord hotspot analysis in ArcMap (ESRI)	presence / absence	Scotian Slope
Important habitat for selected species	Highest ranking areas (quintile breaks) over 4 time periods based on the observed weight of selected species from the DFO scientific summer trawl surveys.	primarily DFO Summer Scientific (Ecosystem) Trawl Survey, for some invertebrate species the snow crab survey was used.	Vector	kg / tow		Data of observed weight for a species was interpolated in each of 4 time periods. The resulting data was ranked into 10 classes and the data was assessed for areas that consistently ranked high in each time period (see also Horsman and Shackell, 2009).	presence / absence	Scotian Shelf and Bay of Fundy, excluding nearshore zones along the Atlantic Coast and shallow areas in SW Nova.

Representation

To satisfy the criteria for representation of all habitat types and the range of biodiversity that exist in the region, we began by briefly reviewing the available biogeographic classifications for our study area. These habitat and/or biogeographic classifications function as a surrogate for species or species assemblage data that are generally non-existent. This endeavour was facilitated by habitat classification systems previously developed in the Maritimes Region under Phase 1 of the benthic habitat Regional Assessment Process (RAP). The results of the RAP include a review of various classification approaches and recommendations for a benthic classification with the specific objective of assisting ocean management decisions in maintaining the diversity of benthic communities in the Scotia-Fundy area (DFO 2002, DFO 2005b).

The spatial stability of benthic habitats, compared to water masses, is an important consideration in the application of management measures that are fixed in space. This factor, combined with the major contribution of benthic communities to marine biodiversity, and the demonstrated impacts of many human activities on benthic communities and habitat, support the premise that protection of benthic environments is a critical component in marine management. This emphasis on benthic and epi-benthic communities and habitat is especially true when designing and applying management tools, such as MPAs, that are spatially explicit and typically fixed in both space and time.

We adopted three broad design principles that we believe assist in achieving representation across our region. First, we want to develop a network plan that includes at least one significant example of each major seabed habitat type in the region (e.g. banks, basins, saddles, channels, slope, shelf areas, etc). These seabed features should be easily recognizable features to most members of the marine user community. By including an example of each major seabed feature type we will be conserving a wide range of species and communities in the region. This design principle also helps ensure representation of cross-shelf gradients (from inshore to offshore), thereby also achieving some connectivity through the network. These features were classified and mapped by Gordon Fader (Emeritus Scientist with the Geological Survey of Canada) and are generally comparable to an earlier, yet similar classification, of representative habitat described as natural history regions (developed by the Nova Scotia Museum of Natural History). The seabed map used (Figure 3) takes advantage of more recent surveys and higher resolution data to delineate features. It also provides some limited detail for areas beyond the continental shelf.

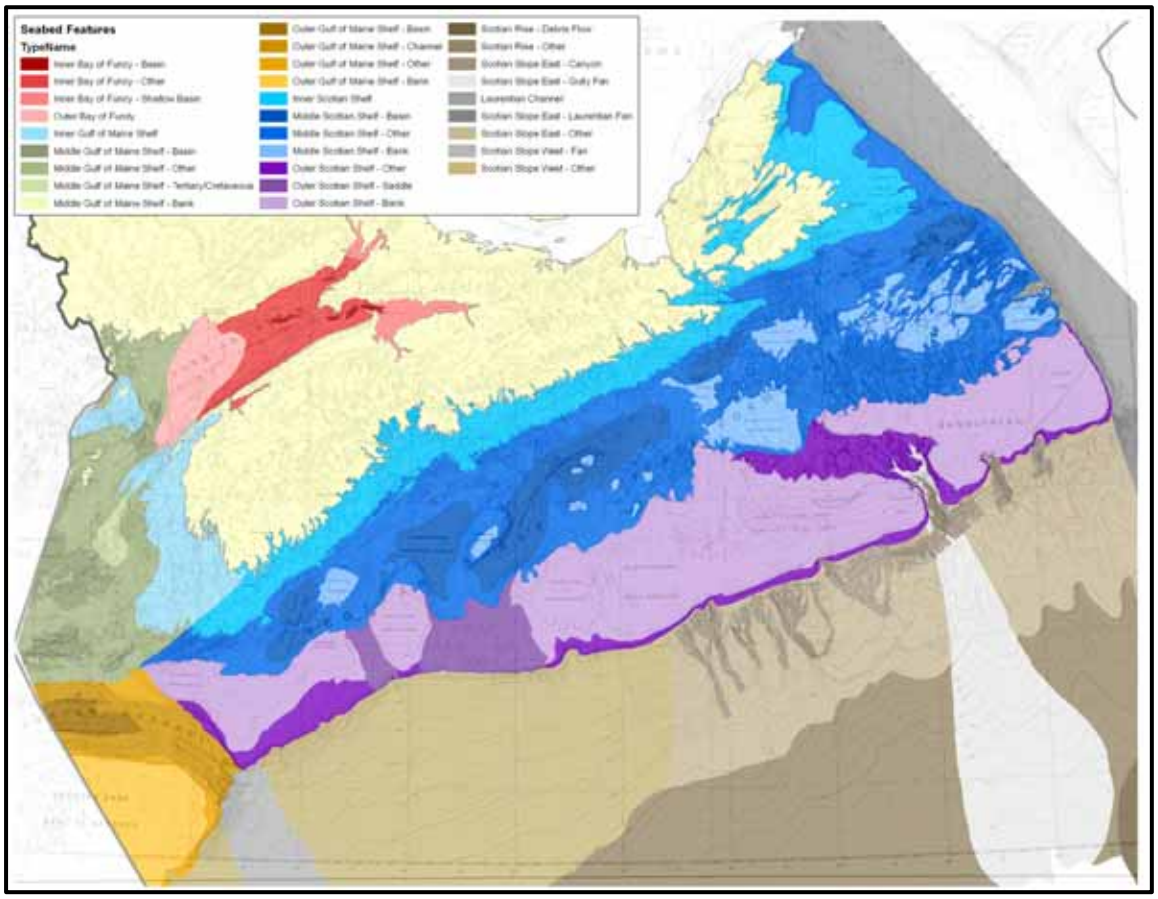


Figure 3. Map of the seabed classification (Fader 2007) employed for the regional conservation MPA network planning.

Secondly, we want to have the areas selected for the network distributed across the range of growing conditions and productivity. Ecological communities in the Maritimes region vary significantly along a gradient of more- to less-favourable growing conditions from the Bay of Fundy to the Eastern Scotian Shelf and Laurentian Channel. This design principle helps ensure that the network includes examples of these very different community types, and that areas selected for the network are distributed along the shelf from Southwest to Northeast. To achieve this we used the Scope for Growth component of the benthic classification developed by Kostylev and Hannah (2007). In this model, scope for growth is a factor of food availability, temperature variability, and oxygen saturation. For the purposes of our analyses, the Scope for Growth data is divided into five classes distinguished by natural breaks in the data (Figure 4).

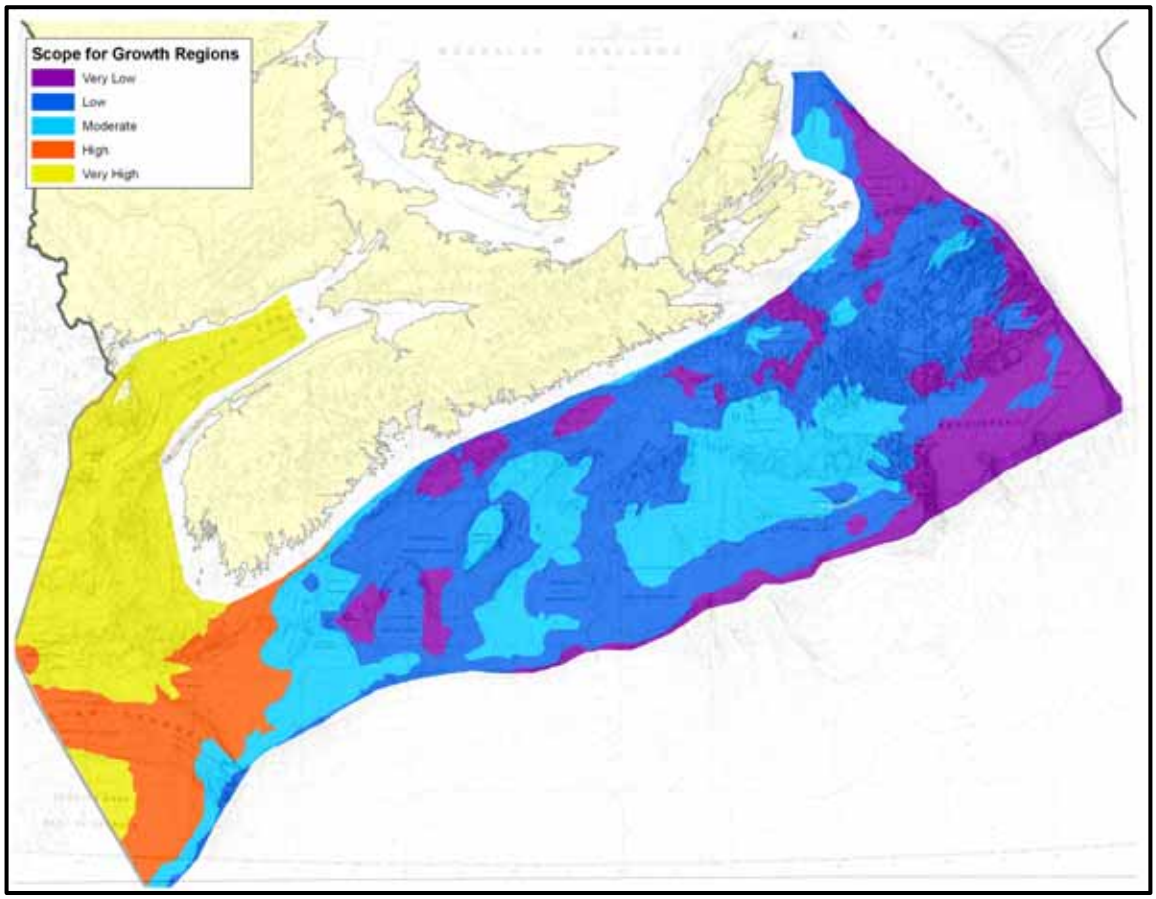


Figure 4. Map of the classified version of Kostylev and Hannah's model (2007) of "Scope for Growth" used for the regional conservation MPA network planning.

Thirdly, we aim to distribute areas selected for the network across the range of natural physical disturbance of the ocean bottom. Ecological communities in the Maritimes region are adapted to a range of natural disturbance regimes. These range from areas where animals' body shapes, shells and other features protect them from frequent, extreme battering by currents and storms, to areas where delicate, brittle and long-lived species form elaborate structures in areas that are rarely disturbed. To achieve this we used the Natural Disturbance component of the benthic classification developed by Kostylev and Hannah (2007). In this model, natural disturbance is a factor of the wave and current action in relation to the type of substrate, from coarse to fine grain – or frictional velocity. It indicates the degree to which typical wave and current action disturb the substrate in a particular area. For the purposes of our analyses, the Natural Disturbance component is divided into four classes distinguished by natural breaks in the data for our study (Figure 5).

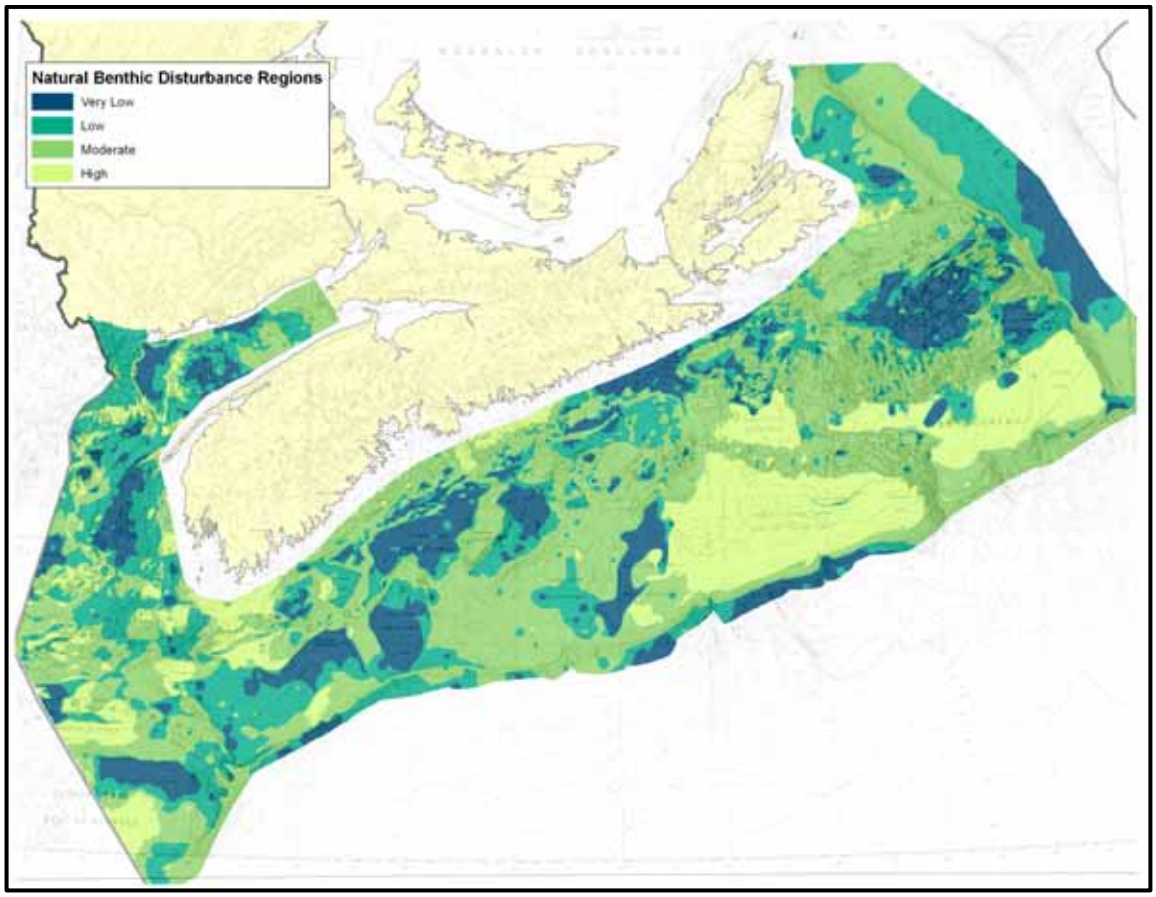


Figure 5. Map of the classified version of Kostylev and Hannah's model (2007) of "Natural Disturbance" used for the regional conservation MPA network planning.

Ecologically and Biologically Significant Areas (EBSAs)

We adopted five design principles that assist in achieving inclusion of EBSA across our region: 1) areas of persistently higher abundance of important fish species[8] are deemed to be important. A portion of each of these areas for each key fish species should be protected. Higher proportions should be protected if the species is considered to be at risk, as determined by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC); 2) a portion of areas identified as having high biodiversity should be protected; 3) areas known to support vulnerable or sensitive structure providing species (e.g. hard coral) should be protected; 4) areas identified as critical habitat for species at risk should be included in the network; 5) areas with high topographic roughness may support higher levels of biodiversity as a result of dense habitat heterogeneity. Such areas are likely to be less impacted by human activities and may also represent areas of greater "naturalness" within the region and should be protected. To satisfy the first design principle, areas of persistently high abundance of fish were identified from the scientific summer trawl surveys conducted in the region and drew largely from the results of an assessment of important habitat for key species in the region (Horsman and Shackell 2009).

[8] For invertebrate species or species groups with scientific surveys dating back less than a decade, areas of relatively high abundance over the entire survey period were identified as important habitat.

The rationale for our emphasis on fish abundance (as compared to spawning and juvenile fish) acknowledges the important role of adult fish in maintaining healthy populations. Despite the methods and guidelines employed by fisheries management bodies for maintaining healthy fish populations (e.g. regulating fishing at levels at or below maximum sustainable yield, population assessments, protection of spawning and juvenile habitat, etc.) many groundfish and rockfish stocks around the world are declining with many species showing severe declines, including many species on the Scotian Shelf (e.g. American Plaice, Atlantic Cod, Winter Skate, Atlantic Wolffish, Cusk, Redfish) (Frank et al. 2005, Shackell et al. 2005, Shackell and Frank 2007).

Reproductive success of any species is a result of their evolved life history strategy (Roff 1992). The reproductive success of large-bodied, late-maturing, often commercial groundfish populations is linked to a diverse age and size structure (Berkeley et al. 2004a b, Longhurst 2002, Murphy 1967). When a population has a reduced age/size/phenotype diversity, its stability is reduced. If many ages/sizes are able to contribute their genes to the next generation, the odds that their offspring survive are greater because they come from a diverse set of spawners (Beggs and Marteinsdottir 2003). When the 43cm size limit for cod, haddock, pollock was imposed in the mid 1980's, this management measure directed fishing on large individuals (Halliday et al. 1992). There was no parallel management measure, such as an MPA, to protect large old fish. The consequences have been a declining size and age structure within stocks (Shackell et al. 2010, Fisher et al. 2010 a,b), production declines in stocks and overall increasing vulnerability to natural mortality (Swain and Sinclair 2000).

Further, older and larger fish within a population may play an especially crucial role. Two mechanisms have been proposed by which older fish exhibit increased reproductive success. Older fish produce eggs and larvae that are capable of surviving more adverse environmental conditions under which the progeny of younger fish experience higher mortality (Hislop 1988, Marteinsdottir and Steinarsson 1998). In cod populations, there are age-related differences in the time and location of spawning that would result in a distribution of egg and larvae across a wider range of environmental conditions, resulting in increased survival of progeny from older fish (Lambert 1987, Hutchings and Myers 1993). A smaller fish, of the same species, contributes less to the next generation. Younger, smaller, first-time spawning cod are not as successful as second-time spawning cod. "They breed for a shorter period, produce fewer egg batches, exhibit lower fecundity, and produce smaller eggs with lower fertilization and hatching rates; moreover, their larvae are less likely to hatch in environmental conditions favorable for survival..." (Trippel 1998). This means that an age-truncated population of the same size does not have the same reproductive potential as an older population. Smaller females of a large-bodied species, in general, produce fewer eggs. When the entire population is smaller, the production potential is reduced (Brander 2007).

Given the importance of large mature fish within populations and their vulnerability to exploitation by the fishery, the protection of areas with the potential to support large, mature fish was of primary importance in the development of a network of marine protected areas. It is also a goal that has potential to provide the greatest benefits to the fishery by increasing the overall size of both fish populations and individual fish.

Areas of relatively high abundance of fish were assessed for key fish species of the Scotian Shelf (Horsman and Shackell 2009). Areas with relative abundance averaging in the 80th percentile and

higher over the four time periods examined (i.e. time periods that reflect differences in both fishery management regimes and/or environmental conditions) were used in the analysis.

Information for invertebrate species was restricted to the Eastern Scotian Shelf and was based on the results of a more recent (2000-2007) trawl survey for invertebrate species. In this case, the data were not temporally aggregated; rather areas of higher abundance (80^{th} percentile and above) were identified based on interpolations of data over the entire time period of the survey. Interpolation techniques were the same as for demersal fish and are described in Horsman and Shackell (2009). See Appendix 2 for the full list of fish species or species groups used in the assessment.

Neither spawning nor juvenile fish habitat were included in our analyses due to insufficient geospatial information. A survey programme on the Scotian Shelf (Scotian Shelf Icthyoplankton Programme or SSIP) for egg and larval fish was conducted between 1978 and 1982 (O'Boyle et al. 1984) but there is no recent equivalent survey data. Based on the data from the SSIP, there appears to be a strong correlation between areas of important habitat for key fish species and areas of concentration for larval fish in many species (Horsman and Shackell 2009).

To satisify the second design principle, for the protection of areas of high biodiversity, three scientific surveys were assessed using the Getis-Ord function in ArcGIS®. The DFO Maritimes summer research trawl survey, snow crab survey and slope survey were all analyzed separately. For each survey, the data were aggregated into 2 minute grid cells across the survey area, and the number of different species recorded with each cell was calculated. The aggregated species count data was then used to identify biodiversity hotspots by calculating a Getis-Ord Gi*[9] statistic for each two minute grid cell (Figure 6).

[9] The G-statistic indicates whether features with high values or features with low values tend to cluster in a study area by looking at each feature within the context of neighboring features. The Gi* statistic is actually a Z score. For statistically significant positive Z Scores, the larger the Z score is, the more intense the clustering of high values. For statistically significant negative Z scores, the smaller the Z score is, the more intense the clustering of low values.

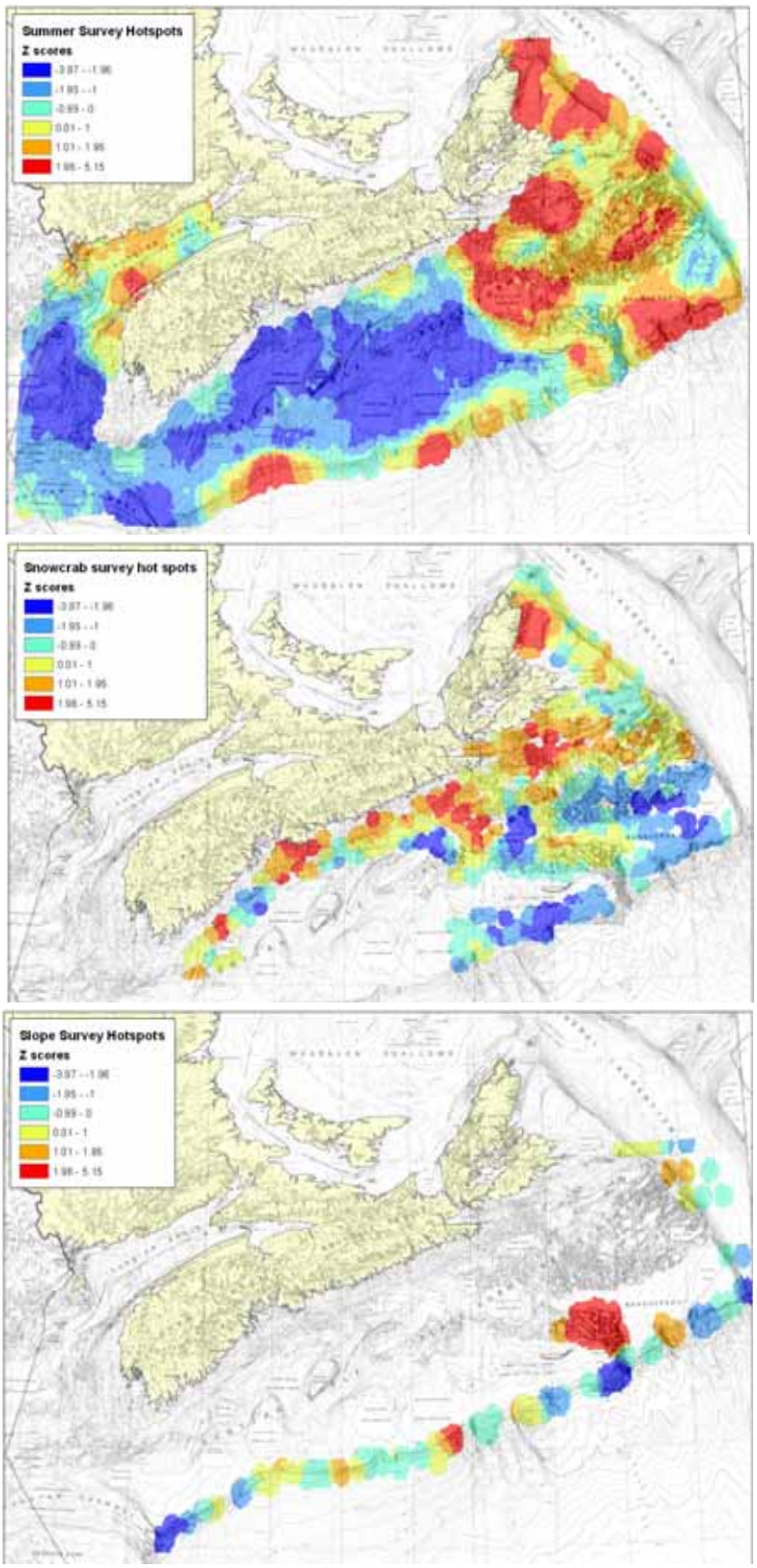
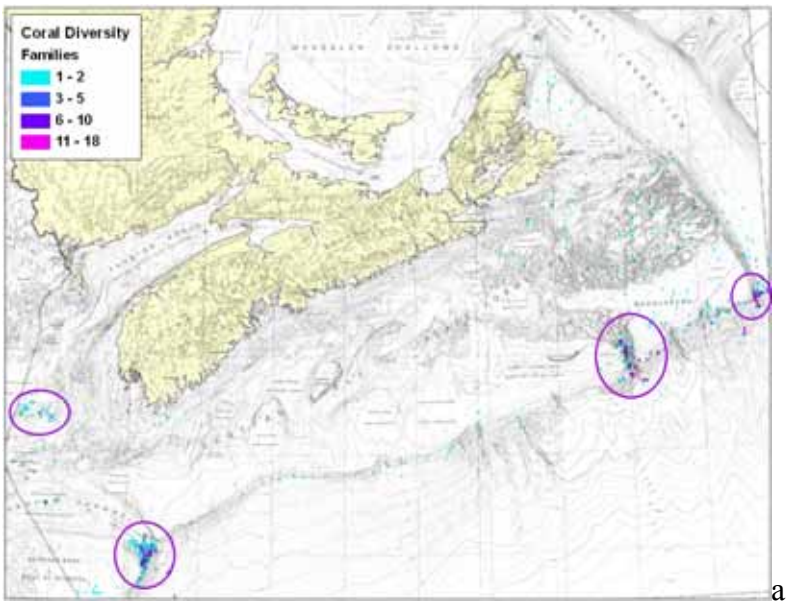


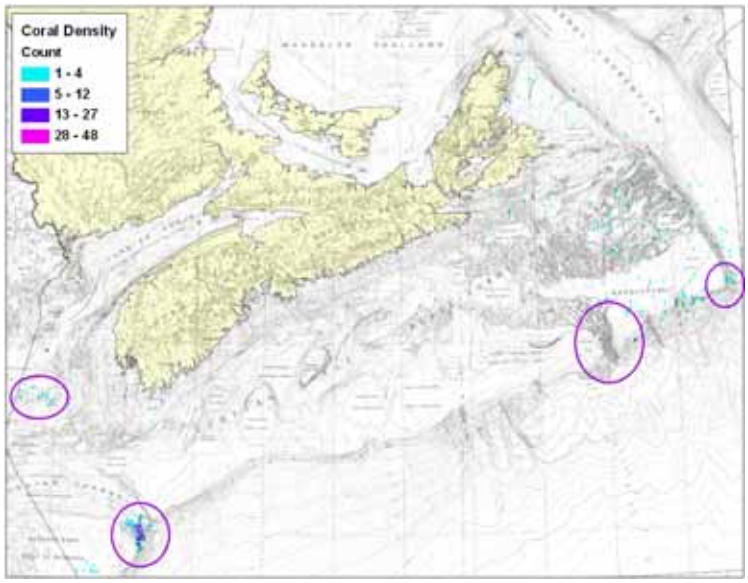
Figure 6. Map of the biodiversity hotspots for (a) the summer research trawl survey, (b) snow crab invertebrate survey, and (c) slope survey, used for the regional conservation MPA network planning.

Given a set of weighted data points (as created above), the Getis-Ord statistic identifies those clusters of points with values higher in magnitude than one would expect to find by random chance. The Gi* statistic is a Z score, which represents the statistical significance of clustering for a specified distance. The Z scores are a measure of standard deviation, and in a normal distribution, 95% of the data will fall between -1.96 and +1.96 standard deviations of the mean. Outside of that range a pattern that is not random. Thus, if the Gi* statistic is greater than 1.96 or less than -1.96, then the clustering is statistically significant and there is a "hot spot" (or "cold spot"). Therefore locations with Z scores $\geq$1.96 were considered to be biodiversity hot spots for this analysis.

To satisfy the third design principle, to protect areas occupied by sensitive structure providing species, we identified areas with high diversity of coral and also areas with high density of hard coral using the regional DFO coral database (Cogswell et al. 2009) (Figure 7). The coral density layer contains only fishery observer and ground fish survey data in order to prevent over-estimation of coral density in areas where scientific cruises have taken place. The diversity layer contains observer, ground fish and data from various scientific cruises.



a



b

Figure 7. Map of hard coral locations by (a) diversity and (b) density, used for the regional conservation MPA network planning.

For the fourth design principle, protecting critical habitat as described under SARA, two areas important to whales are identified: 1) areas for North Atlantic Right Whale in the western Scotian Shelf and Bay of Fundy and; 2) areas for Northern Bottlenose Whale in the eastern Scotian Shelf (note that the major portion of the latter is already contained within the existing *Oceans Ac*t MPA, The Gully) (**Figure 8**).

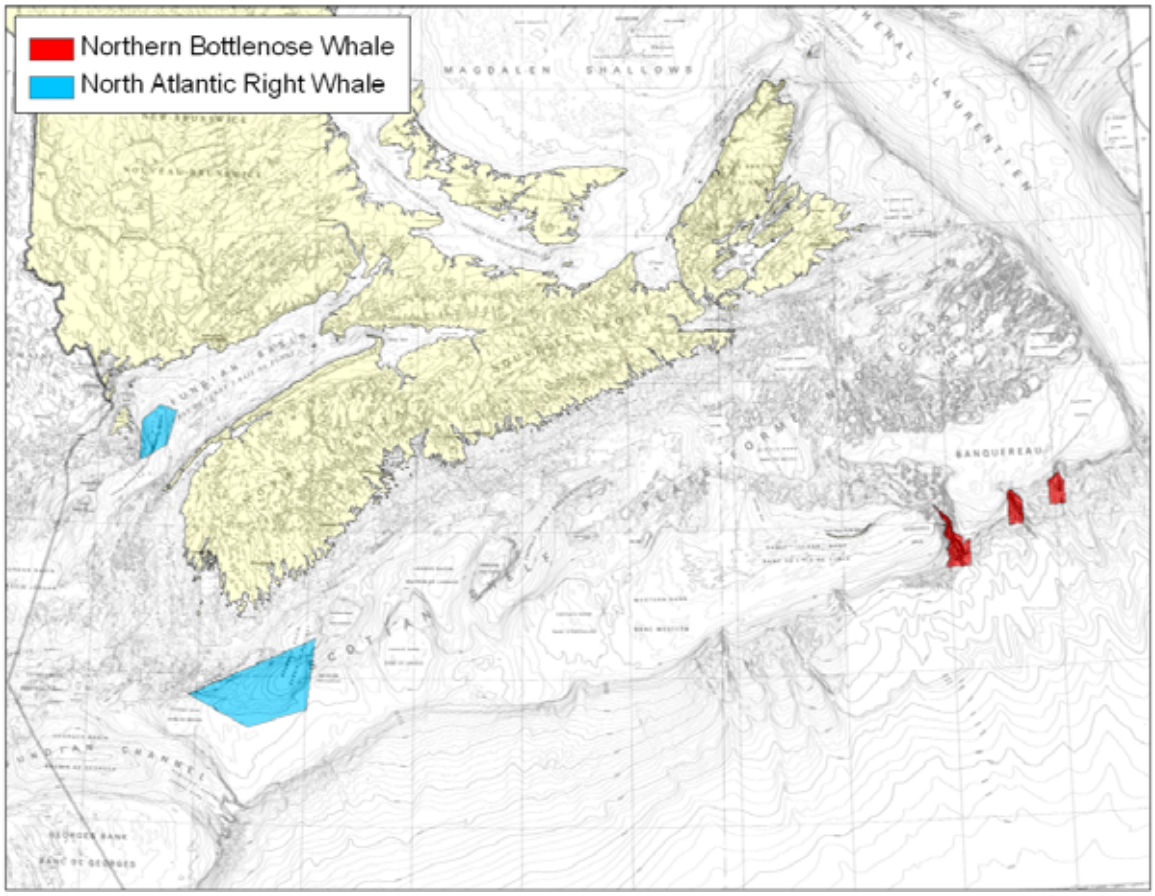


Figure 8. Map of the North Atlantic Right whale and Northern Bottlenose whale critical habitat areas used for the regional conservation MPA network planning.

Finally, assessing naturalness within the region is a very difficult task outside the scope of the present analyses, given that fishing on the banks and basins has been taking place for centuries, and record keeping for these activities has been sporadic at best. While fishing remains the predominant human activity additional uses have also included military practices, ocean disposal of a variety of materials including toxic substances and explosives, submarine cables and pipelines and more recently oil and gas exploration and development (DFO, 2005c). The problem of quantifying "naturalness" is complicated by the limited and/or imprecise geographic information for many of these activities, especially historically. Rather than attempt to conduct this kind of review and analysis, we adopted as the design principle the theory that the areas most likely to have the highest degree of naturalness would be areas where the seafloor has a high degree of topographic roughness. In these areas, operations requiring contact with the seafloor or near bottom is more challenging and likely avoided due to difficulty and potentially loss of gear.

To identify these areas, the Atlantic bathymetric compilation for the Maritimes Region was used. This dataset is compiled and maintained by the Canadian Hydrographic Service (CHS) and has a horizontal resolution of 15 arc seconds (roughly 500 metre) and submetre vertical resolution. Our analysis of topographic roughness produces an index based on the standard deviation within a 5 x 5 cell window (i.e. moving window analysis) for the standard deviation of both depth and aspect for each cell in the raster dataset (Figure 9). From this data, the mean value was calculated within each planning unit. Areas within the top 15 percentile for mean topographic roughness

within the study area were identified as areas of high topographic roughness for our analyses (i.e., areas in yellow in Figure 9).

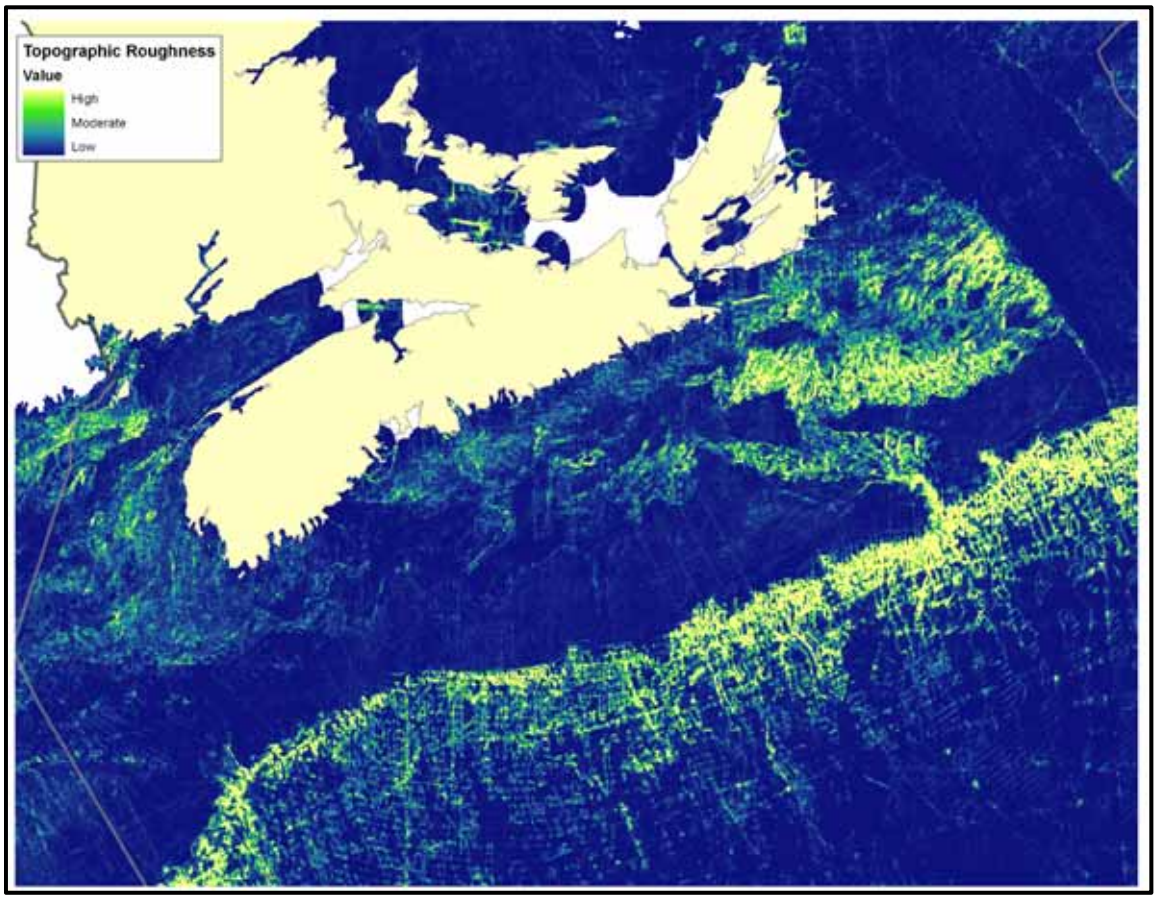


Figure 9. Map of topographic roughness (sometimes referred to as benthic rugosity) used as a surrogate for naturalness for the regional conservation MPA network planning and which may also be a useful indicator of areas of higher biodiversity.

CONSERVATION TARGETS

A conservation target is the level of representation of a given biodiversity feature, such as a representative habitat type or a species specific habitat, that is desired within the network. We determined conservation target as a fixed percentage of the total area of each feature. The percentages decided upon, after a series of exploratory scenarios, are outlined in Appendix 2 for each of the targets.

SCENARIO ANALYSES AND MPA NETWORK IDENTIFICATION

We evaluated a wide variety of different scenarios, generated through various combinations of conservation features and targets, to explore some of the impacts of the contributing data and the impacts of our conservation target (Appendix 3). We used the decision-support tool Marxan (Ball et al. 2009) to undertake the analysis. Marxan uses a simulated annealing algorithm (described below) to find solutions that minimize total planning unit costs while attempting to meet the specified targets for each of the conservation features.

$$Total\ Cost = \sum Unit\ Cost + \sum Species\ Penalties + \sum Boundary\ Length\ (scaled\ by\ BLM)$$

- Total Cost – objective (to be minimized)
- Unit Cost - cost assigned to each Planning Unit
- Species Penalties – costs imposed for failing to meet biodiversity target goals
- Boundary Length – cost determined by the total outer boundary length of the portfolio

For the analysis we repeated each scenario ten times. Within each of these ten analyses 100,000,000 iterations of planning unit combinations were performed in the evaluation of the best result. The purpose of repeating the analysis is because the optimal solution is, for all intents, beyond calculation (Possingham et al. 2000). We typically used a boundary length modifier of 10 in our analyses, which we determined through a series of exploratory scenarios, to minimize the total area required to achieve our goals while at the same time minimizing the boundary length, and thereby the patchiness of the solution (see Figure 12 & 13 in the following section).

SCENARIO PERFORMANCE

For each scenario we identified the best solution (the set of planning units with the lowest score) and calculated summary statistics, including the number of planning units, overall reserve area, cost, and boundary length. The number of times a planning unit was chosen in each of the 10 runs provides a measure of its relative importance or "irreplaceability" (Possingham et al. 2000). We plotted the frequency of each planning unit selected.

RESULTS

SENSITIVITY ANALYSES

As described in the previous section on scenario analyses, preliminary scenarios of the spatially explicit simulated annealing algorithm in Marxan were executed on a variety of combinations of conservation features and targets. Not all of these scenarios were intended to provide possible conservation design solutions; rather many simply allow us to better understand how the data and parameters we were using were influencing the results (*i.e.,* a form of sensitivity analysis). Scenarios labelled with alphabetic codes (i.e., A-AS) were primarily used for this purpose.

We present all scenarios here, and we describe the conclusions and decisions that were made based on our observations of these preliminary results, which allowed us to proceed to the concluding scenarios based on our design principles.

Representative Habitat and Boundary Length Modifier (BLM) Effect: Preliminary Scenarios A–G

Scenario A was among the simplest scenarios requiring a solution with 10% representation for each feature class in the three datasets used to characterize representative habitat. The planning units for three existing conservation areas (The Gully MPA, Northeast Channel Coral

Conservation Area and the Lophelia Coral Conservation Area) (Figure 2) were locked into the solution (See Appendix 4). Based on the results (Figure 10, see also Appendix 5) we observed that the solution has a strong tendency to expand around the existing conservation areas (CAs). For conservation targets not within close proximity to the perimeter of the existing CAs, the results show that there is no strong affinity to any particular areas (*i.e.*, little "irreplaceability") (Figure 11). Note the conservation areas and surrounding areas in red (always selected) with little preference for most other areas when using only representative habitat data.

These results showing the solution expanding around existing CAs are not unexpected. It confirms the anticipated effect of the boundary length modifier (BLM), which is to produce sites in the solution that are somewhat clumped. It illustrates that in a scenario with a wide variety of options and where the cost of all planning units is equivalent, the optimal solutions build around the existing "locked-in" areas to achieve the most efficient solution (i.e. by reducing the total boundary length of the network). Without a BLM (*i.e.*, BLM = 0) it is possible to achieve a solution that is more spatially efficient, but these spatially dispersed and highly fragmented results are not feasible in a practical sense from the perspective of management, compliance and/or monitoring. From an ecological perspective they fail to achieve adequacy and viability described in the CBD guidance (Appendix 1).

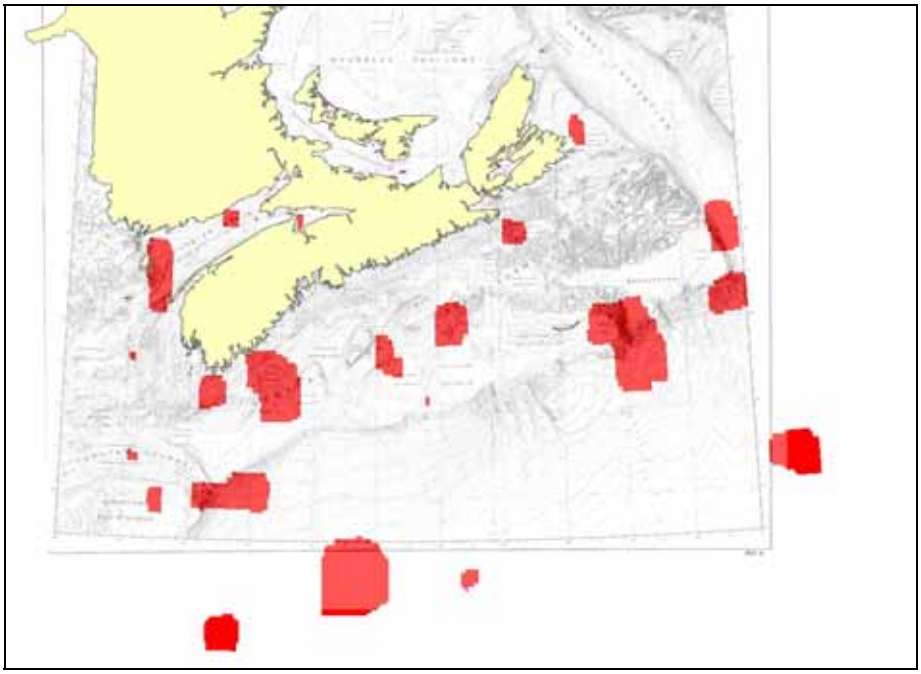


Figure 10. Best solution (areas in red) from scenario A. The existing conservation areas are locked into the solution, BLM = 10, 10% goal for the 3 representation data layers.

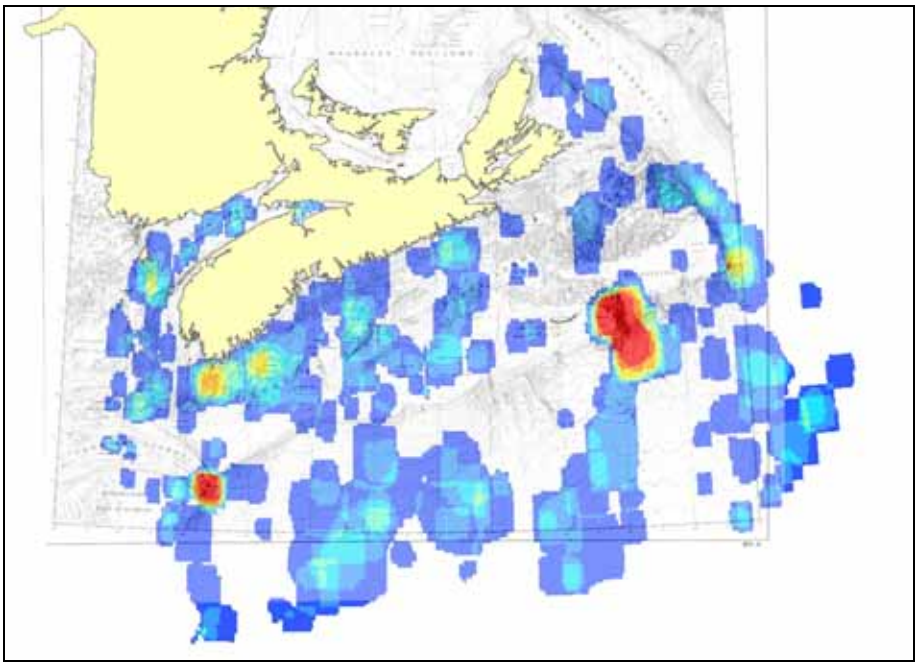
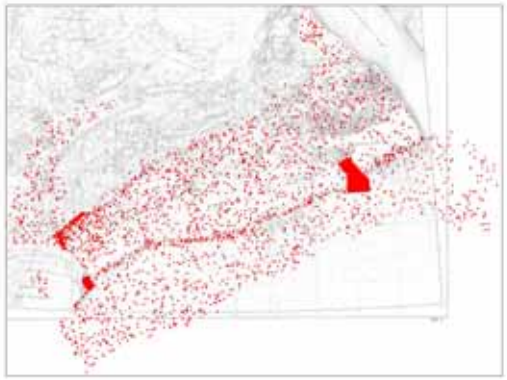


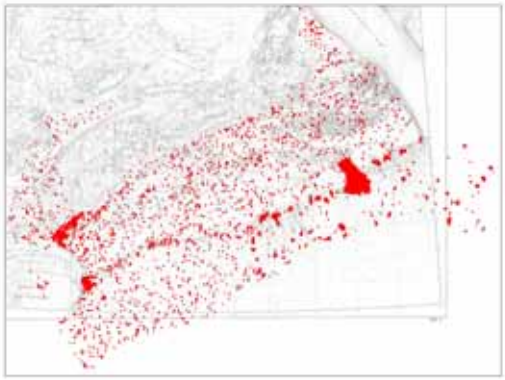
Figure 11. Summed solution from scenario A shows the number of times that planning units were included in the solution in the 10 runs (illustrated in dark blue for 1 time through red for 10 times).

Further consideration of the issue of clumping planning units together is explored in scenarios B through G inclusive. In these scenarios we explore the effect of a variety of BLM values (i.e., 0, 0.1, 1, 10, 100, 1000) (Figure 12, see also Appendices 6-11). Figure 13 illustrates that very little spatial efficiency is achieved by using a BLM below 10 in our analyses. Increasing this value above 10 while having the effect decreasing the total perimeter of the solution begins to cause large increases in the area required. Based on these results, we concluded that a BLM of 10 is most appropriate for our purposes, in that it achieves a good balance between enforcing clumping in the results, while having minimal impact on the total area required to achieve the goals of the network.

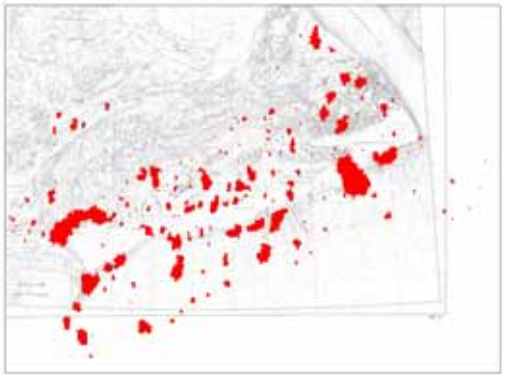
Scenario B (BLM = 0)



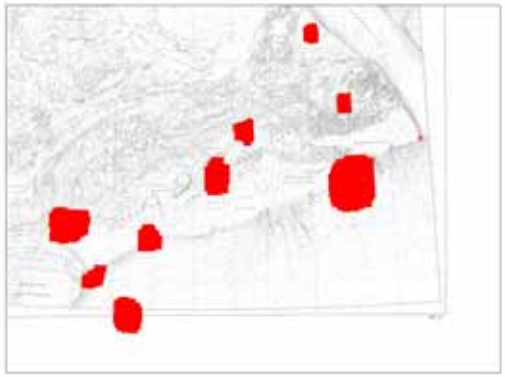
Scenario C (BLM = 0.1)



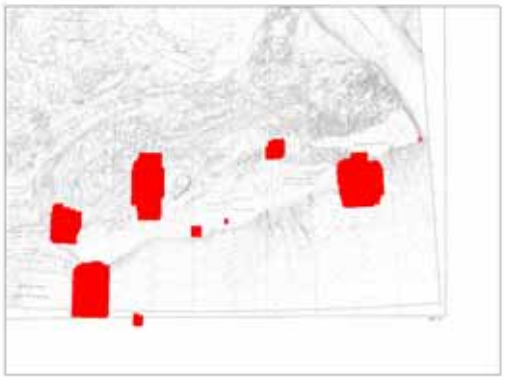
Scenario D (BLM = 1)



Scenario E (BLM = 10)



Scenario F (BLM = 100)



Scenario G (BLM = 1000)

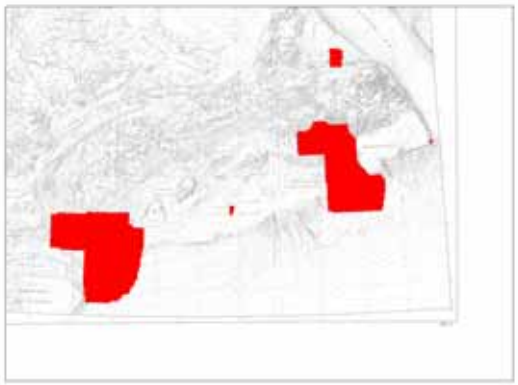


Figure 12. These maps illustrate the best solution using a variety values for the boundary length modifiers (BLM).

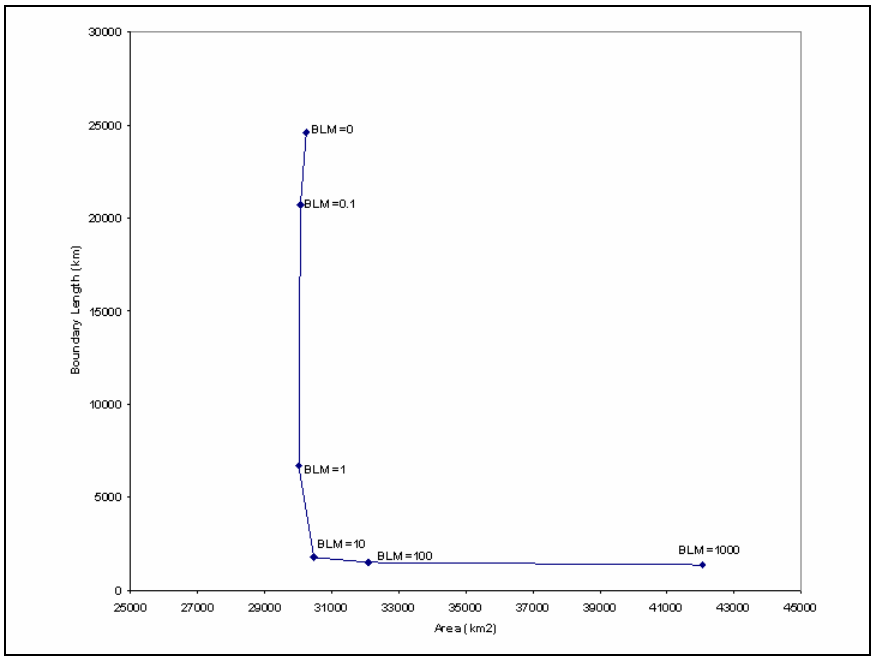


Figure 13. The graph shows the total area relative to the total perimeter for solutions with a variety of boundary length modifier (BLM) values.

Ecologically and Biologically Significant Areas: Preliminary Scenarios H–Y

In this series we explore the results of a network designed to protect important habitat for significant fish species with no consideration of the representative habitat types. Ecologically and biologically significant features in this series include only key species observed in the summer scientific trawl survey. Runs H through M (inclusive) treat all of these species equally (*i.e.,* no special consideration is given to rare, declining or threatened species). In this series of scenarios we explore the effect of increasing the targets for these features: scenario H=10% of important habitat (Figure 14, see also Appendix 12); scenario I = 15% (Figure 15, see also Appendix 13); scenario J=20% (Figure 16, see also Appendix 14); scenario K=30% (Figure 17, see also Appendix 15); scenario L=40% (Figure 18, see also Appendix 16); and scenario M=50% (Figure 19, see also Appendix 17). Other parameters such as the boundary length modifier remain constant. In this case the BLM value is 10 with no areas locked in or out or seeded into the solution. Generally, as the goals are increased the core areas identified in run H expand to include the additional area required. In this series no areas are "locked in" or "locked out" or are "seeded" into the solution (See Appendix 4).

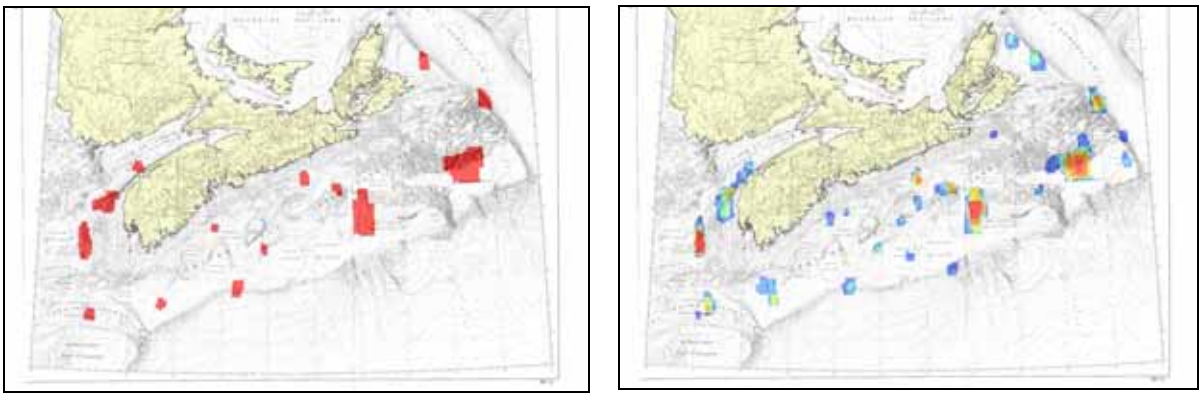


Figure 14. Mapped results for scenario H. Goals are 10% of important habitat for significant species (based on key species in the scientific summer trawl surveys). Best solution from scenario H (left). Summed solution (right) shows the number of times that planning units were included in the solution in the 10 runs (illustrated in dark blue for 1 time through red for 10 times).

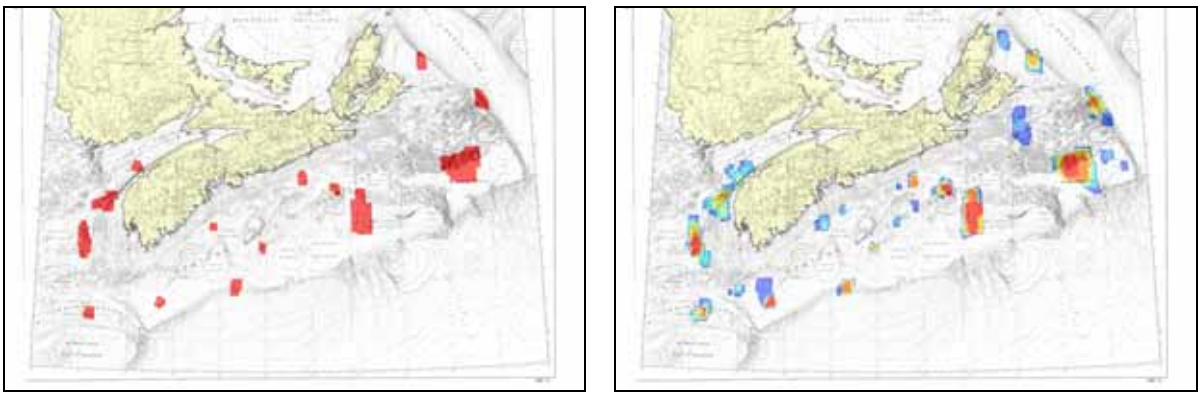


Figure 15. Mapped results for scenario I. Goals are 15% of important habitat for significant species (based on scientific trawl surveys). Best solution from scenario I (left). Summed solution (right) shows the number of times that planning units were included in the solution in the 10 runs (illustrated in dark blue for 1 time through red for 10 times).

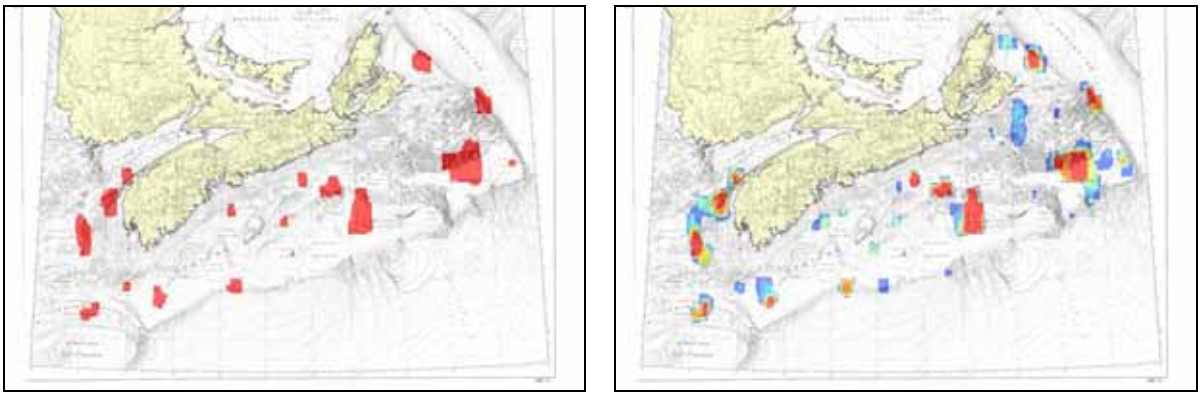


Figure 16. Mapped results for scenario J. Goals are 20% of important habitat for significant species (based on scientific trawl surveys). Best solution from scenario J (left). Summed solution (right) shows the number of times that planning units were included in the solution in the 10 runs.

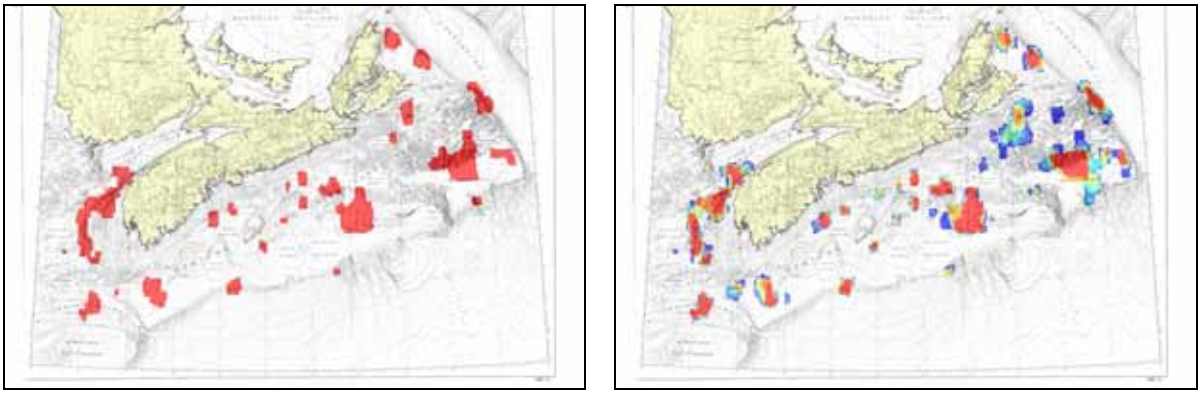


Figure 17. Mapped results for scenario K. Goals are 30% of important habitat for significant species (based on scientific trawl surveys). Best solution from scenario K (left). Summed solution (right) shows the number of times that planning units were included in the solution in the 10 runs.

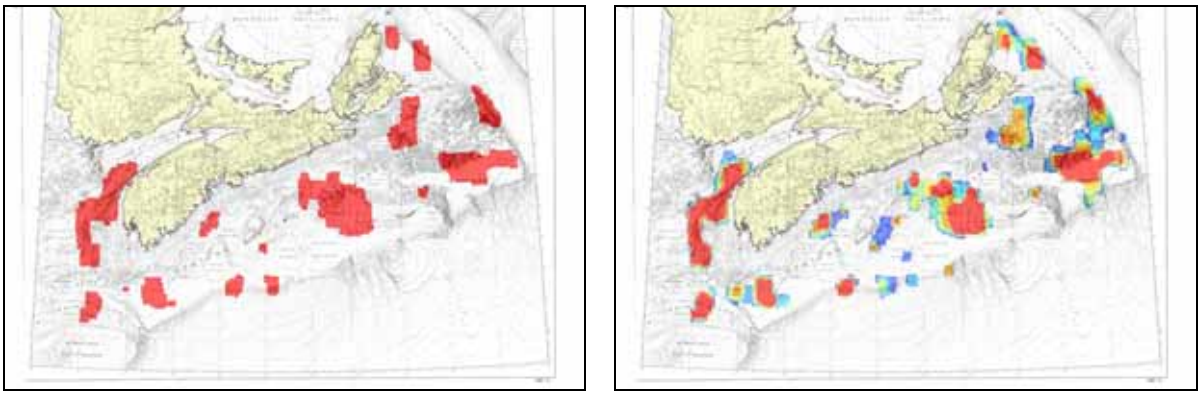


Figure 18. Mapped results for scenario L. Goals are 40% of important habitat for significant species (based on scientific trawl surveys). Best solution from scenario L (left). Summed solution (right) shows the number of times that planning units were included in the solution in the 10 runs.

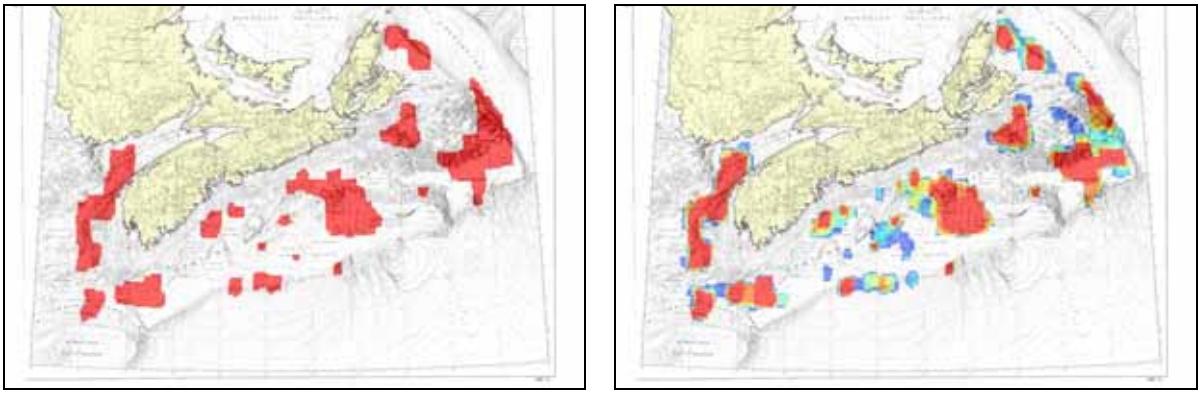


Figure 19. Mapped results for scenario M. Goals are 50% of important habitat for significant species (based on scientific trawl surveys). Best solution from scenario M (left). Summed solution (right) shows the number of times that planning units were included in the solution in the 10 runs.

In scenarios N through S (inclusive) we explore the impacts of making more subtle variations in the BLM while maintaining a constant goal of 30% for the EBSA features used above. In this series, scenario N has BLM=4 (Figure 20, see also Appendix 18), O has BLM=6 (Figure 21, see also Appendix 19), P has BLM=8 (igure 22, see also Appendix 20), Q has BLM=12 (Figure 23, see also Appendix 21), R has BLM=14 (Figure 24, see also Appendix 22) and S has BLM=20 (Figure 25, see also Appendix 23). Scenario K in the previous series can be examined for the results of BLM 10 (Figure 17).

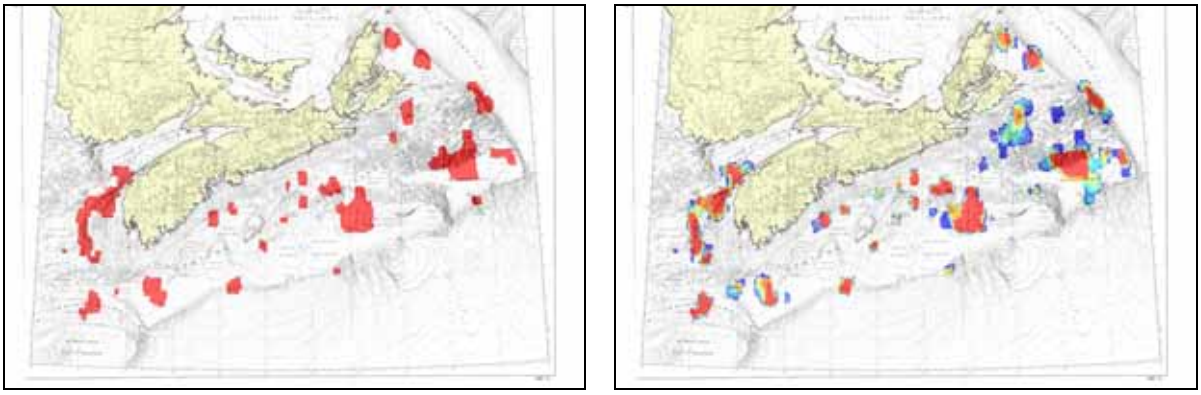


Figure 20. Mapped results for scenario N. Goals are 30% of important habitat for significant species (based on scientific trawl surveys) with BLM = 4. Best solution from scenario N (left). Summed solution (right) shows the number of times that planning units were included in the solution in the 10 runs.

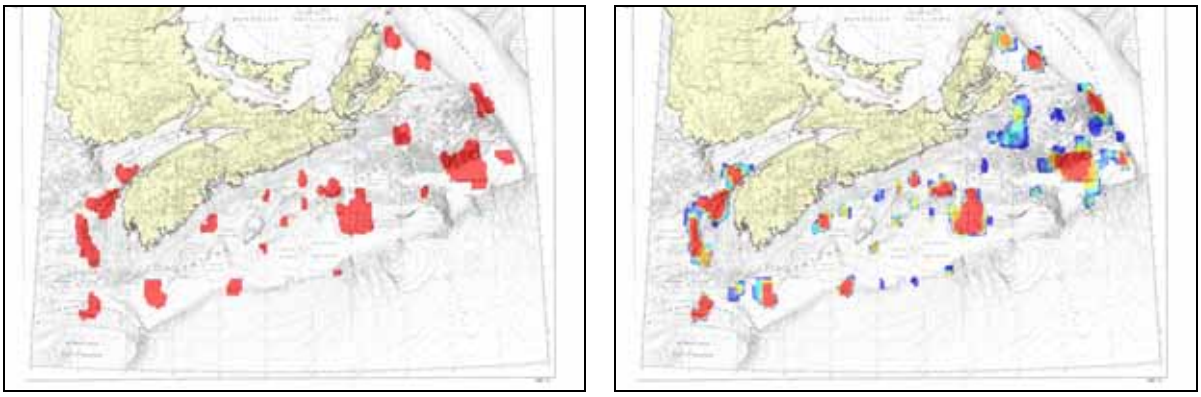


Figure 21. Mapped results for scenario O. Goals are 30% of important habitat for significant species (based on scientific trawl surveys) with BLM = 6. Best solution from scenario O (left). Summed solution (right) shows the number of times that planning units were included in the solution in the 10 runs.

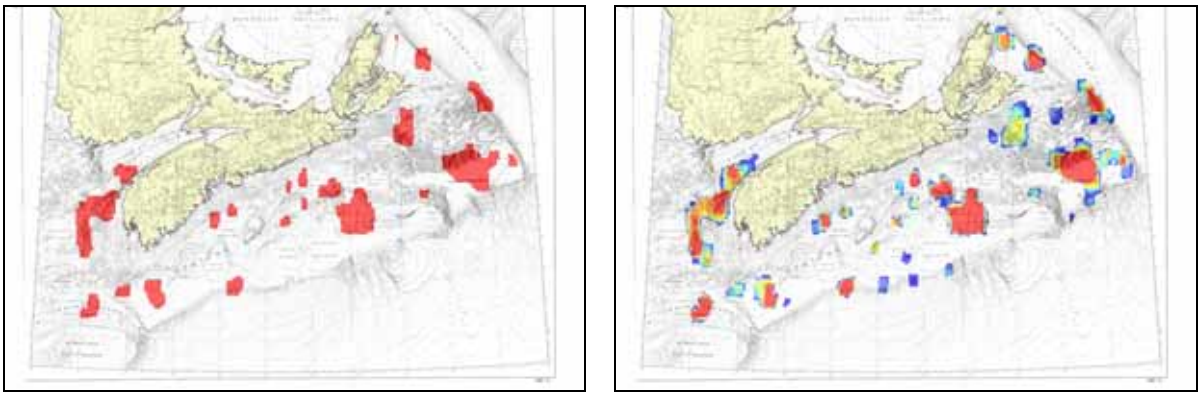


Figure 22. Mapped results for scenario P. Goals are 30% of important habitat for significant species (based on scientific trawl surveys) with BLM = 8. Best solution from scenario P (left). Summed solution (right) shows the number of times that planning units were included in the solution in the 10 runs.

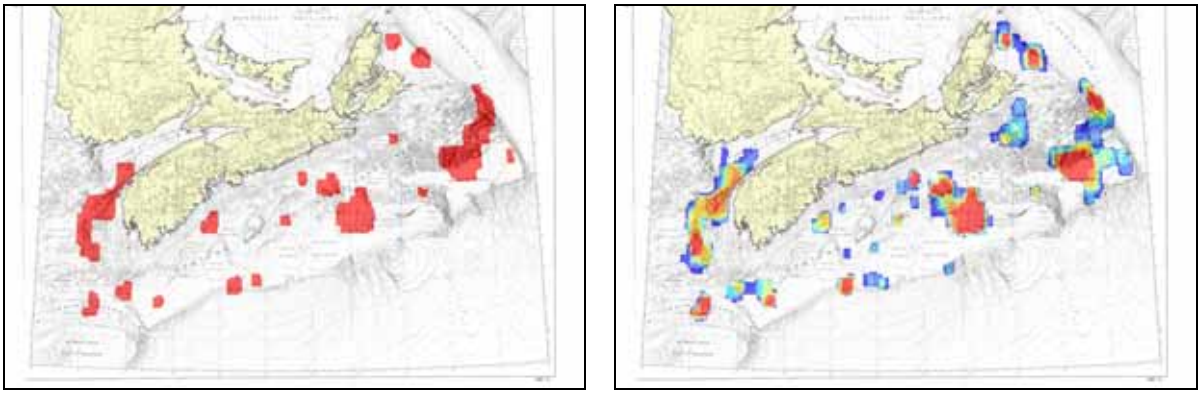


Figure 23. Mapped results for scenario Q. Goals are 30% of important habitat for significant species (based on scientific trawl surveys) with BLM = 12. Best solution from scenario Q (left). Summed solution (right) shows the number of times that planning units were included in the solution in the 10 runs.

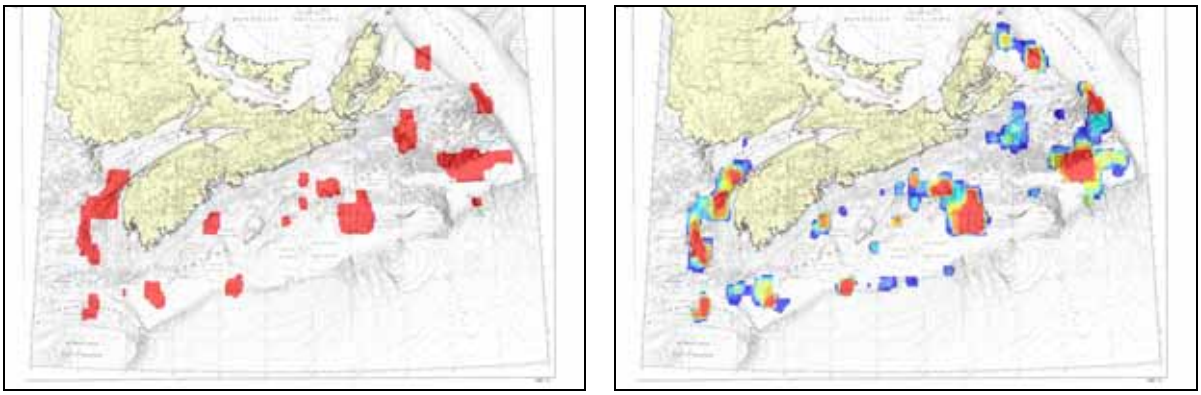


Figure 24. Mapped results for scenario R. Goals are 30% of important habitat for significant species (based on scientific trawl surveys) with BLM = 14. Best solution from scenario R (left). Summed solution (right) shows the number of times that planning units were included in the solution in the 10 runs.

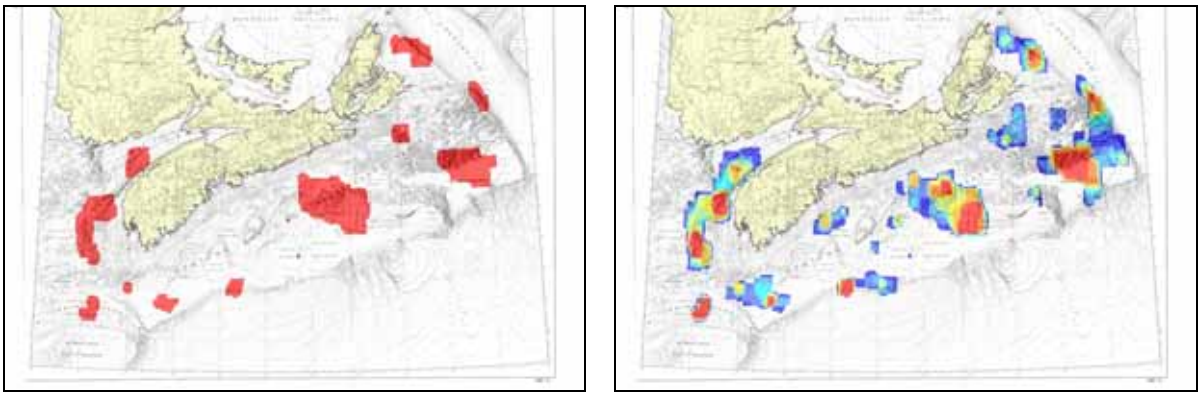


Figure 25. Mapped results for scenario S. Goals are 30% of important habitat for significant species (based on scientific trawl surveys) with BLM = 20. Best solution from scenario S (left). Summed solution (right) shows the number of times that planning units were included in the solution in the 10 runs.

In scenarios T and U, we explore the addition of biodiversity hotspots (based on summer and slope scientific trawl surveys). In these two scenarios the goals for significant species and biodiversity hotspots are set as 20% and 30% respectively. Scenario T (Figure 26, see also Appendix 24) employs a BLM = 10, while Scenario U (Figure 27, see also Appendix 25) has no BLM (i.e. BLM = 0). We observed that while the same general pattern emerges without the boundary length modifier the areas selected are highly fragmented.

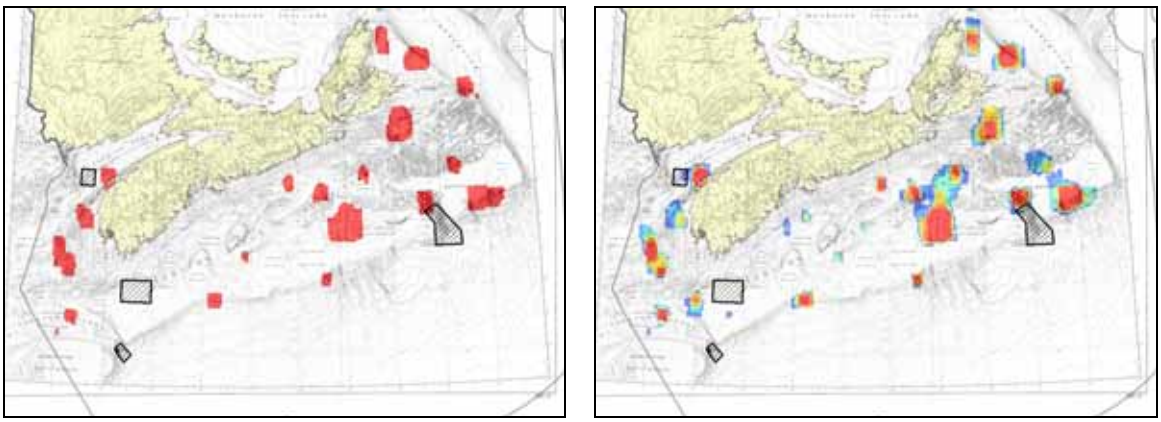


Figure 26. Mapped results for scenario T. Goals are 20% of important habitat for significant species (based on scientific trawl surveys) and 30% of areas identified as biodiversity hotspots from the same survey. The BLM = 10. Best solution from scenario T (left). Summed solution (right) shows the number of times that planning units were included in the solution in the 10 runs. Existing conservation areas are shown as black hatched polygons.

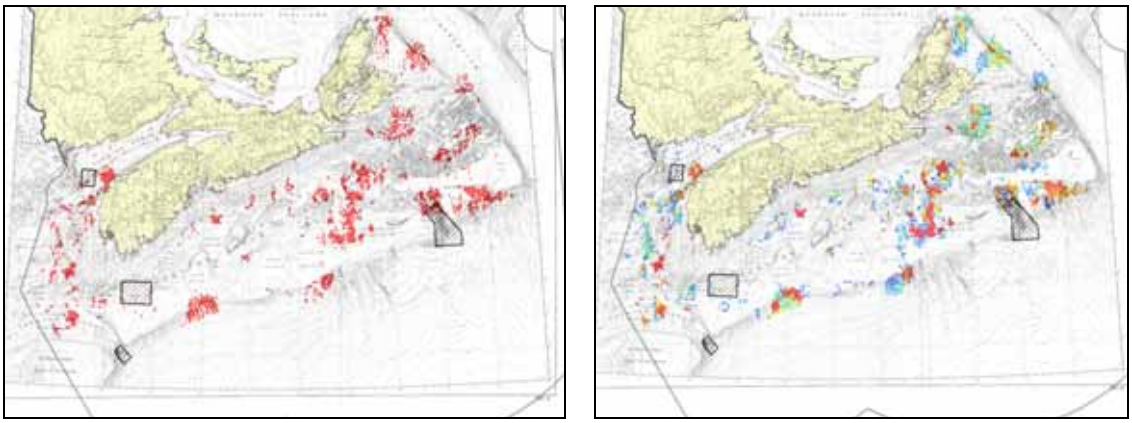


Figure 27. Mapped results for scenario U. Goals are 20% of important habitat for significant species (based on scientific trawl surveys) and 30% of areas identified as biodiversity hotspots from the same survey. The BLM = 0. Best solution from scenario U (left). Summed solution (right) shows the number of times that planning units were included in the solution in the 10 runs. Existing conservation areas are shown as black hatched polygons.

In scenarios V through Y inclusive (Figures 28-31, see also Appendices 26-29), we divided the significant fish species (based on the scientific summer trawl survey) into two groups. One group, labelled 'depleted species' includes those species that have been identified by COSEWIC as rare, threatened and declining. All other significant species are included in the group labelled 'regular significant species'. In these scenarios we set separate goals for each of these groups, with higher targets set for the 'depleted species' group. Targets for the 'regular' species begin at 10% and increase to 15%, 20% and 30% of important habitat, while 'depleted' species begin at 50% and increase to 70%, 80% and 100% respectively in each of the subsequent scenarios. In all instances for this series the BLM was set to 10, with no areas locked into or out of the solution.

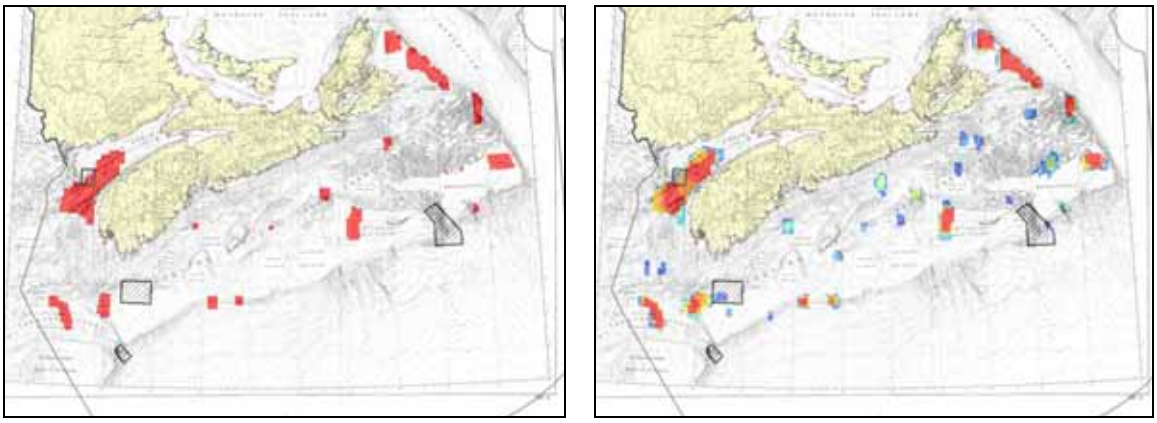


Figure 28. Mapped results for scenario V. Goals are 10% of important habitat for 'regular' significant species and 50% for 'depleted' species (based on scientific trawl surveys). The BLM = 10. Best solution from scenario V (left). Summed solution (right) shows the number of times that planning units were included in the solution in the 10 runs. Existing conservation areas are shown as black hatched polygons.

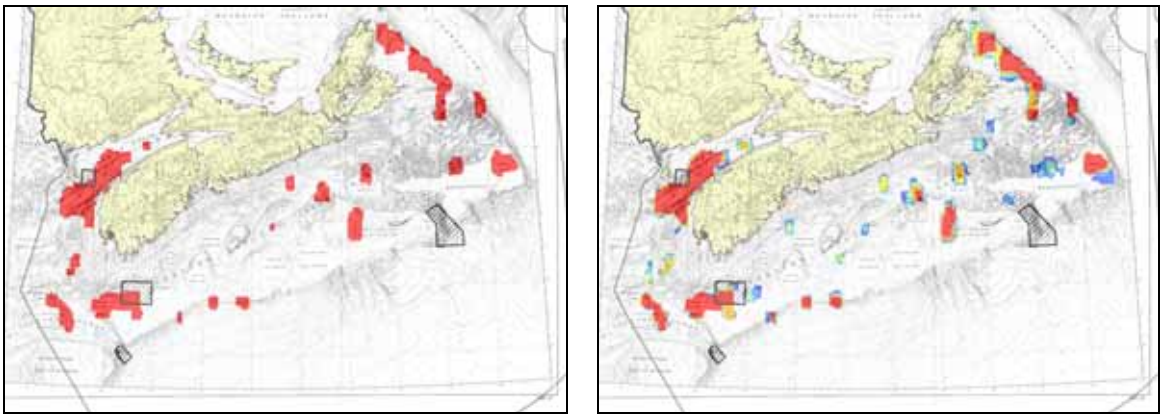


Figure 29. Mapped results for scenario W. Goals are 15% of important habitat for 'regular' significant species and 70% for 'depleted' species (based on scientific trawl surveys). The BLM = 10. Best solution from scenario W (left). Summed solution (right) shows the number of times that planning units were included in the solution in the 10 runs. Existing conservation areas are shown as black hatched polygons.

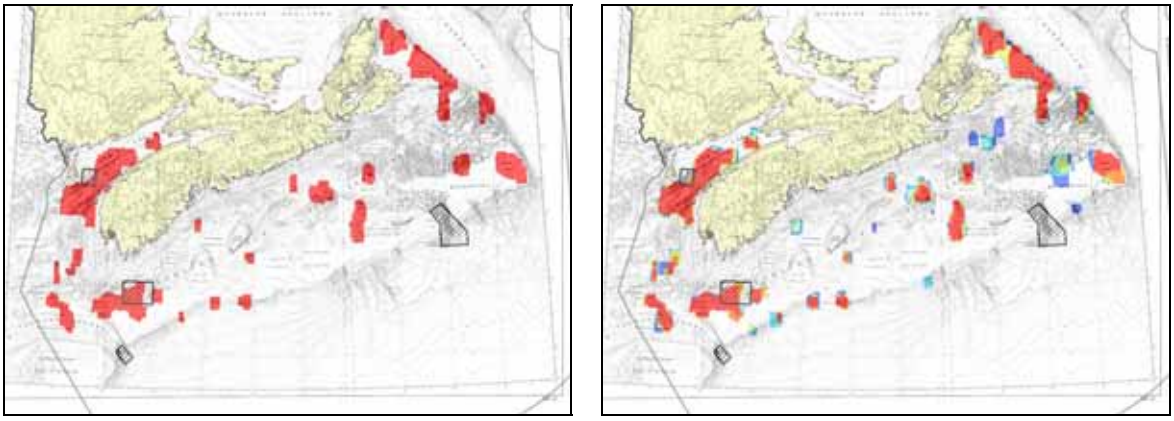


Figure 30. Mapped results for scenario X. Goals are 20% of important habitat for 'regular' significant species and 80% for 'depleted' species (based on scientific trawl surveys). The BLM = 10. Best solution from scenario X (left). Summed solution (right) shows the number of times that planning units were included in the solution in the 10 runs. Existing conservation areas are shown as black hatched polygons.

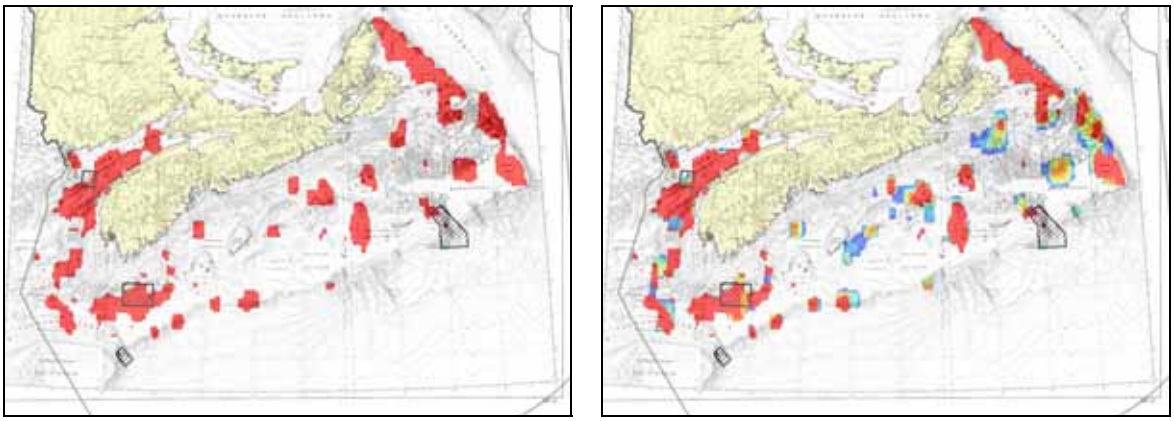


Figure 31. Mapped results for scenario Y. Goals are 30% of important habitat for 'regular' significant species and 100% for 'depleted' species (based on scientific trawl surveys). The BLM = 10. Best solution from scenario Y (left). Summed solution (right) shows the number of times that planning units were included in the solution in the 10 runs. Existing conservation areas are shown as black hatched polygons.

Representative Habitat and Ecologically and Biologically Significant Areas Combined: Preliminary Scenarios Z–AS

In scenarios Z-AF, all three of the representative habitat features are included. In this series, we re-introduce representative habitat and set the target at 10% for each representative feature type. Targets for EBSA features were increased from 10% (scenario Z, Figure 32, see also Appendix 30) to 15% (scenarios AA and AB, Figure 33 and Figure 34, Appendices 31-32), 20% (scenarios AC-AE, Figures 35-37, Appendices 33-35), and 30% (scenario AF, Figure 38, Appendix 36). In all but one of these (scenario AD, Figure 36) the existing conservation areas were locked into the solution. In two scenarios, AB (Figure 34) and AE (Figure 37), the BLM was set to 100. In all other scenarios the BLM was 10.

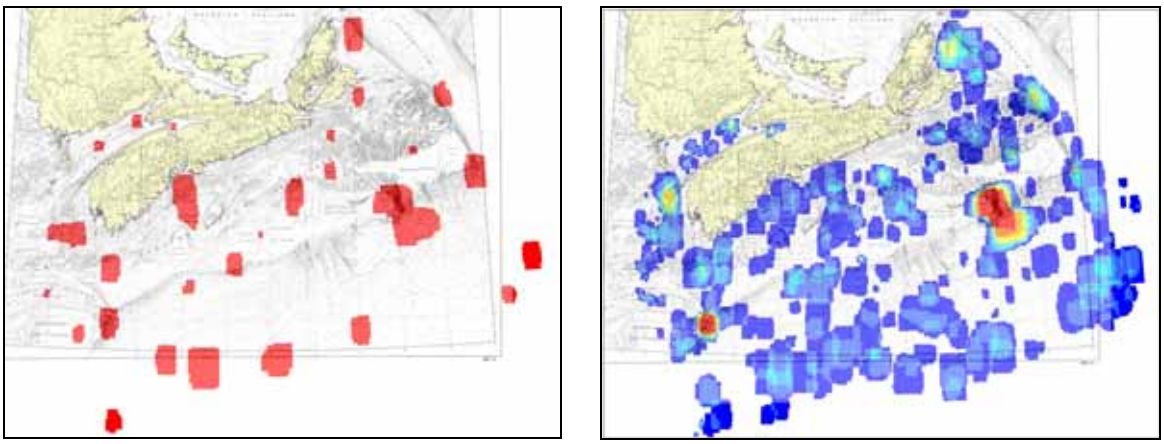


Figure 32. Mapped results for scenario Z. Goals are 10% of each representative habitat and 10% of important habitat for all significant species (23 species). The BLM = 10. Best solution from scenario Z (left). Summed solution (right) shows the number of times that planning units were included in the solution in the 10 runs. Existing conservation areas are locked in.

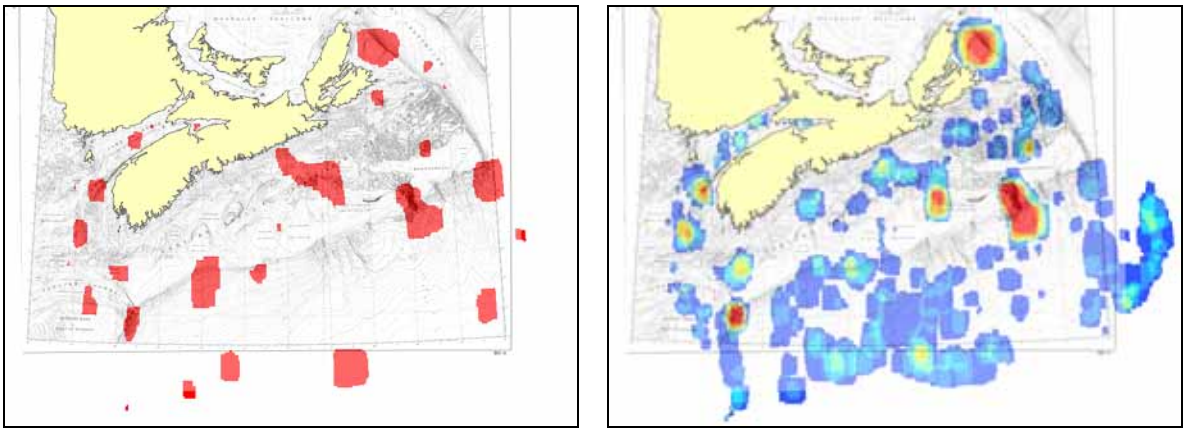


Figure 33. Mapped results for scenario AA. Goals are 10% of each representative habitat and 15% of important habitat for all significant species (23 species). The BLM = 10. Best solution from scenario AA (left). Summed solution (right) shows the number of times that planning units were included in the solution in the 10 runs. Existing conservation areas are locked in.

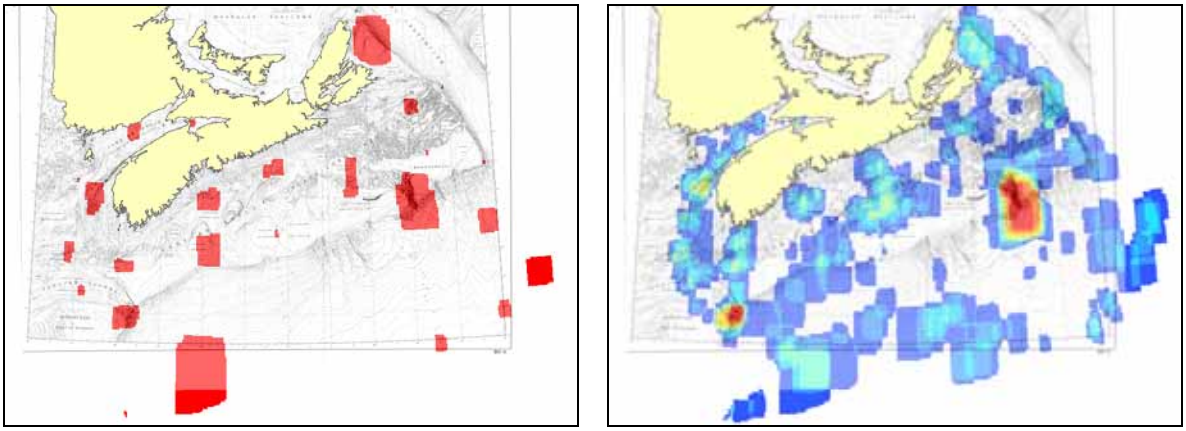


Figure 34. Mapped results for scenario AB. Goals are 10% of each representative habitat and 15% of important habitat for all significant species (23 species). The BLM = 100. Best solution from scenario AB (left). Summed solution (right) shows the number of times that planning units were included in the solution in the 10 runs. Existing conservation areas are locked in.

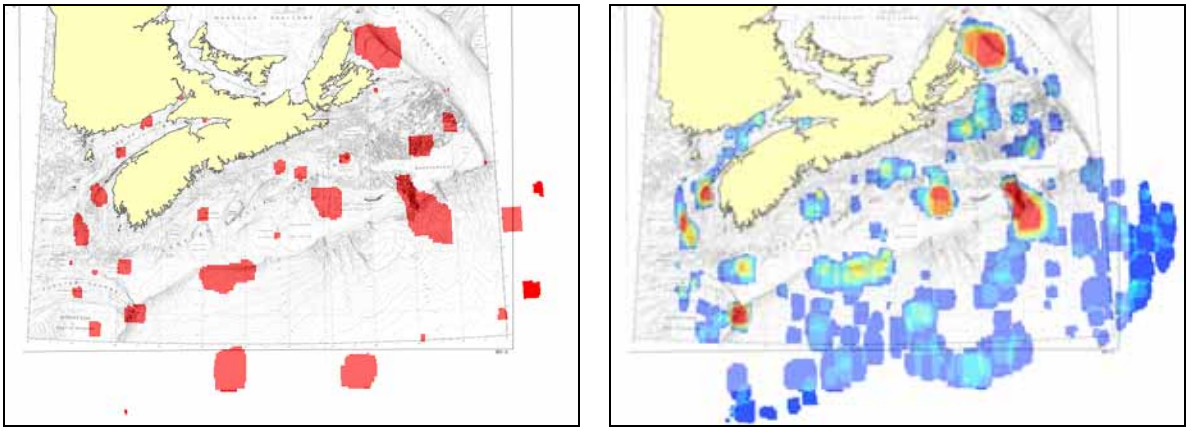


Figure 35. Mapped results for scenario AC. Goals are 10% of each representative habitat and 20% of important habitat for all significant species (23 species). The BLM = 10. Best solution from scenario AC (left). Summed solution (right) shows the number of times that planning units were included in the solution in the 10 runs. Existing conservation areas are locked in.

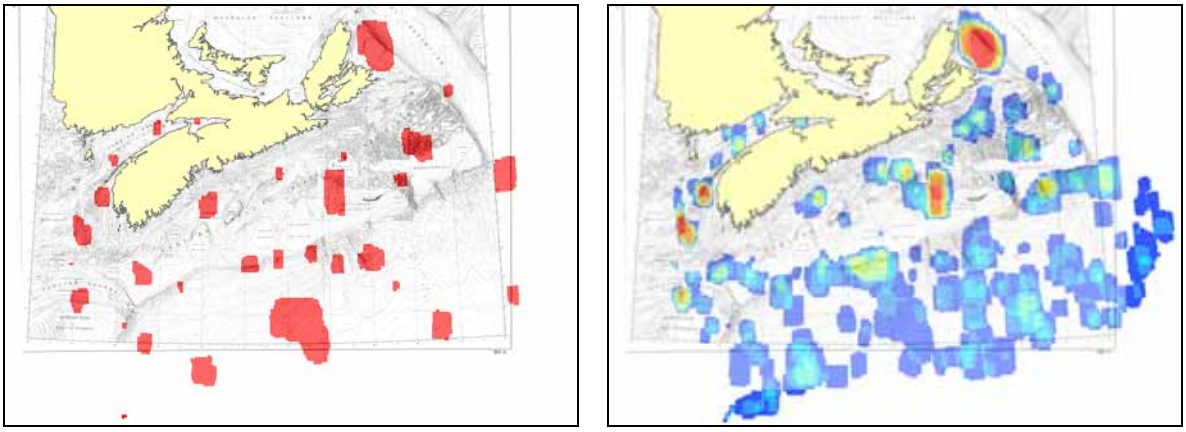


Figure 36. Mapped results for scenario AD. The same criteria and parameters as above except that existing conservation areas are not locked in.

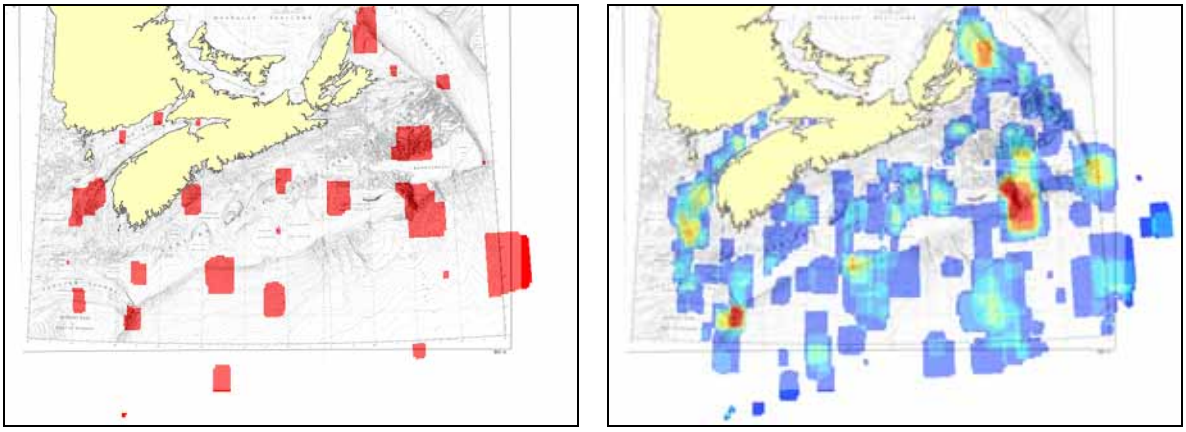


Figure 37. Mapped results for scenario AE. Goals are 10% of each representative habitat and 20% of important habitat for all significant species (23 species). The BLM = 100. Best solution from scenario AE (left). Summed solution (right) shows the number of times that planning units were included in the solution in the 10 runs. Existing conservation areas are locked in.

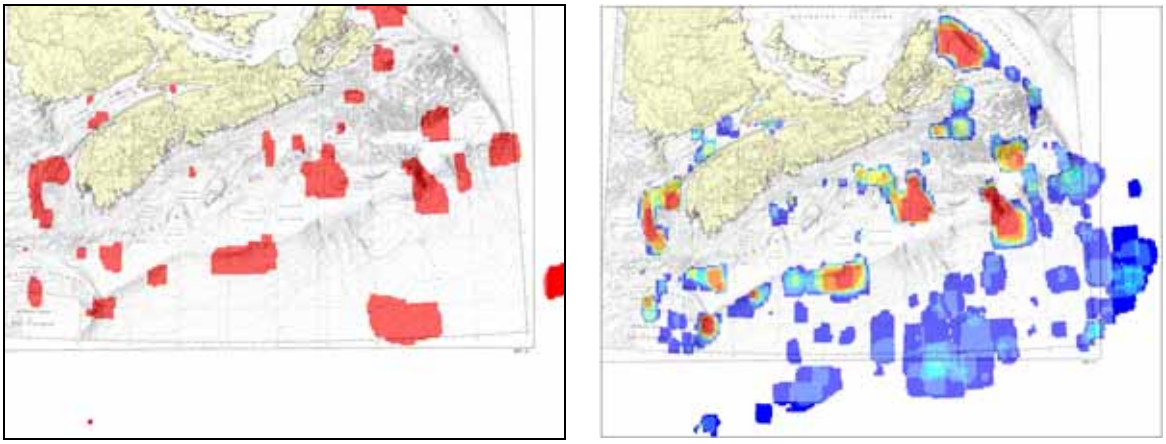


Figure 38. Mapped results for scenario AF. Goals are 10% of each representative habitat and 30% of important habitat for all significant species (23 species). The BLM = 10. Best solution from scenario AF (left). Summed solution (right) shows the number of times that planning units were included in the solution in the 10 runs. Existing conservation areas are locked in.

Topographic Roughness and Biodiversity Hotspots

Scenario AG (Figure 39, see also Appendix 37), specifically explores the inclusion of areas of high biodiversity and naturalness; the biodiversity hot spot analysis results from the summer and slope scientific trawl surveys and areas of high topographic roughness with targets respectively of 30% and 20%. Targets for significant species were also set at 20%, with no separate distinction for threatened, declining or rare species. This is the first scenario to include areas of high topographic roughness (sometimes referred to as benthic rugosity).

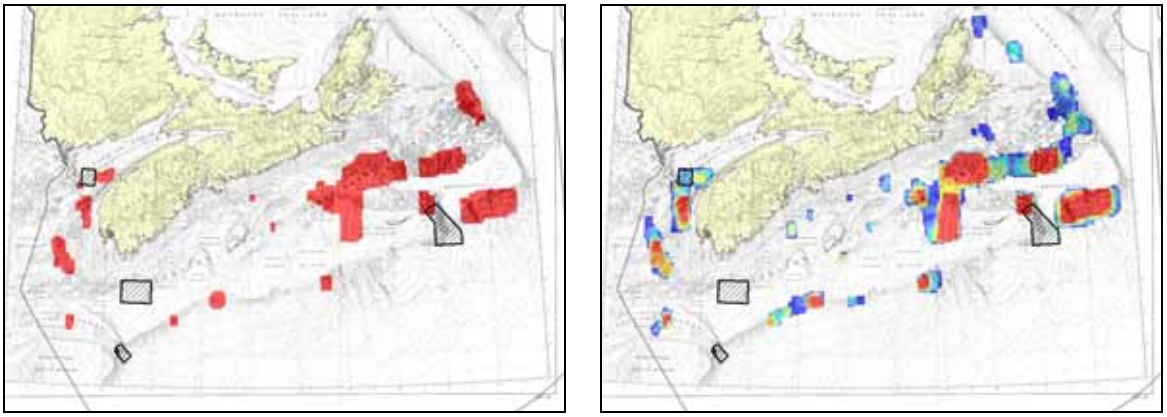


Figure 39. Mapped results for scenario AG. No goals for representative habitat, 20% of important habitat for all significant species, 30% for areas of high biodiversity and 30% of areas identified as having high topographic roughness. The BLM = 10. Best solution from scenario AG (left). Summed solution (right) shows the number of times that planning units were included in the solution in the 10 runs. Existing conservation areas are not locked in.

In scenarios AH-AK we continue to explore the effects of including topographic roughness. In this series we re-introduce the three representative habitat data (seabeds, scope for growth and natural benthic disturbance). In this series, we experiment with increases in goals for topographic roughness and biodiversity hotspots (scenarios AH-AJ, Figures 40-42, see also Appendices 38-40). We note that as these goals are increased the solution is increasingly limited or constrained, as illustrated in the summed solution maps. In the scenario AK (Figure 43, see also Appendix 41) of this series we place the highest target (50%) for both biodiversity hotspots and areas of high topographic roughness, and increase the target for representation to 20%.

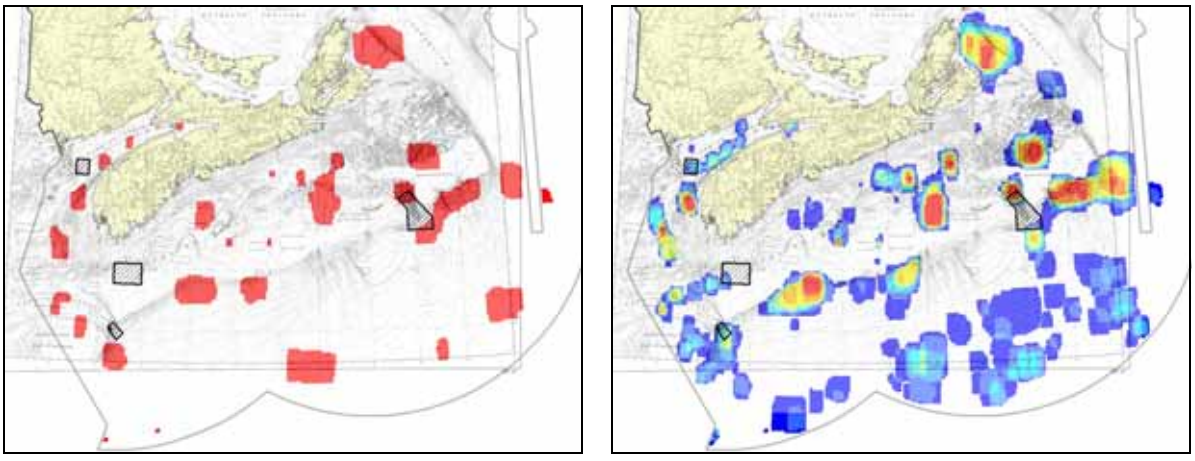


Figure 40. Mapped results for scenario AH. Goals for representative habitat are 10%, 20% of important habitat for all significant species, 30% for areas of high biodiversity and 20% of areas identified as having high topographic roughness. The BLM = 10. Best solution from scenario AH (left). Summed solution (right) shows the number of times that planning units were included in the solution in the 10 runs. Existing conservation areas are shown (black hatch), but not locked in.

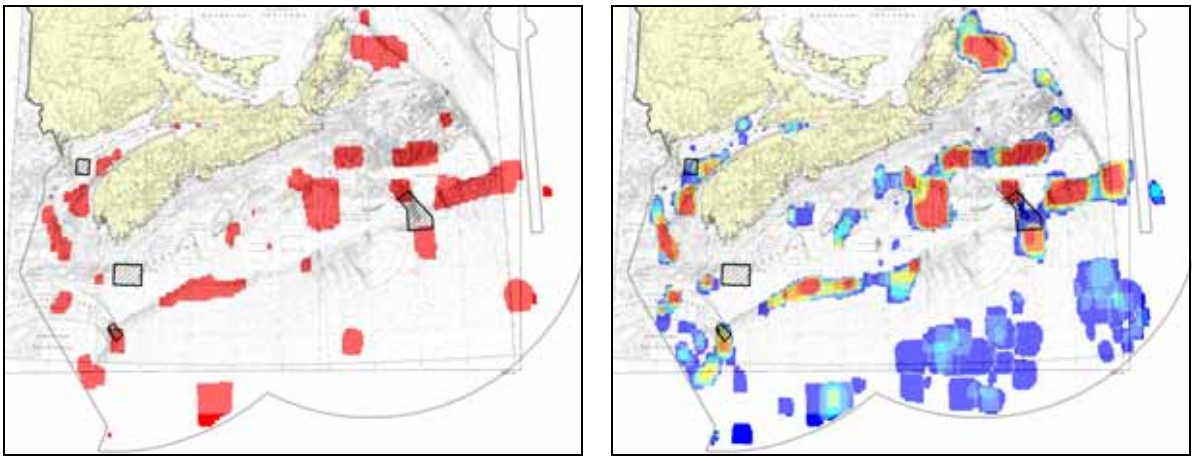


Figure 41. Mapped results for scenario AI. Goals for representative habitat are maintained at 10% (i.e. same as above) and all other goals are stepped up 10%, so that goals are 30% of important habitat for all significant species, 40% for areas of high biodiversity and 30% of areas identified as having high topographic roughness. The BLM = 10. Best solution from scenario AI (left). Summed solution (right) shows the number of times that planning units were included in the solution in the 10 runs. Existing conservation areas are shown (black hatch), but not locked in

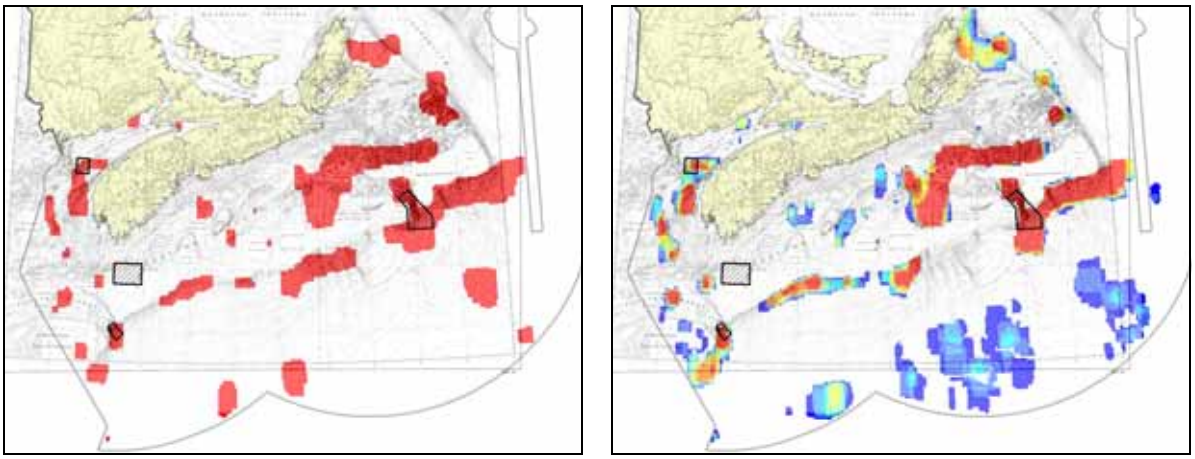


Figure 42. Mapped results for scenario AJ. Goals for representative habitat are maintained at 10% and 30% of important habitat for all significant species (i.e. same as above). All other goals are increased: 50% for areas of high biodiversity and 50% of areas identified as having high topographic roughness. The BLM = 10. Best solution from scenario AJ (left). Summed solution (right) shows the number of times that planning units were included in the solution in the 10 runs. Existing conservation areas are shown (black hatch), but not locked in.

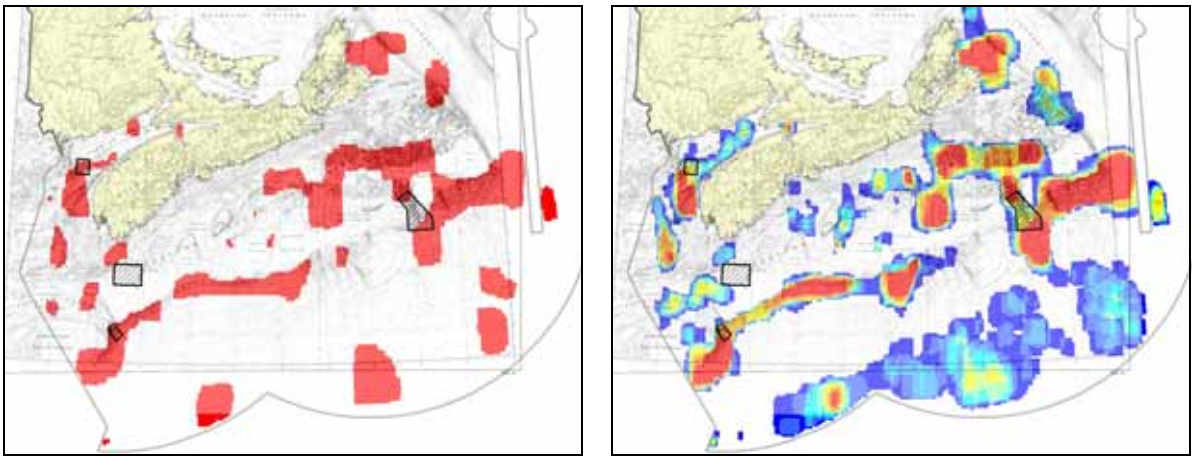


Figure 43. Mapped results for scenario AK. Goals for representative habitat are increased to 20%. All other goals are maintained at the same levels above; 30% of important habitat for all significant species (i.e. same as above). All other goals are increased: 50% for both areas of high biodiversity and of areas identified as having high topographic roughness. The BLM = 10. Best solution from scenario AK (left). Summed solution (right) shows the number of times that planning units were included in the solution in the 10 runs. Existing conservation areas are shown (black hatch), but not locked in.

Biodiversity Hotspots

In scenarios AL-AO (Figures 44 to 47, see also Appendices 42-45), topographic roughness is excluded, representation targets are set at 10%, significant species and biodiversity hotspots goals are set at 20% and 30% and 30% and 50% respectively. Each of those combinations is explored without a BLM and with a BLM of 10.

In the executions without a BLM a bias (illustrated in Figure 46 and Figure 47) introduced by a combination of the boundary length for the planning unit and the cost (calculated as area of the actual planning unit) became obvious for the first time. The two arc minute planning units in lower latitudes occupy a slightly larger area. While we had standardized the boundary lengths for planning units, we hadn't standardized the area. Therefore, planning units in lower latitudes were contributing more to the solution, with no added contribution to boundary lenth. This effect is illustrated by the clumping of planning units in the southern abyssal plain regions of the solution. Other than seabed features, no other targets are defined in this area making the most efficient solution the one that achieves the most area with the smallest boundary, even though the difference in area is quite small. In regions that are more data/target rich, the effect of the boundary length appears to be outweighed in the objective function by the inclusion of targets toward the goal. However, to remove any possible influence that this was having on the solution in the more northern regions, we assigned the mean planning unit area to all planning units in subsequent executions.

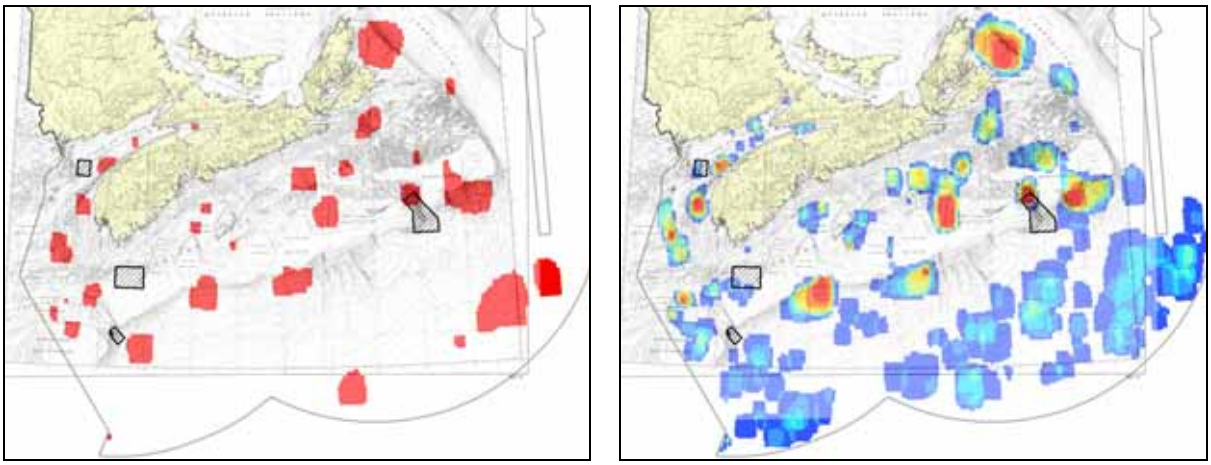


Figure 44. Mapped results for scenario AL. Goals for representative habitat are increased to 10%. Goals are 20% of important habitat for all significant species and 30% for areas of high biodiversity. The BLM = 10. Best solution from scenario AL (left). Summed solution (right) shows the number of times that planning units were included in the solution in the 10 runs. Existing conservation areas are shown (black hatch), but not locked in.

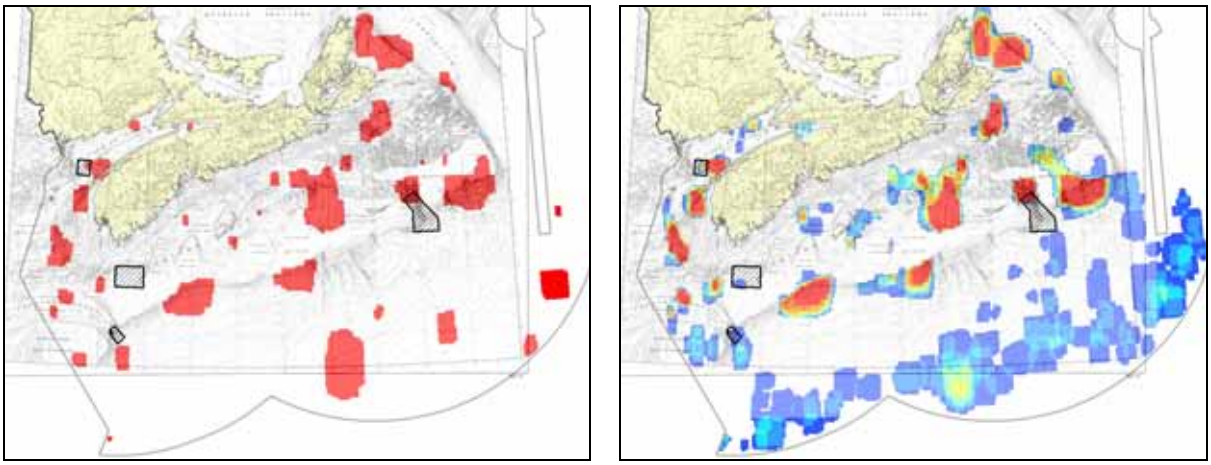


Figure 45. Mapped results for scenario AM. Goals for representative habitat are increased to 10%. Goals are 30% of important habitat for all significant species and 50% for areas of high biodiversity. The BLM = 10. Best solution from scenario AM (left). Summed solution (right) shows the number of times that planning units were included in the solution in the 10 runs. Existing conservation areas are shown (black hatch), but not locked in.

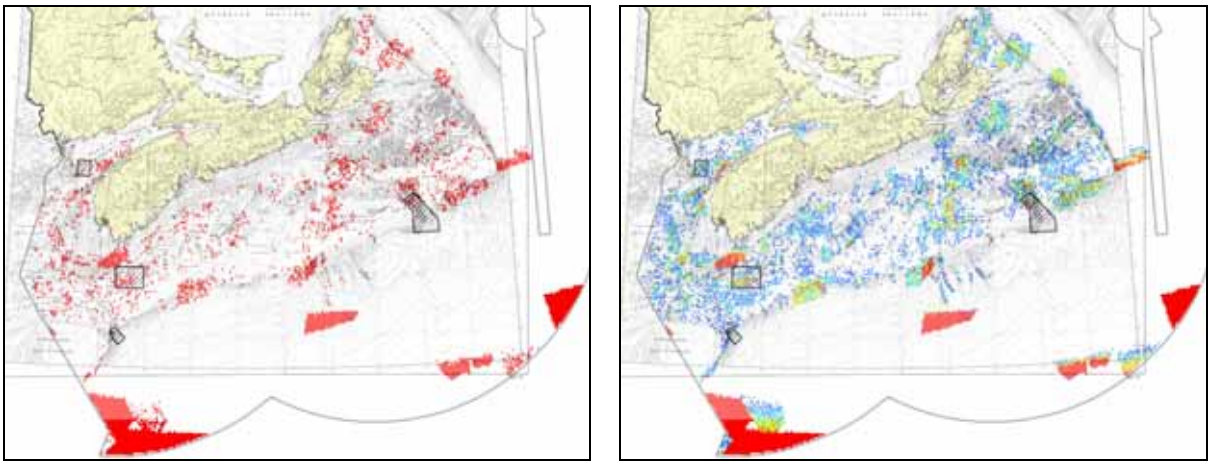


Figure 46. Mapped results for scenario AN. Goals for representative habitat are 10%, 20% of important habitat for all significant species and 30% for areas of high biodiversity, the same as scenario AL. In this scenario the BLM = 0. Best solution from scenario AN (left). Summed solution (right) shows the number of times that planning units were included in the solution in the 10 runs. Existing conservation areas are shown (black hatch), but not locked in.

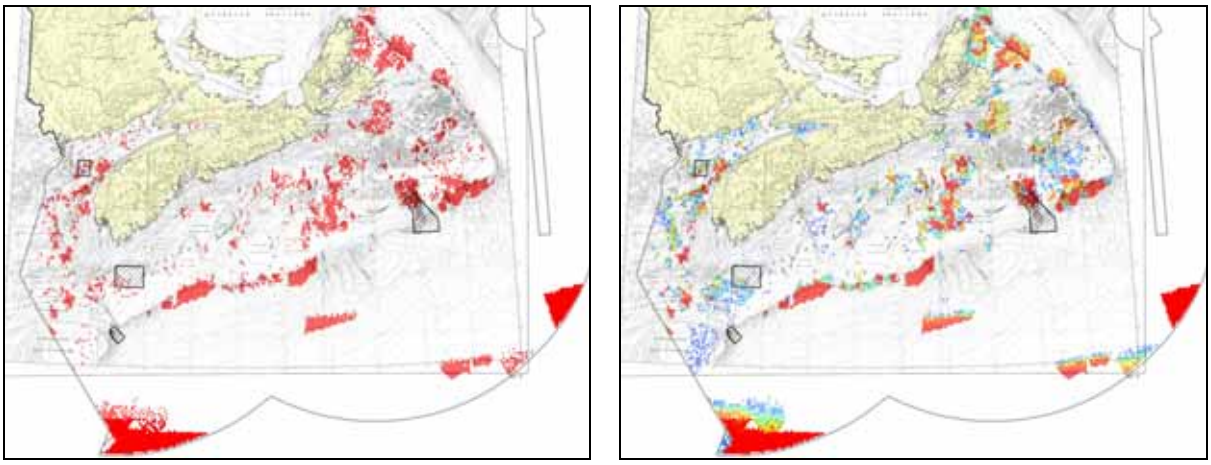


Figure 47. Mapped results for scenario AO. Goals for representative habitat are 10%. Goals are increased to 30% of important habitat for all significant species and 50% for areas of high biodiversity, the same as scenario AM. In this scenario the BLM = 0. Best solution from scenario AO (left). Summed solution (right) shows the number of times that planning units were included in the solution in the 10 runs. Existing conservation areas are shown (black hatch), but not locked in.

Scenarios AP-AS (Figures 48-51, see also Appendices 46-49) are the most comprehensive of the preliminary scenarios in terms of data used and targets required in the solution. In this series, representation targets are consistently set at 10%, goals for areas of high topographic roughness are incrementally increased from 10-25%, and targets for depleted species (i.e. rare, declining and threatened significant species) are set higher than other ("regular") significant species. Targets for both species groups increase incrementally from 10-30% for "regular" significant species and 50-100% for "depleted" species. All scenarios in this series include targets for biodiversity hotspots based on summer and slope scientific trawl surveys. These targets are also increased incrementally from 25-40%. There are no planning units locked in or out in these scenarios. The BLM is maintained consistently at 10.

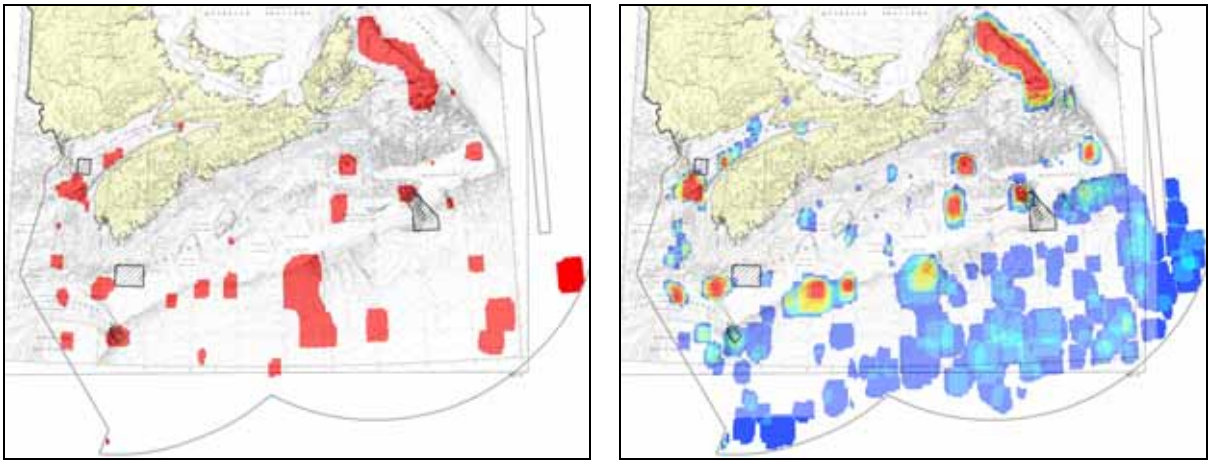


Figure 48. Mapped results for scenario AP. The goals were set as follows: representative habitat - 10%; areas of high topographic roughness – 10%; "regular" significant species – 10%; "depleted" species goals are increased to 50% of important habitat for all significant species and 25% for areas of high biodiversity. In this scenario the BLM = 10. Best solution from scenario AP (left). Summed solution (right) shows the number of times that planning units were included in the solution in the 10 runs. Existing conservation areas are shown (black hatch), but not locked in.

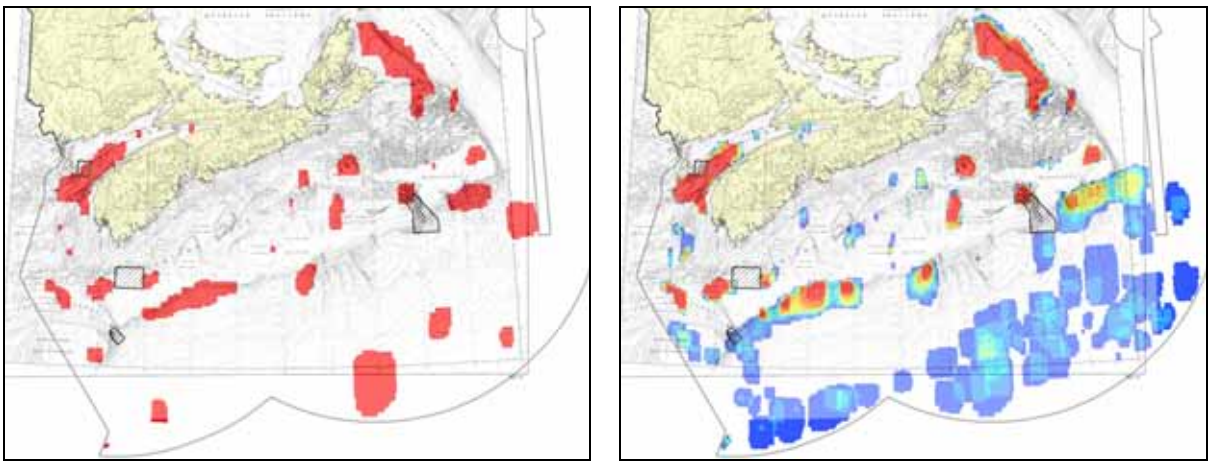


Figure 49. Mapped results for scenario AQ. The goals were set as follows: representative habitat - 10%; areas of high topographic roughness – 15%; "regular" significant species – 15%; "depleted" species goals are increased to 70% of important habitat for all significant species and 30% for areas of high biodiversity. In this scenario the BLM = 10. Best solution from scenario AQ (left). Summed solution (right) shows the number of times that planning units were included in the solution in the 10 runs. Existing conservation areas are shown (black hatch), but not locked in.

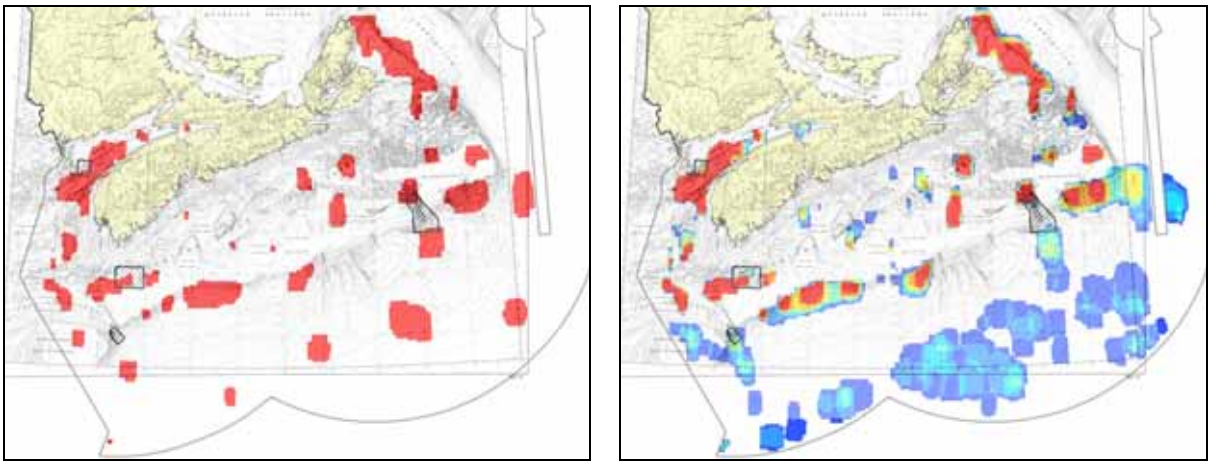


Figure 50. Mapped results for scenario AR. The goals were set as follows: representative habitat - 10%; areas of high topographic roughness – 20%; "regular" significant species – 20%; "depleted" species goals are increased to 80% of important habitat for all significant species and 35% for areas of high biodiversity. In this scenario the BLM = 10. Best solution from scenario AR (left). Summed solution (right) shows the number of times that planning units were included in the solution in the 10 runs. Existing conservation areas are shown (black hatch), but not locked in.

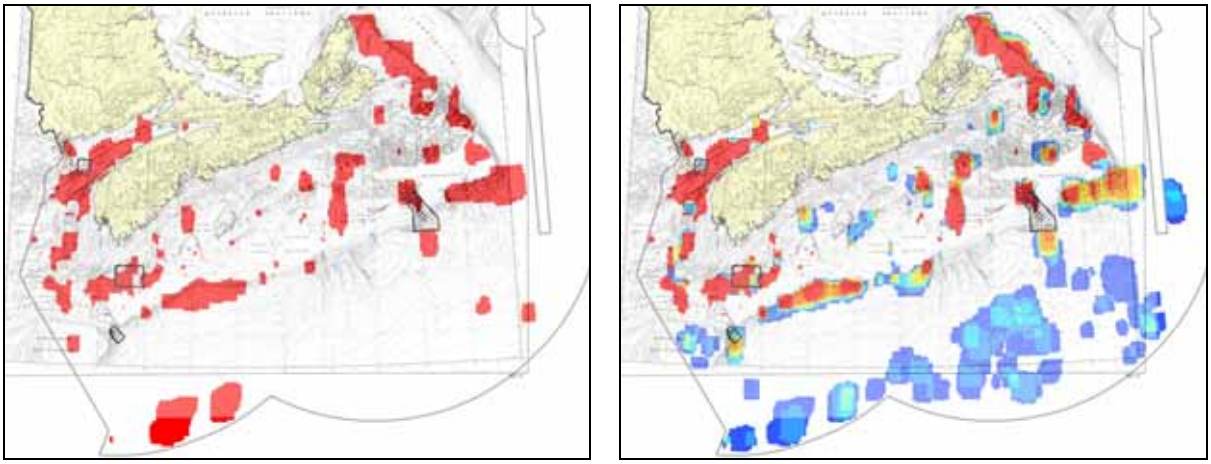


Figure 51. Mapped results for scenario AS. The goals were set as follows: representative habitat - 10%; areas of high topographic roughness – 25%; "regular" significant species – 30%; "depleted" species goals are increased to 100% of important habitat for all significant species and 40% for areas of high biodiversity. In this scenario the BLM = 10. Best solution from scenario AS (left). Summed solution (right) shows the number of times that planning units were included in the solution in the 10 runs. Existing conservation areas are shown (black hatch), but not locked in.

CONCLUDING SCENARIOS: 1-17

The preceding section details the initial scenarios varying the conservation features included in the analysis, target levels for these features and modifications to the BLM. These initial Marxan scenarios allowed identification of certain biases (such as planning unit area effects), as well as the identification of influential data layers and areas that consistently emerged from te analysis. The approach was then modified to account for our observations (e.g. effect of BLM; effect of target level) to ensure that the results produced were consistent with our design principles. In this section we discuss the development and results of the concluding scenarios.

The concluding scenarios have the following common characteristics: 1) targets were always set for all representative features; 2) higher targets were set for the areas classified as having the lowest natural benthic disturbance due to the increased vulnerability in these areas (as determined from the classified natural benthic disturbance data layer); 3) data was included for invertebrate species in the Eastern Scotian Shelf region, 4) biodiversity hotspots based on invertebrate trawl survey were now included; 5) targets were always set for biodiversity hotspots and areas of high topographic roughness; and 6) the BLM was maintained at 10.

In these scenarios rare, declining and threatened significant species were frequently treated differently than other species (i.e. higher targets) (scenarios 5-17). Additionally, in all but four of the concluding scenarios the area known as Deep Panuke, was locked out of possible solutions; a decision based on our observations from the previous results that frequently included this area within the network design. Deep Panuke is an area that has been licensed for oil and gas development. The area locked out of the solution represents 222 planning units, an area 2204 km2 in size and ~711 km in perimeter. The rationale for locking this area out of the solution is based solely on the practical aspects of ocean management and the fact that a license has already been granted for oil and gas development in this region – a decision taken by the regulatory agency (i.e. CNSOPB) based, in part, on consultation with DFO.

In Scenario 1 (Figure 52, see also Appendix 50) we set a target of 10% for seabed types, each of the classified scope for growth regions and each of the natural disturbance regions, except areas classified as having the lowest natural disturbance where the target was set at 30%. All species targets were set at 20%. Areas identified as coral and critical habitat for whales were not included. Targets of 20% was set for areas identified as having high biodiversity and areas of high topographic roughness.

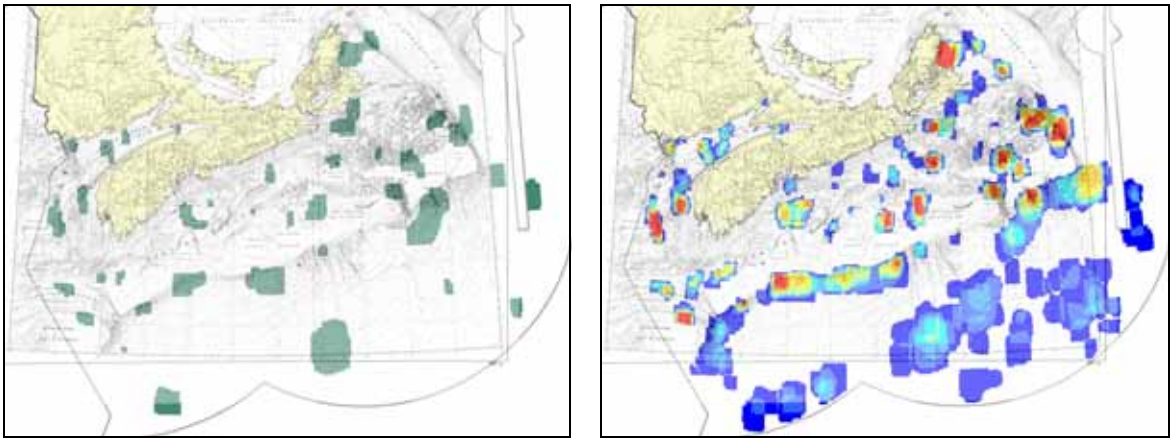


Figure 52. The mapped results of scenario 1 (10% representativity, except 30% areas of low natural disturbance, 20% important habitat for identified species, biodiversity hotspots and high topographic roughness).

Scenario 2 (Figure 53, see also Appendix 51) is similar to the scenario 1, except that targets for biodiversity hotspots, all of the significant species and areas of high topographic roughness, were all increased from 20% to 30%. The results from the summed solution show the same general

pattern as the previous scenario, although the best solution illustrates the degree of flexibility in the final design.

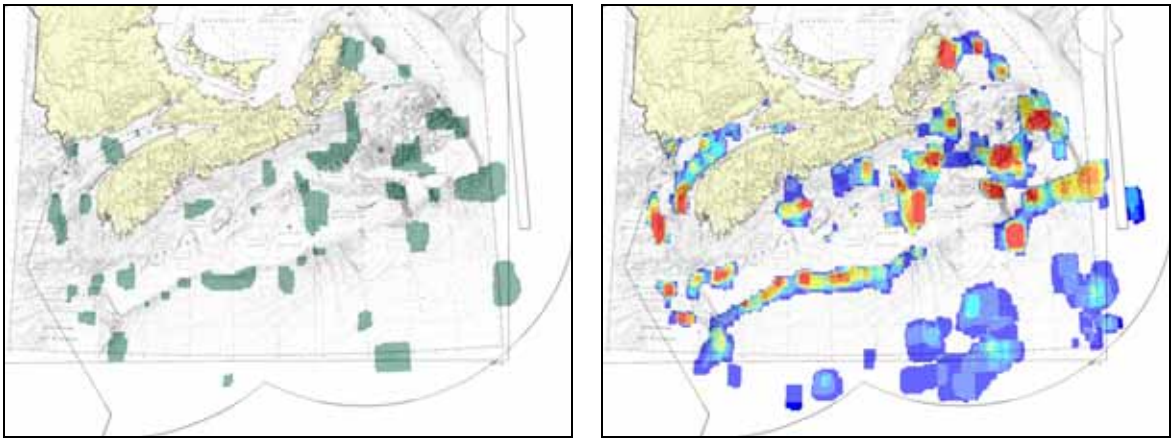


Figure 53. The mapped results of scenario 2 (10% representativity, except 30% areas of low natural disturbance, 30% important habitat for identified species, biodiversity hotspots and high topographic roughness).

Scenario 3 (Figure 54, see also Appendix 52) continues to increase the targets for EBSA with a target of 40% for the areas of lowest natural disturbance, high topographic roughness and biodiversity hotspots. Targets for all of the significant species are maintained at 30%. The same general trends are observed in the results. The summed solutions show the same general patterns expanding to achieve the increased targets.

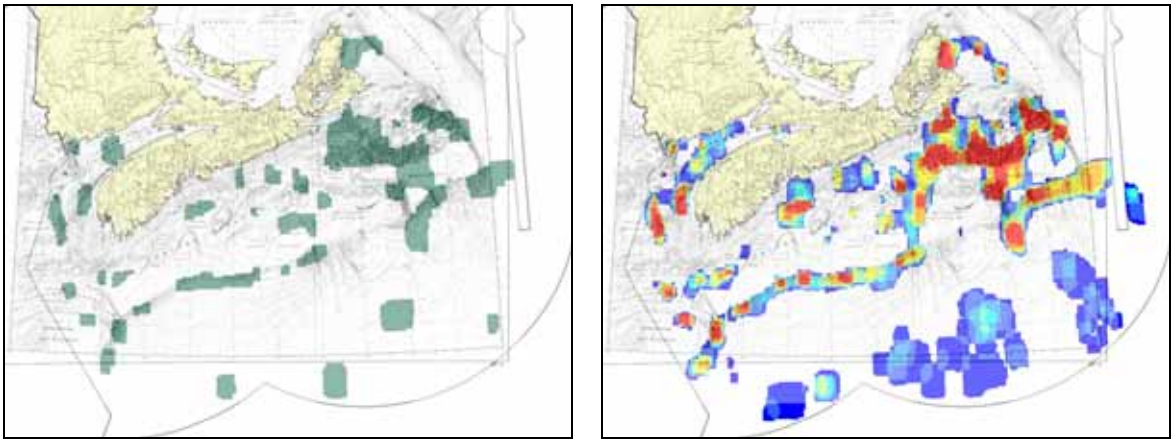


Figure 54. The mapped results of scenario 3 (10% representativity, except 40% areas of low natural disturbance, 40% for biodiversity hotspots and areas of high topographic roughness and 30% important habitat for identified species).

In scenario 4 (Figure 55, see also Appendix 53) we continue to increase the targets for EBSA with a target of 50% for the areas of low natural disturbance, high topographic roughness and biodiversity hotspots. Targets for all of the significant species are maintained at 30%. In this scenario, the targets for habitat representation are increased to 20%.

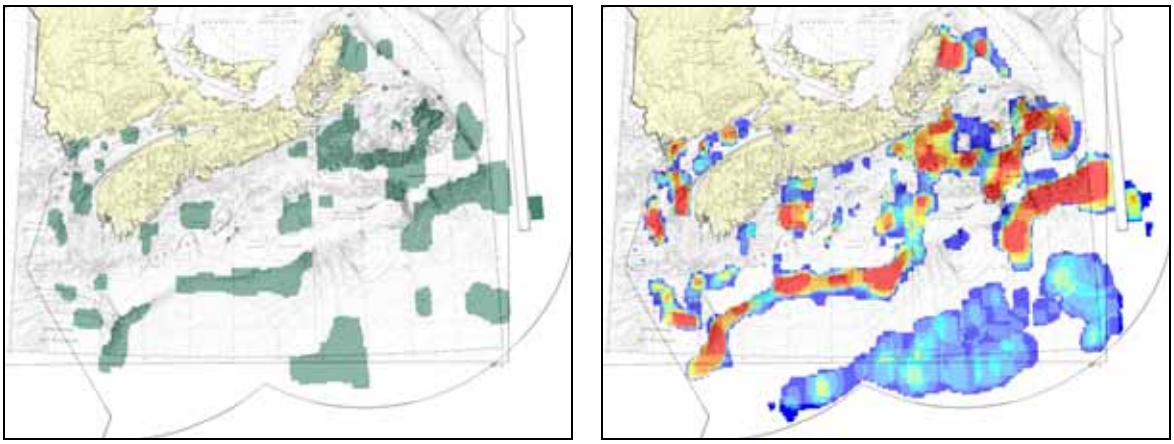


Figure 55. The mapped results of scenario 4 (20% representativity, except 50% areas of low natural disturbance, 50% for biodiversity hotspots and areas of high topographic roughness and 30% important habitat for identified species).

In all of the following scenarios we treat depleted species differently, by increasing our targets for these species. The following scenarios explore the results of these increased conservation targets in the context of a variety of targets for conservation features that were explored in previous scenarios. This allows us to compare the results and evaluate the impact of this decision. Based on the results from these comparative scenarios, we observed that the increase in targets for depleted species does not result in a substantial increase in the size of the resulting network (Table 3). The change in total area required ranges from a 4.0% increase of total area in the network (scenario 7) to a 6.8% increase (scenario 5) with an average increase of 5.7% in our comparisons. Detailed descriptions of conservation target changes and the mapped results follow.

Table 3. Comparison of Marxan results with increased emphasis on depleted species.

Scenario	Description	Perimeter (km)	Area (km^2)	Cost	Compactness[10]
Scenarios with no emphasis on depleted species					
1	10% RH[11]; 30% LND[12]; 20% BDH[13], TRI[14] and important habitat for significant species	4801	48410	48310	6.155
2	10% RH; 30% LND, BDH, TRI and important habitat for significant species	5137	57900	58740	6.022
3	10% RH, 40% LND, BDH and TRI; 30% important habitat for significant species	5913	69290	68640	6.337
4	20% RH; 50% LND, BDH and TRI; 30% important habitat for significant species	7037	99440	98540	6.295
Scenarios with increased emphasis on depleted species					
5	10% RH; 30% LND, 20% BDH, TRI and important habitat for significant species, ***except 50% for depleted species***	4909	51710	52170	6.090
6	10% RH; 30% LND, BDH, TRI and important habitat for significant species, ***except 50% for depleted species***	5371	60950	60160	6.137
7	10% RH, 40% LND, BDH and TRI; 30% important habitat for significant species, ***except 70% for depleted species***	5801	72080	70940	6.095
8	20% RH; 50% LND, BDH and TRI; 30% important habitat for significant species, ***except 85% for depleted species***	7471	106060	104970	6.471

[10] Compactness was calculated as $P/2(\pi A)^{0.5}$, where P is the perimeter and A is the area of each network scenario (Possingham et al. 2000).
[11] RH = Representative Habitat (i.e. represenatativity).
[12] LND = Areas of low natural disturbance.
[13] BDH = Biodiversity hotspots (all three surveys).
[14] TRI = Areas of high topographic roughness.

In scenario 5 (Figure 56, see also Appendix 54), representative targets are set back to 10% with 30% for areas of low natural disturbance. A target of 20% is set for areas of high topographic roughness, biodiversity hotspots and all species not identified as depleted. For depleted species a target of 50% was established. These target are the same as those established for scenario 1 (Figure 52), with the exception for the change in treatment of depleted species.

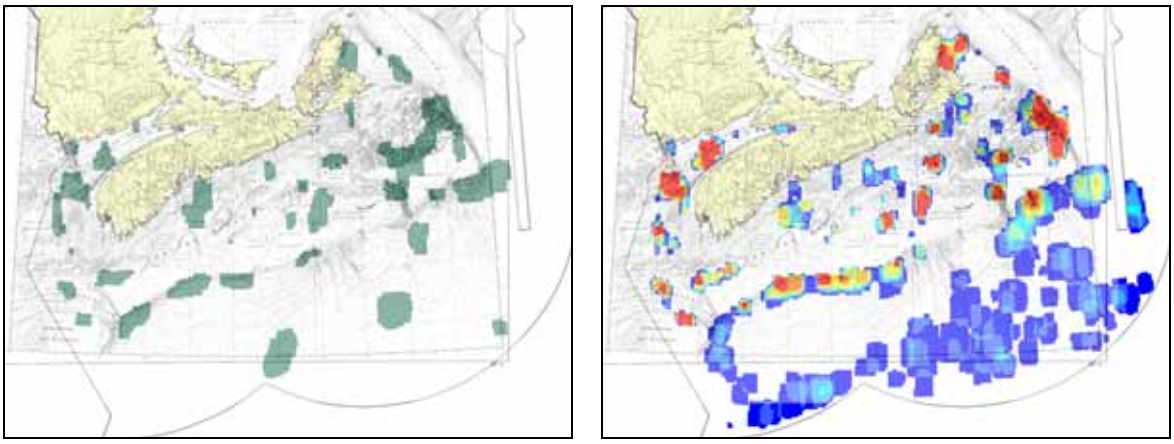


Figure 56. The mapped results of scenario 5 (10% representativity, except 30% areas of low natural disturbance, 20% biodiversity hotspots, high topographic roughness and important habitat for identified species except 50% for depleted species).

In scenarios 6 through 8 (Figure 57-59, see also Appendices 55-57), we continue to explore the change that results from increasing our targets for depleted species in the context our scenarios we have previously explored. In scenario 6 (Figure 57) the 50% target of important habitat for depleted species is set against the target explored in scenario 2 (Figure 53) which were: representative targets at 10% with 30% for areas of low natural disturbance; 30% for areas of high topographic roughness, biodiversity hotspots and all "regular" species.

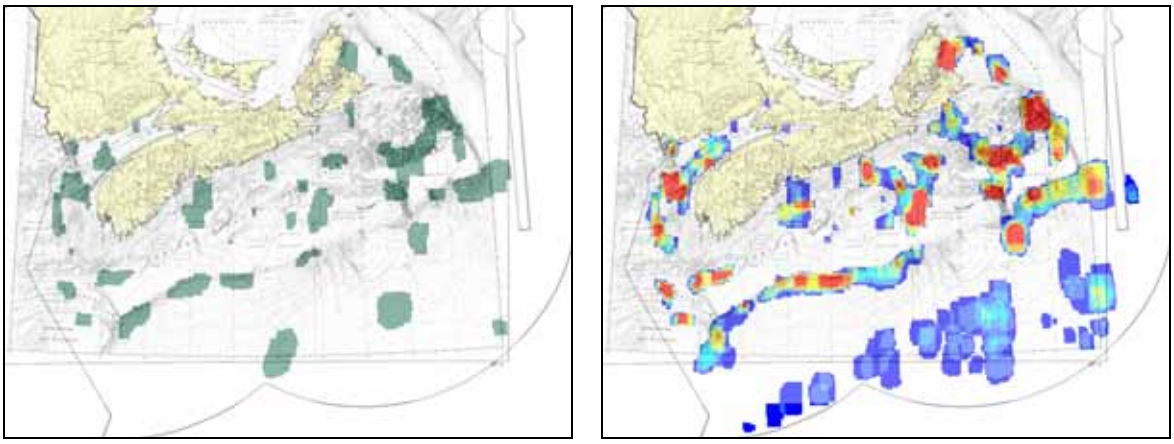


Figure 57. The mapped results of scenario 6 (10% representativity, except 30% areas of low natural disturbance, 30% biodiversity hotspots, high topographic roughness and important habitat for identified species except 50% for depleted species).

In scenario 7 (Figure 58) the increased target of important habitat for depleted species is set against the targets explored in scenario 3 (Figure 54) which were: representative targets at 10%

with 40% for areas of low natural disturbance; 30% for areas of high topographic roughness, biodiversity hotspots and all “regular” species. Additionally, the target for depleted species is increased to 70%.

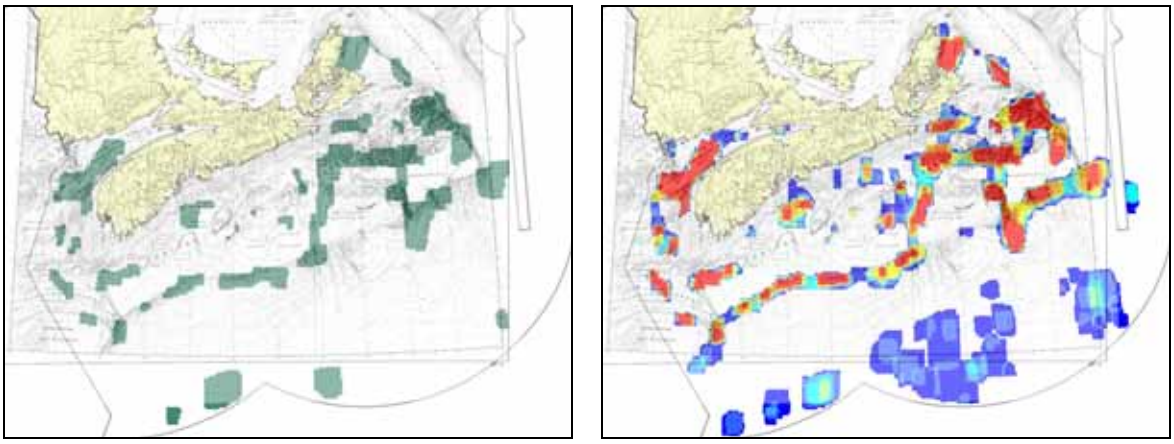


Figure 58. The mapped results of scenario 7 (10% representativity, except 40% areas of low natural disturbance, 40% for biodiversity hotspots and areas of high topographic roughness and 30% important habitat for identified species, except 70% for depleted species).

In scenario 8 (Figure 59) the target of important habitat for depleted species is set at 85% with all other targets the same as in scenario 4 (Figure 55).

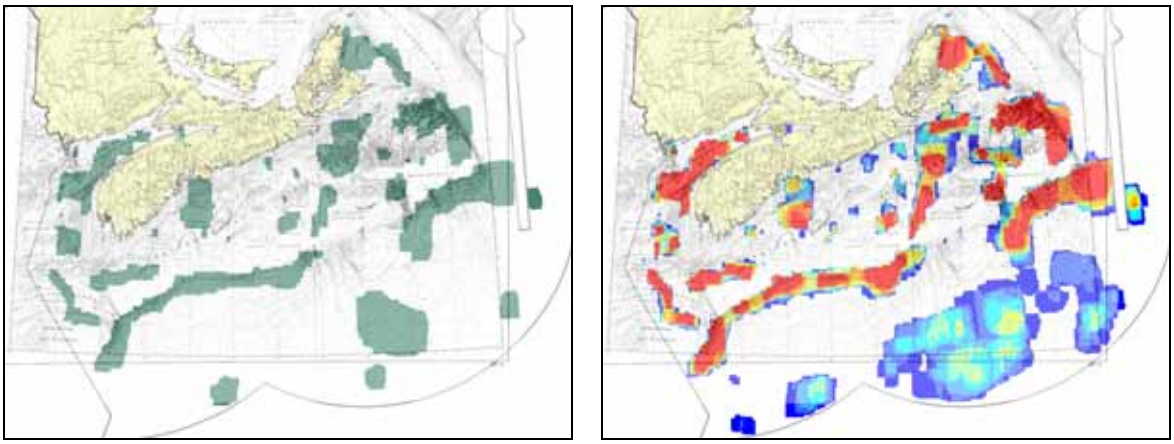


Figure 59. The mapped results of scenario 8 (20% representativity, except 50% areas of low natural disturbance, 50% for biodiversity hotspots and areas of high topographic roughness and 30% important habitat for identified species, except 85% for depleted species).

In the following scenarios, we have maintained targets for depleted species at 80% while exploring various targets for other conservation features. In scenario 9 (Figure 60, see also Appendix 58) targets for representative habitat are set at 10% with areas of low natural disturbance at 40%, 20% of important habitat for all other species and areas of high topographic roughness and 35% of the biodiversity hotspots.

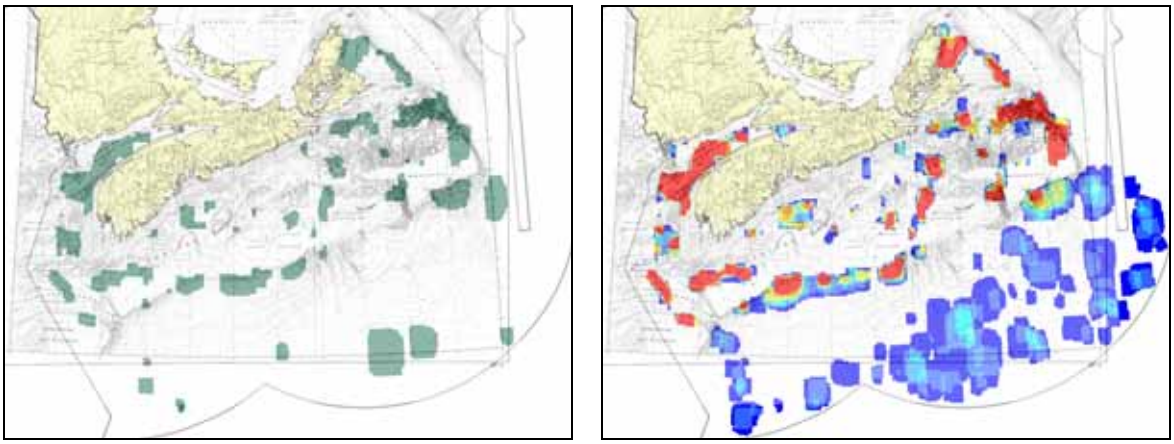


Figure 60. The mapped results of scenario 9 (10% representativity, except 40% areas of low natural disturbance, 35% for biodiversity hotspots, 20%of areas of high topographic roughness and important habitat for identified species, except 80% for depleted species).

In scenario 10 (Figure 61, see also Appendix 59), we maintained targets for depleted species at 80% and increased targets for representative habitat to 15% with areas of low natural disturbance at 40%. The other targets were maintained at 20% of important habitat for all other species and areas of high topographic roughness and 35% of the biodiversity hotspots.

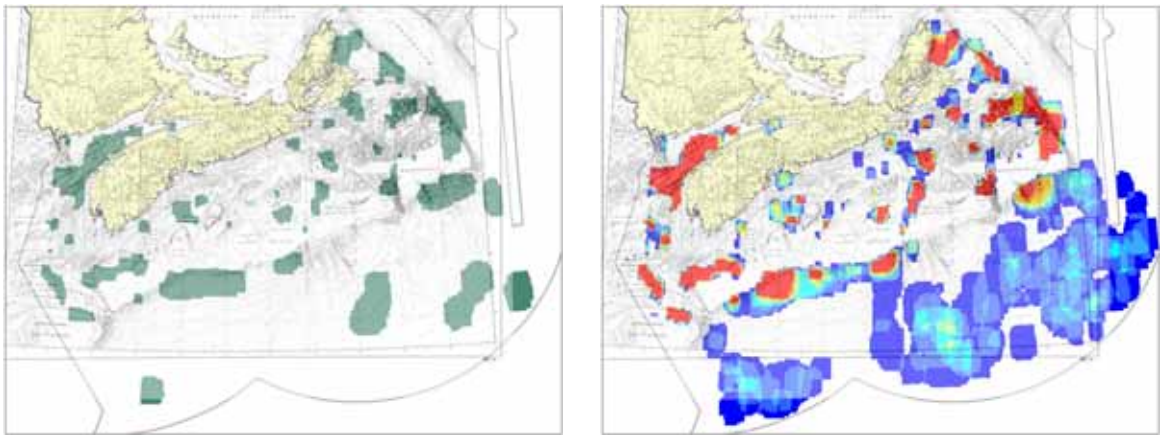


Figure 61. The mapped results of scenario 10 (15% representativity, except 40% areas of low natural disturbance, 35% for biodiversity hotspots, 20% of areas of high topographic roughness and important habitat for identified species, except 80% for depleted species). Areas identified as EBSA through an exercise to solicit scientific expert opinion (see also Doherty and Horsman 2007) are shown on this map as hatched polygons for comparison only.

In scenario 11 (Figure 62, see also Appendix 60), we maintained targets for depleted species at 80% and increased targets for representative habitat to 20% with areas of low natural disturbance at 40%. The other targets were maintained at 20% of important habitat for all other species and areas of high topographic roughness and 35% of the biodiversity hotspots.

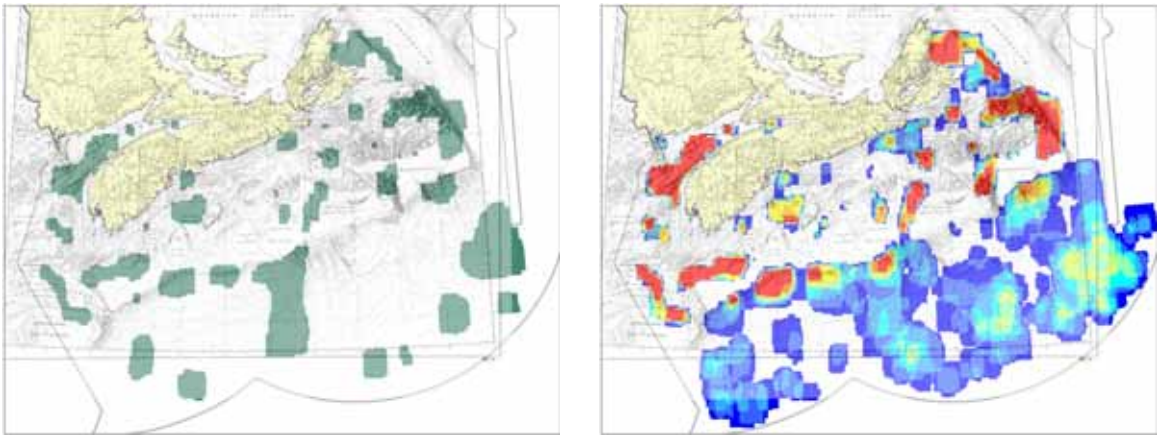


Figure 62. The mapped results of scenario 11 (20% representativity, except 40% areas of low natural disturbance, 35% for biodiversity hotspots, 20% of areas of high topographic roughness and important habitat for identified species, except 80% for depleted pecies). Areas identified as EBSA through an exercise to solicit scientific expert opinion (Doherty and Horsman 2007) are shown again on this map as hatched polygons for comparison only.

In scenario 12 and 13 (Figure 63 and Figure 64), we replicated the targets established for scenario 10 and 11 respectively and changed the status code settings in Marxan to restrict the area of selection to EBSA from scientific expert opinion (Doherty and Horsman 2007). This EBSA identification process identified nearly 60% of the Scotian Shelf and slope regions – making all these areas available to Marxan to achieve our conservation objectives. In each of these examples, the best results failed to meet several of the conservation objectives (i.e. targets) such as those for White Hake in NAFO division 4X5Y, Atlantic Cod in 4X5Y and 4VsW, biodiversity hotspots from the invertebrate survey, Winter Skate, Cusk and Atlantic Wolffish in addition to some of the seabed features (see Appendix 61 and 62).

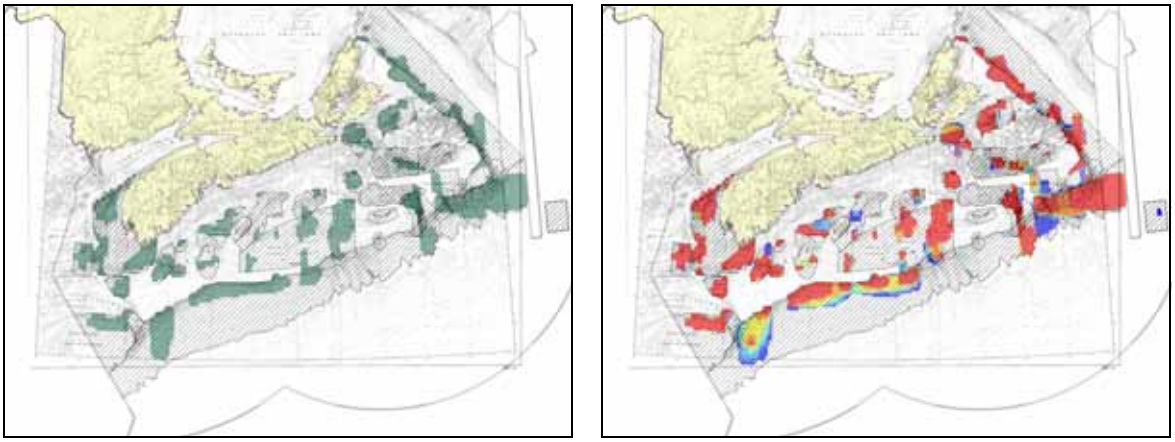


Figure 63. The mapped results of scenario 12 (15% representativity, except 40% areas of low natural disturbance, 35% for biodiversity hotspots, 20% of areas of high topographic roughness and important habitat for identified species, except 80% for depleted species). Areas identified as EBSA through an exercise to solicit scientific expert opinion (Doherty and Horsman 2007) are shown again on this map as hatched polygons for comparison only.

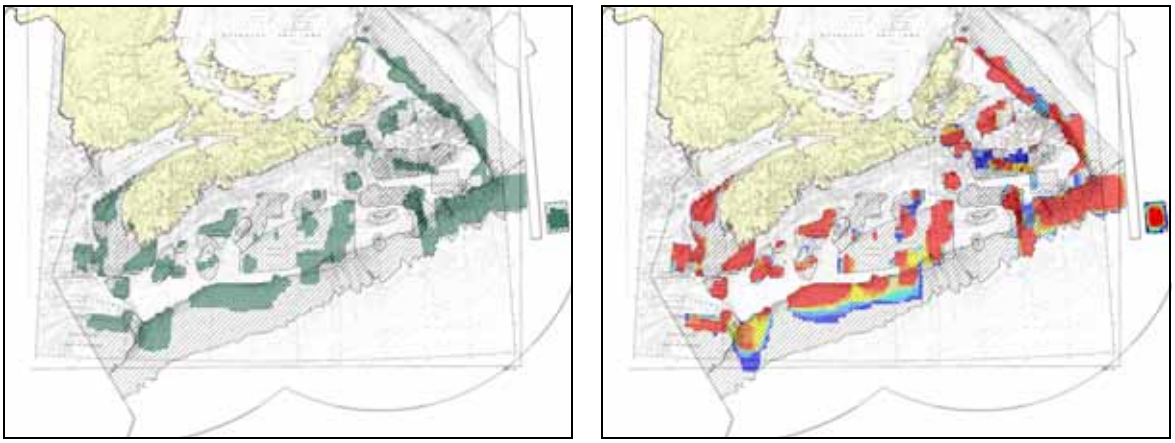


Figure 64. The mapped results of scenario 13 (20% representativity, except 40% areas of low natural disturbance, 35% for biodiversity hotspots, 20% of areas of high topographic roughness and important habitat for identified species, except 80% for depleted species). Areas identified as EBSA through an exercise to solicit scientific expert opinion (Doherty and Horsman 2007) are shown again on this map as hatched polygons for comparison only.

The remaining four scenarios represent the addition of data and conservation targets for both coral and critical habitat for whales. In scenarios 14 and 16 targets for representative habitat are set at 15% with 40% for areas of low natural disturbance, species identified as "depleted" have a target of 80% with all other species targets set to 20%, 20% for areas of high topographic roughness, 30% for biodiversity hotspots, 80% of areas with high densities of coral and 100% of areas with high coral diversity and critical habitat for whales. In scenario 14 (Figure 65, see also Appendix 63) all areas except the exclusion area for Deep Panuke are available, while in scenario 16 (Figure 67, see also Appendix 65) only areas identified as EBSA through scientific expert opinion (Doherty and Horsman 2007) are available.

The same comparison between EBSA-restricted and unrestricted solutions are made with scenarios 15 (Figure 66, see also Appendix 64) and 17 (Figure 68, see also Appendix 66), where all the targets remain the same as described above (scenario 14 and 16) except that the targets for representative habitat are increased to 20%.

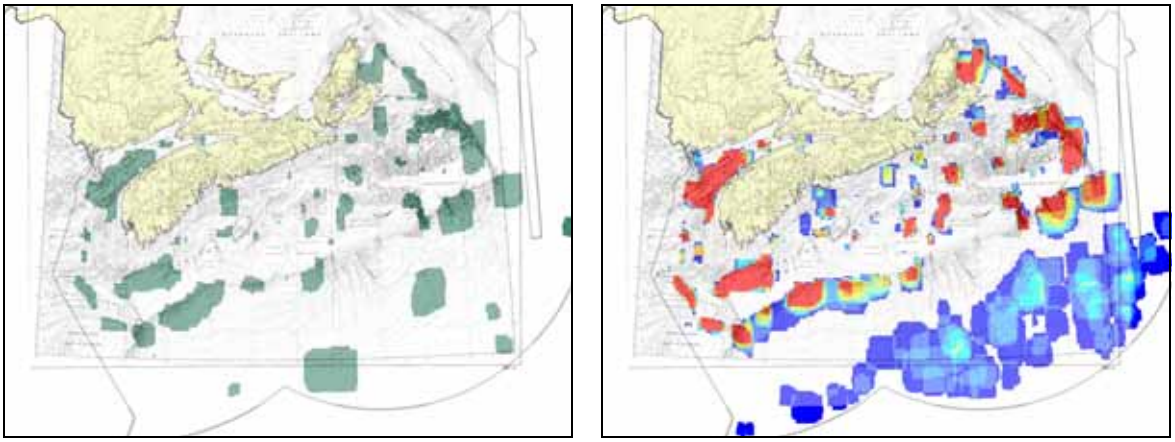


Figure 65. The mapped results of scenario 14 (15% representativity, except 40% areas of low natural disturbance, 30% for biodiversity hotspots, 20% of areas of high topographic roughness and important habitat for identified species, except 80% for depleted species. Additionally targets of 80% areas of high density for coral, 100% of areas of high coral diversity and critical habitat for whales).

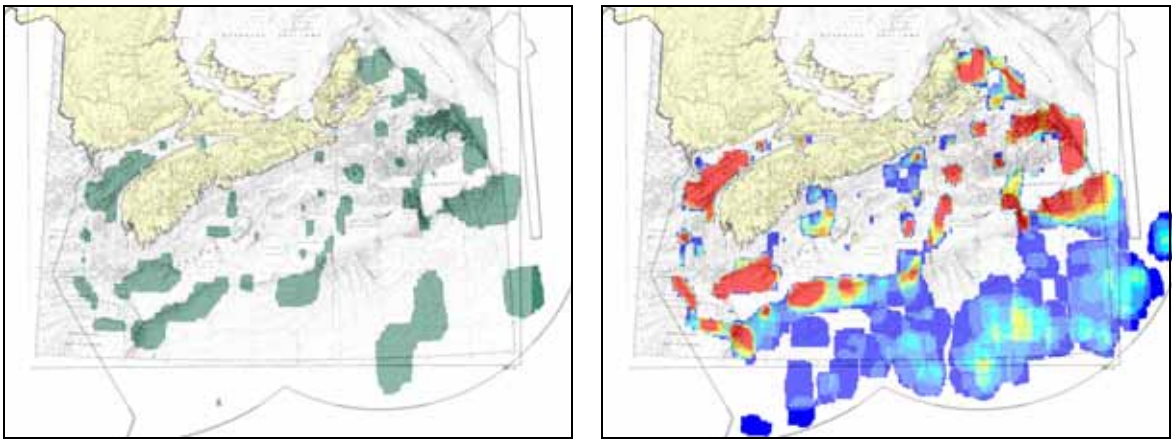


Figure 66. The mapped results of scenario 15 (20% representativity, except 40% areas of low natural disturbance, 30% for biodiversity hotspots, 20% of areas of high topographic roughness and important habitat for identified species, except 80% for depleted species. Additionally targets of 80% areas of high density for coral, 100% of areas of high coral diversity and critical habitat for whales).

Figure 67. The mapped results of scenario 16 15% representativity, except 40% areas of low natural disturbance, 30% for biodiversity hotspots, 20%of areas of high topographic roughness and important habitat for identified species, except 80% for depleted species. Additionally targets of 80% areas of high density for coral, 100% of areas of high coral diversity and critical habitat for whales). Areas identified as EBSA through an exercise to solicit scientific expert opinion (Doherty and Horsman 2007) are shown on this map as hatched polygons and indicate the areas available to Marxan for the solution.

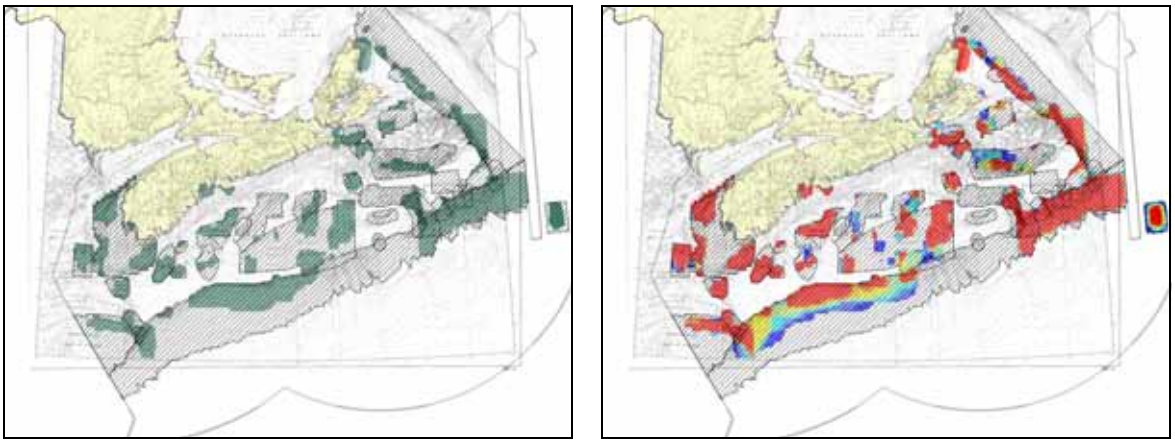


Figure 68. The mapped results of scenario 17 (20% representativity, except 40% areas of low natural disturbance, 30% for biodiversity hotspots, 20%of areas of high topographic roughness and important habitat for identified species, except 80% for depleted species. Additionally targets of 80% areas of high density for coral, 100% of areas of high coral diversity and critical habitat for whales). Areas identified as EBSA through an exercise to solicit scientific expert opinion (Doherty and Horsman 2007) are shown on this map as hatched polygons and indicate the areas available to Marxan for the solution

DISCUSSION

We have presented a process to identify an MPA network. The numerous iterations presented here illustrate the process of identification when there is clearly no singular solution for the development of a marine protected area network. The final network is thus based on the configuration of percent target levels which were determined using the rough guidance of at least 20-30% of each habitat (IUCN/WCPA, 2008). We consider scenario 15 (Figure 66, see also Appendix 64) to be the most robust as the more conservative 20% target for representative habitat was met and all other conservation targets were essentially achieved (i.e. within less than

2% of the target and generally less than 1%). The total area occupied by this scenario is 72180 km2 and represents approximately 23% of the shelf and slope region. As such, it is on the low side of total area recommended in the international community (e.g. WCPA/IUCN. 2007). If protected it would be a substantial yet efficient increase in our current conservation efforts.

Governments are required to plan and prepare for the future health and well-being of their citizens. International commitments, such as the COP IX decision[15], require us to move into territory that is both unfamiliar and uncertain. At no point in our history have we actively planned for ecosystem-wide marine conservation. This lack of insight in the past has created many new challenges for us in the present, such as the declines in many fish stocks that were once hugely abundant, growing lists of species at risk of extinction, human induced changes in species community structures and severe and irreversible alterations of some, perhaps even many habitats. These actions have had serious repercussions, including substantial economic, social and cultural impacts, most especially in coastal communities.

Guidance and mandates at both the national and international levels is currently available to address this historic oversight and to assist decision-makers in moving forward to correct it. With this analysis, we have applied the best available scientific guidance for the development of marine protected area network to facilitate decision making and stakeholder consultation and thereby assist the government in achieving its mandate and international commitments to increase ocean health and sustainable use.

This work also illustrates that while many questions may remain unanswered there is much we do know and there are certainly common trends in terms of identifying areas that would contribute to our marine conservation efforts, as illustrated in Figure 69. This work builds substantially on previous efforts to identify EBSAs in that it allows the data to speak for itself, emphasizes patterns that have persisted for the duration of our survey programs and incorporates information about habitat that serves both the purpose of protecting marine habitats, but also acts as a surrogate for biological information that is frequently not available, both the "known unknowns" and the "unknown unknowns". This analysis also has the benefit of identifying spatially efficient solutions to achieve our stated conservation objectives. For example, whereas the scientific expert opinion of EBSA (Doherty and Horsman 2007) identified large swaths of the Scotian Shelf and slope, totalling 63% of the region and 59% of the shelf and slope portions, it fails to provide a detailed account of the explicit *a priori* conservation objectives or the known conservation gaps. The area of solutions presented here typically range between 10 - 22% of the total study area and provide clear accounting of marine features to be protected.

[15] Refers to the ninth meeting of the Conference of the Parties (COP) to the Convention on Biological Diversity Bonn, Germany 19 - 30 May 2008

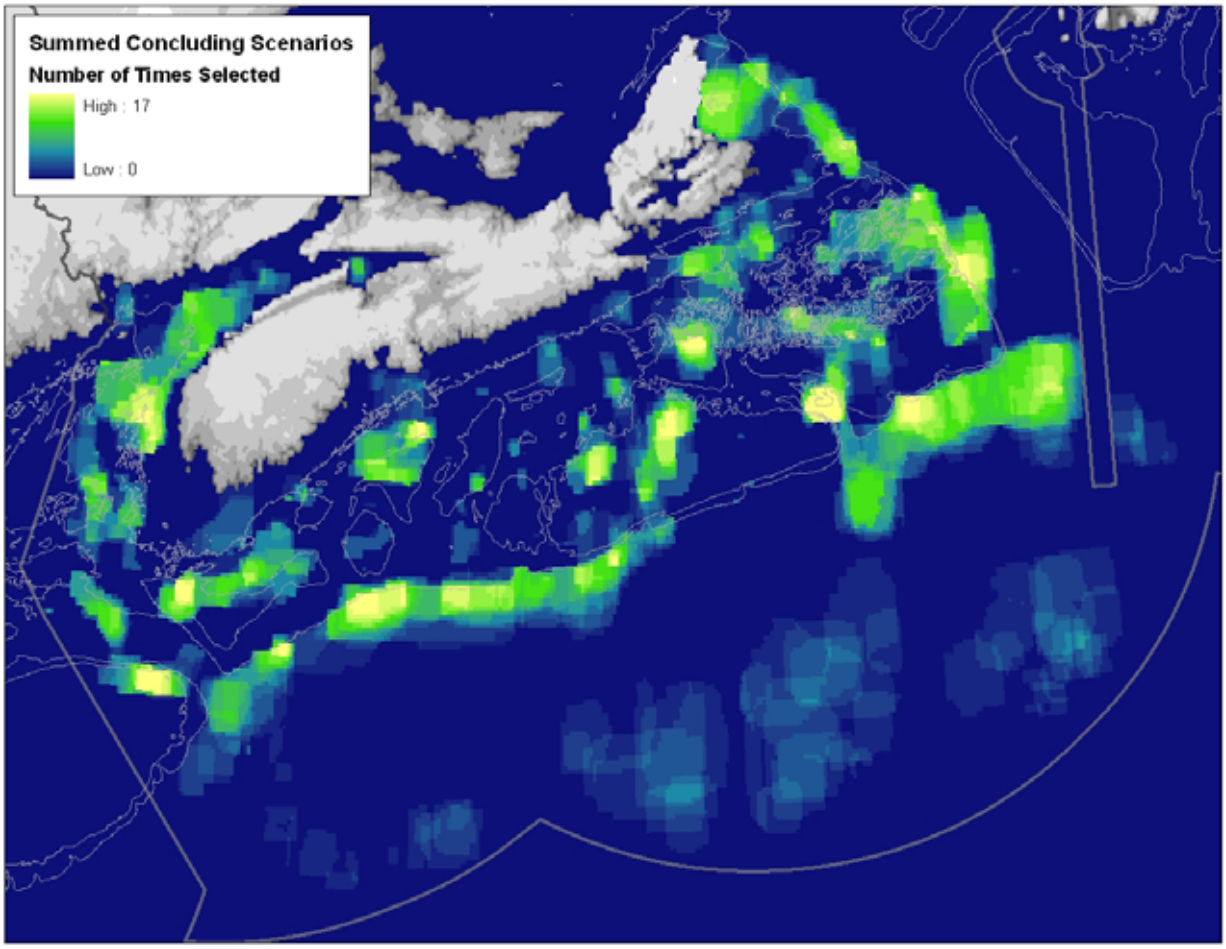


Figure 69. Map shows the frequency areas were selected for inclusion in the best solution in the 17 concluding scenarios.

This, however, does not negate the value of information about EBSA collected from both the scientific expert opinion and local ecological knowledge surveys. These EBSA provided critically important opportunities to assess the results of this analysis. Flagrant differences encouraged thoughtful reflection and investigation as to why the different processes did not yield the same conclusion.

The most obvious example of this type of disagreement occurred in the area known as the haddock box, which is an area with a large and long standing year-round fishery closure (established in 1987 with a closure to mobile gear and in 1993 to all groundfish) for protection of juvenile haddock. More recently the area has also been the focus of a variety of benthic habitat and community studies. This area was one of the areas most frequently selected by scientists as a potential EBSA, yet even with some prompting in Marxan (i.e. the area was "seeded" into the first solutions of the iterative algorithm), it did not form part of the compliment of areas in the best solutions. The reasons for this apparent disagreement appear to be easily understood. The habitat in this area is fairly homogeneous when compared with many other similar sized areas in the region, as such species diversity is predictably low, the seafloor in this area is generally also more prone to natural disturbance and therefore less vulnerable to human activities and our assessment of important habitat seeks areas of generally high biomass for each species with no specific requirement for the protection of juvenile fish.

Conversely, areas with strong agreement provided increased certainty that the area will benefit from conservation-focused management attention. For example, three areas selected from the analysis for consultation as an Area of Interest (AOI)[16], were independently identified in all three processes.

Marxan is a tool that allows for an objective evaluation of a spatial problem given a series of observation about the biophysical nature of the area of interest and a series of objectives or, in this case conservation targets that we wish to accomplish within this same area. It is an objective method for identifying the location and configuration of areas that most efficiently meet a series of conservation targets given a specific spatial distribution of biophysical attributes. If the data used to characterize the study area are assumed to adequately represent its biophysical characteristics, then the results of the analysis becomes dependent on the conservation targets set. If the conservation targets change so will the results of the analysis. This is not a drawback but rather a strength of Marxan in that it provides an objective and repeatable method for comparing the impacts of different conservation targets during negotiations and discussions with stakeholders for the area. Without such a method the comparison of impacts of different conservation targets devolves to speculation by experts and vested interest groups.
We are confident that the biophysical data used in these analyses adequately describe the areas under consideration. This is not to say that there are no data gaps or that this is an entirely comprehensive data set for the area. Some of the gaps in our knowledge about the area will be filled as new data are collected and may necessitate further analyses in future; however there will always be some gaps in our knowledge and these must not preclude actions to protect what are becoming, in some instances, severely degraded ecosystems or ecosystem components.
Finally, what we have concluded to be the most efficient solution, that is the best location and configuration of areas that satisfy the conservation objectives, represents an integrated and interdependent solution. This means that modifying the boundaries of any subcomponent necessitates reanalyzing the entire data set because modifying one element of the overall solution requires modifying the entire solution because the optimal solution is based on the cumulative satisfaction of all conservation goals. Modifications to solution boundaries cannot be piecemeal if it is desirable to maintain the integrity of the overall solution.

[16] http://www.mar.dfo-mpo.gc.ca/oceans/e/ocmd/mpa/aoi-e.html (accessed on June 11, 2010)

ACKNOWLEDGMENTS

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LITERATURE CITED

Ardron, J.A., 2002. A GIS Recipe for Determining Benthic Complexity: An Indicator of Species Richness in *Marine Geography: GIS for the Oceans and Seas*. Ed. Joe Breman. ESRI Press

Ardron, J.A., Possingham, H.P., and Klein, C.J. (eds) 2008. Marxan Good Practices Handbook. External review version; 17 May, 2008. Pacific Marine Analysis and Research Association, Vancouver, BC, Canada. 155 pages. www.pacmara.org

Ball, I. R. and H. P. Possingham, (2000) MARXAN (V1.8.2): Marine Reserve Design Using Spatially Explicit Annealing, a Manual http://www.uq.edu.au/marxan/docs/marxan_manual_1_8_2.pdf

Ball, I. R., H. P. Possingham, M. E. Watts. 2009. Marxan and relatives: software for spatial conservation prioritization. Pages 185–195 in A. Moilanen, K. A. Wilson, H. P. Possingham, editors. Spatial conservation prioritisation: quantitative methods and computational tools. Oxford University Press, Oxford , United Kingdom.

Begg G. A., Marteinsdottir G. 2003. Spatial partitioning of relative fishing mortality and spawning stock biomass of Icelandic cod. Fisheries Research (2003) 59:343–362

Berkeley S. A., Chapman C., Sogard S. M. 2004a. Maternal age as a determinant of larval growth and survival in a marine fish, *Sebastes melanops*. Ecology (2004) 85:1258–1264.

Berkeley S. A., Hixon M. A., Larson R. J., Love M. S. 2004b. Fisheries sustainability via protection of age structure and spatial distribution of fish populations. Fisheries (2004) 29:23–32.

Brander, KM 2007. The role of growth changes in the decline and recovery of North Atlantic cod stocks since 1970. – *ICES Journal of Marine Science* 64: 211–217.

Canada Gazette (2009) Part I: Notices and Proposed Regulations. Vol. 143, No. 49 — December 5, 2009 http://www.gazette.gc.ca/rp-pr/p1/2009/2009-12-05/html/reg2-eng.html [intent and rationale for not listing Winter Skate under schedule 1].

Canada Gazette (2006) Species at Risk Act Registration SI/2006-61 April 19, 2006. http://gazette.gc.ca/archives/p2/2006/2006-04-19/html/si-tr61-eng.html [intent and rationale for not listing atlantic cod under schedule 1].

Canada Gazette (2005) Part I: Notices and Proposed Regulations. Vol. 139, No. 50 — December 10, 2005 Order Amending Schedules 1 to 3 to the Species at Risk Act [intent and rationale for not listing cusk under schedule 1]. http://gazette.gc.ca/archives/p1/2005/2005-12-10/html/reg1-eng.html

Cogswell, A.T., E.L.R. Kenchington, C.G. Lirette, K. MacIsaac, M.M. Best, L.I. Beazley and J. Vickers. 2009. The current state of knowledge concerning the distribution of coral in the Maritime Provinces. Can. Tech. Rep. Fish. Aquat. Sci. 2855: v + 66 p.

COP 9 Decision IX/20 Marine and coastal biodiversity – Annex II http://www.cbd.int/doc/decisions/cop-09/cop-09-dec-20-en.pdf

Davey, A.G. 1998. National System Planning for Protected Areas. Gland, Switzerland: IUCN – World Conservation Union.

DFO, 2002. Framework for Classification and Characterization of Scotia-Fundy Benthic Habitats. DFO Can. Sci. Advis. Sec. Proceedings Series 2002/023. http://www.dfo-mpo.gc.ca/csas/Csas/proceedings/2002/PRO2002_023e.pdf

DFO. 2005a. Canada's Federal Marine Protected Areas Strategy. DFO/2005-799. http://www.dfo-mpo.gc.ca/oceans-habitat/oceans/mpa-zpm/fedmpa-zpmfed/pdf/mpa_e.pdf

DFO, 2005b. Framework for Classification and Characterization of Scotia-Fundy Benthic Habitats. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2005/071.

DFO, 2005c. The Scotian Shelf: An Atlas of Human Activities. Eds. Heather Breeze and Tracy Horsman. DFO/2005-816. www.mar.dfo-mpo.gc.ca/oceans/e/essim/essim-atlas-e.html

DFO and WWF-Canada. 2009. Guidance and Lessons Learned for Canada's Marine Protected Areas Networks: Proceedings of a national workshop held in Ottawa in January 2008. http://www.dfo-mpo.gc.ca/index-eng.htm.

Doherty, P. and T. Horsman. 2007. Ecologically and Biologically Significant Areas of the Scotian Shelf and Environs: A Compilation of Scientific Expert Opinion. Can. Tech. Rep. Fish. Aquat. Sci. 2774: 57 + xii pp.

Dudley, N. (Editor) (2008). *Guidelines for Applying Protected Area Management Categories.* Gland, Switzerland: IUCN. x + 86pp.

Fader, G.B.J. 2007. Classification of Bathymetric Features of the Scotian Shelf. Consultants report to WWF Canada.

Fisheries and Oceans Canada. 2008. Canada's Oceans Action Plan. (http://www.dfo-mpo.gc.ca/oceans-habitat/oceans/oap-pao/page04_e.asp, accessed on December 30, 2008)

Fisheries and Oceans Canada. 2008. Health of the Oceans Initiatives. http://www.dfo-mpo.gc.ca/oceans/management-gestion/healthyoceans-santedesoceans/initiatives-eng.htm#mpa, accessed on December 30, 2008)

Fisher, J.A.D., K.T. Frank, WC Leggett. 2010a. Global variation in marine fish body size and its role in biodiversity-ecosystem functioning. *Mar Ecol Prog Ser* **405**: 1-13.

Fisher J.A.D., K.T. Frank, W.C. Leggett. 2010b. Breaking Bergmann's rule: truncation of Northwest Atlantic marine fish body sizes. *Ecology* **91**: 2499-2505.

Fisher J.A.D., K.T. Frank, B.Petrie, W.C. Leggett and N.L. Shackell**.** 2008. Temporal dynamics within a contemporary latitudinal diversity gradient *Ecol. Lett.* **11**:883-97.

Fisher, J.A.D., K.T. Frank. 2004 Abundance-distribution relationships and conservation of exploited marine fishes. *Mar Ecol Prog Ser* **279**: 201-213.

Fogarty M.J., S.A. Murawski. 1998. Large-scale disturbance and the structure of marine systems: fishery impacts on Georges Bank. *Ecol Appl* **8**:S6–S22

Frank K.T., B. Petrie, J.S. Choi, W.C. Leggett. 2005. Trophic cascades in a formerly cod-dominated ecosystem. *Science* **308**:1621–1623

Government of Canada. 2007. ***Eastern Scotian Shelf integrated ocean management plan. Strategic Plan***. Published by Oceans and Habitat Branch, Fisheries and Oceans Canada, Dartmouth, Nova Scotia. 68 pp. http://www.dfo-mpo.gc.ca/Library/333115.pdf

Groves, D.R. 2003. Drafting a Conservation Blueprint: A Practitioner's Guide to Planning for Biodiversity. Washington, Covelo, London, Island Press.

Halliday, R. G., Peacock, F. G. and Burke, D. L. 1992 Development of management measures for the groundfish fishery in Atlantic Canada: a case study of the Nova Scotia inshore fleet. Mar. Policy 16, 411–426. (doi:10.1016/0308-597X(92)90070-6)

Hislop, J. R. G. 1988. The influence of maternal length and age on the size and weight of the eggs and the relative fecundity of the haddock, *Melanogrammus aeglefinus,* in British waters. *Journal of Fish Biology* **32**:923–930.

Horsman, T.L. and N.L. Shackell,. 2009. Atlas of important habitat for key fish species of the Scotian Shelf, Canada. Can. Tech. Rep. Fish. Aquat. Sci. 2835: viii + 82 p.

Hutchings, J.A., and R.A. Myers. 1993. Effect of age on the seasonality of maturation and spawning of Atlantic cod, *Gadus morhua*, in the northwest Atlantic. Canadian Journal of Fisheries and Aquatic Sciences **50**:2468–2474.

IUCN World Commission on Protected Areas (IUCN-WCPA). 2008. *Establishing Marine Protected Area Networks—Making It Happen.* Washington, D.C.: IUCN-WCPA, National Oceanic and Atmospheric Administration and The Nature Conservancy. 118 p.

Kostylev, V.E., C.G. Hannah. 2007, Process-driven characterization and mapping of seabed habitats, in Todd, B.J.,and Greene, H.G., eds., Mapping the Seafloor for Habitat Characterization: Geological Association of Canada, Special Paper 47, p. 171-184.

Lambert, T.C., 1987. Duration and intensity of spawning in herring *Clupea harengus* as related to the age structure of the population. *Marine Ecology Progress Series* **39**:209–220.

Leslie, H.M. 2005. A synthesis of marine conservation planning approaches. *Conservation Biology*, 19(6), 1701-1713.

Longhurst, A., 2002. Murphy's law revisited: longevity as a factor in recruitment to fish populations. *Fisheries Research* **56**, 125–131.

Margules, C.R. and R.L. Pressey. 2000. Systematic Conservation Planning. *Nature* **405**, 243-253

Marteinsdottir, G., and A. Steinarsson. 1998. Maternal influence on the size and viability of cod (*Gadus morhua* L.) eggs and larvae. Journal *of Fish Biology* **52**:1241–1258.

Murphy, G., 1967. Vital statistics of the California sardine and the population consequences. *Ecology* **48**, pp. 731–735.

Noss, R.F. 2003. A Checklist for Wildlands Network Designs. *Conservation Biology* **17**: 1270–1275.

Noss, R.F., and A.Y. Cooperrider. 1994. Saving Natures Legacy. Island Press, Washington, DC.

O'Boyle, R.N., M. Sinclair, R.J. Conover, K.H. Mann and A.C. Kohler. 1984. Temporal and spatial distribution of ichthyplankton communities of the Scotian Shelf in relation to biological, hydrological and physiographic featters. *Rapp. P.-v. Reun. Cons. Int. Explor. Mer*, **183**:27-40

Possingham, H. P., I. R. Ball and S. Andelman. 2000. Mathematical methods for identifying representative reserve networks. In: S. Ferson and M. Burgman (eds) Quantitative methods for conservation biology. Springer-Verlag, New York, pp. 291- 305. http://www.uq.edu.au/marxan/docs/Possingham_etal_2000_Mathematical.pdf

Pressey, R.L., C.J.Humphries, C.R. Margules, R.I. Vane-Wright and P.H. Williams. 1993. Beyond opportunism: key principles for systematic reserve selection. *Trends in Ecology and Evolution* **8**: 124-128

Roff, D.A. 1992. The Evolution of Life Histories: Theory and Analysis**.** Chapman and Hall, New York.

Secretariat of the Convention on Biological Diversity. 2004. Technical Advice on the Establishment and Management of a National System of Marine and Coastal Protected, (CBD Technical Series no. 13). http://www.cbd.int/doc/publications/cbd-ts-13.pdf

Shackell, NL, K.T. Frank and D.W. Brickman 2005. Range contraction may not always predict core areas: an example from marine fish. *Ecol. Appl.* 15: 1440-1449

Shackell, N.L and Frank, K.T. 2007 Compensation in exploited marine fish communities on the Scotian Shelf, Canada. *Mar. Ecol. Prog. Ser.* 336, 235-247.

Shackell, N.L. K.T. Frank, J.A. D. Fisher, B. Petrie and W.C. Leggett. 2010. Decline in top predator body size and changing climate alter trophic structure in an oceanic ecosystem. *Proc. R. Soc. Lond. B Biol. Sci* 277: 1353-1360

Smith, J.L., K. Lewis and J. Laughren. 2006. A Policy and Planning Framework for Marine Protected Area Netowrks in Canada's Oceans. WWF-Canada: Halifax. 105 pp.

Swain, D.P. and Sinclair, A.F. 2000. Pelagic fishes and the cod recruitment dilemma in the Northwest Atlantic. *Can. J. Fish. Aquat. Sci.* 57: 1321–1325 (2000)

Trippel E.A.1998. Egg Size and Viability and Seasonal Offspring Production of Young Atlantic Cod. *Transactions of the American Fisheries Society* 127:339–359, 1998

WCPA/IUCN. 2007. Establishing networks of marine protected areas: A guide for developing national and regional capacity for building MPA networks. Non-technical summary report.

UNEP/CBD/COP. 2004. Report of the Seventh Meeting of the Conference of Parties to the Convention on Biological Diversity. Held in Kuala Lampur, 9-20 and 27 February 2004. Report 13 April 2004. UNEP, CBD. http://www.cbd.int/doc/meetings/cop/cop-07/official/cop-07-21-part1-en.pdf, Decisions: http://www.cbd.int/decision/cop/?id=7765

UNEP/CBD/COP/DEC/IX/20. 2008. Decision Adopted by the Conference of Parties to the Convention on Biological Diversity at its Ninth Meeting: IX/20. Marine and coastal biodiversity. http://www.cbd.int/doc/decisions/cop-09/cop-09-dec-20-en.pdf

United Nations. 2002. Report of the World Summit on Sustainable Development. Johannesburg, South Africa, 26 August- 4 September 2002. A/CONF.199/20. ISBN 92-1-104521-5. http://daccess-dds-ny.un.org/doc/UNDOC/GEN/N02/636/93/PDF/N0263693.pdf?OpenElement

Zwanenburg. 2000. The effects of fishing on demersal fish communities of the Scotian Shelf. *ICES Journal of Marine Science*, 57: 503-509.

APPENDICES

APPENDIX 1. CONVENTION ON BIOLOGICAL DIVERSITY, COP 9 DECISION IX/20 MARINE AND COASTAL BIODIVERSITY

Annex II - SCIENTIFIC GUIDANCE FOR SELECTING AREAS TO ESTABLISH A REPRESENTATIVE NETWORK OF MARINE PROTECTED AREAS, INCLUDING IN OPEN OCEAN WATERS AND DEEP-SEA HABITATS

Required network properties and components	**Definition**	**Applicable site specific considerations (*inter alia*)**
Ecologically and biologically significant areas	Ecologically and biologically significant areas are geographically or oceanographically discrete areas that provide important services to one or more species/populations of an ecosystem or to the ecosystem as a whole, compared to other surrounding areas or areas of similar ecological characteristics, or otherwise meet the criteria as identified in annex I to decision IX/20.	• Uniqueness or rarity • Special importance for life history stages of species • Importance for threatened, endangered or declining species and/or habitats • Vulnerability, fragility, sensitivity or slow recovery • Biological productivity • Biological diversity • Naturalness
Representativity	Representativity is captured in a network when it consists of areas representing the different biogeographical subdivisions of the global oceans and regional seas that reasonably reflect the full range of ecosystems, including the biotic and habitat diversity of those marine ecosystems.	A full range of examples across a biogeographic habitat, or community classification; relative health of species and communities; relative intactness of habitat(s); naturalness
Connectivity	Connectivity in the design of a network allows for linkages whereby protected sites benefit from larval and/or species exchanges, and functional linkages from other network sites. In a connected network individual sites benefit one another.	Currents; gyres; physical bottlenecks; migration routes; species dispersal; detritus; functional linkages. Isolated sites, such as isolated seamount communities, may also be included.

Replicated ecological features	Replication of ecological features means that more than one site shall contain examples of a given feature in the given biogeographic area. The term "features" means "species, habitats and ecological processes" that naturally occur in the given biogeographic area.	Accounting for uncertainty, natural variation and the possibility of catastrophic events. Features that exhibit less natural variation or are precisely defined may require less replication than features that are inherently highly variable or are only very generally defined.
Adequate and viable sites	Adequate and viable sites indicate that all sites within a network should have size and protection sufficient to ensure the ecological viability and integrity of the feature(s) for which they were selected.	Adequacy and viability will depend on size; shape; buffers; persistence of features; threats; surrounding environment (context); physical constraints; scale of features/processes; spillover/compactness.

APPENDIX 2. FINAL GOALS USED IN THE CONSERVATION NETWORK DESIGN

Code	Description	Goal (% of total area)
Scope for Growth		
101	Scope for growth very low	20
102	Scope for growth low	20
103	Scope for growth moderate	20
104	Scope for growth high	20
105	Scope for growth very high	20
Natural Disturbance		
201	Natural disturbance low	40
202	Natural disturbance low medium	20
203	Natural disturbance medium	20
204	Natural disturbance high	20
Seabed features		
301	Inner Bay of Fundy Basin	20
302	Inner Bay of Fundy	20
303	Inner Bay of Fundy Shallow Basin	20
304	Inner Gulf of Maine Shelf	20
305	Inner Scotian Shelf	20
306	Laurentian Channel	20
307	Middle Gulf of Maine Shelf Bank	20
308	Middle Gulf of Maine Shelf Basin	20
309	Middle Gulf of Maine Shelf	20
310	Middle Gulf of Maine Shelf Tertiary Cretaceous	20
311	Middle Scotian Shelf Bank	20
312	Middle Scotian Shelf Basin	20
313	Middle Scotian Shelf	20
314	Outer Bay of Fundy	20
315	Outer Gulf of Maine Shelf Bank	20
316	Outer Gulf of Maine Shelf Basin	20
317	Outer Gulf of Maine Shelf Channel	20
318	Outer Gulf of Maine Shelf	20
319	Outer Scotian Shelf Bank	20
320	Outer Scotian Shelf	20
321	Outer Scotian Shelf Saddle	20
322	Scotian Rise Debris Flow	20
323	Scotian Rise	20
324	Scotian Slope East Canyon	20

325	Scotian Slope East Gully Fan	20
326	Scotian Slope East Laurentian Fan	20
327	Scotian Slope East	20
328	Scotian Slope West Fan	20
329	Scotian Slope West	20
Topographic Roughness Index		
601	High topographic roughness	20
Coral		
801	Coral areas by count	80
802	Coral areas with greater than three families	100
Whales		
901	Right whale Roseway ATBA	100
902	Right whale Bay of Fundy critical habitat	100
903	Northern bottlenose whale critical habitat	100
Biodiversity indices		
501	RV Survey biodiversity hot spots	30
502	Slope Survey biodiversity hot spots	30
503	Snowcrab Survey biodiversity hot spots	30
Significant Species		
402	Capelin	20
406	Halibut	20
407	Herring	20
408	Longhorn Sculpin	20
409	Northern Shortfin Squid	20
410	Mackerel	20
413	Pollock	20
414	Red Hake	20
415	Sandlance	20
417	Silver Hake	20
418	Smooth Skate	20
419	Spiny Dogfish	20
423	Witch Flounder	20
424	Atlantic Argentine	20
425	Longfin Hake	20
426	Monkfish	20
427	Mustache Sculpin	20
428	Ocean Pout	20
429	Sea Raven	20
430	Thorny Skate	20

4051	Haddock 4VW	20
4052	Haddock 4X5Y	20
4121	American Plaice 4VW	20
4122	American Plaice 4X5Y	20
4161	Sebastes (Redfish) Unit 2	20
4162	Sebastes (Redfish) Unit 3	20
4211	White Hake 4VW	20
4212	White Hake 4X5Y	20
4311	Winter Flounder 4VW	20
4312	Winter Flounder 4X5Y	20
4321	Yellowtail Flounder 4VW	20
4322	Yellowtail Flounder 4X	20
Depleted Species		
401	Atlantic Wolffish	80
404	Cusk	80
411	Northern Wolffish	80
420	Spotted Wolffish	80
422	Winter Skate	80
4031	Cod 4Vn	80
4032	Cod 4VsW	80
4033	Cod 4X5Y	80
Invertebrates		
701	Anemones (Anthozoa)	20
702	Brittle Stars (Ophiuroidea)	20
703	Crabs and Lobsters (*Cancer borealis, Cancer irroratus, Chaceon quinquedens, Homarus americanus, Hyas araneus, Hyas coarctatus,* Paguridae)	20
704	Cucumbers (Holothuroidea)	20
705	Shrimp (*Pandalus borealis*, *Pandalus montagui*, *Spirontocaris* sp.,*Stomphia coccinea*)	20
706	Snowcrab (*Chionoectes opilio*)	20
707	Sponges (Porifera)	20
708	Urchins (*Brisaster fragilis, Strongylocentrotus droebachiensis, Strongylocentrotus echinoids*)	20
709	Whelks (*Buccinum* sp.)	20
710	Soft Coral (Pennatulacea, *Primnoa resedaeformes*)	20
711	Sea Stars (Asteroidea, *Hippasteria phrygiana*)	20
712	Tunicates (*Ascidia* sp)	20

APPENDIX 3. TABLE DETAILING THE SCENARIO ANALYSES CONDUCTED WITH MARXAN FOR THE MPA NETWORK IDENTIFICATION

All values under representativity and ecologically and biologically significant areas are the percentage target of total area identified for each feature.

Representativity (Representative Habitat)				Ecologically and Biologically Significant Areas (EBSAs)								Settings					Results			
Seabed	Scope for Growth	Natural Disturbance	Low Natural Disturb-ance	Topo-graphic Rough-ness Index	All Significant Species	Regular Significant Species	Depleted Significant Species	Inverte-brates	Coral	Whales	Diversity indices	Status	BLM	Sep Distance	Iterations	Runs	Solution Figure	mvbest file	Notes	Scenario
Sensitivity Analyses																				
Representativity Scenarios:																				
10	10	10										4	10		100,000,000	10	Figure	Appendix 5		A
10	10	10										4	0		100,000,000	10	Figure	Appendix 6	old seabed[1]	B
10	10	10										4	0.1		100,000,000	10	Figure	Appendix 7	old seabed[1]	C
10	10	10										4	1		100,000,000	10	Figure	Appendix 8	old seabed[1]	D
10	10	10										4	10		100,000,000	10	Figure	Appendix 9	old seabed[1]	E
10	10	10										4	100		100,000,000	10	Figure	Appendix 10	old seabed[1]	F
10	10	10										4	1000		100,000,000	10	Figure	Appendix 11	old seabed[1]	G
EBSA Scenarios:																				
					10							none	10		100,000,000	10	Figure	Appendix 12		H
					15							none	10		100,000,000	10	Figure	Appendix 13		I
					20							none	10		100,000,000	10	Figure	Appendix 14		J
					30							none	10		100,000,000	10	Figure	Appendix 15		K
					40							none	10		100,000,000	10	Figure	Appendix 16		L
					50							none	10		100,000,000	10	Figure	Appendix 17		M
					30							none	4		100,000,000	10	Figure	Appendix 18		N
					30							none	6		100,000,000	10	Figure	Appendix 19		O
					30							none	8		100,000,000	10	Figure	Appendix 20		P
					30							none	12		100,000,000	10	Figure	Appendix 21		Q
					30							none	14		100,000,000	10	Figure	Appendix 22		R
					30							none	20		100,000,000	10	Figure	Appendix 23		D
					20						30	none	10		100,000,000	10	Figure	Appendix 24		T
					20						30	none	0		100,000,000	10	Figure	Appendix 25		U
						10	50					none	10		100,000,000	10	Figure	Appendix 26		V
						15	70					none	10		100,000,000	10	Figure	Appendix 27		W
						20	80					none	10		100,000,000	10	Figure	Appendix 28		X
						30	100					none	10		100,000,000	10	Figure	Appendix 29		Y
Representativity and EBSA Combined Scenarios:																				
10	10	10			10							4	10		100,000,000	10	Figure	Appendix 30	23 significant spp used[2]	Z

10	10	10			15							4	10		100,000,000	10	Figure	Appendix 31	23 significant spp used[2]	AA
10	10	10			15							4	100		100,000,000	10	Figure	Appendix 32	23 significant spp used[2]	AB
Representativity (Representative Habitat)				**Ecologically and Biologically Significant Areas (EBSAs)**								**Settings**					**Results**			
Seabed	**Scope for Growth**	**Natural Disturb-ance**	**Low Natural Disturb-ance**	**Topo-graphic Rough-ness Index**	**All Significant Species**	**Regular Significant Species**	**Depleted Significant Species**	**Invert-ebrates**	**Coral**	**Whales**	**Diversity Indices**	**Status**	**BLM**	**Sep Distance**	**Iterations**	**Runs**	**Solution Figure**	**mvbest file**	**Notes**	**Sce nar io**
10	10	10			20							4	10		100,000,000	10	Figure	Appendix 33	23 significant spp used[2]	AC
10	10	10			20							none	10		100,000,000	10	Figure	Appendix 34	23 significant spp used[2]	AD
10	10	10			20							4	100		100,000,000	10	Figure	Appendix 35	23 significant spp used[2]	AE
10	10	10			30							4	10		100,000,000	10	Figure	Appendix 36	23 significant spp used[2]	AF
				20	20						30	none	10		100,000,000	10	Figure	Appendix 37		AG
10	10	10		20	20						30	none	10		100,000,000	10	Figure	Appendix 38		AH
10	10	10		30	30						40	none	10		100,000,000	10	Figure	Appendix 39		AI
10	10	10		50	30						50	none	10		100,000,000	10	Figure	Appendix 40		AJ
20	20	20		50	30						50	none	10		100,000,000	10	Figure	Appendix 41		AK
10	10	10			20						30	none	10		100,000,000	10	Figure	Appendix 42		AL
10	10	10			30						50	none	10		100,000,000	10	Figure	Appendix 43		AM
10	10	10			20						30	none	0		100,000,000	10	Figure	Appendix 44		AN
10	10	10			30						50	none	0		100,000,000	10	Figure	Appendix 45		AO
10	10	10		10		10	50				25	none	10		100,000,000	10	Figure	Appendix 46		AP
10	10	10		15		15	70				30	none	10		100,000,000	10	Figure	Appendix 47		AQ
10	10	10		20		20	80				35	none	10		100,000,000	10	Figure	Appendix 48		AR
10	10	10		25		30	100				40	none	10		100,000,000	10	Figure	Appendix 49		AS
Concluding Scenarios																				
10	10	10	30	20		20	20	20			20	6	10		100,000,000	10	Figure	Appendix 50	some signif spp divided by populations[3], 9 invertebrates[4]	1
10	10	10	30	30		30	30	30			30	6	10		100,000,000	10	Figure	Appendix 51	some signif spp divided by populations[3], 9 invertebrates[4]	2
10	10	10	40	40		30	30	30			40	6	10		100,000,000	10	Figure	Appendix 52	some signif spp divided by populations[3], 9 invertebrates[4]	3
20	20	20	50	50		30	30	30			50	6	10		100,000,000	10	Figure	Appendix 53	some signif spp divided by populations[3], 9 invertebrates[4]	4
10	10	10	30	20		20	50	20			20	6	10		100,000,000	10	Figure	Appendix 54	some signif spp divided by populations[3], 9 invertebrates[4]	5
10	10	10	30	30		30	50	30			30	6	10		100,000,000	10	Figure	Appendix 55	some signif spp divided by populations[3], 9 invertebrates[4]	6
10	10	10	40	40		30	70	30			40	6	10		100,000,000	10	Figure	Appendix 56	some signif spp divided by populations[3], 9 invertebrates[4]	7
20	20	20	50	50		30	85	30			50	6	10		100,000,000	10	Figure	Appendix 57	some signif spp divided by populations[3], 9 invertebrates[4]	8

10	10	10	40	20		20	80	20			35	6	10		100,000,000	10	Figure	Appendix 58	some signif spp divided by populations[3], 9 invertebrates[4]	9
15	15	15	40	20		20	80	20			35	6	10		100,000,000	10	Figure	Appendix 59	some signif spp divided by populations[3]	10
Representativity (Representative Habitat)				**Ecologically and Biologically Significant Areas (EBSAs)**								**Settings**					**Results**			
Seabed	**Scope for Growth**	**Natural Disturb-ance**	**Low Natural Disturb-ance**	**Topo-graphic Rough-ness Index**	**All Significant Species**	**Regular Significant Species**	**Depleted Significant Species**	**Inverte brates**	**Coral densit y, divers ity**	**Whales**	**Diversity indices**	**Status**	**BLM**	**Sep Distance**	**Iterations**	**Runs**	**Solution Figure**	**mvbest file**	**Notes**	**Sce nar io**
20	20	20	40	20		20	80	20			35	6	10		100,000,000	10	Figure	Appendix 60	some signif spp divided by populations[3]	11
15	15	15	40	20		20	80	20			35	EBSA	10		100,000,000	10	Figure	Appendix 61	some signif spp divided by populations[3]	12
20	20	20	40	20		20	80	20			35	EBSA	10		100,000,000	10	Figure	Appendix 62	† some signif spp divided by populations[3]	13
15	15	15	40	20		20	80	20	80,100	100	30	6	10		100,000,000	10	Figure	Appendix 63	†some signif spp divided by populations[3]	14
20	20	20	40	20		20	80	20	80,100	100	30	6	10		100,000,000	10	Figure	Appendix 64	† some signif spp divided by populations[3]	15
15	15	15	40	20		20	80	20	80,100	100	30	EBSA	10		100,000,000	10	Figure	Appendix 65	† some signif spp divided by populations[3]	16
20	20	20	40	20		20	80	20	80,100	100	30	EBSA	10		100,000,000	10	Figure	Appendix 66	† some signif spp divided by populations[3]	17

[1.] "*Old seabed*" refers to an earlier version of the seabed features that only included the Scotian Shelf area (i.e. Bay of Fundy and Gulf of Maine excluded). Subsequently the seabed feature map
[2.] "*23 significant species used*" – refers to the species identified through the EBSA and ESS process (based on ecosystem modeling work by Alida Bundy, DFO) that can be expected to be observed in the DFO trawl surveys. In all other cases, an additional nine dominant species were added, based on their observed presence in 10% or more of all trawl surveys. (See also Horsman and Shackell.)
[3.] "*some signif spp divided by populations*" – where sufficient information and stock assessment existed for sub-populations of species within the region, species were further broken into sub-regional groups and were re-assessed for areas of importance using the methods applied to other species (see also Horsman and Shackell). Species with sub-regional population information are: Haddock, American American Plaice, Redfish (*Sebastes* spp), White Hake, Winter Flounder, Yellowtail Flounder and Atlantic Cod.
[4.] "*9 invertebrates*" – in these scenarios only nine of the twelve final invertebrate groups were used. Tunicates, soft coral and sea stars were the three species groups absent in these scenarios.

APPENDIX 4. STATUS CODES USED IN MARXAN

	Area						
Status	**The Gully MPA**	**Northeast Channel Coral Closure**	**Lophelia Coral Closure**	**Haddock Box**	**"Haddock Box" EBSA**	**Oil and Gas Areas**	**Non-EBSA areas**
1	Locked in	Locked in	Locked in	Locked in			
2	Locked in	Locked in	Locked in		Locked in		
3	Locked in	Locked in	Locked in				
4	Locked in	Locked in	Locked in	Seeded			
5	Locked in	Locked in	Locked in		Seeded		
6						Locked out	
7	Locked in	Locked in	Locked in			Locked out	
EBSA							Locked out
none							

Definitions:
Locked in = The area must be included in the final solution and cannot be removed.
Seeded = The area is included in the initial reserve system but may or may not be in the final solution
Locked out = The area cannot be included in the final solution

APPENDIX 5. SCENARIO A

Feature ID	Feature Name	Target	Amount Held	Occurrences Held	Target Met	% Target Met
331	Scotian Slope West Other	5484.4567	5485.527	548	yes	100.0
330	Scotian Slope West Fan	1035.7882	1036.99	109	yes	100.1
329	Scotian Slope East Other	3567.3154	3569.729	448	yes	100.1
328	Scotian Slope East Laurentian Fan	2697.125	2702.949	289	yes	100.2
327	Scotian Slope East Gully Fan	2105.3188	2106.014	310	yes	100.0
326	Scotian Slope East Canyon	718.6023	1243.159	196	yes	173.0
325	Scotian Rise Other	7897.667	7899.021	771	yes	100.0
324	Scotian Rise Debris Flow	763.4982	763.467	74	no	100.0
323	Outer Scotian Shelf Other	984.812	986.753	174	yes	100.2
322	Outer Scotian Shelf Bank	4214.2808	4217.732	479	yes	100.1
321	Outer Scotian Scotian Shelf Saddle	529.0972	531.642	57	yes	100.5
320	Outer Scotian Scotian Shelf Bank Saddle	90.2061	93.023	12	yes	103.1
319	Outer Gulf of Maine Shelf Other	197.6614	200.898	26	yes	101.6
318	Outer Gulf of Maine Shelf Channel	502.7281	502.876	64	yes	100.0
317	Outer Gulf of Maine Shelf Basin	150.6906	150.914	15	yes	100.1
316	Outer Gulf of Maine Shelf Bank	638.1165	639.965	64	yes	100.3
315	Outer Bay of Fundy Other	338.0791	342.487	35	yes	101.3
314	Middle Scotian Shelf Other	4948.1693	4948.133	677	no	100.0
313	Middle Scotian Shelf Basin	1115.2814	1116.378	148	yes	100.1
312	Middle Scotian Shelf Bank	896.1344	896.531	159	yes	100.0
311	Middle Gulf of Maine Shelf Tertiary Cretaceous	76.8758	82.437	12	yes	107.2
310	Middle Gulf of Maine Shelf Other	1318.7397	1320.135	171	yes	100.1
309	Middle Gulf of Maine Shelf Basin	381.246	383.922	55	yes	100.7
308	Middle Gulf of Maine Shelf Bank	12.4695	13.33	6	yes	106.9
307	Laurentian Channel Other	2289.3404	2289.875	254	yes	100.0
306	Inner Scotian Shelf Other	2197.2913	2202.937	281	yes	100.3
305	Inner Gulf of Maine Shelf Other	881.2466	887.379	109	yes	100.7
304	Inner Bay of Fundy Shallow Basin	144.0429	145.031	15	yes	100.7
303	Inner Bay of Fundy Other	426.9385	431.936	49	yes	101.2
302	Inner Bay of Fundy Basin	18.6295	18.912	7	yes	101.5
301	Georges Bank Slope Other	49.9869	52.549	5	yes	105.1
203	Natural disturbance high	2549.9701	2629.466	401	yes	103.1
202	Natural disturbance moderate	12434.0384	13113.44	1708	yes	105.5
201	Natural disturbance low	5589.5765	6836.115	997	yes	122.3
105	Scope for growth very high	3076.7886	3468.716	354	yes	112.7
104	Scope for growth high	1694.2834	2128.354	237	yes	125.6
103	Scope for growth moderate	3729.8954	3746.787	446	yes	100.5
102	Scope for growth low	6453.6197	6478.79	784	yes	100.4
101	Scope for growth very low	2897.4918	3707.695	471	yes	128.0

APPENDIX 6. SCENARIO B

Feature ID	Feature Name	Target	Amount Held	Occurrences Held	Target Met	% Target Met
310		986.4259	986.542	160	yes	100.0
309		4211.9002	4208.049	464	no	99.9
308		529.0608	529.288	61	yes	100.0
307		89.7979	90.415	13	yes	100.7
306		4951.0397	4951.101	621	yes	100.0
305		1114.1232	1114.286	129	yes	100.0
304		885.8258	886.221	130	yes	100.0
303		2193.3962	2193.791	260	yes	100.0
302		6337.5807	6337.509	631	no	100.0
301		6481.8086	6480.573	674	no	100.0
203		2549.9701	2556.275	360	yes	100.2
202		12434.0384	12435.229	1562	yes	100.0
201		5589.5765	5590.656	810	yes	100.0
105		3076.7886	3082.305	326	yes	100.2
104		1694.2834	1705.702	206	yes	100.7
103		3729.8954	3729.967	461	yes	100.0
102		6453.6197	6457.004	788	yes	100.1
101		2897.4918	2998.885	394	yes	103.5

APPENDIX 7. SCENARIO C

Feature ID	Feature Name	Target	Amount Held	Occurrences Held	Target Met	% Target Met
310		986.4259	987.029	152	yes	100.1
309		4211.9002	4212.488	473	yes	100.0
308		529.0608	529.71	63	yes	100.1
307		89.7979	90.335	16	yes	100.6
306		4951.0397	4951.123	622	yes	100.0
305		1114.1232	1114.266	137	yes	100.0
304		885.8258	886.01	124	yes	100.0
303		2193.3962	2193.574	258	yes	100.0
302		6337.5807	6337.659	632	yes	100.0
301		6481.8086	6475.139	676	no	99.9
203		2549.9701	2551.949	357	yes	100.1
202		12434.0384	12440.081	1574	yes	100.0
201		5589.5765	5687.888	848	yes	101.8
105		3076.7886	3076.573	329	no	100.0
104		1694.2834	1708.367	211	yes	100.8
103		3729.8954	3731.101	460	yes	100.0
102		6453.6197	6469.663	791	yes	100.2
101		2897.4918	2914.123	396	yes	100.6

APPENDIX 8. SCENARIO D

Feature ID	Feature Name	Target	Amount Held	Occurrences Held	Target Met	% Target Met
310		986.4259	986.965	159	yes	100.1
309		4211.9002	4212.84	467	yes	100.0
308		529.0608	529.837	61	yes	100.1
307		89.7979	90.588	18	yes	100.9
306		4951.0397	4954.089	633	yes	100.1
305		1114.1232	1114.11	146	no	100.0
304		885.8258	886.001	134	yes	100.0
303		2193.3962	2195.975	266	yes	100.1
302		6337.5807	6337.83	640	yes	100.0
301		6481.8086	6481.549	680	no	100.0
203		2549.9701	2655.499	364	yes	104.1
202		12434.0384	12567.999	1585	yes	101.1
201		5589.5765	5804.084	863	yes	103.8
105		3076.7886	3077.567	340	yes	100.0
104		1694.2834	1884.471	228	yes	111.2
103		3729.8954	3736.992	439	yes	100.2
102		6453.6197	6467.304	752	yes	100.2
101		2897.4918	2903.594	366	yes	100.2

Appendix 9. Scenario E

Feature ID	Feature Name	Target	Amount Held	Occurrences Held	Target Met	% Target Met
310		986.4259	1344.937	209	yes	136.3
309		4211.9002	4220.679	484	yes	100.2
308		529.0608	540.587	65	yes	102.2
307		89.7979	94.2	19	yes	104.9
306		4951.0397	4954.202	615	yes	100.1
305		1114.1232	1115.393	139	yes	100.1
304		885.8258	888.894	127	yes	100.3
303		2193.3962	2200.733	252	yes	100.3
302		6337.5807	6345.671	639	yes	100.1
301		6481.8086	6482.362	685	yes	100.0
203		2549.9701	2549.919	378	no	100.0
202		12434.0384	12436.167	1575	yes	100.0
201		5589.5765	5589.794	848	yes	100.0
105		3076.7886	3083.656	338	yes	100.2
104		1694.2834	2215.16	249	yes	130.7
103		3729.8954	3741.632	464	yes	100.3
102		6453.6197	6475.445	769	yes	100.3
101		2897.4918	2926.748	347	yes	101.0

Appendix 10. Scenario F

Feature ID	Feature Name	Target	Amount Held	Occurrences Held	Target Met	% Target Met
310		986.4259	1440.778	218	yes	146.1
309		4211.9002	4216.173	484	yes	100.1
308		529.0608	529.219	62	yes	100.0
307		89.7979	89.828	9	yes	100.0
306		4951.0397	4952.261	615	yes	100.0
305		1114.1232	1232.781	150	yes	110.7
304		885.8258	898.811	108	yes	101.5
303		2193.3962	2193.841	281	yes	100.0
302		6337.5807	6344.151	638	yes	100.1
301		6481.8086	6484.241	678	yes	100.0
203		2549.9701	2550.264	385	yes	100.0
202		12434.0384	12544.623	1636	yes	100.9
201		5589.5765	5589.8	832	yes	100.0
105		3076.7886	3077.464	334	yes	100.0
104		1694.2834	1711.997	213	yes	101.0
103		3729.8954	3730.765	455	yes	100.0
102		6453.6197	6462.159	772	yes	100.1
101		2897.4918	3829.993	457	yes	132.2

Appendix 11. Scenario G

Feature ID	Feature Name	Target	Amount Held	Occurrences Held	Target Met	% Target Met
310		986.4259	5334.388	661	yes	540.8
309		4211.9002	10150.677	1135	yes	241.0
308		529.0608	533.576	60	yes	100.9
307		89.7979	92.636	12	yes	103.2
306		4951.0397	6493.901	790	yes	131.2
305		1114.1232	1131.119	144	yes	101.5
304		885.8258	889.859	107	yes	100.5
303		2193.3962	2201.312	255	yes	100.4
302		6337.5807	6342.126	647	yes	100.1
301		6481.8086	6489.045	690	yes	100.1
203		2549.9701	5581.09	783	yes	218.9
202		12434.0384	19266.589	2393	yes	155.0
201		5589.5765	7184.477	1059	yes	128.5
105		3076.7886	3077.535	342	yes	100.0
104		1694.2834	6118.769	685	yes	361.1
103		3729.8954	11011.25	1287	yes	295.2
102		6453.6197	6453.642	874	yes	100.0
101		2897.4918	2928.718	381	yes	101.1

Appendix 12. Scenario H

Feature ID	Feature Name	Target	Amount Held	Occurrences Held	Target Met	% Target Met
432	Yellowtail Flounder	1652	2870	287	yes	173.7
431	Winter Flounder	462	640	64	yes	138.5
430	Thorny Skate	1778.7	1840	184	yes	103.4
429	Sea Raven	950	950	95	yes	100.0
428	Ocean Pout	546	550	55	yes	100.7
427	Mustache Sculpin	20	200	20	yes	1000.0
426	Monkfish	448	450	45	yes	100.4
425	Longfin Hake	332.4	340	34	yes	102.3
424	Atlantic Argentine	390	390	39	yes	100.0
423	Witch Flounder	1198.7	1229	123	yes	102.5
422	Winter Skate	348	380	38	yes	109.2
421	White Hake	1715.3	1730	173	yes	100.9
420	Spotted Wolffish	4.5	9	1	yes	200.0
419	Spiny Dogfish	846	850	85	yes	100.5
418	Smooth Skate	256.6	340	34	yes	132.5
417	Silver Hake	1631	1640	164	yes	100.6
416	Sebastes	1471.8	1479	148	yes	100.5
415	Sandlance	37	350	35	yes	945.9
414	Red Hake	139	150	15	yes	107.9
413	Pollock	671	760	76	yes	113.3
412	American Plaice	2767.1	2769	277	yes	100.1
411	Northern Wolffish	14	60	6	yes	428.6
410	Mackerel	56	60	6	yes	107.1
409	Northern Shortfin Squid	842	850	85	yes	101.0
408	Longhorn Sculpin	927	930	93	yes	100.3
407	Herring	269.6	270	27	yes	100.1
406	Halibut	208	210	21	yes	101.0
405	Haddock	2245	2250	225	yes	100.2
404	Cusk	290	290	29	yes	100.0
403	Cod	1728.2	1729	173	yes	100.0
402	Capelin	236.8	370	37	yes	156.3
401	Atlantic Wolffish	516.5	520	52	yes	100.7

Appendix 13. Scenario I

Feature ID	Feature Name	Target	Amount Held	Occurrences Held	Target Met	% Target Met
432	Yellowtail Flounder	2478	4020	402	yes	162.2
431	Winter Flounder	693	1240	124	yes	178.9
430	Thorny Skate	2668.05	2700	270	yes	101.2
429	Sea Raven	1425	1740	174	yes	122.1
428	Ocean Pout	819	820	82	yes	100.1
427	Mustache Sculpin	30	200	20	yes	666.7
426	Monkfish	672	680	68	yes	101.2
425	Longfin Hake	498.6	510	51	yes	102.3
424	Atlantic Argentine	585	590	59	yes	100.9
423	Witch Flounder	1798.05	1995	202	yes	111.0
422	Winter Skate	522	520	52	no	99.6
421	White Hake	2572.95	2583	259	yes	100.4
420	Spotted Wolffish	6.75	18	2	yes	266.7
419	Spiny Dogfish	1269	1270	127	yes	100.1
418	Smooth Skate	384.9	480	48	yes	124.7
417	Silver Hake	2446.5	2450	245	yes	100.1
416	Sebastes	2207.7	2208	222	yes	100.0
415	Sandlance	55.5	370	37	yes	666.7
414	Red Hake	208.5	210	21	yes	100.7
413	Pollock	1006.5	1310	131	yes	130.2
412	American Plaice	4150.65	4157	418	yes	100.2
411	Northern Wolffish	21	120	12	yes	571.4
410	Mackerel	84	90	9	yes	107.1
409	Northern Shortfin Squid	1263	1270	127	yes	100.6
408	Longhorn Sculpin	1390.5	1390	139	no	100.0
407	Herring	404.4	410	41	yes	101.4
406	Halibut	312	320	32	yes	102.6
405	Haddock	3367.5	3370	337	yes	100.1
404	Cusk	435	440	44	yes	101.1
403	Cod	2592.3	2594	262	yes	100.1
402	Capelin	355.2	420	42	yes	118.2
401	Atlantic Wolffish	774.75	800	80	yes	103.3

Appendix 14. Scenario J

Feature ID	Feature Name	Target	Amount Held	Occurrences Held	Target Met	% Target Met
432	Yellowtail Flounder	3304	4960	496	yes	150.1
431	Winter Flounder	924	1820	182	yes	197.0
430	Thorny Skate	3557.4	3714	372	yes	104.4
429	Sea Raven	1900	2500	250	yes	131.6
428	Ocean Pout	1092	1100	110	yes	100.7
427	Mustache Sculpin	40	200	20	yes	500.0
426	Monkfish	896	900	90	yes	100.4
425	Longfin Hake	664.8	670	67	yes	100.8
424	Atlantic Argentine	780	840	84	yes	107.7
423	Witch Flounder	2397.4	2487	254	yes	103.7
422	Winter Skate	696	700	70	yes	100.6
421	White Hake	3430.6	3849	387	yes	112.2
420	Spotted Wolffish	9	18	2	yes	200.0
419	Spiny Dogfish	1692	1700	170	yes	100.5
418	Smooth Skate	513.2	666	67	yes	129.8
417	Silver Hake	3262	3270	327	yes	100.2
416	Sebastes	2943.6	2947	297	yes	100.1
415	Sandlance	74	370	37	yes	500.0
414	Red Hake	278	380	38	yes	136.7
413	Pollock	1342	2010	201	yes	149.8
412	American Plaice	5534.2	5539	561	yes	100.1
411	Northern Wolffish	28	80	8	yes	285.7
410	Mackerel	112	120	12	yes	107.1
409	Northern Shortfin Squid	1684	1690	169	yes	100.4
408	Longhorn Sculpin	1854	1890	189	yes	101.9
407	Herring	539.2	540	54	yes	100.1
406	Halibut	416	420	42	yes	101.0
405	Haddock	4490	4490	449	yes	100.0
404	Cusk	580	580	58	yes	100.0
403	Cod	3456.4	3462	354	yes	100.2
402	Capelin	473.6	478	48	yes	100.9
401	Atlantic Wolffish	1033	1037	105	yes	100.4

Appendix 15. Scenario K

Feature ID	Feature Name	Target	Amount Held	Occurrences Held	Target Met	% Target Met
432	Yellowtail Flounder	4956	6400	640	yes	129.1
431	Winter Flounder	1386	2140	214	yes	154.4
430	Thorny Skate	5336.1	5341	537	yes	100.1
429	Sea Raven	2850	2940	294	yes	103.2
428	Ocean Pout	1638	1680	168	yes	102.6
427	Mustache Sculpin	60	200	20	yes	333.3
426	Monkfish	1344	1350	135	yes	100.4
425	Longfin Hake	997.2	1000	100	yes	100.3
424	Atlantic Argentine	1170	1170	117	yes	100.0
423	Witch Flounder	3596.1	3628	372	yes	100.9
422	Winter Skate	1044	1060	106	yes	101.5
421	White Hake	5145.9	5243	528	yes	101.9
420	Spotted Wolffish	13.5	18	2	yes	133.3
419	Spiny Dogfish	2538	2540	254	yes	100.1
418	Smooth Skate	769.8	1013	104	yes	131.6
417	Silver Hake	4893	4900	490	yes	100.1
416	Sebastes	4415.4	4421	445	yes	100.1
415	Sandlance	111	370	37	yes	333.3
414	Red Hake	417	590	59	yes	141.5
413	Pollock	2013	3160	316	yes	157.0
412	American Plaice	8301.3	8305	841	yes	100.0
411	Northern Wolffish	42	100	10	yes	238.1
410	Mackerel	168	170	17	yes	101.2
409	Northern Shortfin Squid	2526	2530	253	yes	100.2
408	Longhorn Sculpin	2781	2790	279	yes	100.3
407	Herring	808.8	910	91	yes	112.5
406	Halibut	624	630	63	yes	101.0
405	Haddock	6735	6740	674	yes	100.1
404	Cusk	870	870	87	yes	100.0
403	Cod	5184.6	5186	527	yes	100.0
402	Capelin	710.4	710	71	no	99.9
401	Atlantic Wolffish	1549.5	1567	158	yes	101.1

Appendix 16. Scenario L

Feature ID	Feature Name	Target	Amount Held	Occurrences Held	Target Met	% Target Met
432	Yellowtail Flounder	6608	7680	768	yes	116.2
431	Winter Flounder	1848	2010	201	yes	108.8
430	Thorny Skate	7114.8	7221	725	yes	101.5
429	Sea Raven	3800	4090	409	yes	107.6
428	Ocean Pout	2184	2200	220	yes	100.7
427	Mustache Sculpin	80	200	20	yes	250.0
426	Monkfish	1792	1800	180	yes	100.4
425	Longfin Hake	1329.6	1350	136	yes	101.5
424	Atlantic Argentine	1560	1560	156	yes	100.0
423	Witch Flounder	4794.8	4810	497	yes	100.3
422	Winter Skate	1392	1400	140	yes	100.6
421	White Hake	6861.2	7957	806	yes	116.0
420	Spotted Wolffish	18	45	5	yes	250.0
419	Spiny Dogfish	3384	3390	339	yes	100.2
418	Smooth Skate	1026.4	1312	134	yes	127.8
417	Silver Hake	6524	6530	653	yes	100.1
416	Sebastes	5887.2	5887	597	no	100.0
415	Sandlance	148	370	37	yes	250.0
414	Red Hake	556	930	93	yes	167.3
413	Pollock	2684	3640	364	yes	135.6
412	American Plaice	11068.4	11072	1119	yes	100.0
411	Northern Wolffish	56	110	11	yes	196.4
410	Mackerel	224	230	23	yes	102.7
409	Northern Shortfin Squid	3368	3370	337	yes	100.1
408	Longhorn Sculpin	3708	3710	371	yes	100.1
407	Herring	1078.4	1150	115	yes	106.6
406	Halibut	832	830	83	no	99.8
405	Haddock	8980	8980	898	yes	100.0
404	Cusk	1160	1180	118	yes	101.7
403	Cod	6912.8	6914	701	yes	100.0
402	Capelin	947.2	948	95	yes	100.1
401	Atlantic Wolffish	2066	2079	209	yes	100.6

Appendix 17. Scenario M

Feature ID	Feature Name	Target	Amount Held	Occurrences Held	Target Met	% Target Met
432	Yellowtail Flounder	8260	9020	902	yes	109.2
431	Winter Flounder	2310	2400	240	yes	103.9
430	Thorny Skate	8893.5	8938	897	yes	100.5
429	Sea Raven	4750	4760	476	yes	100.2
428	Ocean Pout	2730	2730	273	yes	100.0
427	Mustache Sculpin	100	190	19	yes	190.0
426	Monkfish	2240	2240	224	yes	100.0
425	Longfin Hake	1662	1850	186	yes	111.3
424	Atlantic Argentine	1950	1950	195	yes	100.0
423	Witch Flounder	5993.5	5996	619	yes	100.0
422	Winter Skate	1740	1740	174	yes	100.0
421	White Hake	8576.5	8836	895	yes	103.0
420	Spotted Wolffish	22.5	45	5	yes	200.0
419	Spiny Dogfish	4230	4230	423	yes	100.0
418	Smooth Skate	1283	1662	169	yes	129.5
417	Silver Hake	8155	8160	816	yes	100.1
416	Sebastes	7359	7359	746	yes	100.0
415	Sandlance	185	370	37	yes	200.0
414	Red Hake	695	1150	115	yes	165.5
413	Pollock	3355	4310	431	yes	128.5
412	American Plaice	13835.5	13836	1402	yes	100.0
411	Northern Wolffish	70	110	11	yes	157.1
410	Mackerel	280	280	28	yes	100.0
409	Northern Shortfin Squid	4210	4210	421	yes	100.0
408	Longhorn Sculpin	4635	4640	464	yes	100.1
407	Herring	1348	1380	138	yes	102.4
406	Halibut	1040	1040	104	yes	100.0
405	Haddock	11225	11230	1123	yes	100.0
404	Cusk	1450	1460	146	yes	100.7
403	Cod	8641	8648	880	yes	100.1
402	Capelin	1184	1188	119	yes	100.3
401	Atlantic Wolffish	2582.5	2795	281	yes	108.2

Appendix 18. Scenario N

Feature ID	Feature Name	Target	Amount Held	Occurrences Held	Target Met	% Target Met
432	Yellowtail Flounder	4956	5440	544	yes	109.8
431	Winter Flounder	1386	1600	160	yes	115.4
430	Thorny Skate	5336.1	5337	537	yes	100.0
429	Sea Raven	2850	2880	288	yes	101.1
428	Ocean Pout	1638	1640	164	yes	100.1
427	Mustache Sculpin	60	200	20	yes	333.3
426	Monkfish	1344	1350	135	yes	100.4
425	Longfin Hake	997.2	1010	101	yes	101.3
424	Atlantic Argentine	1170	1170	117	yes	100.0
423	Witch Flounder	3596.1	3648	375	yes	101.4
422	Winter Skate	1044	1050	105	yes	100.6
421	White Hake	5145.9	5160	520	yes	100.3
420	Spotted Wolffish	13.5	18	2	yes	133.3
419	Spiny Dogfish	2538	2540	254	yes	100.1
418	Smooth Skate	769.8	1023	105	yes	132.9
417	Silver Hake	4893	4900	490	yes	100.1
416	Sebastes	4415.4	4416	444	yes	100.0
415	Sandlance	111	370	37	yes	333.3
414	Red Hake	417	690	69	yes	165.5
413	Pollock	2013	3140	314	yes	156.0
412	American Plaice	8301.3	8303	843	yes	100.0
411	Northern Wolffish	42	110	11	yes	261.9
410	Mackerel	168	170	17	yes	101.2
409	Northern Shortfin Squid	2526	2530	253	yes	100.2
408	Longhorn Sculpin	2781	2790	279	yes	100.3
407	Herring	808.8	900	90	yes	111.3
406	Halibut	624	630	63	yes	101.0
405	Haddock	6735	6740	674	yes	100.1
404	Cusk	870	870	87	yes	100.0
403	Cod	5184.6	5226	531	yes	100.8
402	Capelin	710.4	718	72	yes	101.1
401	Atlantic Wolffish	1549.5	1558	157	yes	100.5

Appendix 19. Scenario O

Feature ID	Feature Name	Target	Amount Held	Occurrences Held	Target Met	% Target Met
432	Yellowtail Flounder	4956	6410	641	yes	129.3
431	Winter Flounder	1386	1500	150	yes	108.2
430	Thorny Skate	5336.1	5340	537	yes	100.1
429	Sea Raven	2850	2870	287	yes	100.7
428	Ocean Pout	1638	1640	164	yes	100.1
427	Mustache Sculpin	60	200	20	yes	333.3
426	Monkfish	1344	1350	135	yes	100.4
425	Longfin Hake	997.2	1010	101	yes	101.3
424	Atlantic Argentine	1170	1170	117	yes	100.0
423	Witch Flounder	3596.1	3602	371	yes	100.2
422	Winter Skate	1044	1050	105	yes	100.6
421	White Hake	5145.9	5147	520	yes	100.0
420	Spotted Wolffish	13.5	18	2	yes	133.3
419	Spiny Dogfish	2538	2540	254	yes	100.1
418	Smooth Skate	769.8	1124	115	yes	146.0
417	Silver Hake	4893	4900	490	yes	100.1
416	Sebastes	4415.4	4419	445	yes	100.1
415	Sandlance	111	370	37	yes	333.3
414	Red Hake	417	640	64	yes	153.5
413	Pollock	2013	3010	301	yes	149.5
412	American Plaice	8301.3	8305	843	yes	100.0
411	Northern Wolffish	42	110	11	yes	261.9
410	Mackerel	168	180	18	yes	107.1
409	Northern Shortfin Squid	2526	2530	253	yes	100.2
408	Longhorn Sculpin	2781	2790	279	yes	100.3
407	Herring	808.8	850	85	yes	105.1
406	Halibut	624	630	63	yes	101.0
405	Haddock	6735	6740	674	yes	100.1
404	Cusk	870	890	89	yes	102.3
403	Cod	5184.6	5185	528	yes	100.0
402	Capelin	710.4	720	72	yes	101.4
401	Atlantic Wolffish	1549.5	1617	163	yes	104.4

Appendix 20. Scenario P

Feature ID	Feature Name	Target	Amount Held	Occurrences Held	Target Met	% Target Met
432	Yellowtail Flounder	4956	6680	668	yes	134.8
431	Winter Flounder	1386	2060	206	yes	148.6
430	Thorny Skate	5336.1	5360	536	yes	100.4
429	Sea Raven	2850	3060	306	yes	107.4
428	Ocean Pout	1638	1640	164	yes	100.1
427	Mustache Sculpin	60	200	20	yes	333.3
426	Monkfish	1344	1350	135	yes	100.4
425	Longfin Hake	997.2	999	100	yes	100.2
424	Atlantic Argentine	1170	1170	117	yes	100.0
423	Witch Flounder	3596.1	3596	365	no	100.0
422	Winter Skate	1044	1050	105	yes	100.6
421	White Hake	5145.9	5277	531	yes	102.5
420	Spotted Wolffish	13.5	27	3	yes	200.0
419	Spiny Dogfish	2538	2540	254	yes	100.1
418	Smooth Skate	769.8	820	82	yes	106.5
417	Silver Hake	4893	4900	490	yes	100.1
416	Sebastes	4415.4	4422	446	yes	100.1
415	Sandlance	111	370	37	yes	333.3
414	Red Hake	417	710	71	yes	170.3
413	Pollock	2013	3200	320	yes	159.0
412	American Plaice	8301.3	8307	834	yes	100.1
411	Northern Wolffish	42	120	12	yes	285.7
410	Mackerel	168	170	17	yes	101.2
409	Northern Shortfin Squid	2526	2530	253	yes	100.2
408	Longhorn Sculpin	2781	2790	279	yes	100.3
407	Herring	808.8	930	93	yes	115.0
406	Halibut	624	630	63	yes	101.0
405	Haddock	6735	6740	674	yes	100.1
404	Cusk	870	870	87	yes	100.0
403	Cod	5184.6	5194	524	yes	100.2
402	Capelin	710.4	740	74	yes	104.2
401	Atlantic Wolffish	1549.5	1554	156	yes	100.3

Appendix 21. Scenario Q

Feature ID	Feature Name	Target	Amount Held	Occurrences Held	Target Met	% Target Met
432	Yellowtail Flounder	4956	5550	555	yes	112.0
431	Winter Flounder	1386	2240	224	yes	161.6
430	Thorny Skate	5336.1	5401	543	yes	101.2
429	Sea Raven	2850	3080	308	yes	108.1
428	Ocean Pout	1638	1640	164	yes	100.1
427	Mustache Sculpin	60	200	20	yes	333.3
426	Monkfish	1344	1350	135	yes	100.4
425	Longfin Hake	997.2	1000	100	yes	100.3
424	Atlantic Argentine	1170	1170	117	yes	100.0
423	Witch Flounder	3596.1	3601	370	yes	100.1
422	Winter Skate	1044	1050	105	yes	100.6
421	White Hake	5145.9	5201	524	yes	101.1
420	Spotted Wolffish	13.5	36	4	yes	266.7
419	Spiny Dogfish	2538	2540	254	yes	100.1
418	Smooth Skate	769.8	913	94	yes	118.6
417	Silver Hake	4893	4900	490	yes	100.1
416	Sebastes	4415.4	4416	445	yes	100.0
415	Sandlance	111	370	37	yes	333.3
414	Red Hake	417	690	69	yes	165.5
413	Pollock	2013	3320	332	yes	164.9
412	American Plaice	8301.3	8302	842	yes	100.0
411	Northern Wolffish	42	100	10	yes	238.1
410	Mackerel	168	170	17	yes	101.2
409	Northern Shortfin Squid	2526	2530	253	yes	100.2
408	Longhorn Sculpin	2781	2810	281	yes	101.0
407	Herring	808.8	860	86	yes	106.3
406	Halibut	624	630	63	yes	101.0
405	Haddock	6735	6740	674	yes	100.1
404	Cusk	870	930	93	yes	106.9
403	Cod	5184.6	5187	527	yes	100.0
402	Capelin	710.4	718	72	yes	101.1
401	Atlantic Wolffish	1549.5	1937	195	yes	125.0

Appendix 22. Scenario R

Feature ID	Feature Name	Target	Amount Held	Occurrences Held	Target Met	% Target Met
432	Yellowtail Flounder	4956	6490	649	yes	131.0
431	Winter Flounder	1386	1860	186	yes	134.2
430	Thorny Skate	5336.1	5440	544	yes	101.9
429	Sea Raven	2850	3090	309	yes	108.4
428	Ocean Pout	1638	1640	164	yes	100.1
427	Mustache Sculpin	60	200	20	yes	333.3
426	Monkfish	1344	1350	135	yes	100.4
425	Longfin Hake	997.2	1006	101	yes	100.9
424	Atlantic Argentine	1170	1180	118	yes	100.9
423	Witch Flounder	3596.1	3610	367	yes	100.4
422	Winter Skate	1044	1060	106	yes	101.5
421	White Hake	5145.9	5615	566	yes	109.1
420	Spotted Wolffish	13.5	45	5	yes	333.3
419	Spiny Dogfish	2538	2540	254	yes	100.1
418	Smooth Skate	769.8	880	88	yes	114.3
417	Silver Hake	4893	4900	490	yes	100.1
416	Sebastes	4415.4	4418	447	yes	100.1
415	Sandlance	111	370	37	yes	333.3
414	Red Hake	417	720	72	yes	172.7
413	Pollock	2013	3130	313	yes	155.5
412	American Plaice	8301.3	8302	833	yes	100.0
411	Northern Wolffish	42	120	12	yes	285.7
410	Mackerel	168	170	17	yes	101.2
409	Northern Shortfin Squid	2526	2530	253	yes	100.2
408	Longhorn Sculpin	2781	2800	280	yes	100.7
407	Herring	808.8	900	90	yes	111.3
406	Halibut	624	630	63	yes	101.0
405	Haddock	6735	6740	674	yes	100.1
404	Cusk	870	880	88	yes	101.1
403	Cod	5184.6	5190	523	yes	100.1
402	Capelin	710.4	740	74	yes	104.2
401	Atlantic Wolffish	1549.5	1550	155	yes	100.0

Appendix 23. Scenario S

Feature ID	Feature Name	Target	Amount Held	Occurrences Held	Target Met	% Target Met
432	Yellowtail Flounder	4956	6260	626	yes	126.3
431	Winter Flounder	1386	2490	249	yes	179.7
430	Thorny Skate	5336.1	5345	536	yes	100.2
429	Sea Raven	2850	3800	380	yes	133.3
428	Ocean Pout	1638	1640	164	yes	100.1
427	Mustache Sculpin	60	200	20	yes	333.3
426	Monkfish	1344	1350	135	yes	100.4
425	Longfin Hake	997.2	1005	102	yes	100.8
424	Atlantic Argentine	1170	1170	117	yes	100.0
423	Witch Flounder	3596.1	3667	379	yes	102.0
422	Winter Skate	1044	1050	105	yes	100.6
421	White Hake	5145.9	5788	587	yes	112.5
420	Spotted Wolffish	13.5	45	5	yes	333.3
419	Spiny Dogfish	2538	2540	254	yes	100.1
418	Smooth Skate	769.8	896	91	yes	116.4
417	Silver Hake	4893	4900	490	yes	100.1
416	Sebastes	4415.4	4416	451	yes	100.0
415	Sandlance	111	370	37	yes	333.3
414	Red Hake	417	620	62	yes	148.7
413	Pollock	2013	2620	262	yes	130.2
412	American Plaice	8301.3	8302	843	yes	100.0
411	Northern Wolffish	42	120	12	yes	285.7
410	Mackerel	168	170	17	yes	101.2
409	Northern Shortfin Squid	2526	2530	253	yes	100.2
408	Longhorn Sculpin	2781	2790	279	yes	100.3
407	Herring	808.8	810	81	yes	100.1
406	Halibut	624	630	63	yes	101.0
405	Haddock	6735	6740	674	yes	100.1
404	Cusk	870	920	92	yes	105.7
403	Cod	5184.6	5185	532	yes	100.0
402	Capelin	710.4	738	74	yes	103.9
401	Atlantic Wolffish	1549.5	1627	164	yes	105.0

Appendix 24. Scenario T

Feature ID	Feature Name	Target	Amount Held	Occurrences Held	Target Met	% Target Met
601	High topographic roughness	0	3728.529	378	yes	N/A
502	Slope Survey biodiversity hot spots	1278.1392	1277.459	129	no	99.9
501	RV Survey biodiversity hot spots	9224.6337	9225.515	953	yes	100.0
432	Yellowtail Flounder	3304	3790	379	yes	114.7
431	Winter Flounder	924	1550	155	yes	167.7
430	Thorny Skate	3557.4	3567	360	yes	100.3
429	Sea Raven	1900	2320	232	yes	122.1
428	Ocean Pout	1092	1100	110	yes	100.7
427	Mustache Sculpin	40	40	4	yes	100.0
426	Monkfish	896	910	91	yes	101.6
425	Longfin Hake	664.8	669	67	yes	100.6
424	Atlantic Argentine	780	780	78	yes	100.0
423	Witch Flounder	2397.4	4115	424	yes	171.6
422	Winter Skate	696	700	70	yes	100.6
421	White Hake	3430.6	3483	355	yes	101.5
420	Spotted Wolffish	9	36	4	yes	400.0
419	Spiny Dogfish	1692	1700	170	yes	100.5
418	Smooth Skate	513.2	543	57	yes	105.8
417	Silver Hake	3262	3270	327	yes	100.2
416	Sebastes	2943.6	2944	300	yes	100.0
415	Sandlance	74	80	8	yes	108.1
414	Red Hake	278	360	36	yes	129.5
413	Pollock	1342	1520	152	yes	113.3
412	American Plaice	5534.2	5535	567	yes	100.0
411	Northern Wolffish	28	30	3	yes	107.1
410	Mackerel	112	110	11	no	98.2
409	Northern Shortfin Squid	1684	1690	169	yes	100.4
408	Longhorn Sculpin	1854	2180	218	yes	117.6
407	Herring	539.2	540	54	yes	100.1
406	Halibut	416	420	42	yes	101.0
405	Haddock	4490	4490	449	yes	100.0
404	Cusk	580	700	70	yes	120.7
403	Cod	3456.4	3459	354	yes	100.1
402	Capelin	473.6	478	48	yes	100.9
401	Atlantic Wolffish	1033	1180	118	yes	114.2

Appendix 25. Scenario U

Feature ID	Feature Name	Target	Amount Held	Occurrences Held	Target Met	% Target Met
601	High topographic roughness	0	3700.22	375	yes	N/A
502	Slope Survey biodiversity hot spots	1278.1392	1277.20	129	no	99.9
501	RV Survey biodiversity hot spots	9224.6337	9222.56	944	no	100.0
432	Yellowtail Flounder	3304	331	331	yes	100.2
431	Winter Flounder	924	95	95	yes	102.8
430	Thorny Skate	3557.4	356	358	yes	100.3
429	Sea Raven	1900	190	190	yes	100.0
428	Ocean Pout	1092	110	110	yes	100.7
427	Mustache Sculpin	40	4	4	yes	100.0
426	Monkfish	896	90	90	yes	100.4
425	Longfin Hake	664.8	72	73	yes	109.2
424	Atlantic Argentine	780	78	78	yes	100.0
423	Witch Flounder	2397.4	240	250	yes	100.2
422	Winter Skate	696	70	70	yes	100.6
421	White Hake	3430.6	343	351	yes	100.1
420	Spotted Wolffish	9	2	3	yes	300.0
419	Spiny Dogfish	1692	169	169	no	99.9
418	Smooth Skate	513.2	51	53	yes	100.4
417	Silver Hake	3262	326	326	no	99.9
416	Sebastes	2943.6	294	301	yes	100.1
415	Sandlance	74	7	7	no	94.6
414	Red Hake	278	28	28	yes	100.7
413	Pollock	1342	135	135	yes	100.6
412	American Plaice	5534.2	554	561	yes	100.1
411	Northern Wolffish	28	2	2	no	71.4
410	Mackerel	112	11	11	no	98.2
409	Northern Shortfin Squid	1684	169	169	yes	100.4
408	Longhorn Sculpin	1854	202	202	yes	109.0
407	Herring	539.2	54	54	yes	100.1
406	Halibut	416	42	42	yes	101.0
405	Haddock	4490	449	449	yes	100.0
404	Cusk	580	60	60	yes	103.4
403	Cod	3456.4	345	352	yes	100.0
402	Capelin	473.6	47	48	yes	101.1
401	Atlantic Wolffish	1033	103	104	yes	100.6

Appendix 26. Scenario V

Feature ID	Feature Name	Target	Amount Held	Occurrences Held	Target Met	% Target Met
601	High topographic roughness	0	1360.011	138	yes	N/A
502	Slope Survey biodiversity hot spots	0	0	0	no	N/A
501	RV Survey biodiversity hot spots	0	2637.398	273	yes	N/A
432	Yellowtail Flounder	1652	2200	220	yes	133.2
431	Winter Flounder	462	2050	205	yes	443.7
430	Thorny Skate	1778.7	2964	297	yes	166.6
429	Sea Raven	950	3990	399	yes	420.0
428	Ocean Pout	546	1740	174	yes	318.7
427	Mustache Sculpin	20	20	2	yes	100.0
426	Monkfish	448	450	45	yes	100.4
425	Longfin Hake	332.4	340	34	yes	102.3
424	Atlantic Argentine	390	1130	113	yes	289.7
423	Witch Flounder	1198.7	1710	176	yes	142.7
422	Winter Skate	1740	1740	174	yes	100.0
421	White Hake	1715.3	3024	304	yes	176.3
420	Spotted Wolffish	22.5	27	3	yes	120.0
419	Spiny Dogfish	846	850	85	yes	100.5
418	Smooth Skate	256.6	526	53	yes	205.0
417	Silver Hake	1631	1640	164	yes	100.6
416	Sebastes	1471.8	1472	149	yes	100.0
415	Sandlance	37	40	4	yes	108.1
414	Red Hake	139	240	24	yes	172.7
413	Pollock	671	1840	184	yes	274.2
412	American Plaice	2767.1	2769	288	yes	100.1
411	Northern Wolffish	70	80	8	yes	114.3
410	Mackerel	56	60	6	yes	107.1
409	Northern Shortfin Squid	842	840	84	no	99.8
408	Longhorn Sculpin	927	3840	384	yes	414.2
407	Herring	269.6	270	27	yes	100.1
406	Halibut	208	210	21	yes	101.0
405	Haddock	2245	2930	293	yes	130.5
404	Cusk	1450	1450	145	yes	100.0
403	Cod	8641	8646	878	yes	100.1
402	Capelin	236.8	238	24	yes	100.5
401	Atlantic Wolffish	2582.5	2585	260	yes	100.1
331	Scotian Slope West Other	0	375.636	45	yes	N/A
330	Scotian Slope West Fan	0	0	0	no	N/A
329	Scotian Slope East Other	0	116.895	14	yes	N/A
328	Scotian Slope East Laurentian Fan	0	0	0	no	N/A
327	Scotian Slope East Gully Fan	0	0	0	no	N/A
326	Scotian Slope East Canyon	0	15.91	4	yes	N/A
325	Scotian Rise Other	0	0	0	no	N/A
324	Scotian Rise Debris Flow	0	0	0	no	N/A

323	Outer Scotian Shelf Other	0	92.334	17	yes	N/A
322	Outer Scotian Shelf Bank	0	2903.323	299	yes	N/A
321	Outer Scotian Scotian Shelf Saddle	0	189.528	22	yes	N/A
320	Outer Scotian Scotian Shelf Bank Saddle	0	0	0	no	N/A
319	Outer Gulf of Maine Shelf Other	0	73.097	14	yes	N/A
318	Outer Gulf of Maine Shelf Channel	0	438.047	57	yes	N/A
317	Outer Gulf of Maine Shelf Basin	0	269.815	34	yes	N/A
316	Outer Gulf of Maine Shelf Bank	0	0	0	no	N/A
315	Outer Bay of Fundy Other	0	2326.904	270	yes	N/A
314	Middle Scotian Shelf Other	0	3136.559	399	yes	N/A
313	Middle Scotian Shelf Basin	0	13.708	5	yes	N/A
312	Middle Scotian Shelf Bank	0	218.005	43	yes	N/A
311	Middle Gulf of Maine Shelf Tertiary Cretaceous	0	0	0	no	N/A
310	Middle Gulf of Maine Shelf Other	0	1408.166	192	yes	N/A
309	Middle Gulf of Maine Shelf Basin	0	470.233	78	yes	N/A
308	Middle Gulf of Maine Shelf Bank	0	0.278	2	yes	N/A
307	Laurentian Channel Other	0	350.178	63	yes	N/A
306	Inner Scotian Shelf Other	0	845.016	119	yes	N/A
305	Inner Gulf of Maine Shelf Other	0	1330.899	191	yes	N/A
304	Inner Bay of Fundy Shallow Basin	0	0	0	no	N/A
303	Inner Bay of Fundy Other	0	232.964	44	yes	N/A
302	Inner Bay of Fundy Basin	0	0	0	no	N/A
301	Georges Bank Slope Other	0	0	0	no	N/A
203	Natural disturbance high	0	2534.929	333	yes	N/A
202	Natural disturbance moderate	0	7107.58	955	yes	N/A
201	Natural disturbance low	0	4214.768	627	yes	N/A
105	Scope for growth very high	0	5161.493	552	yes	N/A
104	Scope for growth high	0	1261.937	131	yes	N/A
103	Scope for growth moderate	0	1538.942	172	yes	N/A
102	Scope for growth low	0	1736.627	242	yes	N/A
101	Scope for growth very low	0	3450.855	412	yes	N/A

Appendix 27. Scenario W

Feature ID	Feature Name	Target	Amount Held	Occurrences Held	Target Met	% Target Met
601	High topographic roughness	0	2450.496	249	yes	N/A
502	Slope Survey biodiversity hot spots	0	0	0	no	N/A
501	RV Survey biodiversity hot spots	0	3714.286	386	yes	N/A
432	Yellowtail Flounder	2478	3060	306	yes	123.5
431	Winter Flounder	693	2720	272	yes	392.5
430	Thorny Skate	2668.05	4000	403	yes	149.9
429	Sea Raven	1425	4880	488	yes	342.5
428	Ocean Pout	819	1890	189	yes	230.8
427	Mustache Sculpin	30	60	6	yes	200.0
426	Monkfish	672	680	68	yes	101.2
425	Longfin Hake	498.6	500	50	yes	100.3
424	Atlantic Argentine	585	1390	139	yes	237.6
423	Witch Flounder	1798.05	3052	317	yes	169.7
422	Winter Skate	2436	2440	244	yes	100.2
421	White Hake	2572.95	4209	426	yes	163.6
420	Spotted Wolffish	31.5	36	4	yes	114.3
419	Spiny Dogfish	1269	1270	127	yes	100.1
418	Smooth Skate	384.9	1042	107	yes	270.7
417	Silver Hake	2446.5	2450	245	yes	100.1
416	Sebastes	2207.7	2212	224	yes	100.2
415	Sandlance	55.5	100	10	yes	180.2
414	Red Hake	208.5	490	49	yes	235.0
413	Pollock	1006.5	2110	211	yes	209.6
412	American Plaice	4150.65	4156	433	yes	100.1
411	Northern Wolffish	98	100	10	yes	102.0
410	Mackerel	84	90	9	yes	107.1
409	Northern Shortfin Squid	1263	1270	127	yes	100.6
408	Longhorn Sculpin	1390.5	4970	497	yes	357.4
407	Herring	404.4	480	48	yes	118.7
406	Halibut	312	320	32	yes	102.6
405	Haddock	3367.5	5630	563	yes	167.2
404	Cusk	2030	2030	203	yes	100.0
403	Cod	12097.4	12097	1227	no	100.0
402	Capelin	355.2	388	39	yes	109.2
401	Atlantic Wolffish	3615.5	3615	363	no	100.0
331	Scotian Slope West Other	0	634.085	75	yes	N/A
330	Scotian Slope West Fan	0	0	0	no	N/A
329	Scotian Slope East Other	0	0	0	no	N/A
328	Scotian Slope East Laurentian Fan	0	0	0	no	N/A
327	Scotian Slope East Gully Fan	0	0	0	no	N/A
326	Scotian Slope East Canyon	0	0	0	no	N/A
325	Scotian Rise Other	0	0	0	no	N/A
324	Scotian Rise Debris Flow	0	0	0	no	N/A

323	Outer Scotian Shelf Other	0	148.457	27	yes	N/A
322	Outer Scotian Shelf Bank	0	4860.983	513	yes	N/A
321	Outer Scotian Scotian Shelf Saddle	0	254.605	29	yes	N/A
320	Outer Scotian Scotian Shelf Bank Saddle	0	0	0	no	N/A
319	Outer Gulf of Maine Shelf Other	0	92.213	19	yes	N/A
318	Outer Gulf of Maine Shelf Channel	0	551.998	76	yes	N/A
317	Outer Gulf of Maine Shelf Basin	0	361.5	44	yes	N/A
316	Outer Gulf of Maine Shelf Bank	0	0	0	no	N/A
315	Outer Bay of Fundy Other	0	2490.77	288	yes	N/A
314	Middle Scotian Shelf Other	0	5868.354	735	yes	N/A
313	Middle Scotian Shelf Basin	0	694.21	99	yes	N/A
312	Middle Scotian Shelf Bank	0	460.142	69	yes	N/A
311	Middle Gulf of Maine Shelf Tertiary Cretaceous	0	0	0	no	N/A
310	Middle Gulf of Maine Shelf Other	0	2229.587	280	yes	N/A
309	Middle Gulf of Maine Shelf Basin	0	470.15	80	yes	N/A
308	Middle Gulf of Maine Shelf Bank	0	9.109	5	yes	N/A
307	Laurentian Channel Other	0	594.935	96	yes	N/A
306	Inner Scotian Shelf Other	0	972.355	141	yes	N/A
305	Inner Gulf of Maine Shelf Other	0	1564.873	226	yes	N/A
304	Inner Bay of Fundy Shallow Basin	0	0	0	no	N/A
303	Inner Bay of Fundy Other	0	637.692	88	yes	N/A
302	Inner Bay of Fundy Basin	0	0	0	no	N/A
301	Georges Bank Slope Other	0	0	0	no	N/A
203	Natural disturbance high	0	3433.989	439	yes	N/A
202	Natural disturbance moderate	0	12004.655	1572	yes	N/A
201	Natural disturbance low	0	6139.551	930	yes	N/A
105	Scope for growth very high	0	6837.297	730	yes	N/A
104	Scope for growth high	0	3321.371	352	yes	N/A
103	Scope for growth moderate	0	2344.452	276	yes	N/A
102	Scope for growth low	0	4200.772	547	yes	N/A
101	Scope for growth very low	0	3877.71	494	yes	N/A

Appendix 28. Scenario X

Feature ID	Feature Name	Target	Amount Held	Occurrences Held	Target Met	% Target Met
601	High topographic roughness	0	2800.845	285	yes	N/A
502	Slope Survey biodiversity hot spots	0	0	0	no	N/A
501	RV Survey biodiversity hot spots	0	4334.807	451	yes	N/A
432	Yellowtail Flounder	3304	3470	347	yes	105.0
431	Winter Flounder	924	3110	311	yes	336.6
430	Thorny Skate	3557.4	4840	487	yes	136.1
429	Sea Raven	1900	5640	564	yes	296.8
428	Ocean Pout	1092	2100	210	yes	192.3
427	Mustache Sculpin	40	50	5	yes	125.0
426	Monkfish	896	900	90	yes	100.4
425	Longfin Hake	664.8	670	67	yes	100.8
424	Atlantic Argentine	780	1410	141	yes	180.8
423	Witch Flounder	2397.4	3389	352	yes	141.4
422	Winter Skate	2784	2790	279	yes	100.2
421	White Hake	3430.6	4729	479	yes	137.8
420	Spotted Wolffish	36	36	4	yes	100.0
419	Spiny Dogfish	1692	1700	170	yes	100.5
418	Smooth Skate	513.2	1122	115	yes	218.6
417	Silver Hake	3262	3270	327	yes	100.2
416	Sebastes	2943.6	2947	298	yes	100.1
415	Sandlance	74	170	17	yes	229.7
414	Red Hake	278	600	60	yes	215.8
413	Pollock	1342	2330	233	yes	173.6
412	American Plaice	5534.2	5539	573	yes	100.1
411	Northern Wolffish	112	120	12	yes	107.1
410	Mackerel	112	120	12	yes	107.1
409	Northern Shortfin Squid	1684	1690	169	yes	100.4
408	Longhorn Sculpin	1854	5400	540	yes	291.3
407	Herring	539.2	710	71	yes	131.7
406	Halibut	416	420	42	yes	101.0
405	Haddock	4490	6400	640	yes	142.5
404	Cusk	2320	2320	232	yes	100.0
403	Cod	13825.6	13826	1401	yes	100.0
402	Capelin	473.6	488	49	yes	103.0
401	Atlantic Wolffish	4132	4135	415	yes	100.1
331	Scotian Slope West Other	0	634.03	75	yes	N/A
330	Scotian Slope West Fan	0	0	0	no	N/A
329	Scotian Slope East Other	0	0	0	no	N/A
328	Scotian Slope East Laurentian Fan	0	0	0	no	N/A
327	Scotian Slope East Gully Fan	0	0	0	no	N/A
326	Scotian Slope East Canyon	0	0	0	no	N/A
325	Scotian Rise Other	0	0	0	no	N/A
324	Scotian Rise Debris Flow	0	0	0	no	N/A

323	Outer Scotian Shelf Other	0	261.169	47	yes	N/A
322	Outer Scotian Shelf Bank	0	6387.038	682	yes	N/A
321	Outer Scotian Scotian Shelf Saddle	0	351.901	46	yes	N/A
320	Outer Scotian Scotian Shelf Bank Saddle	0	0	0	no	N/A
319	Outer Gulf of Maine Shelf Other	0	72.238	16	yes	N/A
318	Outer Gulf of Maine Shelf Channel	0	530.207	73	yes	N/A
317	Outer Gulf of Maine Shelf Basin	0	361.5	44	yes	N/A
316	Outer Gulf of Maine Shelf Bank	0	0	0	no	N/A
315	Outer Bay of Fundy Other	0	2668.86	308	yes	N/A
314	Middle Scotian Shelf Other	0	7064.679	900	yes	N/A
313	Middle Scotian Shelf Basin	0	1317.403	176	yes	N/A
312	Middle Scotian Shelf Bank	0	574.019	87	yes	N/A
311	Middle Gulf of Maine Shelf Tertiary Cretaceous	0	0	0	no	N/A
310	Middle Gulf of Maine Shelf Other	0	2675.271	328	yes	N/A
309	Middle Gulf of Maine Shelf Basin	0	485.591	88	yes	N/A
308	Middle Gulf of Maine Shelf Bank	0	5.404	4	yes	N/A
307	Laurentian Channel Other	0	863.809	126	yes	N/A
306	Inner Scotian Shelf Other	0	1653.087	222	yes	N/A
305	Inner Gulf of Maine Shelf Other	0	1599.388	241	yes	N/A
304	Inner Bay of Fundy Shallow Basin	0	0	0	no	N/A
303	Inner Bay of Fundy Other	0	1243.804	156	yes	N/A
302	Inner Bay of Fundy Basin	0	5.588	4	yes	N/A
301	Georges Bank Slope Other	0	0	0	no	N/A
203	Natural disturbance high	0	4118.186	540	yes	N/A
202	Natural disturbance moderate	0	15130.39	1973	yes	N/A
201	Natural disturbance low	0	8053.496	1200	yes	N/A
105	Scope for growth very high	0	7751.401	833	yes	N/A
104	Scope for growth high	0	3585.935	384	yes	N/A
103	Scope for growth moderate	0	3412.54	399	yes	N/A
102	Scope for growth low	0	5779.406	729	yes	N/A
101	Scope for growth very low	0	5253.396	653	yes	N/A

Appendix 29. Scenario Y

Feature ID	Feature Name	Target	Amount Held	Occurrences Held	Target Met	% Target Met
601	High topographic roughness	0	5846.616	595	yes	N/A
502	Slope Survey biodiversity hot spots	0	732.04	74	yes	N/A
501	RV Survey biodiversity hot spots	0	6247.804	650	yes	N/A
432	Yellowtail Flounder	4956	4990	499	yes	100.7
431	Winter Flounder	1386	3790	379	yes	273.4
430	Thorny Skate	5336.1	6310	634	yes	118.3
429	Sea Raven	2850	6660	666	yes	233.7
428	Ocean Pout	1638	2880	288	yes	175.8
427	Mustache Sculpin	60	70	7	yes	116.7
426	Monkfish	1344	1350	135	yes	100.4
425	Longfin Hake	997.2	1000	100	yes	100.3
424	Atlantic Argentine	1170	1620	162	yes	138.5
423	Witch Flounder	3596.1	4438	458	yes	123.4
422	Winter Skate	3480	3480	348	yes	100.0
421	White Hake	5145.9	6332	640	yes	123.0
420	Spotted Wolffish	45	45	5	yes	100.0
419	Spiny Dogfish	2538	2540	254	yes	100.1
418	Smooth Skate	769.8	1272	130	yes	165.2
417	Silver Hake	4893	4900	490	yes	100.1
416	Sebastes	4415.4	4417	446	yes	100.0
415	Sandlance	111	360	36	yes	324.3
414	Red Hake	417	840	84	yes	201.4
413	Pollock	2013	2790	279	yes	138.6
412	American Plaice	8301.3	8302	851	yes	100.0
411	Northern Wolffish	140	140	14	yes	100.0
410	Mackerel	168	170	17	yes	101.2
409	Northern Shortfin Squid	2526	2530	253	yes	100.2
408	Longhorn Sculpin	2781	6300	630	yes	226.5
407	Herring	808.8	1080	108	yes	133.5
406	Halibut	624	630	63	yes	101.0
405	Haddock	6735	8100	810	yes	120.3
404	Cusk	2900	2880	288	no	99.3
403	Cod	17282	17272	1751	no	99.9
402	Capelin	710.4	718	72	yes	101.1
401	Atlantic Wolffish	5165	5165	518	yes	100.0
331	Scotian Slope West Other	0	1071.983	126	yes	N/A
330	Scotian Slope West Fan	0	0	0	no	N/A
329	Scotian Slope East Other	0	50.052	15	yes	N/A
328	Scotian Slope East Laurentian Fan	0	0	0	no	N/A
327	Scotian Slope East Gully Fan	0	101.249	22	yes	N/A
326	Scotian Slope East Canyon	0	144.996	23	yes	N/A
325	Scotian Rise Other	0	0	0	no	N/A
324	Scotian Rise Debris Flow	0	0	0	no	N/A

323	Outer Scotian Shelf Other	0	930.645	135	yes	N/A
322	Outer Scotian Shelf Bank	0	8941.383	955	yes	N/A
321	Outer Scotian Scotian Shelf Saddle	0	710.964	76	yes	N/A
320	Outer Scotian Scotian Shelf Bank Saddle	0	0	0	no	N/A
319	Outer Gulf of Maine Shelf Other	0	118.328	25	yes	N/A
318	Outer Gulf of Maine Shelf Channel	0	623.383	85	yes	N/A
317	Outer Gulf of Maine Shelf Basin	0	381.759	46	yes	N/A
316	Outer Gulf of Maine Shelf Bank	0	0	0	no	N/A
315	Outer Bay of Fundy Other	0	2688.579	310	yes	N/A
314	Middle Scotian Shelf Other	0	10730.078	1387	yes	N/A
313	Middle Scotian Shelf Basin	0	1789.095	243	yes	N/A
312	Middle Scotian Shelf Bank	0	1393.908	234	yes	N/A
311	Middle Gulf of Maine Shelf Tertiary Cretaceous	0	42.881	7	yes	N/A
310	Middle Gulf of Maine Shelf Other	0	4044.678	500	yes	N/A
309	Middle Gulf of Maine Shelf Basin	0	660.277	123	yes	N/A
308	Middle Gulf of Maine Shelf Bank	0	69.362	18	yes	N/A
307	Laurentian Channel Other	0	1379.546	211	yes	N/A
306	Inner Scotian Shelf Other	0	2615.388	342	yes	N/A
305	Inner Gulf of Maine Shelf Other	0	1974.132	307	yes	N/A
304	Inner Bay of Fundy Shallow Basin	0	0	0	no	N/A
303	Inner Bay of Fundy Other	0	1951.113	241	yes	N/A
302	Inner Bay of Fundy Basin	0	35.662	13	yes	N/A
301	Georges Bank Slope Other	0	0	0	no	N/A
203	Natural disturbance high	0	5699.019	741	yes	N/A
202	Natural disturbance moderate	0	22920.868	2957	yes	N/A
201	Natural disturbance low	0	11675.796	1758	yes	N/A
105	Scope for growth very high	0	9994.929	1078	yes	N/A
104	Scope for growth high	0	4029.603	440	yes	N/A
103	Scope for growth moderate	0	6448.102	764	yes	N/A
102	Scope for growth low	0	9483.716	1213	yes	N/A
101	Scope for growth very low	0	7615.331	947	yes	N/A

Appendix 30. Scenario Z

Feature ID	Feature Name	Target	Amount Held	Occurrences Held	Target Met	% Target Met
423	Witch Flounder	1241.5652	2335.217	242	yes	188.1
422	Winter Skate	348.9217	510.182	52	yes	146.2
421	White Hake	1772.6666	2414.564	247	yes	136.2
420	Spotted Wolffish	4.7343	9.466	1	yes	199.9
419	Spiny Dogfish	890.3438	1313.868	132	yes	147.6
418	Smooth Skate	270.3888	295.737	31	yes	109.4
417	Silver Hake	1678.0446	2976.274	300	yes	177.4
416	Sebastes	1513.7471	2563.252	262	yes	169.3
415	Sandlance	36.2215	39.124	4	yes	108.0
414	Red Hake	144.1498	587.511	59	yes	407.6
413	Pollock	699.3114	1288.95	130	yes	184.3
412	American Plaice	2812.7774	2814.077	292	yes	100.0
411	Northern Wolffish	13.444	28.808	3	yes	214.3
410	Mackerel	0.9913	9.913	1	yes	1000.0
409	Northern Shortfin Squid	893.7788	935.516	93	yes	104.7
408	Longhorn Sculpin	948.9537	1518.735	154	yes	160.0
407	Herring	264.3213	593.435	60	yes	224.5
406	Halibut	230.6766	307.57	31	yes	133.3
405	Haddock	2361.4994	2634.22	263	yes	111.5
404	Cusk	16.1588	20.186	2	yes	124.9
403	Cod	1773.9081	2708.016	279	yes	152.7
402	Capelin	258.5945	292.164	30	yes	113.0
401	Atlantic Wolffish	526.7644	1044.165	105	yes	198.2
331	Scotian Slope West Other	5484.4567	5485.783	565	yes	100.0
330	Scotian Slope West Fan	1035.7882	1035.79	116	yes	100.0
329	Scotian Slope East Other	3567.3154	3570.34	443	yes	100.1
328	Scotian Slope East Laurentian Fan	2697.125	2698.592	283	yes	100.1
327	Scotian Slope East Gully Fan	2105.3188	2113.003	309	yes	100.4
326	Scotian Slope East Canyon	718.6023	1167.012	183	yes	162.4
325	Scotian Rise Other	7897.667	7898.758	787	yes	100.0
324	Scotian Rise Debris Flow	763.4982	765.167	78	yes	100.2
323	Outer Scotian Shelf Other	984.812	984.75	182	no	100.0
322	Outer Scotian Shelf Bank	4214.2808	4219.031	499	yes	100.1
321	Outer Scotian Scotian Shelf Saddle	529.0972	535.685	64	yes	101.2
320	Outer Scotian Scotian Shelf Bank Saddle	90.2061	91.904	10	yes	101.9
319	Outer Gulf of Maine Shelf Other	197.6614	198.995	27	yes	100.7
318	Outer Gulf of Maine Shelf Channel	502.7281	506.656	66	yes	100.8
317	Outer Gulf of Maine Shelf Basin	150.6906	158.849	17	yes	105.4
316	Outer Gulf of Maine Shelf Bank	638.1165	647.629	63	yes	101.5
315	Outer Bay of Fundy Other	338.0791	341.571	35	yes	101.0

314	Middle Scotian Shelf Other	4948.1693	4948.167	624	no	100.0
313	Middle Scotian Shelf Basin	1115.2814	1118.145	121	yes	100.3
312	Middle Scotian Shelf Bank	896.1344	896.285	96	yes	100.0
311	Middle Gulf of Maine Shelf Tertiary Cretaceous	76.8758	81.003	14	yes	105.4
310	Middle Gulf of Maine Shelf Other	1318.7397	1322.672	170	yes	100.3
309	Middle Gulf of Maine Shelf Basin	381.246	381.555	61	yes	100.1
308	Middle Gulf of Maine Shelf Bank	12.4695	13.602	2	yes	109.1
307	Laurentian Channel Other	2289.3404	2290.854	259	yes	100.1
306	Inner Scotian Shelf Other	2197.2913	2197.826	276	yes	100.0
305	Inner Gulf of Maine Shelf Other	881.2466	885.537	101	yes	100.5
304	Inner Bay of Fundy Shallow Basin	144.0429	145.358	15	yes	100.9
303	Inner Bay of Fundy Other	426.9385	435.01	47	yes	101.9
302	Inner Bay of Fundy Basin	18.6295	18.874	8	yes	101.3
301	Georges Bank Slope Other	49.9869	51.831	10	yes	103.7
203	Natural disturbance high	2549.9701	2893.468	393	yes	113.5
202	Natural disturbance moderate	12434.0384	14259.915	1800	yes	114.7
201	Natural disturbance low	5589.5765	5845.712	839	yes	104.6
105	Scope for growth very high	3076.7886	3126.609	322	yes	101.6
104	Scope for growth high	1694.2834	2557.068	252	yes	150.9
103	Scope for growth moderate	3729.8954	3941.102	488	yes	105.7
102	Scope for growth low	6453.6197	6512.877	817	yes	100.9
101	Scope for growth very low	2897.4918	3346.942	428	yes	115.5

Appendix 31. Scenario AA

Feature ID	Feature Name	Target	Amount Held	Occurrences Held	Target Met	% Target Met
423	Witch Flounder	1862.3478	2909.851	304	yes	156.2
422	Winter Skate	523.38255	998.759	101	yes	190.8
421	White Hake	2658.9999	3565.006	365	yes	134.1
420	Spotted Wolffish	7.10145	47.343	5	yes	666.7
419	Spiny Dogfish	1335.5157	1354.743	136	yes	101.4
418	Smooth Skate	405.5832	408.311	42	yes	100.7
417	Silver Hake	2517.0669	2995.482	304	yes	119.0
416	Sebastes	2270.62065	2453.352	253	yes	108.0
415	Sandlance	54.33225	146.814	15	yes	270.2
414	Red Hake	216.2247	422.874	43	yes	195.6
413	Pollock	1048.9671	1058.8	106	yes	100.9
412	American Plaice	4219.1661	4225.538	440	yes	100.2
411	Northern Wolffish	20.166	28.777	3	yes	142.7
410	Mackerel	1.48695	9.913	1	yes	666.7
409	Northern Shortfin Squid	1340.6682	2059.045	206	yes	153.6
408	Longhorn Sculpin	1423.43055	1438.682	146	yes	101.1
407	Herring	396.48195	452.236	46	yes	114.1
406	Halibut	346.0149	377.822	38	yes	109.2
405	Haddock	3542.2491	4360.715	439	yes	123.1
404	Cusk	24.2382	30.282	3	yes	124.9
403	Cod	2660.86215	3960.918	410	yes	148.9
402	Capelin	387.89175	389.253	40	yes	100.4
401	Atlantic Wolffish	790.1466	1490.072	150	yes	188.6
331	Scotian Slope West Other	5484.4567	5485.229	569	yes	100.0
330	Scotian Slope West Fan	1035.7882	1038.997	114	yes	100.3
329	Scotian Slope East Other	3567.3154	3567.421	437	yes	100.0
328	Scotian Slope East Laurentian Fan	2697.125	2698.71	291	yes	100.1
327	Scotian Slope East Gully Fan	2105.3188	2105.598	309	yes	100.0
326	Scotian Slope East Canyon	718.6023	1113.318	173	yes	154.9
325	Scotian Rise Other	7897.667	7899.004	788	yes	100.0
324	Scotian Rise Debris Flow	763.4982	764.222	88	yes	100.1
323	Outer Scotian Shelf Other	984.812	989.866	182	yes	100.5
322	Outer Scotian Shelf Bank	4214.2808	4214.156	495	no	100.0
321	Outer Scotian Scotian Shelf Saddle	529.0972	535.856	67	yes	101.3
320	Outer Scotian Scotian Shelf Bank Saddle	90.2061	90.464	12	yes	100.3
319	Outer Gulf of Maine Shelf Other	197.6614	197.712	34	yes	100.0
318	Outer Gulf of Maine Shelf Channel	502.7281	503.067	67	yes	100.1
317	Outer Gulf of Maine Shelf Basin	150.6906	153.745	19	yes	102.0
316	Outer Gulf of Maine Shelf Bank	638.1165	639.871	70	yes	100.3
315	Outer Bay of Fundy Other	338.0791	346.881	47	yes	102.6

314	Middle Scotian Shelf Other	4948.1693	4948.389	637	yes	100.0
313	Middle Scotian Shelf Basin	1115.2814	1121.061	132	yes	100.5
312	Middle Scotian Shelf Bank	896.1344	903.27	116	yes	100.8
311	Middle Gulf of Maine Shelf Tertiary Cretaceous	76.8758	77.642	13	yes	101.0
310	Middle Gulf of Maine Shelf Other	1318.7397	1319.337	191	yes	100.0
309	Middle Gulf of Maine Shelf Basin	381.246	382.772	73	yes	100.4
308	Middle Gulf of Maine Shelf Bank	12.4695	17.715	2	yes	142.1
307	Laurentian Channel Other	2289.3404	2291.884	267	yes	100.1
306	Inner Scotian Shelf Other	2197.2913	2197.714	272	yes	100.0
305	Inner Gulf of Maine Shelf Other	881.2466	882.299	113	yes	100.1
304	Inner Bay of Fundy Shallow Basin	144.0429	145.322	15	yes	100.9
303	Inner Bay of Fundy Other	426.9385	427.422	53	yes	100.1
302	Inner Bay of Fundy Basin	18.6295	19.635	5	yes	105.4
301	Georges Bank Slope Other	49.9869	50.978	5	yes	102.0
203	Natural disturbance high	2549.9701	2957.638	369	yes	116.0
202	Natural disturbance moderate	12434.0384	15584.029	1966	yes	125.3
201	Natural disturbance low	5589.5765	6240.761	920	yes	111.6
105	Scope for growth very high	3076.7886	3834.485	400	yes	124.6
104	Scope for growth high	1694.2834	1699.179	178	yes	100.3
103	Scope for growth moderate	3729.8954	5327.648	620	yes	142.8
102	Scope for growth low	6453.6197	6517.938	824	yes	101.0
101	Scope for growth very low	2897.4918	3345.412	441	yes	115.5

Appendix 32. Scenario AB

Feature ID	Feature Name	Target	Amount Held	Occurrences Held	Target Met	% Target Met
423	Witch Flounder	1862.3478	2695.563	284	yes	144.7
422	Winter Skate	523.38255	666.834	67	yes	127.4
421	White Hake	2658.9999	3029.559	313	yes	113.9
420	Spotted Wolffish	7.10145	47.343	5	yes	666.7
419	Spiny Dogfish	1335.5157	1342.295	136	yes	100.5
418	Smooth Skate	405.5832	761.346	78	yes	187.7
417	Silver Hake	2517.0669	2522.817	255	yes	100.2
416	Sebastes	2270.62065	2279.689	236	yes	100.4
415	Sandlance	54.33225	58.729	6	yes	108.1
414	Red Hake	216.2247	298.988	30	yes	138.3
413	Pollock	1048.9671	1400.459	141	yes	133.5
412	American Plaice	4219.1661	4221.066	441	yes	100.0
411	Northern Wolffish	20.166	28.806	3	yes	142.8
410	Mackerel	1.48695	9.913	1	yes	666.7
409	Northern Shortfin Squid	1340.6682	1342.599	135	yes	100.1
408	Longhorn Sculpin	1423.43055	1606.949	163	yes	112.9
407	Herring	396.48195	709.285	72	yes	178.9
406	Halibut	346.0149	416.427	42	yes	120.3
405	Haddock	3542.2491	3547.834	355	yes	100.2
404	Cusk	24.2382	30.276	3	yes	124.9
403	Cod	2660.86215	3392.876	354	yes	127.5
402	Capelin	387.89175	392.485	40	yes	101.2
401	Atlantic Wolffish	790.1466	1270.778	128	yes	160.8
331	Scotian Slope West Other	5484.4567	5484.943	563	yes	100.0
330	Scotian Slope West Fan	1035.7882	1036.512	120	yes	100.1
329	Scotian Slope East Other	3567.3154	3568.647	453	yes	100.0
328	Scotian Slope East Laurentian Fan	2697.125	2702.07	268	yes	100.2
327	Scotian Slope East Gully Fan	2105.3188	2109.35	305	yes	100.2
326	Scotian Slope East Canyon	718.6023	1402.906	220	yes	195.2
325	Scotian Rise Other	7897.667	7897.82	799	yes	100.0
324	Scotian Rise Debris Flow	763.4982	772.032	75	yes	101.1
323	Outer Scotian Shelf Other	984.812	1410.655	227	yes	143.2
322	Outer Scotian Shelf Bank	4214.2808	4221.961	489	yes	100.2
321	Outer Scotian Scotian Shelf Saddle	529.0972	972.286	118	yes	183.8
320	Outer Scotian Scotian Shelf Bank Saddle	90.2061	96.212	10	yes	106.7
319	Outer Gulf of Maine Shelf Other	197.6614	398.47	59	yes	201.6
318	Outer Gulf of Maine Shelf Channel	502.7281	504.623	67	yes	100.4
317	Outer Gulf of Maine Shelf Basin	150.6906	159.964	18	yes	106.2
316	Outer Gulf of Maine Shelf Bank	638.1165	645.182	71	yes	101.1

315	Outer Bay of Fundy Other	338.0791	344.195	43	yes	101.8
314	Middle Scotian Shelf Other	4948.1693	4952.092	645	yes	100.1
313	Middle Scotian Shelf Basin	1115.2814	1121.256	146	yes	100.5
312	Middle Scotian Shelf Bank	896.1344	949.452	119	yes	105.9
311	Middle Gulf of Maine Shelf Tertiary Cretaceous	76.8758	77.035	17	yes	100.2
310	Middle Gulf of Maine Shelf Other	1318.7397	1318.903	181	yes	100.0
309	Middle Gulf of Maine Shelf Basin	381.246	384.054	50	yes	100.7
308	Middle Gulf of Maine Shelf Bank	12.4695	13.386	2	yes	107.3
307	Laurentian Channel Other	2289.3404	2292.835	264	yes	100.2
306	Inner Scotian Shelf Other	2197.2913	2198.103	275	yes	100.0
305	Inner Gulf of Maine Shelf Other	881.2466	891.86	126	yes	101.2
304	Inner Bay of Fundy Shallow Basin	144.0429	146.152	20	yes	101.5
303	Inner Bay of Fundy Other	426.9385	428.483	56	yes	100.4
302	Inner Bay of Fundy Basin	18.6295	20.279	5	yes	108.9
301	Georges Bank Slope Other	49.9869	52.532	5	yes	105.1
203	Natural disturbance high	2549.9701	2552.035	324	yes	100.1
202	Natural disturbance moderate	12434.0384	13507.504	1780	yes	108.6
201	Natural disturbance low	5589.5765	8064.879	1101	yes	144.3
105	Scope for growth very high	3076.7886	3350.441	345	yes	108.9
104	Scope for growth high	1694.2834	1769.499	182	yes	104.4
103	Scope for growth moderate	3729.8954	3866.971	465	yes	103.7
102	Scope for growth low	6453.6197	7268.244	900	yes	112.6
101	Scope for growth very low	2897.4918	5320.934	639	yes	183.6

Appendix 33. Scenario AC

Feature ID	Feature Name	Target	Amount Held	Occurrences Held	Target Met	% Target Met
423	Witch Flounder	2483.1304	4020.772	418	yes	161.9
422	Winter Skate	697.8434	755.478	77	yes	108.3
421	White Hake	3545.3332	3547.864	364	yes	100.1
420	Spotted Wolffish	9.4686	47.343	5	yes	500.0
419	Spiny Dogfish	1780.6876	1785.939	179	yes	100.3
418	Smooth Skate	540.7776	899.176	91	yes	166.3
417	Silver Hake	3356.0892	3807.758	383	yes	113.5
416	Sebastes	3027.4942	3037.108	312	yes	100.3
415	Sandlance	72.443	234.96	24	yes	324.3
414	Red Hake	288.2996	310.619	31	yes	107.7
413	Pollock	1398.6228	1649.275	166	yes	117.9
412	American Plaice	5625.5548	5633.373	584	yes	100.1
411	Northern Wolffish	26.888	38.402	4	yes	142.8
410	Mackerel	1.9826	9.913	1	yes	500.0
409	Northern Shortfin Squid	1787.5576	1809.843	180	yes	101.2
408	Longhorn Sculpin	1897.9074	1916.093	194	yes	101.0
407	Herring	528.6426	534.631	54	yes	101.1
406	Halibut	461.3532	463.287	46	yes	100.4
405	Haddock	4722.9988	4729.78	474	yes	100.1
404	Cusk	32.3176	30.294	3	no	93.7
403	Cod	3547.8162	4335.224	448	yes	122.2
402	Capelin	517.189	526.086	54	yes	101.7
401	Atlantic Wolffish	1053.5288	1107.56	112	yes	105.1
331	Scotian Slope West Other	5484.4567	5484.797	588	yes	100.0
330	Scotian Slope West Fan	1035.7882	1041.383	101	yes	100.5
329	Scotian Slope East Other	3567.3154	3567.946	432	yes	100.0
328	Scotian Slope East Laurentian Fan	2697.125	2697.269	272	yes	100.0
327	Scotian Slope East Gully Fan	2105.3188	2107.523	222	yes	100.1
326	Scotian Slope East Canyon	718.6023	720.03	129	yes	100.2
325	Scotian Rise Other	7897.667	7901.958	801	yes	100.1
324	Scotian Rise Debris Flow	763.4982	768.701	75	yes	100.7
323	Outer Scotian Shelf Other	984.812	986.268	146	yes	100.1
322	Outer Scotian Shelf Bank	4214.2808	4215.582	466	yes	100.0
321	Outer Scotian Scotian Shelf Saddle	529.0972	529.779	62	yes	100.1
320	Outer Scotian Scotian Shelf Bank Saddle	90.2061	93.675	13	yes	103.8
319	Outer Gulf of Maine Shelf Other	197.6614	201.484	35	yes	101.9
318	Outer Gulf of Maine Shelf Channel	502.7281	504.047	64	yes	100.3
317	Outer Gulf of Maine Shelf Basin	150.6906	155.492	20	yes	103.2
316	Outer Gulf of Maine Shelf Bank	638.1165	641.324	62	yes	100.5
315	Outer Bay of Fundy Other	338.0791	346.646	36	yes	102.5

314	Middle Scotian Shelf Other	4948.1693	4949.273	633	yes	100.0
313	Middle Scotian Shelf Basin	1115.2814	1118.858	123	yes	100.3
312	Middle Scotian Shelf Bank	896.1344	897.918	125	yes	100.2
311	Middle Gulf of Maine Shelf Tertiary Cretaceous	76.8758	84.553	13	yes	110.0
310	Middle Gulf of Maine Shelf Other	1318.7397	1319.746	175	yes	100.1
309	Middle Gulf of Maine Shelf Basin	381.246	384.521	68	yes	100.9
308	Middle Gulf of Maine Shelf Bank	12.4695	9.89	1	no	79.3
307	Laurentian Channel Other	2289.3404	2290.845	262	yes	100.1
306	Inner Scotian Shelf Other	2197.2913	2201.337	266	yes	100.2
305	Inner Gulf of Maine Shelf Other	881.2466	882.263	101	yes	100.1
304	Inner Bay of Fundy Shallow Basin	144.0429	145.134	15	yes	100.8
303	Inner Bay of Fundy Other	426.9385	426.75	48	no	100.0
302	Inner Bay of Fundy Basin	18.6295	19.411	9	yes	104.2
301	Georges Bank Slope Other	49.9869	52.341	5	yes	104.7
203	Natural disturbance high	2549.9701	3104.551	376	yes	121.7
202	Natural disturbance moderate	12434.0384	13309.965	1673	yes	107.0
201	Natural disturbance low	5589.5765	6236.969	903	yes	111.6
105	Scope for growth very high	3076.7886	3660.985	391	yes	119.0
104	Scope for growth high	1694.2834	1804.217	193	yes	106.5
103	Scope for growth moderate	3729.8954	4639.029	519	yes	124.4
102	Scope for growth low	6453.6197	6453.923	806	yes	100.0
101	Scope for growth very low	2897.4918	2971.117	420	yes	102.5

Appendix 34. Scenario AD

Feature ID	Feature Name	Target	Amount Held	Occurrences Held	Target Met	% Target Met
423	Witch Flounder	2483.1304	4020.772	418	yes	161.9
422	Winter Skate	697.8434	755.478	77	yes	108.3
421	White Hake	3545.3332	3547.864	364	yes	100.1
420	Spotted Wolffish	9.4686	47.343	5	yes	500.0
419	Spiny Dogfish	1780.6876	1785.939	179	yes	100.3
418	Smooth Skate	540.7776	899.176	91	yes	166.3
417	Silver Hake	3356.0892	3807.758	383	yes	113.5
416	Sebastes	3027.4942	3037.108	312	yes	100.3
415	Sandlance	72.443	234.96	24	yes	324.3
414	Red Hake	288.2996	310.619	31	yes	107.7
413	Pollock	1398.6228	1649.275	166	yes	117.9
412	American Plaice	5625.5548	5633.373	584	yes	100.1
411	Northern Wolffish	26.888	38.402	4	yes	142.8
410	Mackerel	1.9826	9.913	1	yes	500.0
409	Northern Shortfin Squid	1787.5576	1809.843	180	yes	101.2
408	Longhorn Sculpin	1897.9074	1916.093	194	yes	101.0
407	Herring	528.6426	534.631	54	yes	101.1
406	Halibut	461.3532	463.287	46	yes	100.4
405	Haddock	4722.9988	4729.78	474	yes	100.1
404	Cusk	32.3176	30.294	3	no	93.7
403	Cod	3547.8162	4335.224	448	yes	122.2
402	Capelin	517.189	526.086	54	yes	101.7
401	Atlantic Wolffish	1053.5288	1107.56	112	yes	105.1
331	Scotian Slope West Other	5484.4567	5484.797	588	yes	100.0
330	Scotian Slope West Fan	1035.7882	1041.383	101	yes	100.5
329	Scotian Slope East Other	3567.3154	3567.946	432	yes	100.0
328	Scotian Slope East Laurentian Fan	2697.125	2697.269	272	yes	100.0
327	Scotian Slope East Gully Fan	2105.3188	2107.523	222	yes	100.1
326	Scotian Slope East Canyon	718.6023	720.03	129	yes	100.2
325	Scotian Rise Other	7897.667	7901.958	801	yes	100.1
324	Scotian Rise Debris Flow	763.4982	768.701	75	yes	100.7
323	Outer Scotian Shelf Other	984.812	986.268	146	yes	100.1
322	Outer Scotian Shelf Bank	4214.2808	4215.582	466	yes	100.0
321	Outer Scotian Scotian Shelf Saddle	529.0972	529.779	62	yes	100.1
320	Outer Scotian Scotian Shelf Bank Saddle	90.2061	93.675	13	yes	103.8
319	Outer Gulf of Maine Shelf Other	197.6614	201.484	35	yes	101.9
318	Outer Gulf of Maine Shelf Channel	502.7281	504.047	64	yes	100.3
317	Outer Gulf of Maine Shelf Basin	150.6906	155.492	20	yes	103.2
316	Outer Gulf of Maine Shelf Bank	638.1165	641.324	62	yes	100.5

315	Outer Bay of Fundy Other	338.0791	346.646	36	yes	102.5
314	Middle Scotian Shelf Other	4948.1693	4949.273	633	yes	100.0
313	Middle Scotian Shelf Basin	1115.2814	1118.858	123	yes	100.3
312	Middle Scotian Shelf Bank	896.1344	897.918	125	yes	100.2
311	Middle Gulf of Maine Shelf Tertiary Cretaceous	76.8758	84.553	13	yes	110.0
310	Middle Gulf of Maine Shelf Other	1318.7397	1319.746	175	yes	100.1
309	Middle Gulf of Maine Shelf Basin	381.246	384.521	68	yes	100.9
308	Middle Gulf of Maine Shelf Bank	12.4695	9.89	1	no	79.3
307	Laurentian Channel Other	2289.3404	2290.845	262	yes	100.1
306	Inner Scotian Shelf Other	2197.2913	2201.337	266	yes	100.2
305	Inner Gulf of Maine Shelf Other	881.2466	882.263	101	yes	100.1
304	Inner Bay of Fundy Shallow Basin	144.0429	145.134	15	yes	100.8
303	Inner Bay of Fundy Other	426.9385	426.75	48	no	100.0
302	Inner Bay of Fundy Basin	18.6295	19.411	9	yes	104.2
301	Georges Bank Slope Other	49.9869	52.341	5	yes	104.7
203	Natural disturbance high	2549.9701	3104.551	376	yes	121.7
202	Natural disturbance moderate	12434.0384	13309.965	1673	yes	107.0
201	Natural disturbance low	5589.5765	6236.969	903	yes	111.6
105	Scope for growth very high	3076.7886	3660.985	391	yes	119.0
104	Scope for growth high	1694.2834	1804.217	193	yes	106.5
103	Scope for growth moderate	3729.8954	4639.029	519	yes	124.4
102	Scope for growth low	6453.6197	6453.923	806	yes	100.0
101	Scope for growth very low	2897.4918	2971.117	420	yes	102.5

Appendix 35. Scenario AE

Feature ID	Feature Name	Target	Amount Held	Occurrences Held	Target Met	% Target Met
423	Witch Flounder	2483.1304	3148.094	327	yes	126.8
422	Winter Skate	697.8434	767.911	78	yes	110.0
421	White Hake	3545.3332	3807.11	389	yes	107.4
420	Spotted Wolffish	9.4686	9.467	1	no	100.0
419	Spiny Dogfish	1780.6876	1782.595	180	yes	100.1
418	Smooth Skate	540.7776	893.271	91	yes	165.2
417	Silver Hake	3356.0892	3365.575	340	yes	100.3
416	Sebastes	3027.4942	3299.234	336	yes	109.0
415	Sandlance	72.443	234.96	24	yes	324.3
414	Red Hake	288.2996	300.617	30	yes	104.3
413	Pollock	1398.6228	2498.246	251	yes	178.6
412	American Plaice	5625.5548	5633.408	582	yes	100.1
411	Northern Wolffish	26.888	76.778	8	yes	285.5
410	Mackerel	1.9826	9.913	1	yes	500.0
409	Northern Shortfin Squid	1787.5576	1794.95	179	yes	100.4
408	Longhorn Sculpin	1897.9074	2252.553	228	yes	118.7
407	Herring	528.6426	544.717	55	yes	103.0
406	Halibut	461.3532	549.15	55	yes	119.0
405	Haddock	4722.9988	4727.223	474	yes	100.1
404	Cusk	32.3176	40.374	4	yes	124.9
403	Cod	3547.8162	3919.449	403	yes	110.5
402	Capelin	517.189	517.645	53	yes	100.1
401	Atlantic Wolffish	1053.5288	1114.601	113	yes	105.8
331	Scotian Slope West Other	5484.4567	5486.953	557	yes	100.0
330	Scotian Slope West Fan	1035.7882	1036.301	110	yes	100.0
329	Scotian Slope East Other	3567.3154	3569.009	461	yes	100.0
328	Scotian Slope East Laurentian Fan	2697.125	2697.531	288	yes	100.0
327	Scotian Slope East Gully Fan	2105.3188	2109.871	307	yes	100.2
326	Scotian Slope East Canyon	718.6023	1238.304	194	yes	172.3
325	Scotian Rise Other	7897.667	7899.909	816	yes	100.0
324	Scotian Rise Debris Flow	763.4982	769.196	93	yes	100.7
323	Outer Scotian Shelf Other	984.812	991.291	170	yes	100.7
322	Outer Scotian Shelf Bank	4214.2808	5095.037	576	yes	120.9
321	Outer Scotian Scotian Shelf Saddle	529.0972	940.851	101	yes	177.8
320	Outer Scotian Scotian Shelf Bank Saddle	90.2061	91.904	10	yes	101.9
319	Outer Gulf of Maine Shelf Other	197.6614	203.977	34	yes	103.2
318	Outer Gulf of Maine Shelf Channel	502.7281	504.715	70	yes	100.4
317	Outer Gulf of Maine Shelf Basin	150.6906	155.331	18	yes	103.1
316	Outer Gulf of Maine Shelf Bank	638.1165	642.464	60	yes	100.7
315	Outer Bay of Fundy Other	338.0791	345.714	37	yes	102.3

314	Middle Scotian Shelf Other	4948.1693	5853.681	745	yes	118.3
313	Middle Scotian Shelf Basin	1115.2814	1119.647	122	yes	100.4
312	Middle Scotian Shelf Bank	896.1344	898.396	127	yes	100.3
311	Middle Gulf of Maine Shelf Tertiary Cretaceous	76.8758	576.511	78	yes	749.9
310	Middle Gulf of Maine Shelf Other	1318.7397	2174.143	289	yes	164.9
309	Middle Gulf of Maine Shelf Basin	381.246	382.268	56	yes	100.3
308	Middle Gulf of Maine Shelf Bank	12.4695	20.157	5	yes	161.7
307	Laurentian Channel Other	2289.3404	2289.571	257	yes	100.0
306	Inner Scotian Shelf Other	2197.2913	2200.311	282	yes	100.1
305	Inner Gulf of Maine Shelf Other	881.2466	1103.13	147	yes	125.2
304	Inner Bay of Fundy Shallow Basin	144.0429	145.18	15	yes	100.8
303	Inner Bay of Fundy Other	426.9385	427.112	47	yes	100.0
302	Inner Bay of Fundy Basin	18.6295	18.874	8	yes	101.3
301	Georges Bank Slope Other	49.9869	52.548	5	yes	105.1
203	Natural disturbance high	2549.9701	3339.973	425	yes	131.0
202	Natural disturbance moderate	12434.0384	15465.739	1930	yes	124.4
201	Natural disturbance low	5589.5765	7608.958	1083	yes	136.1
105	Scope for growth very high	3076.7886	5236.873	544	yes	170.2
104	Scope for growth high	1694.2834	1702.766	176	yes	100.5
103	Scope for growth moderate	3729.8954	3732.311	453	yes	100.1
102	Scope for growth low	6453.6197	9003.747	1098	yes	139.5
101	Scope for growth very low	2897.4918	3561.95	455	yes	122.9

Appendix 36. Scenario AF

Feature ID	Feature Name	Target	Amount Held	Occurrences Held	Target Met	% Target Met
423	Witch Flounder	3724.6956	4253.276	444	yes	114.2
422	Winter Skate	1046.7651	1051.675	106	yes	100.5
421	White Hake	5317.9998	5319.828	545	yes	100.0
420	Spotted Wolffish	14.2029	47.343	5	yes	333.3
419	Spiny Dogfish	2671.0314	2676.585	269	yes	100.2
418	Smooth Skate	811.1664	924.847	94	yes	114.0
417	Silver Hake	5034.1338	5034.284	507	yes	100.0
416	Sebastes	4541.2413	4561.516	467	yes	100.4
415	Sandlance	108.6645	352.421	36	yes	324.3
414	Red Hake	432.4494	604.153	61	yes	139.7
413	Pollock	2097.9342	2160.948	217	yes	103.0
412	American Plaice	8438.3322	8441.025	874	yes	100.0
411	Northern Wolffish	40.332	47.988	5	yes	119.0
410	Mackerel	2.9739	9.913	1	yes	333.3
409	Northern Shortfin Squid	2681.3364	2695.911	269	yes	100.5
408	Longhorn Sculpin	2846.8611	2849.284	289	yes	100.1
407	Herring	792.9639	797.227	81	yes	100.5
406	Halibut	692.0298	700.72	70	yes	101.3
405	Haddock	7084.4982	7091.648	712	yes	100.1
404	Cusk	48.4764	50.468	5	yes	104.1
403	Cod	5321.7243	5599.099	576	yes	105.2
402	Capelin	775.7835	923.143	95	yes	119.0
401	Atlantic Wolffish	1580.2932	1602.917	162	yes	101.4
331	Scotian Slope West Other	5484.4567	5487.515	576	yes	100.1
330	Scotian Slope West Fan	1035.7882	1045.015	110	yes	100.9
329	Scotian Slope East Other	3567.3154	3568.369	438	yes	100.0
328	Scotian Slope East Laurentian Fan	2697.125	2697.276	289	yes	100.0
327	Scotian Slope East Gully Fan	2105.3188	2106.568	308	yes	100.1
326	Scotian Slope East Canyon	718.6023	1150.217	182	yes	160.1
325	Scotian Rise Other	7897.667	7898.441	798	yes	100.0
324	Scotian Rise Debris Flow	763.4982	767.014	84	yes	100.5
323	Outer Scotian Shelf Other	984.812	1122.006	203	yes	113.9
322	Outer Scotian Shelf Bank	4214.2808	7215.167	791	yes	171.2
321	Outer Scotian Scotian Shelf Saddle	529.0972	533.341	62	yes	100.8
320	Outer Scotian Scotian Shelf Bank Saddle	90.2061	93.675	13	yes	103.8
319	Outer Gulf of Maine Shelf Other	197.6614	198.277	32	yes	100.3
318	Outer Gulf of Maine Shelf Channel	502.7281	509.928	71	yes	101.4
317	Outer Gulf of Maine Shelf Basin	150.6906	153.504	17	yes	101.9
316	Outer Gulf of Maine Shelf Bank	638.1165	638.912	62	yes	100.1
315	Outer Bay of Fundy Other	338.0791	347.104	46	yes	102.7

314	Middle Scotian Shelf Other	4948.1693	5963.656	778	yes	120.5
313	Middle Scotian Shelf Basin	1115.2814	1122.123	133	yes	100.6
312	Middle Scotian Shelf Bank	896.1344	903.61	115	yes	100.8
311	Middle Gulf of Maine Shelf Tertiary Cretaceous	76.8758	389.74	56	yes	507.0
310	Middle Gulf of Maine Shelf Other	1318.7397	2820.463	356	yes	213.9
309	Middle Gulf of Maine Shelf Basin	381.246	400.092	69	yes	104.9
308	Middle Gulf of Maine Shelf Bank	12.4695	20.157	5	yes	161.7
307	Laurentian Channel Other	2289.3404	2297.475	269	yes	100.4
306	Inner Scotian Shelf Other	2197.2913	2198.697	278	yes	100.1
305	Inner Gulf of Maine Shelf Other	881.2466	1061.617	142	yes	120.5
304	Inner Bay of Fundy Shallow Basin	144.0429	145.158	15	yes	100.8
303	Inner Bay of Fundy Other	426.9385	427.771	57	yes	100.2
302	Inner Bay of Fundy Basin	18.6295	22.099	3	yes	118.6
301	Georges Bank Slope Other	49.9869	52.532	5	yes	105.1
203	Natural disturbance high	2549.9701	5135.153	626	yes	201.4
202	Natural disturbance moderate	12434.0384	19293.362	2361	yes	155.2
201	Natural disturbance low	5589.5765	6417.703	969	yes	114.8
105	Scope for growth very high	3076.7886	5778.306	606	yes	187.8
104	Scope for growth high	1694.2834	1952.138	211	yes	115.2
103	Scope for growth moderate	3729.8954	5876.199	686	yes	157.5
102	Scope for growth low	6453.6197	7264.864	961	yes	112.6
101	Scope for growth very low	2897.4918	5337.244	703	yes	184.2

Appendix 37. Scenario AG

Feature ID	Feature Name	Target	Amount Held	Occurrences Held	Target Met	% Target Met
601	High topographic roughness	13571.403	13578.12	1366	yes	100.0
502	Slope Survey biodiversity hot spots	1278.1392	1342.485	136	yes	105.0
501	RV Survey biodiversity hot spots	9224.6337	9232.727	948	yes	100.1
432	Yellowtail Flounder	3304	4160	416	yes	125.9
431	Winter Flounder	924	1470	147	yes	159.1
430	Thorny Skate	3557.4	3581	361	yes	100.7
429	Sea Raven	1900	2350	235	yes	123.7
428	Ocean Pout	1092	1140	114	yes	104.4
427	Mustache Sculpin	40	200	20	yes	500.0
426	Monkfish	896	900	90	yes	100.4
425	Longfin Hake	664.8	694	71	yes	104.4
424	Atlantic Argentine	780	800	80	yes	102.6
423	Witch Flounder	2397.4	3757	394	yes	156.7
422	Winter Skate	696	700	70	yes	100.6
421	White Hake	3430.6	3456	355	yes	100.7
420	Spotted Wolffish	9	45	5	yes	500.0
419	Spiny Dogfish	1692	1720	172	yes	101.7
418	Smooth Skate	513.2	713	74	yes	138.9
417	Silver Hake	3262	3310	331	yes	101.5
416	Sebastes	2943.6	3419	355	yes	116.2
415	Sandlance	74	330	33	yes	445.9
414	Red Hake	278	340	34	yes	122.3
413	Pollock	1342	1670	167	yes	124.4
412	American Plaice	5534.2	5595	578	yes	101.1
411	Northern Wolffish	28	30	3	yes	107.1
410	Mackerel	112	110	11	no	98.2
409	Northern Shortfin Squid	1684	1690	169	yes	100.4
408	Longhorn Sculpin	1854	1860	186	yes	100.3
407	Herring	539.2	539	54	no	100.0
406	Halibut	416	450	45	yes	108.2
405	Haddock	4490	4500	450	yes	100.2
404	Cusk	580	810	81	yes	139.7
403	Cod	3456.4	4364	454	yes	126.3
402	Capelin	473.6	478	48	yes	100.9
401	Atlantic Wolffish	1033	1185	120	yes	114.7
331	Scotian Slope West Other	5484.4567	5487.567	575	yes	100.1
330	Scotian Slope West Fan	1035.7882	1043.523	111	yes	100.7
329	Scotian Slope East Other	3567.3154	3568.395	404	yes	100.0
328	Scotian Slope East Laurentian Fan	2697.125	2698.173	277	yes	100.0
327	Scotian Slope East Gully Fan	2105.3188	2106.132	255	yes	100.0
326	Scotian Slope East Canyon	718.6023	723.013	126	yes	100.6
325	Scotian Rise Other	7897.667	7897.364	780	no	100.0

324	Scotian Rise Debris Flow	763.4982	765.577	91	yes	100.3
323	Outer Scotian Shelf Other	984.812	986.393	165	yes	100.2
322	Outer Scotian Shelf Bank	4214.2808	4215.235	481	yes	100.0
321	Outer Scotian Scotian Shelf Saddle	529.0972	533.98	72	yes	100.9
320	Outer Scotian Scotian Shelf Bank Saddle	90.2061	94.385	11	yes	104.6
319	Outer Gulf of Maine Shelf Other	197.6614	197.799	32	yes	100.1
318	Outer Gulf of Maine Shelf Channel	502.7281	502.626	65	no	100.0
317	Outer Gulf of Maine Shelf Basin	150.6906	408.53	51	yes	271.1
316	Outer Gulf of Maine Shelf Bank	638.1165	664.259	68	yes	104.1
315	Outer Bay of Fundy Other	338.0791	338.136	46	yes	100.0
314	Middle Scotian Shelf Other	4948.1693	4949.771	638	yes	100.0
313	Middle Scotian Shelf Basin	1115.2814	1115.255	134	no	100.0
312	Middle Scotian Shelf Bank	896.1344	897.899	118	yes	100.2
311	Middle Gulf of Maine Shelf Tertiary Cretaceous	76.8758	80.941	14	yes	105.3
310	Middle Gulf of Maine Shelf Other	1318.7397	1320.23	181	yes	100.1
309	Middle Gulf of Maine Shelf Basin	381.246	382.979	69	yes	100.5
308	Middle Gulf of Maine Shelf Bank	12.4695	15.037	2	yes	120.6
307	Laurentian Channel Other	2289.3404	2290.157	271	yes	100.0
306	Inner Scotian Shelf Other	2197.2913	2198.252	261	yes	100.0
305	Inner Gulf of Maine Shelf Other	881.2466	881.649	111	yes	100.0
304	Inner Bay of Fundy Shallow Basin	144.0429	145.616	17	yes	101.1
303	Inner Bay of Fundy Other	426.9385	429.383	52	yes	100.6
302	Inner Bay of Fundy Basin	18.6295	16.884	6	no	90.6
301	Georges Bank Slope Other	49.9869	52.548	5	yes	105.1
203	Natural disturbance high	2549.9701	3554.595	444	yes	139.4
202	Natural disturbance moderate	12434.0384	16131.616	2010	yes	129.7
201	Natural disturbance low	5589.5765	5600.059	865	yes	100.2
105	Scope for growth very high	3076.7886	3121.378	331	yes	101.4
104	Scope for growth high	1694.2834	1694.995	168	yes	100.0
103	Scope for growth moderate	3729.8954	5661.582	646	yes	151.8
102	Scope for growth low	6453.6197	6490.126	837	yes	100.6
101	Scope for growth very low	2897.4918	3633.344	499	yes	125.4

Appendix 38. Scenario AH

Feature ID	Feature Name	Target	Amount Held	Occurrences Held	Target Met	% Target Met
601	High topographic roughness	13571.403	13578.12	1366	yes	100.0
502	Slope Survey biodiversity hot spots	1278.1392	1342.485	136	yes	105.0
501	RV Survey biodiversity hot spots	9224.6337	9232.727	948	yes	100.1
432	Yellowtail Flounder	3304	4160	416	yes	125.9
431	Winter Flounder	924	1470	147	yes	159.1
430	Thorny Skate	3557.4	3581	361	yes	100.7
429	Sea Raven	1900	2350	235	yes	123.7
428	Ocean Pout	1092	1140	114	yes	104.4
427	Mustache Sculpin	40	200	20	yes	500.0
426	Monkfish	896	900	90	yes	100.4
425	Longfin Hake	664.8	694	71	yes	104.4
424	Atlantic Argentine	780	800	80	yes	102.6
423	Witch Flounder	2397.4	3757	394	yes	156.7
422	Winter Skate	696	700	70	yes	100.6
421	White Hake	3430.6	3456	355	yes	100.7
420	Spotted Wolffish	9	45	5	yes	500.0
419	Spiny Dogfish	1692	1720	172	yes	101.7
418	Smooth Skate	513.2	713	74	yes	138.9
417	Silver Hake	3262	3310	331	yes	101.5
416	Sebastes	2943.6	3419	355	yes	116.2
415	Sandlance	74	330	33	yes	445.9
414	Red Hake	278	340	34	yes	122.3
413	Pollock	1342	1670	167	yes	124.4
412	American Plaice	5534.2	5595	578	yes	101.1
411	Northern Wolffish	28	30	3	yes	107.1
410	Mackerel	112	110	11	no	98.2
409	Northern Shortfin Squid	1684	1690	169	yes	100.4
408	Longhorn Sculpin	1854	1860	186	yes	100.3
407	Herring	539.2	539	54	no	100.0
406	Halibut	416	450	45	yes	108.2
405	Haddock	4490	4500	450	yes	100.2
404	Cusk	580	810	81	yes	139.7
403	Cod	3456.4	4364	454	yes	126.3
402	Capelin	473.6	478	48	yes	100.9
401	Atlantic Wolffish	1033	1185	120	yes	114.7
331	Scotian Slope West Other	5484.4567	5487.567	575	yes	100.1
330	Scotian Slope West Fan	1035.7882	1043.523	111	yes	100.7
329	Scotian Slope East Other	3567.3154	3568.395	404	yes	100.0
328	Scotian Slope East Laurentian Fan	2697.125	2698.173	277	yes	100.0
327	Scotian Slope East Gully Fan	2105.3188	2106.132	255	yes	100.0
326	Scotian Slope East Canyon	718.6023	723.013	126	yes	100.6
325	Scotian Rise Other	7897.667	7897.364	780	no	100.0
324	Scotian Rise Debris Flow	763.4982	765.577	91	yes	100.3

323	Outer Scotian Shelf Other	984.812	986.393	165	yes	100.2
322	Outer Scotian Shelf Bank	4214.2808	4215.235	481	yes	100.0
321	Outer Scotian Scotian Shelf Saddle	529.0972	533.98	72	yes	100.9
320	Outer Scotian Scotian Shelf Bank Saddle	90.2061	94.385	11	yes	104.6
319	Outer Gulf of Maine Shelf Other	197.6614	197.799	32	yes	100.1
318	Outer Gulf of Maine Shelf Channel	502.7281	502.626	65	no	100.0
317	Outer Gulf of Maine Shelf Basin	150.6906	408.53	51	yes	271.1
316	Outer Gulf of Maine Shelf Bank	638.1165	664.259	68	yes	104.1
315	Outer Bay of Fundy Other	338.0791	338.136	46	yes	100.0
314	Middle Scotian Shelf Other	4948.1693	4949.771	638	yes	100.0
313	Middle Scotian Shelf Basin	1115.2814	1115.255	134	no	100.0
312	Middle Scotian Shelf Bank	896.1344	897.899	118	yes	100.2
311	Middle Gulf of Maine Shelf Tertiary Cretaceous	76.8758	80.941	14	yes	105.3
310	Middle Gulf of Maine Shelf Other	1318.7397	1320.23	181	yes	100.1
309	Middle Gulf of Maine Shelf Basin	381.246	382.979	69	yes	100.5
308	Middle Gulf of Maine Shelf Bank	12.4695	15.037	2	yes	120.6
307	Laurentian Channel Other	2289.3404	2290.157	271	yes	100.0
306	Inner Scotian Shelf Other	2197.2913	2198.252	261	yes	100.0
305	Inner Gulf of Maine Shelf Other	881.2466	881.649	111	yes	100.0
304	Inner Bay of Fundy Shallow Basin	144.0429	145.616	17	yes	101.1
303	Inner Bay of Fundy Other	426.9385	429.383	52	yes	100.6
302	Inner Bay of Fundy Basin	18.6295	16.884	6	no	90.6
301	Georges Bank Slope Other	49.9869	52.548	5	yes	105.1
203	Natural disturbance high	2549.9701	3554.595	444	yes	139.4
202	Natural disturbance moderate	12434.0384	16131.616	2010	yes	129.7
201	Natural disturbance low	5589.5765	5600.059	865	yes	100.2
105	Scope for growth very high	3076.7886	3121.378	331	yes	101.4
104	Scope for growth high	1694.2834	1694.995	168	yes	100.0
103	Scope for growth moderate	3729.8954	5661.582	646	yes	151.8
102	Scope for growth low	6453.6197	6490.126	837	yes	100.6
101	Scope for growth very low	2897.4918	3633.344	499	yes	125.4

Appendix 39. Scenario AI

Feature ID	Feature Name	Target	Amount Held	Occurrences Held	Target Met	% Target Met
601	High topographic roughness	20357.1045	20356.863	2048	no	100.0
502	Slope Survey biodiversity hot spots	1704.1856	1712.385	173	yes	100.5
501	RV Survey biodiversity hot spots	12299.5116	12300.13	1264	yes	100.0
432	Yellowtail Flounder	4956	4980	498	yes	100.5
431	Winter Flounder	1386	2460	246	yes	177.5
430	Thorny Skate	5336.1	5729	576	yes	107.4
429	Sea Raven	2850	3230	323	yes	113.3
428	Ocean Pout	1638	1640	164	yes	100.1
427	Mustache Sculpin	60	200	20	yes	333.3
426	Monkfish	1344	1350	135	yes	100.4
425	Longfin Hake	997.2	997	101	no	100.0
424	Atlantic Argentine	1170	1180	118	yes	100.9
423	Witch Flounder	3596.1	4120	429	yes	114.6
422	Winter Skate	1044	1050	105	yes	100.6
421	White Hake	5145.9	5275	538	yes	102.5
420	Spotted Wolffish	13.5	45	5	yes	333.3
419	Spiny Dogfish	2538	2540	254	yes	100.1
418	Smooth Skate	769.8	930	96	yes	120.8
417	Silver Hake	4893	4900	490	yes	100.1
416	Sebastes	4415.4	4421	457	yes	100.1
415	Sandlance	111	250	25	yes	225.2
414	Red Hake	417	580	58	yes	139.1
413	Pollock	2013	2340	234	yes	116.2
412	American Plaice	8301.3	8310	848	yes	100.1
411	Northern Wolffish	42	40	4	no	95.2
410	Mackerel	168	170	17	yes	101.2
409	Northern Shortfin Squid	2526	2530	253	yes	100.2
408	Longhorn Sculpin	2781	2790	279	yes	100.3
407	Herring	808.8	816	82	yes	100.9
406	Halibut	624	630	63	yes	101.0
405	Haddock	6735	6740	674	yes	100.1
404	Cusk	870	1420	142	yes	163.2
403	Cod	5184.6	5195	534	yes	100.2
402	Capelin	710.4	798	80	yes	112.3
401	Atlantic Wolffish	1549.5	1708	171	yes	110.2
331	Scotian Slope West Other	5484.4567	5485.165	604	yes	100.0
330	Scotian Slope West Fan	1035.7882	1037.215	102	yes	100.1
329	Scotian Slope East Other	3567.3154	3574.332	454	yes	100.2
328	Scotian Slope East Laurentian Fan	2697.125	2703.928	295	yes	100.3
327	Scotian Slope East Gully Fan	2105.3188	2106.23	255	yes	100.0
326	Scotian Slope East Canyon	718.6023	995.977	164	yes	138.6
325	Scotian Rise Other	7897.667	7898.762	784	yes	100.0
324	Scotian Rise Debris Flow	763.4982	765.51	88	yes	100.3

323	Outer Scotian Shelf Other	984.812	1636.221	265	yes	166.1
322	Outer Scotian Shelf Bank	4214.2808	5746.614	668	yes	136.4
321	Outer Scotian Scotian Shelf Saddle	529.0972	632.89	85	yes	119.6
320	Outer Scotian Scotian Shelf Bank Saddle	90.2061	88.428	9	no	98.0
319	Outer Gulf of Maine Shelf Other	197.6614	274.303	48	yes	138.8
318	Outer Gulf of Maine Shelf Channel	502.7281	545.583	73	yes	108.5
317	Outer Gulf of Maine Shelf Basin	150.6906	535.183	65	yes	355.2
316	Outer Gulf of Maine Shelf Bank	638.1165	639.169	69	yes	100.2
315	Outer Bay of Fundy Other	338.0791	420.422	62	yes	124.4
314	Middle Scotian Shelf Other	4948.1693	7986.392	994	yes	161.4
313	Middle Scotian Shelf Basin	1115.2814	1115.28	129	no	100.0
312	Middle Scotian Shelf Bank	896.1344	980.232	159	yes	109.4
311	Middle Gulf of Maine Shelf Tertiary Cretaceous	76.8758	237.233	31	yes	308.6
310	Middle Gulf of Maine Shelf Other	1318.7397	2401.482	307	yes	182.1
309	Middle Gulf of Maine Shelf Basin	381.246	485.49	85	yes	127.3
308	Middle Gulf of Maine Shelf Bank	12.4695	18.752	2	yes	150.4
307	Laurentian Channel Other	2289.3404	2289.419	275	yes	100.0
306	Inner Scotian Shelf Other	2197.2913	2199.27	269	yes	100.1
305	Inner Gulf of Maine Shelf Other	881.2466	1648.852	225	yes	187.1
304	Inner Bay of Fundy Shallow Basin	144.0429	145.187	20	yes	100.8
303	Inner Bay of Fundy Other	426.9385	436.017	66	yes	102.1
302	Inner Bay of Fundy Basin	18.6295	24.664	8	yes	132.4
301	Georges Bank Slope Other	49.9869	52.348	11	yes	104.7
203	Natural disturbance high	2549.9701	5010.804	624	yes	196.5
202	Natural disturbance moderate	12434.0384	22831.869	2748	yes	183.6
201	Natural disturbance low	5589.5765	5697.773	1011	yes	101.9
105	Scope for growth very high	3076.7886	4816.495	513	yes	156.5
104	Scope for growth high	1694.2834	1699.884	178	yes	100.3
103	Scope for growth moderate	3729.8954	7098.018	828	yes	190.3
102	Scope for growth low	6453.6197	8745.259	1158	yes	135.5
101	Scope for growth very low	2897.4918	5605.016	751	yes	193.4

Appendix 40. Scenario AJ

Feature ID	Feature Name	Target	Amount Held	Occurrences Held	Target Met	% Target Met
601	High topographic roughness	33928.5075	33930.214	3422	yes	100.0
502	Slope Survey biodiversity hot spots	2130.232	2139.42	216	yes	100.4
501	RV Survey biodiversity hot spots	15374.3895	15374.658	1573	yes	100.0
432	Yellowtail Flounder	4956	5000	500	yes	100.9
431	Winter Flounder	1386	2150	215	yes	155.1
430	Thorny Skate	5336.1	6414	642	yes	120.2
429	Sea Raven	2850	3030	303	yes	106.3
428	Ocean Pout	1638	1640	164	yes	100.1
427	Mustache Sculpin	60	150	15	yes	250.0
426	Monkfish	1344	1350	135	yes	100.4
425	Longfin Hake	997.2	1561	157	yes	156.5
424	Atlantic Argentine	1170	1170	117	yes	100.0
423	Witch Flounder	3596.1	3903	400	yes	108.5
422	Winter Skate	1044	1050	105	yes	100.6
421	White Hake	5145.9	5153	522	yes	100.1
420	Spotted Wolffish	13.5	45	5	yes	333.3
419	Spiny Dogfish	2538	2540	254	yes	100.1
418	Smooth Skate	769.8	776	78	yes	100.8
417	Silver Hake	4893	4900	490	yes	100.1
416	Sebastes	4415.4	4562	465	yes	103.3
415	Sandlance	111	120	12	yes	108.1
414	Red Hake	417	560	56	yes	134.3
413	Pollock	2013	2140	214	yes	106.3
412	American Plaice	8301.3	8305	842	yes	100.0
411	Northern Wolffish	42	40	4	no	95.2
410	Mackerel	168	170	17	yes	101.2
409	Northern Shortfin Squid	2526	2570	257	yes	101.7
408	Longhorn Sculpin	2781	2860	286	yes	102.8
407	Herring	808.8	816	82	yes	100.9
406	Halibut	624	800	80	yes	128.2
405	Haddock	6735	6740	674	yes	100.1
404	Cusk	870	900	90	yes	103.4
403	Cod	5184.6	5254	536	yes	101.3
402	Capelin	710.4	848	85	yes	119.4
401	Atlantic Wolffish	1549.5	1720	172	yes	111.0
331	Scotian Slope West Other	5484.4567	5502.744	584	yes	100.3
330	Scotian Slope West Fan	1035.7882	1039.518	106	yes	100.4
329	Scotian Slope East Other	3567.3154	8123.837	1215	yes	227.7
328	Scotian Slope East Laurentian Fan	2697.125	2832.305	312	yes	105.0
327	Scotian Slope East Gully Fan	2105.3188	2108.274	325	yes	100.1
326	Scotian Slope East Canyon	718.6023	4859.516	740	yes	676.2
325	Scotian Rise Other	7897.667	7898.667	779	yes	100.0

324	Scotian Rise Debris Flow	763.4982	763.879	74	yes	100.0
323	Outer Scotian Shelf Other	984.812	2319.175	393	yes	235.5
322	Outer Scotian Shelf Bank	4214.2808	5034.988	621	yes	119.5
321	Outer Scotian Scotian Shelf Saddle	529.0972	539.305	77	yes	101.9
320	Outer Scotian Scotian Shelf Bank Saddle	90.2061	91.48	10	yes	101.4
319	Outer Gulf of Maine Shelf Other	197.6614	241.525	33	yes	122.2
318	Outer Gulf of Maine Shelf Channel	502.7281	509.228	67	yes	101.3
317	Outer Gulf of Maine Shelf Basin	150.6906	386.824	47	yes	256.7
316	Outer Gulf of Maine Shelf Bank	638.1165	638.866	63	yes	100.1
315	Outer Bay of Fundy Other	338.0791	791.896	102	yes	234.2
314	Middle Scotian Shelf Other	4948.1693	12725.445	1550	yes	257.2
313	Middle Scotian Shelf Basin	1115.2814	1121.557	148	yes	100.6
312	Middle Scotian Shelf Bank	896.1344	2835.378	444	yes	316.4
311	Middle Gulf of Maine Shelf Tertiary Cretaceous	76.8758	132.188	19	yes	172.0
310	Middle Gulf of Maine Shelf Other	1318.7397	1830.189	253	yes	138.8
309	Middle Gulf of Maine Shelf Basin	381.246	612.162	100	yes	160.6
308	Middle Gulf of Maine Shelf Bank	12.4695	29.01	7	yes	232.6
307	Laurentian Channel Other	2289.3404	2291.587	283	yes	100.1
306	Inner Scotian Shelf Other	2197.2913	2198.401	259	yes	100.1
305	Inner Gulf of Maine Shelf Other	881.2466	1534.525	205	yes	174.1
304	Inner Bay of Fundy Shallow Basin	144.0429	145.653	17	yes	101.1
303	Inner Bay of Fundy Other	426.9385	426.759	56	no	100.0
302	Inner Bay of Fundy Basin	18.6295	23.095	7	yes	124.0
301	Georges Bank Slope Other	49.9869	52.521	5	yes	105.1
203	Natural disturbance high	2549.9701	5337.21	724	yes	209.3
202	Natural disturbance moderate	12434.0384	27921.489	3469	yes	224.6
201	Natural disturbance low	5589.5765	8795.467	1501	yes	157.4
105	Scope for growth very high	3076.7886	4873.467	525	yes	158.4
104	Scope for growth high	1694.2834	1751.517	177	yes	103.4
103	Scope for growth moderate	3729.8954	9360.498	1108	yes	251.0
102	Scope for growth low	6453.6197	12108.898	1565	yes	187.6
101	Scope for growth very low	2897.4918	6511.591	902	yes	224.7

Appendix 41. Scenario AK

Feature ID	Feature Name	Target	Amount Held	Occurrences Held	Target Met	% Target Met
601	High topographic roughness	33928.5075	33930.327	3408	yes	100.0
502	Slope Survey biodiversity hot spots	2130.232	2137.265	216	yes	100.3
501	RV Survey biodiversity hot spots	15374.3895	15391.383	1579	yes	100.1
432	Yellowtail Flounder	4956	5650	565	yes	114.0
431	Winter Flounder	1386	2050	205	yes	147.9
430	Thorny Skate	5336.1	6551	657	yes	122.8
429	Sea Raven	2850	3330	333	yes	116.8
428	Ocean Pout	1638	1640	164	yes	100.1
427	Mustache Sculpin	60	200	20	yes	333.3
426	Monkfish	1344	1350	135	yes	100.4
425	Longfin Hake	997.2	1027	104	yes	103.0
424	Atlantic Argentine	1170	1170	117	yes	100.0
423	Witch Flounder	3596.1	4308	453	yes	119.8
422	Winter Skate	1044	1080	108	yes	103.4
421	White Hake	5145.9	5332	548	yes	103.6
420	Spotted Wolffish	13.5	45	5	yes	333.3
419	Spiny Dogfish	2538	2540	254	yes	100.1
418	Smooth Skate	769.8	902	93	yes	117.2
417	Silver Hake	4893	5010	501	yes	102.4
416	Sebastes	4415.4	4680	486	yes	106.0
415	Sandlance	111	180	18	yes	162.2
414	Red Hake	417	430	43	yes	103.1
413	Pollock	2013	2600	260	yes	129.2
412	American Plaice	8301.3	8981	917	yes	108.2
411	Northern Wolffish	42	40	4	no	95.2
410	Mackerel	168	170	17	yes	101.2
409	Northern Shortfin Squid	2526	2950	295	yes	116.8
408	Longhorn Sculpin	2781	2850	285	yes	102.5
407	Herring	808.8	867	87	yes	107.2
406	Halibut	624	630	63	yes	101.0
405	Haddock	6735	6740	674	yes	100.1
404	Cusk	870	1640	164	yes	188.5
403	Cod	5184.6	6826	702	yes	131.7
402	Capelin	710.4	788	79	yes	110.9
401	Atlantic Wolffish	1549.5	1755	177	yes	113.3
331	Scotian Slope West Other	10968.9134	10970.045	1168	yes	100.0
330	Scotian Slope West Fan	2071.5764	2078.147	229	yes	100.3
329	Scotian Slope East Other	7134.6308	7135.299	922	yes	100.0
328	Scotian Slope East Laurentian Fan	5394.25	5394.327	571	yes	100.0
327	Scotian Slope East Gully Fan	4210.6376	4210.682	534	yes	100.0
326	Scotian Slope East Canyon	1437.2046	2432.219	379	yes	169.2
325	Scotian Rise Other	15795.334	15795.602	1572	yes	100.0

324	Scotian Rise Debris Flow	1526.9964	1533.942	168	yes	100.5
323	Outer Scotian Shelf Other	1969.624	1981.699	384	yes	100.6
322	Outer Scotian Shelf Bank	8428.5616	8430.794	966	yes	100.0
321	Outer Scotian Scotian Shelf Saddle	1058.1944	1061.325	129	yes	100.3
320	Outer Scotian Scotian Shelf Bank Saddle	180.4122	180.656	35	yes	100.1
319	Outer Gulf of Maine Shelf Other	395.3228	566.777	97	yes	143.4
318	Outer Gulf of Maine Shelf Channel	1005.4562	1006.864	124	yes	100.1
317	Outer Gulf of Maine Shelf Basin	301.3812	357.6	48	yes	118.7
316	Outer Gulf of Maine Shelf Bank	1276.233	1283.106	139	yes	100.5
315	Outer Bay of Fundy Other	676.1582	677.501	79	yes	100.2
314	Middle Scotian Shelf Other	9896.3386	9897.476	1214	yes	100.0
313	Middle Scotian Shelf Basin	2230.5628	2235.098	251	yes	100.2
312	Middle Scotian Shelf Bank	1792.2688	1792.348	249	yes	100.0
311	Middle Gulf of Maine Shelf Tertiary Cretaceous	153.7516	186.62	30	yes	121.4
310	Middle Gulf of Maine Shelf Other	2637.4794	2642.322	364	yes	100.2
309	Middle Gulf of Maine Shelf Basin	762.492	789.037	134	yes	103.5
308	Middle Gulf of Maine Shelf Bank	24.939	25.045	3	yes	100.4
307	Laurentian Channel Other	4578.6808	4582.35	527	yes	100.1
306	Inner Scotian Shelf Other	4394.5826	4398.01	503	yes	100.1
305	Inner Gulf of Maine Shelf Other	1762.4932	1766.638	230	yes	100.2
304	Inner Bay of Fundy Shallow Basin	288.0858	289.309	32	yes	100.4
303	Inner Bay of Fundy Other	853.877	858.799	102	yes	100.6
302	Inner Bay of Fundy Basin	37.259	67.784	21	yes	181.9
301	Georges Bank Slope Other	99.9738	101.632	14	yes	101.7
203	Natural disturbance high	5099.9402	6754.602	899	yes	132.4
202	Natural disturbance moderate	24868.0768	31880.76	4000	yes	128.2
201	Natural disturbance low	11179.153	11184.743	1741	yes	100.1
105	Scope for growth very high	6153.5772	6506.951	692	yes	105.7
104	Scope for growth high	3388.5668	3393.751	359	yes	100.2
103	Scope for growth moderate	7459.7908	8778.983	1052	yes	117.7
102	Scope for growth low	12907.2394	14222.947	1795	yes	110.2
101	Scope for growth very low	5794.9836	7474.64	995	yes	129.0

Appendix 42. Scenario AL

Feature ID	Feature Name	Target	Amount Held	Occurrences Held	Target Met	% Target Met
601	High topographic roughness	0	8022.57	807	yes	N/A
502	Slope Survey biodiversity hot spots	1278.1392	1284.338	130	yes	100.5
501	RV Survey biodiversity hot spots	9224.6337	10442.51	1072	yes	113.2
432	Yellowtail Flounder	3304	3430	343	yes	103.8
431	Winter Flounder	924	1780	178	yes	192.6
430	Thorny Skate	3557.4	3562	359	yes	100.1
429	Sea Raven	1900	2340	234	yes	123.2
428	Ocean Pout	1092	1100	110	yes	100.7
427	Mustache Sculpin	40	40	4	yes	100.0
426	Monkfish	896	930	93	yes	103.8
425	Longfin Hake	664.8	694	71	yes	104.4
424	Atlantic Argentine	780	910	91	yes	116.7
423	Witch Flounder	2397.4	3232	342	yes	134.8
422	Winter Skate	696	750	75	yes	107.8
421	White Hake	3430.6	3446	355	yes	100.4
420	Spotted Wolffish	9	45	5	yes	500.0
419	Spiny Dogfish	1692	1710	171	yes	101.1
418	Smooth Skate	513.2	513	54	no	100.0
417	Silver Hake	3262	3280	328	yes	100.6
416	Sebastes	2943.6	3321	344	yes	112.8
415	Sandlance	74	80	8	yes	108.1
414	Red Hake	278	360	36	yes	129.5
413	Pollock	1342	1370	137	yes	102.1
412	American Plaice	5534.2	5537	573	yes	100.1
411	Northern Wolffish	28	50	5	yes	178.6
410	Mackerel	112	110	11	no	98.2
409	Northern Shortfin Squid	1684	1700	170	yes	101.0
408	Longhorn Sculpin	1854	1950	195	yes	105.2
407	Herring	539.2	549	55	yes	101.8
406	Halibut	416	420	42	yes	101.0
405	Haddock	4490	4500	450	yes	100.2
404	Cusk	580	580	58	yes	100.0
403	Cod	3456.4	3843	402	yes	111.2
402	Capelin	473.6	618	62	yes	130.5
401	Atlantic Wolffish	1033	1695	171	yes	164.1
331	Scotian Slope West Other	5484.4567	5486.398	577	yes	100.0
330	Scotian Slope West Fan	1035.7882	1037.112	113	yes	100.1
329	Scotian Slope East Other	3567.3154	3567.226	408	no	100.0
328	Scotian Slope East Laurentian Fan	2697.125	2705.016	272	yes	100.3
327	Scotian Slope East Gully Fan	2105.3188	2106.127	252	yes	100.0
326	Scotian Slope East Canyon	718.6023	719.437	122	yes	100.1
325	Scotian Rise Other	7897.667	7898.077	801	yes	100.0

324	Scotian Rise Debris Flow	763.4982	771.763	91	yes	101.1
323	Outer Scotian Shelf Other	984.812	1019.389	183	yes	103.5
322	Outer Scotian Shelf Bank	4214.2808	4216.691	460	yes	100.1
321	Outer Scotian Scotian Shelf Saddle	529.0972	535.948	62	yes	101.3
320	Outer Scotian Scotian Shelf Bank Saddle	90.2061	90.278	17	yes	100.1
319	Outer Gulf of Maine Shelf Other	197.6614	198.215	32	yes	100.3
318	Outer Gulf of Maine Shelf Channel	502.7281	502.685	69	no	100.0
317	Outer Gulf of Maine Shelf Basin	150.6906	151.365	18	yes	100.4
316	Outer Gulf of Maine Shelf Bank	638.1165	639.687	70	yes	100.2
315	Outer Bay of Fundy Other	338.0791	345.83	45	yes	102.3
314	Middle Scotian Shelf Other	4948.1693	4948.069	608	no	100.0
313	Middle Scotian Shelf Basin	1115.2814	1114.697	133	no	99.9
312	Middle Scotian Shelf Bank	896.1344	896.281	109	yes	100.0
311	Middle Gulf of Maine Shelf Tertiary Cretaceous	76.8758	82.959	13	yes	107.9
310	Middle Gulf of Maine Shelf Other	1318.7397	1319.247	172	yes	100.0
309	Middle Gulf of Maine Shelf Basin	381.246	383.545	67	yes	100.6
308	Middle Gulf of Maine Shelf Bank	12.4695	9.901	1	no	79.4
307	Laurentian Channel Other	2289.3404	2289.479	263	yes	100.0
306	Inner Scotian Shelf Other	2197.2913	2198.293	261	yes	100.0
305	Inner Gulf of Maine Shelf Other	881.2466	884.003	111	yes	100.3
304	Inner Bay of Fundy Shallow Basin	144.0429	143.613	17	no	99.7
303	Inner Bay of Fundy Other	426.9385	433.844	61	yes	101.6
302	Inner Bay of Fundy Basin	18.6295	15.829	2	no	85.0
301	Georges Bank Slope Other	49.9869	50.978	5	yes	102.0
203	Natural disturbance high	2549.9701	3885.157	462	yes	152.4
202	Natural disturbance moderate	12434.0384	15398.471	1898	yes	123.8
201	Natural disturbance low	5589.5765	5593.171	893	yes	100.1
105	Scope for growth very high	3076.7886	3348.668	372	yes	108.8
104	Scope for growth high	1694.2834	1705.497	187	yes	100.7
103	Scope for growth moderate	3729.8954	4306.701	504	yes	115.5
102	Scope for growth low	6453.6197	6466.485	804	yes	100.2
101	Scope for growth very low	2897.4918	4424.405	547	yes	152.7

Appendix 43. Scenario AM

Feature ID	Feature Name	Target	Amount Held	Occurrences Held	Target Met	% Target Met
601	High topographic roughness	0	9742.513	978	yes	N/A
502	Slope Survey biodiversity hot spots	2130.232	2137.225	216	yes	100.3
501	RV Survey biodiversity hot spots	15374.3895	15376.444	1580	yes	100.0
432	Yellowtail Flounder	4956	4960	496	yes	100.1
431	Winter Flounder	1386	1910	191	yes	137.8
430	Thorny Skate	5336.1	5337	537	yes	100.0
429	Sea Raven	2850	2880	288	yes	101.1
428	Ocean Pout	1638	1640	164	yes	100.1
427	Mustache Sculpin	60	60	6	yes	100.0
426	Monkfish	1344	1350	135	yes	100.4
425	Longfin Hake	997.2	1437	145	yes	144.1
424	Atlantic Argentine	1170	1170	117	yes	100.0
423	Witch Flounder	3596.1	4540	477	yes	126.2
422	Winter Skate	1044	1050	105	yes	100.6
421	White Hake	5145.9	5214	537	yes	101.3
420	Spotted Wolffish	13.5	45	5	yes	333.3
419	Spiny Dogfish	2538	2540	254	yes	100.1
418	Smooth Skate	769.8	776	81	yes	100.8
417	Silver Hake	4893	4900	490	yes	100.1
416	Sebastes	4415.4	4418	458	yes	100.1
415	Sandlance	111	120	12	yes	108.1
414	Red Hake	417	500	50	yes	119.9
413	Pollock	2013	2080	208	yes	103.3
412	American Plaice	8301.3	8310	853	yes	100.1
411	Northern Wolffish	42	50	5	yes	119.0
410	Mackerel	168	170	17	yes	101.2
409	Northern Shortfin Squid	2526	2530	253	yes	100.2
408	Longhorn Sculpin	2781	2790	279	yes	100.3
407	Herring	808.8	816	82	yes	100.9
406	Halibut	624	630	63	yes	101.0
405	Haddock	6735	6740	674	yes	100.1
404	Cusk	870	1020	102	yes	117.2
403	Cod	5184.6	5480	568	yes	105.7
402	Capelin	710.4	718	72	yes	101.1
401	Atlantic Wolffish	1549.5	1629	164	yes	105.1
331	Scotian Slope West Other	5484.4567	5486.111	581	yes	100.0
330	Scotian Slope West Fan	1035.7882	1038.033	102	yes	100.2
329	Scotian Slope East Other	3567.3154	3573.216	441	yes	100.2
328	Scotian Slope East Laurentian Fan	2697.125	2697.9	265	yes	100.0
327	Scotian Slope East Gully Fan	2105.3188	2108.188	239	yes	100.1
326	Scotian Slope East Canyon	718.6023	876.792	150	yes	122.0
325	Scotian Rise Other	7897.667	7900.025	769	yes	100.0

324	Scotian Rise Debris Flow	763.4982	764.882	74	yes	100.2
323	Outer Scotian Shelf Other	984.812	1901.925	319	yes	193.1
322	Outer Scotian Shelf Bank	4214.2808	7019.49	796	yes	166.6
321	Outer Scotian Scotian Shelf Saddle	529.0972	533.443	70	yes	100.8
320	Outer Scotian Scotian Shelf Bank Saddle	90.2061	94.696	19	yes	105.0
319	Outer Gulf of Maine Shelf Other	197.6614	199.881	27	yes	101.1
318	Outer Gulf of Maine Shelf Channel	502.7281	512.314	63	yes	101.9
317	Outer Gulf of Maine Shelf Basin	150.6906	222.939	30	yes	147.9
316	Outer Gulf of Maine Shelf Bank	638.1165	638.967	62	yes	100.1
315	Outer Bay of Fundy Other	338.0791	780.525	97	yes	230.9
314	Middle Scotian Shelf Other	4948.1693	6803.902	894	yes	137.5
313	Middle Scotian Shelf Basin	1115.2814	1121.021	134	yes	100.5
312	Middle Scotian Shelf Bank	896.1344	1404.806	211	yes	156.8
311	Middle Gulf of Maine Shelf Tertiary Cretaceous	76.8758	119.616	17	yes	155.6
310	Middle Gulf of Maine Shelf Other	1318.7397	1837.924	236	yes	139.4
309	Middle Gulf of Maine Shelf Basin	381.246	453.692	85	yes	119.0
308	Middle Gulf of Maine Shelf Bank	12.4695	19.791	2	yes	158.7
307	Laurentian Channel Other	2289.3404	2291.732	265	yes	100.1
306	Inner Scotian Shelf Other	2197.2913	2197.514	278	yes	100.0
305	Inner Gulf of Maine Shelf Other	881.2466	1161.118	163	yes	131.8
304	Inner Bay of Fundy Shallow Basin	144.0429	145.157	15	yes	100.8
303	Inner Bay of Fundy Other	426.9385	426.5	60	no	99.9
302	Inner Bay of Fundy Basin	18.6295	14.451	5	no	77.6
301	Georges Bank Slope Other	49.9869	52.464	5	yes	105.0
203	Natural disturbance high	2549.9701	5900.103	719	yes	231.4
202	Natural disturbance moderate	12434.0384	20553.273	2526	yes	165.3
201	Natural disturbance low	5589.5765	6019.662	992	yes	107.7
105	Scope for growth very high	3076.7886	4348.613	466	yes	141.3
104	Scope for growth high	1694.2834	1697.218	172	yes	100.2
103	Scope for growth moderate	3729.8954	7152.904	846	yes	191.8
102	Scope for growth low	6453.6197	8267.918	1069	yes	128.1
101	Scope for growth very low	2897.4918	5748.186	715	yes	198.4

Appendix 44. Scenario AN

Feature ID	Feature Name	Target	Amount Held	Occurrences Held	Target Met	% Target Met
601	High topographic roughness	0	5507.665	555	yes	N/A
502	Slope Survey biodiversity hot spots	1278.1392	1279.006	129	yes	100.1
501	RV Survey biodiversity hot spots	9224.6337	9230.952	945	yes	100.1
432	Yellowtail Flounder	3304	3310	331	yes	100.2
431	Winter Flounder	924	1090	109	yes	118.0
430	Thorny Skate	3557.4	3561	357	yes	100.1
429	Sea Raven	1900	1900	190	yes	100.0
428	Ocean Pout	1092	1100	110	yes	100.7
427	Mustache Sculpin	40	40	4	yes	100.0
426	Monkfish	896	900	90	yes	100.4
425	Longfin Hake	664.8	786	79	yes	118.2
424	Atlantic Argentine	780	790	79	yes	101.3
423	Witch Flounder	2397.4	2405	248	yes	100.3
422	Winter Skate	696	700	70	yes	100.6
421	White Hake	3430.6	3433	349	yes	100.1
420	Spotted Wolffish	9	18	2	yes	200.0
419	Spiny Dogfish	1692	1700	170	yes	100.5
418	Smooth Skate	513.2	519	53	yes	101.1
417	Silver Hake	3262	3270	327	yes	100.2
416	Sebastes	2943.6	2947	300	yes	100.1
415	Sandlance	74	90	9	yes	121.6
414	Red Hake	278	310	31	yes	111.5
413	Pollock	1342	1360	136	yes	101.3
412	American Plaice	5534.2	5537	561	yes	100.1
411	Northern Wolffish	28	30	3	yes	107.1
410	Mackerel	112	120	12	yes	107.1
409	Northern Shortfin Squid	1684	1690	169	yes	100.4
408	Longhorn Sculpin	1854	1900	190	yes	102.5
407	Herring	539.2	548	55	yes	101.6
406	Halibut	416	440	44	yes	105.8
405	Haddock	4490	4490	449	yes	100.0
404	Cusk	580	620	62	yes	106.9
403	Cod	3456.4	3473	353	yes	100.5
402	Capelin	473.6	478	48	yes	100.9
401	Atlantic Wolffish	1033	1088	109	yes	105.3
331	Scotian Slope West Other	5484.4567	4747.013	502	no	86.6
330	Scotian Slope West Fan	1035.7882	1034.797	119	no	99.9
329	Scotian Slope East Other	3567.3154	3562.186	415	no	99.9
328	Scotian Slope East Laurentian Fan	2697.125	2587.218	259	no	95.9
327	Scotian Slope East Gully Fan	2105.3188	2098.891	223	no	99.7
326	Scotian Slope East Canyon	718.6023	718.274	114	no	100.0
325	Scotian Rise Other	7897.667	4828.561	506	no	61.1

324	Scotian Rise Debris Flow	763.4982	756.733	73	no	99.1
323	Outer Scotian Shelf Other	984.812	982.866	168	no	99.8
322	Outer Scotian Shelf Bank	4214.2808	4210.658	477	no	99.9
321	Outer Scotian Scotian Shelf Saddle	529.0972	528.603	65	no	99.9
320	Outer Scotian Scotian Shelf Bank Saddle	90.2061	86.172	11	no	95.5
319	Outer Gulf of Maine Shelf Other	197.6614	196.944	31	no	99.6
318	Outer Gulf of Maine Shelf Channel	502.7281	502.463	61	no	99.9
317	Outer Gulf of Maine Shelf Basin	150.6906	149.871	20	no	99.5
316	Outer Gulf of Maine Shelf Bank	638.1165	200.008	12	no	31.3
315	Outer Bay of Fundy Other	338.0791	337.95	47	no	100.0
314	Middle Scotian Shelf Other	4948.1693	4947.867	643	no	100.0
313	Middle Scotian Shelf Basin	1115.2814	1114.73	138	no	100.0
312	Middle Scotian Shelf Bank	896.1344	894.804	135	no	99.9
311	Middle Gulf of Maine Shelf Tertiary Cretaceous	76.8758	76.014	9	no	98.9
310	Middle Gulf of Maine Shelf Other	1318.7397	1318.558	175	no	100.0
309	Middle Gulf of Maine Shelf Basin	381.246	380.527	64	no	99.8
308	Middle Gulf of Maine Shelf Bank	12.4695	12.333	2	no	98.9
307	Laurentian Channel Other	2289.3404	2284.419	244	no	99.8
306	Inner Scotian Shelf Other	2197.2913	2197.285	243	no	100.0
305	Inner Gulf of Maine Shelf Other	881.2466	880.592	114	no	99.9
304	Inner Bay of Fundy Shallow Basin	144.0429	142.196	15	no	98.7
303	Inner Bay of Fundy Other	426.9385	422.024	51	no	98.8
302	Inner Bay of Fundy Basin	18.6295	18.224	3	no	97.8
301	Georges Bank Slope Other	49.9869	49.655	13	no	99.3
203	Natural disturbance high	2549.9701	3628.386	482	yes	142.3
202	Natural disturbance moderate	12434.0384	13406.51	1710	yes	107.8
201	Natural disturbance low	5589.5765	5593.676	870	yes	100.1
105	Scope for growth very high	3076.7886	3513.719	382	yes	114.2
104	Scope for growth high	1694.2834	2372.686	265	yes	140.0
103	Scope for growth moderate	3729.8954	3732.05	475	yes	100.1
102	Scope for growth low	6453.6197	6454.086	788	yes	100.0
101	Scope for growth very low	2897.4918	3107.021	410	yes	107.2

Appendix 45. Scenaio AO

Feature ID	Feature Name	Target	Amount Held	Occurrences Held	Target Met	% Target Met
601	High topographic roughness	0	7974.16	803	yes	N/A
502	Slope Survey biodiversity hot spots	2130.232	2128.591	215	no	99.9
501	RV Survey biodiversity hot spots	15374.3895	15376.032	1580	yes	100.0
432	Yellowtail Flounder	4956	4960	496	yes	100.1
431	Winter Flounder	1386	1550	155	yes	111.8
430	Thorny Skate	5336.1	5344	537	yes	100.1
429	Sea Raven	2850	2850	285	yes	100.0
428	Ocean Pout	1638	1640	164	yes	100.1
427	Mustache Sculpin	60	60	6	yes	100.0
426	Monkfish	1344	1350	135	yes	100.4
425	Longfin Hake	997.2	1153	116	yes	115.6
424	Atlantic Argentine	1170	1170	117	yes	100.0
423	Witch Flounder	3596.1	3734	389	yes	103.8
422	Winter Skate	1044	1050	105	yes	100.6
421	White Hake	5145.9	5146	526	yes	100.0
420	Spotted Wolffish	13.5	36	4	yes	266.7
419	Spiny Dogfish	2538	2530	253	no	99.7
418	Smooth Skate	769.8	841	87	yes	109.2
417	Silver Hake	4893	4890	489	no	99.9
416	Sebastes	4415.4	4418	454	yes	100.1
415	Sandlance	111	110	11	no	99.1
414	Red Hake	417	440	44	yes	105.5
413	Pollock	2013	2020	202	yes	100.3
412	American Plaice	8301.3	8305	846	yes	100.0
411	Northern Wolffish	42	50	5	yes	119.0
410	Mackerel	168	170	17	yes	101.2
409	Northern Shortfin Squid	2526	2530	253	yes	100.2
408	Longhorn Sculpin	2781	2790	279	yes	100.3
407	Herring	808.8	806	81	no	99.7
406	Halibut	624	630	63	yes	101.0
405	Haddock	6735	6730	673	no	99.9
404	Cusk	870	870	87	yes	100.0
403	Cod	5184.6	5188	531	yes	100.1
402	Capelin	710.4	708	71	no	99.7
401	Atlantic Wolffish	1549.5	1558	156	yes	100.5
331	Scotian Slope West Other	5484.4567	5478.095	572	no	99.9
330	Scotian Slope West Fan	1035.7882	1035.185	111	no	99.9
329	Scotian Slope East Other	3567.3154	3560.93	411	no	99.8
328	Scotian Slope East Laurentian Fan	2697.125	2585.896	253	no	95.9
327	Scotian Slope East Gully Fan	2105.3188	2099.178	240	no	99.7
326	Scotian Slope East Canyon	718.6023	721.196	129	yes	100.4
325	Scotian Rise Other	7897.667	4808.667	501	no	60.9

324	Scotian Rise Debris Flow	763.4982	756.823	73	no	99.1
323	Outer Scotian Shelf Other	984.812	1252.666	234	yes	127.2
322	Outer Scotian Shelf Bank	4214.2808	5567.882	615	yes	132.1
321	Outer Scotian Scotian Shelf Saddle	529.0972	529.619	68	yes	100.1
320	Outer Scotian Scotian Shelf Bank Saddle	90.2061	90.6	12	yes	100.4
319	Outer Gulf of Maine Shelf Other	197.6614	197.509	27	no	99.9
318	Outer Gulf of Maine Shelf Channel	502.7281	503.345	66	yes	100.1
317	Outer Gulf of Maine Shelf Basin	150.6906	207.607	30	yes	137.8
316	Outer Gulf of Maine Shelf Bank	638.1165	442.849	35	no	69.4
315	Outer Bay of Fundy Other	338.0791	549.135	73	yes	162.4
314	Middle Scotian Shelf Other	4948.1693	5724.247	747	yes	115.7
313	Middle Scotian Shelf Basin	1115.2814	1113.007	128	no	99.8
312	Middle Scotian Shelf Bank	896.1344	1174.367	174	yes	131.0
311	Middle Gulf of Maine Shelf Tertiary Cretaceous	76.8758	79.997	11	yes	104.1
310	Middle Gulf of Maine Shelf Other	1318.7397	1474.472	193	yes	111.8
309	Middle Gulf of Maine Shelf Basin	381.246	388.584	65	yes	101.9
308	Middle Gulf of Maine Shelf Bank	12.4695	20.93	3	yes	167.8
307	Laurentian Channel Other	2289.3404	2290.04	254	yes	100.0
306	Inner Scotian Shelf Other	2197.2913	2196.724	264	no	100.0
305	Inner Gulf of Maine Shelf Other	881.2466	899.883	126	yes	102.1
304	Inner Bay of Fundy Shallow Basin	144.0429	143.444	16	no	99.6
303	Inner Bay of Fundy Other	426.9385	429.184	57	yes	100.5
302	Inner Bay of Fundy Basin	18.6295	17.689	3	no	95.0
301	Georges Bank Slope Other	49.9869	49.508	12	no	99.0
203	Natural disturbance high	2549.9701	4751.002	583	yes	186.3
202	Natural disturbance moderate	12434.0384	16870.617	2101	yes	135.7
201	Natural disturbance low	5589.5765	5764.7	952	yes	103.1
105	Scope for growth very high	3076.7886	3464.937	383	yes	112.6
104	Scope for growth high	1694.2834	1695.644	174	yes	100.1
103	Scope for growth moderate	3729.8954	4991.462	596	yes	133.8
102	Scope for growth low	6453.6197	7146.579	908	yes	110.7
101	Scope for growth very low	2897.4918	4879.823	635	yes	168.4

Appendix 46. Scenario AP

Feature ID	Feature Name	Target	Amount Held	Occurrences Held	Target Met	% Target Met
601	High topographic roughness	681.8	810	810	yes	118.8
502	Slope Survey biodiversity hot spots	107.75	142	142	yes	131.8
501	RV Survey biodiversity hot spots	791	792	792	yes	100.1
432	Yellowtail Flounder	165.2	305	305	yes	184.6
431	Winter Flounder	46.2	172	172	yes	372.3
430	Thorny Skate	178.2	179	179	yes	100.4
429	Sea Raven	95	239	239	yes	251.6
428	Ocean Pout	54.6	72	72	yes	131.9
427	Mustache Sculpin	2	2	2	yes	100.0
426	Monkfish	44.8	47	47	yes	104.9
425	Longfin Hake	33.4	61	61	yes	182.6
424	Atlantic Argentine	39	84	84	yes	215.4
423	Witch Flounder	122.5	388	388	yes	316.7
422	Winter Skate	174	175	175	yes	100.6
421	White Hake	173.2	396	396	yes	228.6
420	Spotted Wolffish	2.5	5	5	yes	200.0
419	Spiny Dogfish	84.6	85	85	yes	100.5
418	Smooth Skate	26	78	78	yes	300.0
417	Silver Hake	163.1	166	166	yes	101.8
416	Sebastes	149.3	380	380	yes	254.5
415	Sandlance	3.7	4	4	yes	108.1
414	Red Hake	13.9	14	14	yes	100.7
413	Pollock	67.1	89	89	yes	132.6
412	American Plaice	279	399	399	yes	143.0
411	Northern Wolffish	7	7	7	yes	100.0
410	Mackerel	5.6	6	6	yes	107.1
409	Northern Shortfin Squid	84.2	138	138	yes	163.9
408	Longhorn Sculpin	92.7	304	304	yes	327.9
407	Herring	27	28	28	yes	103.7
406	Halibut	20.8	25	25	yes	120.2
405	Haddock	224.5	343	343	yes	152.8
404	Cusk	145	145	145	yes	100.0
403	Cod	876	876	876	yes	100.0
402	Capelin	23.7	24	24	yes	101.3
401	Atlantic Wolffish	259	259	259	yes	100.0
331	Scotian Slope West Other	535.6409	535.732	584	yes	100.0
330	Scotian Slope West Fan	100.139	100.204	106	yes	100.1
329	Scotian Slope East Other	354.9791	354.971	448	no	100.0
328	Scotian Slope East Laurentian Fan	267.8902	268	268	yes	100.0
327	Scotian Slope East Gully Fan	206.2918	206.426	243	yes	100.1
326	Scotian Slope East Canyon	71.8583	71.837	114	no	100.0
325	Scotian Rise Other	766.254	766.241	812	no	100.0

324	Scotian Rise Debris Flow	74.1014	74.798	91	yes	100.9
323	Outer Scotian Shelf Other	98.7087	99.343	170	yes	100.6
322	Outer Scotian Shelf Bank	423.5118	423.874	458	yes	100.1
321	Outer Scotian Scotian Shelf Saddle	52.576	52.888	59	yes	100.6
320	Outer Scotian Scotian Shelf Bank Saddle	9.0103	9.006	21	no	100.0
319	Outer Gulf of Maine Shelf Other	19.3672	19.398	30	yes	100.2
318	Outer Gulf of Maine Shelf Channel	49.3875	49.474	67	yes	100.2
317	Outer Gulf of Maine Shelf Basin	14.823	14.96	20	yes	100.9
316	Outer Gulf of Maine Shelf Bank	62.1557	63	63	yes	101.4
315	Outer Bay of Fundy Other	34.5983	35.196	53	yes	101.7
314	Middle Scotian Shelf Other	505.1628	505.401	663	yes	100.0
313	Middle Scotian Shelf Basin	112.8833	112.889	149	yes	100.0
312	Middle Scotian Shelf Bank	91.7631	92.242	129	yes	100.5
311	Middle Gulf of Maine Shelf Tertiary Cretaceous	7.715	8	8	yes	103.7
310	Middle Gulf of Maine Shelf Other	132.4595	132.525	167	yes	100.0
309	Middle Gulf of Maine Shelf Basin	38.0914	38.214	60	yes	100.3
308	Middle Gulf of Maine Shelf Bank	1.2641	1.351	6	yes	106.9
307	Laurentian Channel Other	239.413	239.677	281	yes	100.1
306	Inner Scotian Shelf Other	225.95	226.039	276	yes	100.0
305	Inner Gulf of Maine Shelf Other	88.8598	89.472	116	yes	100.7
304	Inner Bay of Fundy Shallow Basin	14.8985	14.857	17	no	99.7
303	Inner Bay of Fundy Other	43.9949	43.968	58	no	99.9
302	Inner Bay of Fundy Basin	1.9237	1.743	6	no	90.6
301	Georges Bank Slope Other	4.7638	5	5	yes	105.0
203	Natural disturbance high	257.2617	333.026	388	yes	129.5
202	Natural disturbance moderate	1257.7671	1532.821	1848	yes	121.9
201	Natural disturbance low	565.6408	567.497	873	yes	100.3
105	Scope for growth very high	308.9532	371.212	401	yes	120.2
104	Scope for growth high	166.7052	177.134	188	yes	106.3
103	Scope for growth moderate	375.4673	390.217	470	yes	103.9
102	Scope for growth low	655.2621	670.443	856	yes	102.3
101	Scope for growth very low	295.452	406.597	531	yes	137.6

Appendix 47. Scenario AQ

Feature ID	Feature Name	Target	Amount Held	Occurrences Held	Target Met	% Target Met
601	High topographic roughness	1022.7	1023	1023	yes	100.0
502	Slope Survey biodiversity hot spots	129.3	130	130	yes	100.5
501	RV Survey biodiversity hot spots	949.2	951	951	yes	100.2
432	Yellowtail Flounder	247.8	301	301	yes	121.5
431	Winter Flounder	69.3	270	270	yes	389.6
430	Thorny Skate	267.3	376	376	yes	140.7
429	Sea Raven	142.5	465	465	yes	326.3
428	Ocean Pout	81.9	206	206	yes	251.5
427	Mustache Sculpin	3	3	3	yes	100.0
426	Monkfish	67.2	70	70	yes	104.2
425	Longfin Hake	50.1	112	112	yes	223.6
424	Atlantic Argentine	58.5	166	166	yes	283.8
423	Witch Flounder	183.75	402	402	yes	218.8
422	Winter Skate	243.6	244	244	yes	100.2
421	White Hake	259.8	543	543	yes	209.0
420	Spotted Wolffish	3.5	5	5	yes	142.9
419	Spiny Dogfish	126.9	127	127	yes	100.1
418	Smooth Skate	39	75	75	yes	192.3
417	Silver Hake	244.65	245	245	yes	100.1
416	Sebastes	223.95	428	428	yes	191.1
415	Sandlance	5.55	6	6	yes	108.1
414	Red Hake	20.85	32	32	yes	153.5
413	Pollock	100.65	213	213	yes	211.6
412	American Plaice	418.5	419	419	yes	100.1
411	Northern Wolffish	9.8	10	10	yes	102.0
410	Mackerel	8.4	9	9	yes	107.1
409	Northern Shortfin Squid	126.3	141	141	yes	111.6
408	Longhorn Sculpin	139.05	465	465	yes	334.4
407	Herring	40.5	41	41	yes	101.2
406	Halibut	31.2	37	37	yes	118.6
405	Haddock	336.75	477	477	yes	141.6
404	Cusk	203	203	203	yes	100.0
403	Cod	1226.4	1227	1227	yes	100.0
402	Capelin	35.55	36	36	yes	101.3
401	Atlantic Wolffish	362.6	363	363	yes	100.1
331	Scotian Slope West Other	535.6409	535.732	576	yes	100.0
330	Scotian Slope West Fan	100.139	100.144	104	yes	100.0
329	Scotian Slope East Other	354.9791	355.128	417	yes	100.0
328	Scotian Slope East Laurentian Fan	267.8902	268.567	279	yes	100.3
327	Scotian Slope East Gully Fan	206.2918	206.315	235	yes	100.0
326	Scotian Slope East Canyon	71.8583	72.187	114	yes	100.5
325	Scotian Rise Other	766.254	766.834	783	yes	100.1

324	Scotian Rise Debris Flow	74.1014	74.575	79	yes	100.6
323	Outer Scotian Shelf Other	98.7087	99.359	159	yes	100.7
322	Outer Scotian Shelf Bank	423.5118	430.715	448	yes	101.7
321	Outer Scotian Scotian Shelf Saddle	52.576	53.018	65	yes	100.8
320	Outer Scotian Scotian Shelf Bank Saddle	9.0103	8.839	9	no	98.1
319	Outer Gulf of Maine Shelf Other	19.3672	19.394	35	yes	100.1
318	Outer Gulf of Maine Shelf Channel	49.3875	49.7	66	yes	100.6
317	Outer Gulf of Maine Shelf Basin	14.823	21.263	29	yes	143.4
316	Outer Gulf of Maine Shelf Bank	62.1557	63.002	66	yes	101.4
315	Outer Bay of Fundy Other	34.5983	228.91	263	yes	661.6
314	Middle Scotian Shelf Other	505.1628	515.112	656	yes	102.0
313	Middle Scotian Shelf Basin	112.8833	112.88	142	no	100.0
312	Middle Scotian Shelf Bank	91.7631	92.719	129	yes	101.0
311	Middle Gulf of Maine Shelf Tertiary Cretaceous	7.715	8	8	yes	103.7
310	Middle Gulf of Maine Shelf Other	132.4595	170.288	224	yes	128.6
309	Middle Gulf of Maine Shelf Basin	38.0914	50.49	83	yes	132.5
308	Middle Gulf of Maine Shelf Bank	1.2641	1.493	5	yes	118.1
307	Laurentian Channel Other	239.413	239.588	279	yes	100.1
306	Inner Scotian Shelf Other	225.95	226.928	273	yes	100.4
305	Inner Gulf of Maine Shelf Other	88.8598	144.637	205	yes	162.8
304	Inner Bay of Fundy Shallow Basin	14.8985	14.985	15	yes	100.6
303	Inner Bay of Fundy Other	43.9949	77.236	104	yes	175.6
302	Inner Bay of Fundy Basin	1.9237	2.209	6	yes	114.8
301	Georges Bank Slope Other	4.7638	5	5	yes	105.0
203	Natural disturbance high	257.2617	328.828	431	yes	127.8
202	Natural disturbance moderate	1257.7671	1727.935	2131	yes	137.4
201	Natural disturbance low	565.6408	805.763	1190	yes	142.5
105	Scope for growth very high	308.9532	628.947	670	yes	203.6
104	Scope for growth high	166.7052	215.916	235	yes	129.5
103	Scope for growth moderate	375.4673	375.533	447	yes	100.0
102	Scope for growth low	655.2621	655.282	830	yes	100.0
101	Scope for growth very low	295.452	459.961	582	yes	155.7

Appendix 48. Scenario AR

Feature ID	Feature Name	Target	Amount Held	Occurrences Held	Target Met	% Target Met
601	High topographic roughness	1363.6	1364	1364	yes	100.0
502	Slope Survey biodiversity hot spots	150.85	151	151	yes	100.1
501	RV Survey biodiversity hot spots	1107.4	1108	1108	yes	100.1
432	Yellowtail Flounder	330.4	340	340	yes	102.9
431	Winter Flounder	92.4	303	303	yes	327.9
430	Thorny Skate	356.4	496	496	yes	139.2
429	Sea Raven	190	526	526	yes	276.8
428	Ocean Pout	109.2	205	205	yes	187.7
427	Mustache Sculpin	4	5	5	yes	125.0
426	Monkfish	89.6	92	92	yes	102.7
425	Longfin Hake	66.8	80	80	yes	119.8
424	Atlantic Argentine	78	184	184	yes	235.9
423	Witch Flounder	245	503	503	yes	205.3
422	Winter Skate	278.4	279	279	yes	100.2
421	White Hake	346.4	603	603	yes	174.1
420	Spotted Wolffish	4	5	5	yes	125.0
419	Spiny Dogfish	169.2	170	170	yes	100.5
418	Smooth Skate	52	118	118	yes	226.9
417	Silver Hake	326.2	327	327	yes	100.2
416	Sebastes	298.6	460	460	yes	154.1
415	Sandlance	7.4	8	8	yes	108.1
414	Red Hake	27.8	58	58	yes	208.6
413	Pollock	134.2	258	258	yes	192.3
412	American Plaice	558	558	558	yes	100.0
411	Northern Wolffish	11.2	12	12	yes	107.1
410	Mackerel	11.2	11	11	no	98.2
409	Northern Shortfin Squid	168.4	170	170	yes	101.0
408	Longhorn Sculpin	185.4	562	562	yes	303.1
407	Herring	54	54	54	yes	100.0
406	Halibut	41.6	42	42	yes	101.0
405	Haddock	449	568	568	yes	126.5
404	Cusk	232	232	232	yes	100.0
403	Cod	1401.6	1402	1402	yes	100.0
402	Capelin	47.4	48	48	yes	101.3
401	Atlantic Wolffish	414.4	415	415	yes	100.1
331	Scotian Slope West Other	535.6409	535.642	576	yes	100.0
330	Scotian Slope West Fan	100.139	100.666	101	yes	100.5
329	Scotian Slope East Other	354.9791	355.209	415	yes	100.1
328	Scotian Slope East Laurentian Fan	267.8902	268	268	yes	100.0
327	Scotian Slope East Gully Fan	206.2918	206.456	259	yes	100.1
326	Scotian Slope East Canyon	71.8583	72.086	123	yes	100.3
325	Scotian Rise Other	766.254	766.416	782	yes	100.0

324	Scotian Rise Debris Flow	74.1014	74.157	85	yes	100.1
323	Outer Scotian Shelf Other	98.7087	130.893	215	yes	132.6
322	Outer Scotian Shelf Bank	423.5118	516.845	566	yes	122.0
321	Outer Scotian Scotian Shelf Saddle	52.576	52.668	66	yes	100.2
320	Outer Scotian Scotian Shelf Bank Saddle	9.0103	8.839	9	no	98.1
319	Outer Gulf of Maine Shelf Other	19.3672	19.571	30	yes	101.1
318	Outer Gulf of Maine Shelf Channel	49.3875	50.805	72	yes	102.9
317	Outer Gulf of Maine Shelf Basin	14.823	29.415	37	yes	198.4
316	Outer Gulf of Maine Shelf Bank	62.1557	63	63	yes	101.4
315	Outer Bay of Fundy Other	34.5983	262.59	294	yes	759.0
314	Middle Scotian Shelf Other	505.1628	667.897	841	yes	132.2
313	Middle Scotian Shelf Basin	112.8833	114.175	153	yes	101.1
312	Middle Scotian Shelf Bank	91.7631	91.949	121	yes	100.2
311	Middle Gulf of Maine Shelf Tertiary Cretaceous	7.715	8.318	12	yes	107.8
310	Middle Gulf of Maine Shelf Other	132.4595	268.652	329	yes	202.8
309	Middle Gulf of Maine Shelf Basin	38.0914	47.266	80	yes	124.1
308	Middle Gulf of Maine Shelf Bank	1.2641	2.297	7	yes	181.7
307	Laurentian Channel Other	239.413	239.448	286	yes	100.0
306	Inner Scotian Shelf Other	225.95	241.512	294	yes	106.9
305	Inner Gulf of Maine Shelf Other	88.8598	158.887	229	yes	178.8
304	Inner Bay of Fundy Shallow Basin	14.8985	14.985	15	yes	100.6
303	Inner Bay of Fundy Other	43.9949	101.75	129	yes	231.3
302	Inner Bay of Fundy Basin	1.9237	2.035	5	yes	105.8
301	Georges Bank Slope Other	4.7638	5	5	yes	105.0
203	Natural disturbance high	257.2617	401.852	522	yes	156.2
202	Natural disturbance moderate	1257.7671	1980.011	2449	yes	157.4
201	Natural disturbance low	565.6408	894.559	1321	yes	158.1
105	Scope for growth very high	308.9532	789.792	841	yes	255.6
104	Scope for growth high	166.7052	315.457	338	yes	189.2
103	Scope for growth moderate	375.4673	376.199	435	yes	100.2
102	Scope for growth low	655.2621	700.788	886	yes	106.9
101	Scope for growth very low	295.452	574.942	721	yes	194.6

Appendix 49. Scenario AS

Feature ID	Feature Name	Target	Amount Held	Occurrences Held	Target Met	% Target Met
601	High topographic roughness	1704.5	1705	1705	yes	100.0
502	Slope Survey biodiversity hot spots	172.4	173	173	yes	100.3
501	RV Survey biodiversity hot spots	1265.6	1266	1266	yes	100.0
432	Yellowtail Flounder	495.6	496	496	yes	100.1
431	Winter Flounder	138.6	376	376	yes	271.3
430	Thorny Skate	534.6	664	664	yes	124.2
429	Sea Raven	285	679	679	yes	238.2
428	Ocean Pout	163.8	284	284	yes	173.4
427	Mustache Sculpin	6	7	7	yes	116.7
426	Monkfish	134.4	136	136	yes	101.2
425	Longfin Hake	100.2	106	106	yes	105.8
424	Atlantic Argentine	117	198	198	yes	169.2
423	Witch Flounder	367.5	552	552	yes	150.2
422	Winter Skate	348	348	348	yes	100.0
421	White Hake	519.6	711	711	yes	136.8
420	Spotted Wolffish	5	5	5	yes	100.0
419	Spiny Dogfish	253.8	254	254	yes	100.1
418	Smooth Skate	78	135	135	yes	173.1
417	Silver Hake	489.3	490	490	yes	100.1
416	Sebastes	447.9	579	579	yes	129.3
415	Sandlance	11.1	13	13	yes	117.1
414	Red Hake	41.7	69	69	yes	165.5
413	Pollock	201.3	306	306	yes	152.0
412	American Plaice	837	837	837	yes	100.0
411	Northern Wolffish	14	14	14	yes	100.0
410	Mackerel	16.8	17	17	yes	101.2
409	Northern Shortfin Squid	252.6	253	253	yes	100.2
408	Longhorn Sculpin	278.1	641	641	yes	230.5
407	Herring	81	112	112	yes	138.3
406	Halibut	62.4	63	63	yes	101.0
405	Haddock	673.5	774	774	yes	114.9
404	Cusk	290	290	290	yes	100.0
403	Cod	1752	1752	1752	yes	100.0
402	Capelin	71.1	72	72	yes	101.3
401	Atlantic Wolffish	518	518	518	yes	100.0
331	Scotian Slope West Other	535.6409	535.694	588	yes	100.0
330	Scotian Slope West Fan	100.139	100.132	116	no	100.0
329	Scotian Slope East Other	354.9791	355.584	431	yes	100.2
328	Scotian Slope East Laurentian Fan	267.8902	268.054	286	yes	100.1
327	Scotian Slope East Gully Fan	206.2918	206.297	260	yes	100.0
326	Scotian Slope East Canyon	71.8583	86.982	144	yes	121.0
325	Scotian Rise Other	766.254	766.273	792	yes	100.0

324	Scotian Rise Debris Flow	74.1014	74.725	77	yes	100.8
323	Outer Scotian Shelf Other	98.7087	186.108	302	yes	188.5
322	Outer Scotian Shelf Bank	423.5118	744.754	818	yes	175.9
321	Outer Scotian Scotian Shelf Saddle	52.576	52.662	69	yes	100.2
320	Outer Scotian Scotian Shelf Bank Saddle	9.0103	8.94	9	no	99.2
319	Outer Gulf of Maine Shelf Other	19.3672	24.282	40	yes	125.4
318	Outer Gulf of Maine Shelf Channel	49.3875	64.039	88	yes	129.7
317	Outer Gulf of Maine Shelf Basin	14.823	33.623	43	yes	226.8
316	Outer Gulf of Maine Shelf Bank	62.1557	63	63	yes	101.4
315	Outer Bay of Fundy Other	34.5983	272.59	304	yes	787.9
314	Middle Scotian Shelf Other	505.1628	1113.786	1399	yes	220.5
313	Middle Scotian Shelf Basin	112.8833	166.589	223	yes	147.6
312	Middle Scotian Shelf Bank	91.7631	208.533	304	yes	227.3
311	Middle Gulf of Maine Shelf Tertiary Cretaceous	7.715	7.942	12	yes	102.9
310	Middle Gulf of Maine Shelf Other	132.4595	412.406	507	yes	311.3
309	Middle Gulf of Maine Shelf Basin	38.0914	65.197	117	yes	171.2
308	Middle Gulf of Maine Shelf Bank	1.2641	7.024	18	yes	555.7
307	Laurentian Channel Other	239.413	239.503	316	yes	100.0
306	Inner Scotian Shelf Other	225.95	283.035	351	yes	125.3
305	Inner Gulf of Maine Shelf Other	88.8598	202.224	307	yes	227.6
304	Inner Bay of Fundy Shallow Basin	14.8985	14.985	15	yes	100.6
303	Inner Bay of Fundy Other	43.9949	209.62	249	yes	476.5
302	Inner Bay of Fundy Basin	1.9237	3.679	13	yes	191.2
301	Georges Bank Slope Other	4.7638	5	5	yes	105.0
203	Natural disturbance high	257.2617	595.152	762	yes	231.3
202	Natural disturbance moderate	1257.7671	2787.034	3475	yes	221.6
201	Natural disturbance low	565.6408	1212.812	1829	yes	214.4
105	Scope for growth very high	308.9532	1052.038	1125	yes	340.5
104	Scope for growth high	166.7052	396.968	436	yes	238.1
103	Scope for growth moderate	375.4673	657.647	763	yes	175.2
102	Scope for growth low	655.2621	1079.916	1337	yes	164.8
101	Scope for growth very low	295.452	813.561	1012	yes	275.4

Appendix 50. Scenario 1

Feature ID	Feature Name	Target	Amount Held	Occurrences Held	Target Met	% Target Met
4322	Yellowtail Flounder 4X	39.2	41	41	yes	104.6
4321	Yellowtail Flounder 4VW	242.8	243	243	yes	100.1
4312	Winter Flounder 4X5Y	39.8	102	102	yes	256.3
4311	Winter Flounder 4VW	19.8	69	69	yes	348.5
4212	White Hake 4X5Y	124.6	170	170	yes	136.4
4211	White Hake 4VW	179.4	222	222	yes	123.7
4162	Sebastes Unit 3	134	141	141	yes	105.2
4161	Sebastes Unit 2	143.8	147	147	yes	102.2
4122	American Plaice 4X5Y	91.6	92	92	yes	100.4
4121	American Plaice 4VW	412.8	432	432	yes	104.7
4052	Haddock 4X5Y	165.2	166	166	yes	100.5
4051	Haddock 4VW	244.2	246	246	yes	100.7
4033	Cod 4X5Y	169.6	170	170	yes	100.2
4032	Cod 4VsW	153.2	202	202	yes	131.9
4031	Cod 4Vn	51.8	52	52	yes	100.4
709	Whelks	452	472	472	yes	104.4
708	Urchins	85.8	86	86	yes	100.2
707	Sponges	134.8	135	135	yes	100.1
706	Snowcrab----	518	533	533	yes	102.9
705	Shrimp	343	343	343	yes	100.0
704	Cucumbers	144.4	145	145	yes	100.4
703	Crabs and lobsters	396.4	397	397	yes	100.2
702	Brittle stars	40	105	105	yes	262.5
701	Anemones	79.6	95	95	yes	119.3
601	High topographic roughness	1363.6	1365	1365	yes	100.1
503	Snowcrab Survey biodiversity hot spots	165.8	240	240	yes	144.8
502	Slope Survey biodiversity hot spots	86.2	92	92	yes	106.7
501	RV Survey biodiversity hot spots	632.8	804	804	yes	127.1
430	Thorny Skate	356.4	358	358	yes	100.4
429	Sea Raven	190	263	263	yes	138.4
428	Ocean Pout	109.2	121	121	yes	110.8
427	Mustache Sculpin	4	20	20	yes	500.0
426	Monkfish	89.6	90	90	yes	100.4
425	Longfin Hake	66.8	122	122	yes	182.6
424	Atlantic Argentine	78	78	78	yes	100.0
423	Witch Flounder	245	266	266	yes	108.6
422	Winter Skate	69.6	73	73	yes	104.9
420	Spotted Wolffish	1	2	2	yes	200.0
419	Spiny Dogfish	169.2	170	170	yes	100.5
418	Smooth Skate	52	52	52	yes	100.0
417	Silver Hake	326.2	328	328	yes	100.6
415	Sandlance	7.4	10	10	yes	135.1

414	Red Hake	27.8	31	31	yes	111.5
413	Pollock	134.2	150	150	yes	111.8
411	Northern Wolffish	2.8	4	4	yes	142.9
410	Mackerel	11.2	11	11	no	98.2
409	Northern Shortfin Squid	168.4	178	178	yes	105.7
408	Longhorn Sculpin	185.4	186	186	yes	100.3
407	Herring	54	65	65	yes	120.4
406	Halibut	41.6	43	43	yes	103.4
404	Cusk	58	82	82	yes	141.4
402	Capelin	47.4	70	70	yes	147.7
401	Atlantic Wolffish	103.6	119	119	yes	114.9
329	Scotian Slope West	540.2864	540.253	560	no	100.0
328	Scotian Slope West Fan	100.101	100.564	105	yes	100.5
327	Scotian Slope East	354.5699	354.617	407	yes	100.0
326	Scotian Slope East Laurentian Fan	267.8169	268.432	269	yes	100.2
325	Scotian Slope East Gully Fan	206.2056	206.379	238	yes	100.1
324	Scotian Slope East Canyon	71.6076	71.637	114	yes	100.0
323	Scotian Rise	766.0225	766.208	774	yes	100.0
322	Scotian Rise Debris Flow	74.051	74	74	no	99.9
321	Outer Scotian Shelf Saddle	52.5377	53.088	64	yes	101.0
320	Outer Scotian Shelf	98.4497	98.538	158	yes	100.1
319	Outer Scotian Shelf Bank	432.2372	432.549	461	yes	100.1
318	Outer Gulf of Maine Shelf	19.3317	19.823	32	yes	102.5
317	Outer Gulf of Maine Shelf Channel	49.345	49.63	60	yes	100.6
316	Outer Gulf of Maine Shelf Basin	14.8018	15.128	26	yes	102.2
315	Outer Gulf of Maine Shelf Bank	61.0373	61.392	65	yes	100.6
314	Outer Bay of Fundy	35.4652	79.659	85	yes	224.6
313	Middle Scotian Shelf	499.4117	595.977	701	yes	119.3
312	Middle Scotian Shelf Basin	112.734	113.283	122	yes	100.5
311	Middle Scotian Shelf Bank	96.7025	96.966	138	yes	100.3
310	Middle Gulf of Maine Shelf Tertiary Cretaceous	7.7057	14.797	21	yes	192.0
309	Middle Gulf of Maine Shelf	133.3879	153.694	192	yes	115.2
308	Middle Gulf of Maine Shelf Basin	37.9688	38.06	50	yes	100.2
307	Middle Gulf of Maine Shelf Bank	1.254	1.487	6	yes	118.6
306	Laurentian Channel	239.2886	239.53	267	yes	100.1
305	Inner Scotian Shelf	225.5381	225.519	271	no	100.0
304	Inner Gulf of Maine Shelf	79.2478	80.005	93	yes	101.0
303	Inner Bay of Fundy Shallow Basin	14.8198	14.836	16	yes	100.1
302	Inner Bay of Fundy	51.4827	51.481	54	no	100.0
301	Inner Bay of Fundy Basin	1.8914	1.743	6	no	92.2
204	Natural disturbance high	331.8504	333.526	430	yes	100.5
203	Natural disturbance medium	922.6366	997.919	1210	yes	108.2
202	Natural disturbance low medium	522.0366	662.053	1139	yes	126.8
201	Natural disturbance low	913.0437	913.112	906	yes	100.0
105	Scope for growth very high	308.9532	405.705	426	yes	131.3

104	Scope for growth high	166.7052	195.358	205	yes	117.2
103	Scope for growth moderate	375.4673	379.251	435	yes	101.0
102	Scope for growth low	655.2621	663.693	834	yes	101.3
101	Scope for growth very low	295.452	438.528	580	yes	148.4

Appendix 51. Scenario 2

Feature ID	Feature Name	Target	Amount Held	Occurrences Held	Target Met	% Target Met
4322	Yellowtail Flounder 4X	58.8	89	89	yes	151.4
4321	Yellowtail Flounder 4VW	364.2	365	365	yes	100.2
4312	Winter Flounder 4X5Y	59.7	116	116	yes	194.3
4311	Winter Flounder 4VW	29.7	73	73	yes	245.8
4212	White Hake 4X5Y	186.9	210	210	yes	112.4
4211	White Hake 4VW	269.1	388	388	yes	144.2
4162	Sebastes Unit 3	201	202	202	yes	100.5
4161	Sebastes Unit 2	215.7	252	252	yes	116.8
4122	American Plaice 4X5Y	137.4	138	138	yes	100.4
4121	American Plaice 4VW	619.2	620	620	yes	100.1
4052	Haddock 4X5Y	247.8	248	248	yes	100.1
4051	Haddock 4VW	366.3	367	367	yes	100.2
4033	Cod 4X5Y	254.4	255	255	yes	100.2
4032	Cod 4VsW	229.8	256	256	yes	111.4
4031	Cod 4Vn	77.7	78	78	yes	100.4
709	Whelks	678	678	678	yes	100.0
708	Urchins	128.7	129	129	yes	100.2
707	Sponges	202.2	203	203	yes	100.4
706	Snowcrab	777	777	777	yes	100.0
705	Shrimp	514.5	515	515	yes	100.1
704	Cucumbers	216.6	217	217	yes	100.2
703	Crabs and lobsters	594.6	595	595	yes	100.1
702	Brittle stars	60	114	114	yes	190.0
701	Anemones	119.4	125	125	yes	104.7
601	High topographic roughness	2045.4	2046	2046	yes	100.0
503	Snowcrab Survey biodiversity hot spots	248.7	329	329	yes	132.3
502	Slope Survey biodiversity hot spots	129.3	130	130	yes	100.5
501	RV Survey biodiversity hot spots	949.2	950	950	yes	100.1
430	Thorny Skate	534.6	547	547	yes	102.3
429	Sea Raven	285	318	318	yes	111.6
428	Ocean Pout	163.8	164	164	yes	100.1
427	Mustache Sculpin	6	20	20	yes	333.3
426	Monkfish	134.4	135	135	yes	100.4
425	Longfin Hake	100.2	112	112	yes	111.8
424	Atlantic Argentine	117	117	117	yes	100.0
423	Witch Flounder	367.5	376	376	yes	102.3
422	Winter Skate	104.4	105	105	yes	100.6
420	Spotted Wolffish	1.5	3	3	yes	200.0
419	Spiny Dogfish	253.8	254	254	yes	100.1
418	Smooth Skate	78	78	78	yes	100.0
417	Silver Hake	489.3	490	490	yes	100.1
415	Sandlance	11.1	13	13	yes	117.1

414	Red Hake	41.7	72	72	yes	172.7
413	Pollock	201.3	238	238	yes	118.2
411	Northern Wolffish	4.2	4	4	no	95.2
410	Mackerel	16.8	17	17	yes	101.2
409	Northern Shortfin Squid	252.6	253	253	yes	100.2
408	Longhorn Sculpin	278.1	279	279	yes	100.3
407	Herring	81	112	112	yes	138.3
406	Halibut	62.4	63	63	yes	101.0
404	Cusk	87	92	92	yes	105.7
402	Capelin	71.1	97	97	yes	136.4
401	Atlantic Wolffish	155.4	158	158	yes	101.7
329	Scotian Slope West	540.2864	540.253	578	no	100.0
328	Scotian Slope West Fan	100.101	100.711	107	yes	100.6
327	Scotian Slope East	354.5699	354.666	415	yes	100.0
326	Scotian Slope East Laurentian Fan	267.8169	268.362	287	yes	100.2
325	Scotian Slope East Gully Fan	206.2056	206.581	249	yes	100.2
324	Scotian Slope East Canyon	71.6076	71.774	108	yes	100.2
323	Scotian Rise	766.0225	766.203	780	yes	100.0
322	Scotian Rise Debris Flow	74.051	74.187	81	yes	100.2
321	Outer Scotian Shelf Saddle	52.5377	52.528	69	no	100.0
320	Outer Scotian Shelf	98.4497	99.657	162	yes	101.2
319	Outer Scotian Shelf Bank	432.2372	649.286	691	yes	150.2
318	Outer Gulf of Maine Shelf	19.3317	19.475	37	yes	100.7
317	Outer Gulf of Maine Shelf Channel	49.345	49.972	62	yes	101.3
316	Outer Gulf of Maine Shelf Basin	14.8018	18.346	25	yes	123.9
315	Outer Gulf of Maine Shelf Bank	61.0373	61.621	65	yes	101.0
314	Outer Bay of Fundy	35.4652	126.475	134	yes	356.6
313	Middle Scotian Shelf	499.4117	1077.597	1254	yes	215.8
312	Middle Scotian Shelf Basin	112.734	113.326	136	yes	100.5
311	Middle Scotian Shelf Bank	96.7025	222.735	316	yes	230.3
310	Middle Gulf of Maine Shelf Tertiary Cretaceous	7.7057	31.785	39	yes	412.5
309	Middle Gulf of Maine Shelf	133.3879	188.208	234	yes	141.1
308	Middle Gulf of Maine Shelf Basin	37.9688	46.01	70	yes	121.2
307	Middle Gulf of Maine Shelf Bank	1.254	6.928	14	yes	552.5
306	Laurentian Channel	239.2886	239.589	280	yes	100.1
305	Inner Scotian Shelf	225.5381	225.61	268	yes	100.0
304	Inner Gulf of Maine Shelf	79.2478	79.764	91	yes	100.7
303	Inner Bay of Fundy Shallow Basin	14.8198	14.773	20	no	99.7
302	Inner Bay of Fundy	51.4827	51.794	63	yes	100.6
301	Inner Bay of Fundy Basin	1.8914	1.676	4	no	88.6
204	Natural disturbance high	331.8504	543.5	688	yes	163.8
203	Natural disturbance medium	922.6366	1567.471	1829	yes	169.9
202	Natural disturbance low medium	522.0366	879.147	1569	yes	168.4
201	Natural disturbance low	913.0437	913.18	1002	yes	100.0
105	Scope for growth very high	308.9532	500.094	537	yes	161.9

104	Scope for growth high	166.7052	309.299	327	yes	185.5
103	Scope for growth moderate	375.4673	509.931	589	yes	135.8
102	Scope for growth low	655.2621	1053.364	1324	yes	160.8
101	Scope for growth very low	295.452	651.805	896	yes	220.6

Appendix 52. Scenario 3

Feature ID	Feature Name	Target	Amount Held	Occurrences Held	Target Met	% Target Met
4322	Yellowtail Flounder 4X	58.8	59	59	yes	100.3
4321	Yellowtail Flounder 4VW	364.2	365	365	yes	100.2
4312	Winter Flounder 4X5Y	59.7	138	138	yes	231.2
4311	Winter Flounder 4VW	29.7	52	52	yes	175.1
4212	White Hake 4X5Y	186.9	228	228	yes	122.0
4211	White Hake 4VW	269.1	363	363	yes	134.9
4162	Sebastes Unit 3	201	202	202	yes	100.5
4161	Sebastes Unit 2	215.7	237	237	yes	109.9
4122	American Plaice 4X5Y	137.4	138	138	yes	100.4
4121	American Plaice 4VW	619.2	1186	1186	yes	191.5
4052	Haddock 4X5Y	247.8	248	248	yes	100.1
4051	Haddock 4VW	366.3	367	367	yes	100.2
4033	Cod 4X5Y	254.4	255	255	yes	100.2
4032	Cod 4VsW	229.8	372	372	yes	161.9
4031	Cod 4Vn	77.7	78	78	yes	100.4
709	Whelks	904	905	905	yes	100.1
708	Urchins	171.6	173	173	yes	100.8
707	Sponges	269.6	270	270	yes	100.1
706	Snowcrab	1036	1036	1036	yes	100.0
705	Shrimp	686	750	750	yes	109.3
704	Cucumbers	288.8	289	289	yes	100.1
703	Crabs and lobsters	792.8	793	793	yes	100.0
702	Brittle stars	80	121	121	yes	151.3
701	Anemones	159.2	212	212	yes	133.2
601	High topographic roughness	2727.2	2728	2728	yes	100.0
503	Snowcrab Survey biodiversity hot spots	331.6	333	333	yes	100.4
502	Slope Survey biodiversity hot spots	172.4	175	175	yes	101.5
501	RV Survey biodiversity hot spots	1265.6	1267	1267	yes	100.1
430	Thorny Skate	534.6	749	749	yes	140.1
429	Sea Raven	285	402	402	yes	141.1
428	Ocean Pout	163.8	164	164	yes	100.1
427	Mustache Sculpin	6	20	20	yes	333.3
426	Monkfish	134.4	136	136	yes	101.2
425	Longfin Hake	100.2	136	136	yes	135.7
424	Atlantic Argentine	117	117	117	yes	100.0
423	Witch Flounder	367.5	393	393	yes	106.9
422	Winter Skate	104.4	105	105	yes	100.6
420	Spotted Wolffish	1.5	5	5	yes	333.3
419	Spiny Dogfish	253.8	254	254	yes	100.1
418	Smooth Skate	78	78	78	yes	100.0
417	Silver Hake	489.3	490	490	yes	100.1
415	Sandlance	11.1	29	29	yes	261.3

414	Red Hake	41.7	67	67	yes	160.7
413	Pollock	201.3	243	243	yes	120.7
411	Northern Wolffish	4.2	4	4	no	95.2
410	Mackerel	16.8	17	17	yes	101.2
409	Northern Shortfin Squid	252.6	270	270	yes	106.9
408	Longhorn Sculpin	278.1	284	284	yes	102.1
407	Herring	81	110	110	yes	135.8
406	Halibut	62.4	63	63	yes	101.0
404	Cusk	87	122	122	yes	140.2
402	Capelin	71.1	170	170	yes	239.1
401	Atlantic Wolffish	155.4	179	179	yes	115.2
329	Scotian Slope West	540.2864	540.312	578	yes	100.0
328	Scotian Slope West Fan	100.101	100.113	106	yes	100.0
327	Scotian Slope East	354.5699	356.812	476	yes	100.6
326	Scotian Slope East Laurentian Fan	267.8169	269.471	287	yes	100.6
325	Scotian Slope East Gully Fan	206.2056	206.76	259	yes	100.3
324	Scotian Slope East Canyon	71.6076	182.512	253	yes	254.9
323	Scotian Rise	766.0225	766.18	767	yes	100.0
322	Scotian Rise Debris Flow	74.051	74.673	75	yes	100.8
321	Outer Scotian Shelf Saddle	52.5377	52.965	69	yes	100.8
320	Outer Scotian Shelf	98.4497	134.191	217	yes	136.3
319	Outer Scotian Shelf Bank	432.2372	766.486	822	yes	177.3
318	Outer Gulf of Maine Shelf	19.3317	19.614	36	yes	101.5
317	Outer Gulf of Maine Shelf Channel	49.345	50.213	61	yes	101.8
316	Outer Gulf of Maine Shelf Basin	14.8018	19.456	27	yes	131.4
315	Outer Gulf of Maine Shelf Bank	61.0373	61.327	64	yes	100.5
314	Outer Bay of Fundy	35.4652	146.696	161	yes	413.6
313	Middle Scotian Shelf	499.4117	1791.119	2049	yes	358.6
312	Middle Scotian Shelf Basin	112.734	112.688	132	no	100.0
311	Middle Scotian Shelf Bank	96.7025	317.037	480	yes	327.8
310	Middle Gulf of Maine Shelf Tertiary Cretaceous	7.7057	24.658	31	yes	320.0
309	Middle Gulf of Maine Shelf	133.3879	208.292	261	yes	156.2
308	Middle Gulf of Maine Shelf Basin	37.9688	49.768	70	yes	131.1
307	Middle Gulf of Maine Shelf Bank	1.254	6.928	14	yes	552.5
306	Laurentian Channel	239.2886	239.567	287	yes	100.1
305	Inner Scotian Shelf	225.5381	226.058	270	yes	100.2
304	Inner Gulf of Maine Shelf	79.2478	112.277	133	yes	141.7
303	Inner Bay of Fundy Shallow Basin	14.8198	15.013	16	yes	101.3
302	Inner Bay of Fundy	51.4827	52.15	64	yes	101.3
301	Inner Bay of Fundy Basin	1.8914	1.743	6	no	92.2
204	Natural disturbance high	331.8504	647.127	840	yes	195.0
203	Natural disturbance medium	922.6366	2023.634	2428	yes	219.3
202	Natural disturbance low medium	522.0366	1200.677	2122	yes	230.0
201	Natural disturbance low	1217.3916	1217.565	1325	yes	100.0
105	Scope for growth very high	308.9532	553.517	585	yes	179.2

104	Scope for growth high	166.7052	222.288	233	yes	133.3
103	Scope for growth moderate	375.4673	574.47	703	yes	153.0
102	Scope for growth low	655.2621	1794.053	2158	yes	273.8
101	Scope for growth very low	295.452	911.89	1198	yes	308.6

Appendix 53. Scenario 4

Feature ID	Feature Name	Target	Amount Held	Occurrences Held	Target Met	% Target Met
4322	Yellowtail Flounder 4X	58.8	64	64	yes	108.8
4321	Yellowtail Flounder 4VW	364.2	367	367	yes	100.8
4312	Winter Flounder 4X5Y	59.7	136	136	yes	227.8
4311	Winter Flounder 4VW	29.7	43	43	yes	144.8
4212	White Hake 4X5Y	186.9	238	238	yes	127.3
4211	White Hake 4VW	269.1	286	286	yes	106.3
4162	Sebastes Unit 3	201	205	205	yes	102.0
4161	Sebastes Unit 2	215.7	241	241	yes	111.7
4122	American Plaice 4X5Y	137.4	140	140	yes	101.9
4121	American Plaice 4VW	619.2	940	940	yes	151.8
4052	Haddock 4X5Y	247.8	256	256	yes	103.3
4051	Haddock 4VW	366.3	368	368	yes	100.5
4033	Cod 4X5Y	254.4	256	256	yes	100.6
4032	Cod 4VsW	229.8	277	277	yes	120.5
4031	Cod 4Vn	77.7	78	78	yes	100.4
709	Whelks	678	940	940	yes	138.6
708	Urchins	128.7	129	129	yes	100.2
707	Sponges	202.2	203	203	yes	100.4
706	Snowcrab	777	778	778	yes	100.1
705	Shrimp	514.5	717	717	yes	139.4
704	Cucumbers	216.6	267	267	yes	123.3
703	Crabs and lobsters	594.6	595	595	yes	100.1
702	Brittle stars	60	160	160	yes	266.7
701	Anemones	119.4	157	157	yes	131.5
601	High topographic roughness	3409	3409	3409	yes	100.0
503	Snowcrab Survey biodiversity hot spots	414.5	415	415	yes	100.1
502	Slope Survey biodiversity hot spots	215.5	239	239	yes	110.9
501	RV Survey biodiversity hot spots	1582	1582	1582	yes	100.0
430	Thorny Skate	534.6	855	855	yes	159.9
429	Sea Raven	285	362	362	yes	127.0
428	Ocean Pout	163.8	164	164	yes	100.1
427	Mustache Sculpin	6	20	20	yes	333.3
426	Monkfish	134.4	135	135	yes	100.4
425	Longfin Hake	100.2	128	128	yes	127.7
424	Atlantic Argentine	117	117	117	yes	100.0
423	Witch Flounder	367.5	461	461	yes	125.4
422	Winter Skate	104.4	162	162	yes	155.2
420	Spotted Wolffish	1.5	3	3	yes	200.0
419	Spiny Dogfish	253.8	254	254	yes	100.1
418	Smooth Skate	78	78	78	yes	100.0
417	Silver Hake	489.3	490	490	yes	100.1
415	Sandlance	11.1	19	19	yes	171.2

414	Red Hake	41.7	43	43	yes	103.1
413	Pollock	201.3	307	307	yes	152.5
411	Northern Wolffish	4.2	4	4	no	95.2
410	Mackerel	16.8	17	17	yes	101.2
409	Northern Shortfin Squid	252.6	277	277	yes	109.7
408	Longhorn Sculpin	278.1	279	279	yes	100.3
407	Herring	81	86	86	yes	106.2
406	Halibut	62.4	71	71	yes	113.8
404	Cusk	87	130	130	yes	149.4
402	Capelin	71.1	131	131	yes	184.2
401	Atlantic Wolffish	155.4	161	161	yes	103.6
329	Scotian Slope West	1080.5728	1080.596	1148	yes	100.0
328	Scotian Slope West Fan	200.202	200.312	221	yes	100.1
327	Scotian Slope East	709.1398	709.167	845	yes	100.0
326	Scotian Slope East Laurentian Fan	535.6338	536.35	555	yes	100.1
325	Scotian Slope East Gully Fan	412.4112	412.505	465	yes	100.0
324	Scotian Slope East Canyon	143.2152	176.393	253	yes	123.2
323	Scotian Rise	1532.045	1532.305	1549	yes	100.0
322	Scotian Rise Debris Flow	148.102	148.74	156	yes	100.4
321	Outer Scotian Shelf Saddle	105.0754	105.534	126	yes	100.4
320	Outer Scotian Shelf	196.8994	196.913	316	yes	100.0
319	Outer Scotian Shelf Bank	864.4744	864.511	945	yes	100.0
318	Outer Gulf of Maine Shelf	38.6634	39.127	73	yes	101.2
317	Outer Gulf of Maine Shelf Channel	98.69	99.431	124	yes	100.8
316	Outer Gulf of Maine Shelf Basin	29.6036	37.991	49	yes	128.3
315	Outer Gulf of Maine Shelf Bank	122.0746	123.234	134	yes	100.9
314	Outer Bay of Fundy	70.9304	71.239	77	yes	100.4
313	Middle Scotian Shelf	998.8234	1487.204	1740	yes	148.9
312	Middle Scotian Shelf Basin	225.468	226.991	262	yes	100.7
311	Middle Scotian Shelf Bank	193.405	271.631	392	yes	140.4
310	Middle Gulf of Maine Shelf Tertiary Cretaceous	15.4114	15.927	23	yes	103.3
309	Middle Gulf of Maine Shelf	266.7758	267.144	344	yes	100.1
308	Middle Gulf of Maine Shelf Basin	75.9376	76.544	107	yes	100.8
307	Middle Gulf of Maine Shelf Bank	2.508	2.487	7	no	99.2
306	Laurentian Channel	478.5772	478.665	505	yes	100.0
305	Inner Scotian Shelf	451.0762	451.075	527	no	100.0
304	Inner Gulf of Maine Shelf	158.4956	158.547	196	yes	100.0
303	Inner Bay of Fundy Shallow Basin	29.6396	30.393	31	yes	102.5
302	Inner Bay of Fundy	102.9654	102.974	110	yes	100.0
301	Inner Bay of Fundy Basin	3.7828	3.961	12	yes	104.7
204	Natural disturbance high	663.7008	705.84	930	yes	106.3
203	Natural disturbance medium	1845.2732	2281.466	2751	yes	123.6
202	Natural disturbance low medium	1044.0732	1385.497	2440	yes	132.7
201	Natural disturbance low	1521.7395	1522.131	1663	yes	100.0
105	Scope for growth very high	617.9064	641.675	692	yes	103.8

104	Scope for growth high	333.4104	333.394	371	no	100.0
103	Scope for growth moderate	750.9346	768.302	983	yes	102.3
102	Scope for growth low	1310.5242	1785.385	2187	yes	136.2
101	Scope for growth very low	590.904	852.025	1146	yes	144.2

Appendix 54. Scenario 5

Feature ID	Feature Name	Target	Amount Held	Occurrences Held	Target Met	% Target Met
4322	Yellowtail Flounder 4X	39.2	58	58	yes	148.0
4321	Yellowtail Flounder 4VW	242.8	248	248	yes	102.1
4312	Winter Flounder 4X5Y	39.8	71	71	yes	178.4
4311	Winter Flounder 4VW	19.8	62	62	yes	313.1
4212	White Hake 4X5Y	124.6	131	131	yes	105.1
4211	White Hake 4VW	179.4	378	378	yes	210.7
4162	Sebastes Unit 3	134	170	170	yes	126.9
4161	Sebastes Unit 2	143.8	293	293	yes	203.8
4122	American Plaice 4X5Y	91.6	92	92	yes	100.4
4121	American Plaice 4VW	412.8	413	413	yes	100.0
4052	Haddock 4X5Y	165.2	175	175	yes	105.9
4051	Haddock 4VW	244.2	245	245	yes	100.3
4033	Cod 4X5Y	424	424	424	yes	100.0
4032	Cod 4VsW	383	384	384	yes	100.3
4031	Cod 4Vn	129.5	130	130	yes	100.4
709	Whelks	452	452	452	yes	100.0
708	Urchins	85.8	88	88	yes	102.6
707	Sponges	134.8	152	152	yes	112.8
706	Snowcrab	518	518	518	yes	100.0
705	Shrimp	343	343	343	yes	100.0
704	Cucumbers	144.4	149	149	yes	103.2
703	Crabs and lobsters	396.4	397	397	yes	100.2
702	Brittle stars	40	105	105	yes	262.5
701	Anemones	79.6	83	83	yes	104.3
601	High topographic roughness	1363.6	1412	1412	yes	103.5
503	Snowcrab Survey biodiversity hot spots	165.8	189	189	yes	114.0
502	Slope Survey biodiversity hot spots	86.2	94	94	yes	109.0
501	RV Survey biodiversity hot spots	632.8	808	808	yes	127.7
430	Thorny Skate	356.4	412	412	yes	115.6
429	Sea Raven	190	395	395	yes	207.9
428	Ocean Pout	109.2	111	111	yes	101.6
427	Mustache Sculpin	4	7	7	yes	175.0
426	Monkfish	89.6	90	90	yes	100.4
425	Longfin Hake	66.8	174	174	yes	260.5
424	Atlantic Argentine	78	94	94	yes	120.5
423	Witch Flounder	245	292	292	yes	119.2
422	Winter Skate	174	174	174	yes	100.0
420	Spotted Wolffish	2.5	3	3	yes	120.0
419	Spiny Dogfish	169.2	170	170	yes	100.5
418	Smooth Skate	52	79	79	yes	151.9
417	Silver Hake	326.2	327	327	yes	100.2
415	Sandlance	7.4	8	8	yes	108.1

414	Red Hake	27.8	29	29	yes	104.3
413	Pollock	134.2	197	197	yes	146.8
411	Northern Wolffish	7	7	7	yes	100.0
410	Mackerel	11.2	11	11	no	98.2
409	Northern Shortfin Squid	168.4	230	230	yes	136.6
408	Longhorn Sculpin	185.4	351	351	yes	189.3
407	Herring	54	60	60	yes	111.1
406	Halibut	41.6	42	42	yes	101.0
404	Cusk	145	145	145	yes	100.0
402	Capelin	47.4	48	48	yes	101.3
401	Atlantic Wolffish	259	259	259	yes	100.0
329	Scotian Slope West	540.2864	540.486	578	yes	100.0
328	Scotian Slope West Fan	100.101	100.197	101	yes	100.1
327	Scotian Slope East	354.5699	354.568	396	no	100.0
326	Scotian Slope East Laurentian Fan	267.8169	267.871	268	yes	100.0
325	Scotian Slope East Gully Fan	206.2056	206.521	245	yes	100.2
324	Scotian Slope East Canyon	71.6076	71.603	103	no	100.0
323	Scotian Rise	766.0225	766.171	778	yes	100.0
322	Scotian Rise Debris Flow	74.051	74.155	79	yes	100.1
321	Outer Scotian Shelf Saddle	52.5377	53.653	69	yes	102.1
320	Outer Scotian Shelf	98.4497	98.743	159	yes	100.3
319	Outer Scotian Shelf Bank	432.2372	437.662	474	yes	101.3
318	Outer Gulf of Maine Shelf	19.3317	19.37	35	yes	100.2
317	Outer Gulf of Maine Shelf Channel	49.345	52.834	68	yes	107.1
316	Outer Gulf of Maine Shelf Basin	14.8018	21.651	31	yes	146.3
315	Outer Gulf of Maine Shelf Bank	61.0373	61.409	65	yes	100.6
314	Outer Bay of Fundy	35.4652	166.798	177	yes	470.3
313	Middle Scotian Shelf	499.4117	749.528	894	yes	150.1
312	Middle Scotian Shelf Basin	112.734	113.439	126	yes	100.6
311	Middle Scotian Shelf Bank	96.7025	100.938	166	yes	104.4
310	Middle Gulf of Maine Shelf Tertiary Cretaceous	7.7057	11.093	16	yes	144.0
309	Middle Gulf of Maine Shelf	133.3879	197.816	253	yes	148.3
308	Middle Gulf of Maine Shelf Basin	37.9688	46.986	66	yes	123.7
307	Middle Gulf of Maine Shelf Bank	1.254	3.166	8	yes	252.5
306	Laurentian Channel	239.2886	239.494	281	yes	100.1
305	Inner Scotian Shelf	225.5381	226.247	274	yes	100.3
304	Inner Gulf of Maine Shelf	79.2478	96.321	124	yes	121.5
303	Inner Bay of Fundy Shallow Basin	14.8198	14.985	15	yes	101.1
302	Inner Bay of Fundy	51.4827	51.907	63	yes	100.8
301	Inner Bay of Fundy Basin	1.8914	1.595	2	no	84.3
204	Natural disturbance high	331.8504	357.441	506	yes	107.7
203	Natural disturbance medium	922.6366	1252.811	1468	yes	135.8
202	Natural disturbance low medium	522.0366	703.193	1240	yes	134.7
201	Natural disturbance low	913.0437	912.979	916	no	100.0
105	Scope for growth very high	308.9532	577.952	601	yes	187.1

104	Scope for growth high	166.7052	236.316	251	yes	141.8
103	Scope for growth moderate	375.4673	375.547	441	yes	100.0
102	Scope for growth low	655.2621	660.356	851	yes	100.8
101	Scope for growth very low	295.452	578.589	755	yes	195.8

Appendix 55. Scenario 6

Feature ID	Feature Name	Target	Amount Held	Occurrences Held	Target Met	% Target Met
4322	Yellowtail Flounder 4X	58.8	90	90	yes	153.1
4321	Yellowtail Flounder 4VW	364.2	388	388	yes	106.5
4312	Winter Flounder 4X5Y	59.7	87	87	yes	145.7
4311	Winter Flounder 4VW	29.7	77	77	yes	259.3
4212	White Hake 4X5Y	186.9	225	225	yes	120.4
4211	White Hake 4VW	269.1	434	434	yes	161.3
4162	Sebastes Unit 3	201	222	222	yes	110.4
4161	Sebastes Unit 2	215.7	310	310	yes	143.7
4122	American Plaice 4X5Y	137.4	138	138	yes	100.4
4121	American Plaice 4VW	619.2	620	620	yes	100.1
4052	Haddock 4X5Y	247.8	248	248	yes	100.1
4051	Haddock 4VW	366.3	367	367	yes	100.2
4033	Cod 4X5Y	424	424	424	yes	100.0
4032	Cod 4VsW	383	383	383	yes	100.0
4031	Cod 4Vn	129.5	130	130	yes	100.4
709	Whelks	678	680	680	yes	100.3
708	Urchins	128.7	129	129	yes	100.2
707	Sponges	202.2	203	203	yes	100.4
706	Snowcrab	777	778	778	yes	100.1
705	Shrimp	514.5	515	515	yes	100.1
704	Cucumbers	216.6	217	217	yes	100.2
703	Crabs and lobsters	594.6	595	595	yes	100.1
702	Brittle stars	60	104	104	yes	173.3
701	Anemones	119.4	122	122	yes	102.2
601	High topographic roughness	2045.4	2046	2046	yes	100.0
503	Snowcrab Survey biodiversity hot spots	248.7	267	267	yes	107.4
502	Slope Survey biodiversity hot spots	129.3	221	221	yes	170.9
501	RV Survey biodiversity hot spots	949.2	950	950	yes	100.1
430	Thorny Skate	534.6	768	768	yes	143.7
429	Sea Raven	285	346	346	yes	121.4
428	Ocean Pout	163.8	166	166	yes	101.3
427	Mustache Sculpin	6	20	20	yes	333.3
426	Monkfish	134.4	135	135	yes	100.4
425	Longfin Hake	100.2	157	157	yes	156.7
424	Atlantic Argentine	117	117	117	yes	100.0
423	Witch Flounder	367.5	433	433	yes	117.8
422	Winter Skate	174	174	174	yes	100.0
420	Spotted Wolffish	2.5	3	3	yes	120.0
419	Spiny Dogfish	253.8	254	254	yes	100.1
418	Smooth Skate	78	79	79	yes	101.3
417	Silver Hake	489.3	490	490	yes	100.1
415	Sandlance	11.1	17	17	yes	153.2
414	Red Hake	41.7	42	42	yes	100.7

413	Pollock	201.3	314	314	yes	156.0
411	Northern Wolffish	7	7	7	yes	100.0
410	Mackerel	16.8	17	17	yes	101.2
409	Northern Shortfin Squid	252.6	253	253	yes	100.2
408	Longhorn Sculpin	278.1	320	320	yes	115.1
407	Herring	81	82	82	yes	101.2
406	Halibut	62.4	63	63	yes	101.0
404	Cusk	145	146	146	yes	100.7
402	Capelin	71.1	72	72	yes	101.3
401	Atlantic Wolffish	259	259	259	yes	100.0
329	Scotian Slope West	540.2864	540.36	589	yes	100.0
328	Scotian Slope West Fan	100.101	100.34	107	yes	100.2
327	Scotian Slope East	354.5699	354.627	418	yes	100.0
326	Scotian Slope East Laurentian Fan	267.8169	268.081	284	yes	100.1
325	Scotian Slope East Gully Fan	206.2056	206.261	240	yes	100.0
324	Scotian Slope East Canyon	71.6076	71.805	108	yes	100.3
323	Scotian Rise	766.0225	766.251	774	yes	100.0
322	Scotian Rise Debris Flow	74.051	74	74	no	99.9
321	Outer Scotian Shelf Saddle	52.5377	53.341	70	yes	101.5
320	Outer Scotian Shelf	98.4497	135.389	209	yes	137.5
319	Outer Scotian Shelf Bank	432.2372	732.435	790	yes	169.5
318	Outer Gulf of Maine Shelf	19.3317	19.413	32	yes	100.4
317	Outer Gulf of Maine Shelf Channel	49.345	49.33	60	no	100.0
316	Outer Gulf of Maine Shelf Basin	14.8018	25.305	34	yes	171.0
315	Outer Gulf of Maine Shelf Bank	61.0373	61.958	65	yes	101.5
314	Outer Bay of Fundy	35.4652	137.523	145	yes	387.8
313	Middle Scotian Shelf	499.4117	1218.557	1408	yes	244.0
312	Middle Scotian Shelf Basin	112.734	112.971	125	yes	100.2
311	Middle Scotian Shelf Bank	96.7025	145.967	233	yes	150.9
310	Middle Gulf of Maine Shelf Tertiary Cretaceous	7.7057	13.797	20	yes	179.0
309	Middle Gulf of Maine Shelf	133.3879	273.383	329	yes	205.0
308	Middle Gulf of Maine Shelf Basin	37.9688	59.245	78	yes	156.0
307	Middle Gulf of Maine Shelf Bank	1.254	11.31	24	yes	901.9
306	Laurentian Channel	239.2886	239.51	291	yes	100.1
305	Inner Scotian Shelf	225.5381	225.535	275	no	100.0
304	Inner Gulf of Maine Shelf	79.2478	102.171	130	yes	128.9
303	Inner Bay of Fundy Shallow Basin	14.8198	15.23	16	yes	102.8
302	Inner Bay of Fundy	51.4827	51.712	62	yes	100.4
301	Inner Bay of Fundy Basin	1.8914	2.527	9	yes	133.6
204	Natural disturbance high	331.8504	615.968	800	yes	185.6
203	Natural disturbance medium	922.6366	1798.203	2081	yes	194.9
202	Natural disturbance low medium	522.0366	946.477	1662	yes	181.3
201	Natural disturbance low	913.0437	913.496	1016	yes	100.0
105	Scope for growth very high	308.9532	622.266	659	yes	201.4
104	Scope for growth high	166.7052	281.895	298	yes	169.1

103	Scope for growth moderate	375.4673	436.991	499	yes	116.4
102	Scope for growth low	655.2621	1109.608	1382	yes	169.3
101	Scope for growth very low	295.452	863.933	1126	yes	292.4

Appendix 56. Scenario 7

Feature ID	Feature Name	Target	Amount Held	Occurrences Held	Target Met	% Target Met
4322	Yellowtail Flounder 4X	58.8	106	106	yes	180.3
4321	Yellowtail Flounder 4VW	364.2	450	450	yes	123.6
4312	Winter Flounder 4X5Y	59.7	134	134	yes	224.5
4311	Winter Flounder 4VW	29.7	66	66	yes	222.2
4212	White Hake 4X5Y	186.9	224	224	yes	119.9
4211	White Hake 4VW	269.1	382	382	yes	142.0
4162	Sebastes Unit 3	201	229	229	yes	113.9
4161	Sebastes Unit 2	215.7	287	287	yes	133.1
4122	American Plaice 4X5Y	137.4	138	138	yes	100.4
4121	American Plaice 4VW	619.2	906	906	yes	146.3
4052	Haddock 4X5Y	247.8	311	311	yes	125.5
4051	Haddock 4VW	366.3	367	367	yes	100.2
4033	Cod 4X5Y	593.6	594	594	yes	100.1
4032	Cod 4VsW	536.2	537	537	yes	100.1
4031	Cod 4Vn	181.3	182	182	yes	100.4
709	Whelks	678	770	770	yes	113.6
708	Urchins	128.7	132	132	yes	102.6
707	Sponges	202.2	318	318	yes	157.3
706	Snowcrab	777	777	777	yes	100.0
705	Shrimp	514.5	702	702	yes	136.4
704	Cucumbers	216.6	217	217	yes	100.2
703	Crabs and lobsters	594.6	595	595	yes	100.1
702	Brittle stars	60	135	135	yes	225.0
701	Anemones	119.4	153	153	yes	128.1
601	High topographic roughness	2727.2	2728	2728	yes	100.0
503	Snowcrab Survey biodiversity hot spots	331.6	333	333	yes	100.4
502	Slope Survey biodiversity hot spots	172.4	191	191	yes	110.8
501	RV Survey biodiversity hot spots	1265.6	1266	1266	yes	100.0
430	Thorny Skate	534.6	821	821	yes	153.6
429	Sea Raven	285	547	547	yes	191.9
428	Ocean Pout	163.8	206	206	yes	125.8
427	Mustache Sculpin	6	18	18	yes	300.0
426	Monkfish	134.4	136	136	yes	101.2
425	Longfin Hake	100.2	176	176	yes	175.6
424	Atlantic Argentine	117	127	127	yes	108.5
423	Witch Flounder	367.5	423	423	yes	115.1
422	Winter Skate	243.6	244	244	yes	100.2
420	Spotted Wolffish	3.5	4	4	yes	114.3
419	Spiny Dogfish	253.8	254	254	yes	100.1
418	Smooth Skate	78	98	98	yes	125.6
417	Silver Hake	489.3	490	490	yes	100.1
415	Sandlance	11.1	12	12	yes	108.1

414	Red Hake	41.7	51	51	yes	122.3
413	Pollock	201.3	309	309	yes	153.5
411	Northern Wolffish	9.8	10	10	yes	102.0
410	Mackerel	16.8	17	17	yes	101.2
409	Northern Shortfin Squid	252.6	255	255	yes	101.0
408	Longhorn Sculpin	278.1	521	521	yes	187.3
407	Herring	81	91	91	yes	112.3
406	Halibut	62.4	63	63	yes	101.0
404	Cusk	203	203	203	yes	100.0
402	Capelin	71.1	85	85	yes	119.5
401	Atlantic Wolffish	362.6	363	363	yes	100.1
329	Scotian Slope West	540.2864	540.63	587	yes	100.1
328	Scotian Slope West Fan	100.101	100.134	103	yes	100.0
327	Scotian Slope East	354.5699	355.257	498	yes	100.2
326	Scotian Slope East Laurentian Fan	267.8169	267.987	285	yes	100.1
325	Scotian Slope East Gully Fan	206.2056	206.167	278	no	100.0
324	Scotian Slope East Canyon	71.6076	252.96	346	yes	353.3
323	Scotian Rise	766.0225	766.139	769	yes	100.0
322	Scotian Rise Debris Flow	74.051	74	74	no	99.9
321	Outer Scotian Shelf Saddle	52.5377	55.173	69	yes	105.0
320	Outer Scotian Shelf	98.4497	191.939	307	yes	195.0
319	Outer Scotian Shelf Bank	432.2372	733.538	814	yes	169.7
318	Outer Gulf of Maine Shelf	19.3317	19.738	34	yes	102.1
317	Outer Gulf of Maine Shelf Channel	49.345	56.102	74	yes	113.7
316	Outer Gulf of Maine Shelf Basin	14.8018	20.228	28	yes	136.7
315	Outer Gulf of Maine Shelf Bank	61.0373	61.115	64	yes	100.1
314	Outer Bay of Fundy	35.4652	271.822	294	yes	766.4
313	Middle Scotian Shelf	499.4117	1648.293	1888	yes	330.0
312	Middle Scotian Shelf Basin	112.734	113.181	138	yes	100.4
311	Middle Scotian Shelf Bank	96.7025	337.143	485	yes	348.6
310	Middle Gulf of Maine Shelf Tertiary Cretaceous	7.7057	9.022	12	yes	117.1
309	Middle Gulf of Maine Shelf	133.3879	287.854	370	yes	215.8
308	Middle Gulf of Maine Shelf Basin	37.9688	85.754	124	yes	225.9
307	Middle Gulf of Maine Shelf Bank	1.254	10.801	20	yes	861.3
306	Laurentian Channel	239.2886	239.452	297	yes	100.1
305	Inner Scotian Shelf	225.5381	225.783	274	yes	100.1
304	Inner Gulf of Maine Shelf	79.2478	165.604	206	yes	209.0
303	Inner Bay of Fundy Shallow Basin	14.8198	15.013	16	yes	101.3
302	Inner Bay of Fundy	51.4827	53.079	70	yes	103.1
301	Inner Bay of Fundy Basin	1.8914	1.743	6	no	92.2
204	Natural disturbance high	331.8504	691.054	940	yes	208.2
203	Natural disturbance medium	922.6366	2130.998	2520	yes	231.0
202	Natural disturbance low medium	522.0366	1218.796	2141	yes	233.5
201	Natural disturbance low	1217.3916	1217.406	1353	yes	100.0
105	Scope for growth very high	308.9532	841.139	875	yes	272.3

104	Scope for growth high	166.7052	301.788	319	yes	181.0
103	Scope for growth moderate	375.4673	698.234	826	yes	186.0
102	Scope for growth low	655.2621	1553.011	1892	yes	237.0
101	Scope for growth very low	295.452	905.961	1208	yes	306.6

Appendix 57. Scenario 8

Feature ID	Feature Name	Target	Amount Held	Occurrences Held	Target Met	% Target Met
4322	Yellowtail Flounder 4X	58.8	135	135	yes	229.6
4321	Yellowtail Flounder 4VW	364.2	423	423	yes	116.1
4312	Winter Flounder 4X5Y	59.7	153	153	yes	256.3
4311	Winter Flounder 4VW	29.7	59	59	yes	198.7
4212	White Hake 4X5Y	186.9	223	223	yes	119.3
4211	White Hake 4VW	269.1	507	507	yes	188.4
4162	Sebastes Unit 3	201	259	259	yes	128.9
4161	Sebastes Unit 2	215.7	454	454	yes	210.5
4122	American Plaice 4X5Y	137.4	167	167	yes	121.5
4121	American Plaice 4VW	619.2	873	873	yes	141.0
4052	Haddock 4X5Y	247.8	382	382	yes	154.2
4051	Haddock 4VW	366.3	367	367	yes	100.2
4033	Cod 4X5Y	720.8	721	721	yes	100.0
4032	Cod 4VsW	651.1	652	652	yes	100.1
4031	Cod 4Vn	220.15	221	221	yes	100.4
709	Whelks	678	725	725	yes	106.9
708	Urchins	128.7	153	153	yes	118.9
707	Sponges	202.2	356	356	yes	176.1
706	Snowcrab	777	840	840	yes	108.1
705	Shrimp	514.5	515	515	yes	100.1
704	Cucumbers	216.6	217	217	yes	100.2
703	Crabs and lobsters	594.6	595	595	yes	100.1
702	Brittle stars	60	156	156	yes	260.0
701	Anemones	119.4	127	127	yes	106.4
601	High topographic roughness	3409	3409	3409	yes	100.0
503	Snowcrab Survey biodiversity hot spots	414.5	453	453	yes	109.3
502	Slope Survey biodiversity hot spots	215.5	216	216	yes	100.2
501	RV Survey biodiversity hot spots	1582	1582	1582	yes	100.0
430	Thorny Skate	534.6	757	757	yes	141.6
429	Sea Raven	285	661	661	yes	231.9
428	Ocean Pout	163.8	228	228	yes	139.2
427	Mustache Sculpin	6	6	6	yes	100.0
426	Monkfish	134.4	135	135	yes	100.4
425	Longfin Hake	100.2	219	219	yes	218.6
424	Atlantic Argentine	117	169	169	yes	144.4
423	Witch Flounder	367.5	465	465	yes	126.5
422	Winter Skate	295.8	296	296	yes	100.1
420	Spotted Wolffish	4.25	5	5	yes	117.6
419	Spiny Dogfish	253.8	300	300	yes	118.2
418	Smooth Skate	78	122	122	yes	156.4
417	Silver Hake	489.3	529	529	yes	108.1
415	Sandlance	11.1	11	11	no	99.1
414	Red Hake	41.7	42	42	yes	100.7
413	Pollock	201.3	375	375	yes	186.3

411	Northern Wolffish	11.9	12	12	yes	100.8
410	Mackerel	16.8	17	17	yes	101.2
409	Northern Shortfin Squid	252.6	282	282	yes	111.6
408	Longhorn Sculpin	278.1	588	588	yes	211.4
407	Herring	81	98	98	yes	121.0
406	Halibut	62.4	68	68	yes	109.0
404	Cusk	246.5	247	247	yes	100.2
402	Capelin	71.1	132	132	yes	185.7
401	Atlantic Wolffish	440.3	441	441	yes	100.2
329	Scotian Slope West	1080.5728	1080.696	1151	yes	100.0
328	Scotian Slope West Fan	200.202	200.277	220	yes	100.0
327	Scotian Slope East	709.1398	709.461	859	yes	100.0
326	Scotian Slope East Laurentian Fan	535.6338	536.111	555	yes	100.1
325	Scotian Slope East Gully Fan	412.4112	412.916	484	yes	100.1
324	Scotian Slope East Canyon	143.2152	209.637	294	yes	146.4
323	Scotian Rise	1532.045	1532.6	1551	yes	100.0
322	Scotian Rise Debris Flow	148.102	148.147	152	yes	100.0
321	Outer Scotian Shelf Saddle	105.0754	105.278	125	yes	100.2
320	Outer Scotian Shelf	196.8994	213.337	341	yes	108.3
319	Outer Scotian Shelf Bank	864.4744	864.991	927	yes	100.1
318	Outer Gulf of Maine Shelf	38.6634	38.717	71	yes	100.1
317	Outer Gulf of Maine Shelf Channel	98.69	98.817	126	yes	100.1
316	Outer Gulf of Maine Shelf Basin	29.6036	34.689	46	yes	117.2
315	Outer Gulf of Maine Shelf Bank	122.0746	123.556	137	yes	101.2
314	Outer Bay of Fundy	70.9304	270.427	295	yes	381.3
313	Middle Scotian Shelf	998.8234	1551.122	1870	yes	155.3
312	Middle Scotian Shelf Basin	225.468	225.604	262	yes	100.1
311	Middle Scotian Shelf Bank	193.405	404.585	571	yes	209.2
310	Middle Gulf of Maine Shelf Tertiary Cretaceous	15.4114	15.47	23	yes	100.4
309	Middle Gulf of Maine Shelf	266.7758	376.381	465	yes	141.1
308	Middle Gulf of Maine Shelf Basin	75.9376	84.806	129	yes	111.7
307	Middle Gulf of Maine Shelf Bank	2.508	5.917	13	yes	235.9
306	Laurentian Channel	478.5772	478.847	542	yes	100.1
305	Inner Scotian Shelf	451.0762	451.527	531	yes	100.1
304	Inner Gulf of Maine Shelf	158.4956	180.634	234	yes	114.0
303	Inner Bay of Fundy Shallow Basin	29.6396	29.68	32	yes	100.1
302	Inner Bay of Fundy	102.9654	161.967	183	yes	157.3
301	Inner Bay of Fundy Basin	3.7828	3.755	11	no	99.3
204	Natural disturbance high	663.7008	693.701	1032	yes	104.5
203	Natural disturbance medium	1845.2732	2703.714	3201	yes	146.5
202	Natural disturbance low medium	1044.0732	1576.57	2699	yes	151.0
201	Natural disturbance low	1521.7395	1521.705	1686	no	100.0
105	Scope for growth very high	617.9064	1067.138	1127	yes	172.7
104	Scope for growth high	333.4104	431.367	470	yes	129.4
103	Scope for growth moderate	750.9346	771.74	930	yes	102.8
102	Scope for growth low	1310.5242	1739.585	2128	yes	132.7
101	Scope for growth very low	590.904	1013.931	1334	yes	171.6

Appendix 58. Scenario 9

Feature ID	Feature Name	Target	Amount Held	Occurrences Held	Target Met	% Target Met
4322	Yellowtail Flounder 4X	39.2	126	126	yes	321.4
4321	Yellowtail Flounder 4VW	242.8	344	344	yes	141.7
4312	Winter Flounder 4X5Y	39.8	147	147	yes	369.3
4311	Winter Flounder 4VW	19.8	54	54	yes	272.7
4212	White Hake 4X5Y	124.6	207	207	yes	166.1
4211	White Hake 4VW	179.4	380	380	yes	211.8
4162	Sebastes Unit 3	134	220	220	yes	164.2
4161	Sebastes Unit 2	143.8	361	361	yes	251.0
4122	American Plaice 4X5Y	91.6	138	138	yes	150.7
4121	American Plaice 4VW	412.8	608	608	yes	147.3
4052	Haddock 4X5Y	165.2	335	335	yes	202.8
4051	Haddock 4VW	244.2	245	245	yes	100.3
4033	Cod 4X5Y	678.4	679	679	yes	100.1
4032	Cod 4VsW	612.8	613	613	yes	100.0
4031	Cod 4Vn	207.2	208	208	yes	100.4
709	Whelks	452	526	526	yes	116.4
708	Urchins	85.8	131	131	yes	152.7
707	Sponges	134.8	232	232	yes	172.1
706	Snowcrab	518	523	523	yes	101.0
705	Shrimp	343	343	343	yes	100.0
704	Cucumbers	144.4	147	147	yes	101.8
703	Crabs and lobsters	396.4	397	397	yes	100.2
702	Brittle stars	40	123	123	yes	307.5
701	Anemones	79.6	80	80	yes	100.5
601	High topographic roughness	1363.6	1451	1451	yes	106.4
503	Snowcrab Survey biodiversity hot spots	290.15	291	291	yes	100.3
502	Slope Survey biodiversity hot spots	150.85	152	152	yes	100.8
501	RV Survey biodiversity hot spots	1107.4	1108	1108	yes	100.1
430	Thorny Skate	356.4	551	551	yes	154.6
429	Sea Raven	190	640	640	yes	336.8
428	Ocean Pout	109.2	212	212	yes	194.1
427	Mustache Sculpin	4	4	4	yes	100.0
426	Monkfish	89.6	90	90	yes	100.4
425	Longfin Hake	66.8	167	167	yes	250.0
424	Atlantic Argentine	78	140	140	yes	179.5
423	Witch Flounder	245	368	368	yes	150.2
422	Winter Skate	278.4	279	279	yes	100.2
420	Spotted Wolffish	4	4	4	yes	100.0
419	Spiny Dogfish	169.2	264	264	yes	156.0
418	Smooth Skate	52	106	106	yes	203.8
417	Silver Hake	326.2	327	327	yes	100.2
415	Sandlance	7.4	7	7	no	94.6
414	Red Hake	27.8	32	32	yes	115.1
413	Pollock	134.2	294	294	yes	219.1

411	Northern Wolffish	11.2	12	12	yes	107.1
410	Mackerel	11.2	12	12	yes	107.1
409	Northern Shortfin Squid	168.4	184	184	yes	109.3
408	Longhorn Sculpin	185.4	547	547	yes	295.0
407	Herring	54	77	77	yes	142.6
406	Halibut	41.6	42	42	yes	101.0
404	Cusk	232	232	232	yes	100.0
402	Capelin	47.4	66	66	yes	139.2
401	Atlantic Wolffish	414.4	415	415	yes	100.1
329	Scotian Slope West	540.2864	540.402	574	yes	100.0
328	Scotian Slope West Fan	100.101	100	100	no	99.9
327	Scotian Slope East	354.5699	354.569	402	no	100.0
326	Scotian Slope East Laurentian Fan	267.8169	268.009	276	yes	100.1
325	Scotian Slope East Gully Fan	206.2056	206.506	238	yes	100.1
324	Scotian Slope East Canyon	71.6076	71.69	111	yes	100.1
323	Scotian Rise	766.0225	766.097	774	yes	100.0
322	Scotian Rise Debris Flow	74.051	74	74	no	99.9
321	Outer Scotian Shelf Saddle	52.5377	52.922	66	yes	100.7
320	Outer Scotian Shelf	98.4497	117.495	188	yes	119.3
319	Outer Scotian Shelf Bank	432.2372	629.856	671	yes	145.7
318	Outer Gulf of Maine Shelf	19.3317	19.433	36	yes	100.5
317	Outer Gulf of Maine Shelf Channel	49.345	56.354	73	yes	114.2
316	Outer Gulf of Maine Shelf Basin	14.8018	32.15	40	yes	217.2
315	Outer Gulf of Maine Shelf Bank	61.0373	62.621	66	yes	102.6
314	Outer Bay of Fundy	35.4652	268.576	294	yes	757.3
313	Middle Scotian Shelf	499.4117	997.66	1215	yes	199.8
312	Middle Scotian Shelf Basin	112.734	122.396	147	yes	108.6
311	Middle Scotian Shelf Bank	96.7025	256.526	372	yes	265.3
310	Middle Gulf of Maine Shelf Tertiary Cretaceous	7.7057	7.658	14	no	99.4
309	Middle Gulf of Maine Shelf	133.3879	322.322	401	yes	241.6
308	Middle Gulf of Maine Shelf Basin	37.9688	88.989	134	yes	234.4
307	Middle Gulf of Maine Shelf Bank	1.254	2.865	6	yes	228.5
306	Laurentian Channel	239.2886	239.503	283	yes	100.1
305	Inner Scotian Shelf	225.5381	225.557	280	yes	100.0
304	Inner Gulf of Maine Shelf	79.2478	178.621	228	yes	225.4
303	Inner Bay of Fundy Shallow Basin	14.8198	15.455	16	yes	104.3
302	Inner Bay of Fundy	51.4827	173.111	193	yes	336.3
301	Inner Bay of Fundy Basin	1.8914	2.388	7	yes	126.3
204	Natural disturbance high	331.8504	479.395	715	yes	144.5
203	Natural disturbance medium	922.6366	1694.119	2012	yes	183.6
202	Natural disturbance low medium	522.0366	979.217	1740	yes	187.6
201	Natural disturbance low	1217.3916	1217.472	1213	yes	100.0
105	Scope for growth very high	308.9532	956.43	1012	yes	309.6
104	Scope for growth high	166.7052	332.561	359	yes	199.5
103	Scope for growth moderate	375.4673	577.465	669	yes	153.8
102	Scope for growth low	655.2621	993.472	1180	yes	151.6
101	Scope for growth very low	295.452	612.735	795	yes	207.4

Appendix 59. Scenario 10

Feature ID	Feature Name	Target	Amount Held	Occurrences Held	Target Met	% Target Met
4322	Yellowtail Flounder 4X	39.2	143	143	yes	364.8
4321	Yellowtail Flounder 4VW	242.8	325	325	yes	133.9
4312	Winter Flounder 4X5Y	39.8	157	157	yes	394.5
4311	Winter Flounder 4VW	19.8	43	43	yes	217.2
4212	White Hake 4X5Y	124.6	160	160	yes	128.4
4211	White Hake 4VW	179.4	380	380	yes	211.8
4162	Sebastes Unit 3	134	190	190	yes	141.8
4161	Sebastes Unit 2	143.8	356	356	yes	247.6
4122	American Plaice 4X5Y	91.6	183	183	yes	199.8
4121	American Plaice 4VW	412.8	581	581	yes	140.7
4052	Haddock 4X5Y	165.2	345	345	yes	208.8
4051	Haddock 4VW	244.2	245	245	yes	100.3
4033	Cod 4X5Y	678.4	679	679	yes	100.1
4032	Cod 4VsW	612.8	613	613	yes	100.0
4031	Cod 4Vn	207.2	208	208	yes	100.4
709	Whelks	452	517	517	yes	114.4
708	Urchins	85.8	99	99	yes	115.4
707	Sponges	134.8	246	246	yes	182.5
706	Snowcrab	518	552	552	yes	106.6
705	Shrimp	343	346	346	yes	100.9
704	Cucumbers	144.4	145	145	yes	100.4
703	Crabs and lobsters	396.4	397	397	yes	100.2
702	Brittle stars	40	110	110	yes	275.0
701	Anemones	79.6	80	80	yes	100.5
601	High topographic roughness	1363.6	1584	1584	yes	116.2
503	Snowcrab Survey biodiversity hot spots	290.15	291	291	yes	100.3
502	Slope Survey biodiversity hot spots	150.85	155	155	yes	102.8
501	RV Survey biodiversity hot spots	1107.4	1115	1115	yes	100.7
430	Thorny Skate	356.4	595	595	yes	166.9
429	Sea Raven	190	647	647	yes	340.5
428	Ocean Pout	109.2	231	231	yes	211.5
427	Mustache Sculpin	4	4	4	yes	100.0
426	Monkfish	89.6	90	90	yes	100.4
425	Longfin Hake	66.8	217	217	yes	324.9
424	Atlantic Argentine	78	168	168	yes	215.4
423	Witch Flounder	245	348	348	yes	142.0
422	Winter Skate	278.4	279	279	yes	100.2
420	Spotted Wolffish	4	4	4	yes	100.0
419	Spiny Dogfish	169.2	170	170	yes	100.5
418	Smooth Skate	52	123	123	yes	236.5
417	Silver Hake	326.2	336	336	yes	103.0
415	Sandlance	7.4	7	7	no	94.6
414	Red Hake	27.8	29	29	yes	104.3
413	Pollock	134.2	297	297	yes	221.3

411	Northern Wolffish	11.2	12	12	yes	107.1
410	Mackerel	11.2	11	11	no	98.2
409	Northern Shortfin Squid	168.4	170	170	yes	101.0
408	Longhorn Sculpin	185.4	524	524	yes	282.6
407	Herring	54	73	73	yes	135.2
406	Halibut	41.6	45	45	yes	108.2
404	Cusk	232	232	232	yes	100.0
402	Capelin	47.4	48	48	yes	101.3
401	Atlantic Wolffish	414.4	415	415	yes	100.1
329	Scotian Slope West	810.4296	810.439	859	yes	100.0
328	Scotian Slope West Fan	150.1515	150.959	156	yes	100.5
327	Scotian Slope East	531.85485	531.978	599	yes	100.0
326	Scotian Slope East Laurentian Fan	401.72535	401.88	415	yes	100.0
325	Scotian Slope East Gully Fan	309.3084	309.676	341	yes	100.1
324	Scotian Slope East Canyon	107.4114	107.557	154	yes	100.1
323	Scotian Rise	1149.03375	1149.088	1190	yes	100.0
322	Scotian Rise Debris Flow	111.0765	111.664	121	yes	100.5
321	Outer Scotian Shelf Saddle	78.80655	78.795	97	no	100.0
320	Outer Scotian Shelf	147.67455	147.738	226	yes	100.0
319	Outer Scotian Shelf Bank	648.3558	649.014	697	yes	100.1
318	Outer Gulf of Maine Shelf	28.99755	29.165	52	yes	100.6
317	Outer Gulf of Maine Shelf Channel	74.0175	74.048	100	yes	100.0
316	Outer Gulf of Maine Shelf Basin	22.2027	39.937	53	yes	179.9
315	Outer Gulf of Maine Shelf Bank	91.55595	92.374	99	yes	100.9
314	Outer Bay of Fundy	53.1978	277.576	303	yes	521.8
313	Middle Scotian Shelf	749.11755	948.417	1178	yes	126.6
312	Middle Scotian Shelf Basin	169.101	169.173	202	yes	100.0
311	Middle Scotian Shelf Bank	145.05375	196.127	287	yes	135.2
310	Middle Gulf of Maine Shelf Tertiary Cretaceous	11.55855	12.02	15	yes	104.0
309	Middle Gulf of Maine Shelf	200.08185	218.843	290	yes	109.4
308	Middle Gulf of Maine Shelf Basin	56.9532	60.359	88	yes	106.0
307	Middle Gulf of Maine Shelf Bank	1.881	4.162	11	yes	221.3
306	Laurentian Channel	358.9329	359.702	402	yes	100.2
305	Inner Scotian Shelf	338.30715	338.392	401	yes	100.0
304	Inner Gulf of Maine Shelf	118.8717	171.565	217	yes	144.3
303	Inner Bay of Fundy Shallow Basin	22.2297	22.347	23	yes	100.5
302	Inner Bay of Fundy	77.22405	177.227	199	yes	229.5
301	Inner Bay of Fundy Basin	2.8371	2.854	8	yes	100.6
204	Natural disturbance high	497.7756	497.951	717	yes	100.0
203	Natural disturbance medium	1383.9549	1821.317	2123	yes	131.6
202	Natural disturbance low medium	783.0549	1026.045	1787	yes	131.0
201	Natural disturbance low	1217.3916	1217.308	1235	no	100.0
105	Scope for growth very high	463.4298	834.374	894	yes	180.0
104	Scope for growth high	250.0578	411.193	448	yes	164.4
103	Scope for growth moderate	563.20095	626.669	740	yes	111.3
102	Scope for growth low	982.89315	982.89	1176	no	100.0
101	Scope for growth very low	443.178	638.173	804	yes	144.0

Appendix 60. Scenario 11

Feature ID	Feature Name	Target	Amount Held	Occurrences Held	Target Met	% Target Met
4322	Yellowtail Flounder 4X	39.2	148	148	yes	377.6
4321	Yellowtail Flounder 4VW	242.8	374	374	yes	154.0
4312	Winter Flounder 4X5Y	39.8	162	162	yes	407.0
4311	Winter Flounder 4VW	19.8	63	63	yes	318.2
4212	White Hake 4X5Y	124.6	191	191	yes	153.3
4211	White Hake 4VW	179.4	468	468	yes	260.9
4162	Sebastes Unit 3	134	221	221	yes	164.9
4161	Sebastes Unit 2	143.8	449	449	yes	312.2
4122	American Plaice 4X5Y	91.6	201	201	yes	219.4
4121	American Plaice 4VW	412.8	580	580	yes	140.5
4052	Haddock 4X5Y	165.2	391	391	yes	236.7
4051	Haddock 4VW	244.2	285	285	yes	116.7
4033	Cod 4X5Y	678.4	679	679	yes	100.1
4032	Cod 4VsW	612.8	613	613	yes	100.0
4031	Cod 4Vn	207.2	208	208	yes	100.4
709	Whelks	452	611	611	yes	135.2
708	Urchins	85.8	151	151	yes	176.0
707	Sponges	134.8	211	211	yes	156.5
706	Snowcrab	518	692	692	yes	133.6
705	Shrimp	343	353	353	yes	102.9
704	Cucumbers	144.4	148	148	yes	102.5
703	Crabs and lobsters	396.4	397	397	yes	100.2
702	Brittle stars	40	115	115	yes	287.5
701	Anemones	79.6	156	156	yes	196.0
601	High topographic roughness	1363.6	1571	1571	yes	115.2
503	Snowcrab Survey biodiversity hot spots	290.15	291	291	yes	100.3
502	Slope Survey biodiversity hot spots	150.85	219	219	yes	145.2
501	RV Survey biodiversity hot spots	1107.4	1110	1110	yes	100.2
430	Thorny Skate	356.4	601	601	yes	168.6
429	Sea Raven	190	598	598	yes	314.7
428	Ocean Pout	109.2	249	249	yes	228.0
427	Mustache Sculpin	4	6	6	yes	150.0
426	Monkfish	89.6	90	90	yes	100.4
425	Longfin Hake	66.8	245	245	yes	366.8
424	Atlantic Argentine	78	160	160	yes	205.1
423	Witch Flounder	245	483	483	yes	197.1
422	Winter Skate	278.4	279	279	yes	100.2
420	Spotted Wolffish	4	5	5	yes	125.0
419	Spiny Dogfish	169.2	180	180	yes	106.4
418	Smooth Skate	52	142	142	yes	273.1
417	Silver Hake	326.2	364	364	yes	111.6
415	Sandlance	7.4	8	8	yes	108.1
414	Red Hake	27.8	28	28	yes	100.7
413	Pollock	134.2	276	276	yes	205.7

411	Northern Wolffish	11.2	12	12	yes	107.1
410	Mackerel	11.2	11	11	no	98.2
409	Northern Shortfin Squid	168.4	263	263	yes	156.2
408	Longhorn Sculpin	185.4	528	528	yes	284.8
407	Herring	54	54	54	yes	100.0
406	Halibut	41.6	53	53	yes	127.4
404	Cusk	232	232	232	yes	100.0
402	Capelin	47.4	48	48	yes	101.3
401	Atlantic Wolffish	414.4	415	415	yes	100.1
329	Scotian Slope West	1080.5728	1080.892	1132	yes	100.0
328	Scotian Slope West Fan	200.202	201	201	yes	100.4
327	Scotian Slope East	709.1398	709.349	819	yes	100.0
326	Scotian Slope East Laurentian Fan	535.6338	535.869	548	yes	100.0
325	Scotian Slope East Gully Fan	412.4112	412.419	460	yes	100.0
324	Scotian Slope East Canyon	143.2152	143.528	211	yes	100.2
323	Scotian Rise	1532.045	1532.049	1595	yes	100.0
322	Scotian Rise Debris Flow	148.102	148.209	159	yes	100.1
321	Outer Scotian Shelf Saddle	105.0754	105.318	122	yes	100.2
320	Outer Scotian Shelf	196.8994	197.24	295	yes	100.2
319	Outer Scotian Shelf Bank	864.4744	864.496	932	yes	100.0
318	Outer Gulf of Maine Shelf	38.6634	38.846	65	yes	100.5
317	Outer Gulf of Maine Shelf Channel	98.69	100.763	128	yes	102.1
316	Outer Gulf of Maine Shelf Basin	29.6036	46.775	59	yes	158.0
315	Outer Gulf of Maine Shelf Bank	122.0746	122.286	134	yes	100.2
314	Outer Bay of Fundy	70.9304	267.65	292	yes	377.3
313	Middle Scotian Shelf	998.8234	999.313	1251	yes	100.0
312	Middle Scotian Shelf Basin	225.468	225.626	260	yes	100.1
311	Middle Scotian Shelf Bank	193.405	200.88	307	yes	103.9
310	Middle Gulf of Maine Shelf Tertiary Cretaceous	15.4114	16.093	21	yes	104.4
309	Middle Gulf of Maine Shelf	266.7758	266.777	344	yes	100.0
308	Middle Gulf of Maine Shelf Basin	75.9376	76.044	110	yes	100.1
307	Middle Gulf of Maine Shelf Bank	2.508	5.59	17	yes	222.9
306	Laurentian Channel	478.5772	478.876	526	yes	100.1
305	Inner Scotian Shelf	451.0762	451.078	515	yes	100.0
304	Inner Gulf of Maine Shelf	158.4956	169.09	219	yes	106.7
303	Inner Bay of Fundy Shallow Basin	29.6396	29.662	31	yes	100.1
302	Inner Bay of Fundy	102.9654	103.223	122	yes	100.3
301	Inner Bay of Fundy Basin	3.7828	3.923	9	yes	103.7
204	Natural disturbance high	663.7008	665.202	883	yes	100.2
203	Natural disturbance medium	1845.2732	2105.889	2453	yes	114.1
202	Natural disturbance low medium	1044.0732	1244.841	2040	yes	119.2
201	Natural disturbance low	1217.3916	1217.663	1299	yes	100.0
105	Scope for growth very high	617.9064	903.078	963	yes	146.2
104	Scope for growth high	333.4104	447.548	504	yes	134.2
103	Scope for growth moderate	750.9346	753.886	912	yes	100.4
102	Scope for growth low	1310.5242	1310.986	1573	yes	100.0
101	Scope for growth very low	590.904	635.316	845	yes	107.5

Appendix 61. Scenario 12

Feature ID	Feature Name	Target	Amount Held	Occurrences Held	Target Met	% Target Met
4322	Yellowtail Flounder 4X	39.2	102	102	yes	260.2
4321	Yellowtail Flounder 4VW	242.8	447	447	yes	184.1
4312	Winter Flounder 4X5Y	39.8	171	171	yes	429.6
4311	Winter Flounder 4VW	19.8	91	91	yes	459.6
4212	White Hake 4X5Y	124.6	101	101	no	81.1
4211	White Hake 4VW	179.4	453	453	yes	252.5
4162	Sebastes Unit 3	134	136	136	yes	101.5
4161	Sebastes Unit 2	143.8	365	365	yes	253.8
4122	American Plaice 4X5Y	91.6	136	136	yes	148.5
4121	American Plaice 4VW	412.8	473	473	yes	114.6
4052	Haddock 4X5Y	165.2	389	389	yes	235.5
4051	Haddock 4VW	244.2	441	441	yes	180.6
4033	Cod 4X5Y	678.4	219	219	no	32.3
4032	Cod 4VsW	612.8	484	484	no	79.0
4031	Cod 4Vn	207.2	207	207	no	99.9
709	Whelks	452	452	452	yes	100.0
708	Urchins	85.8	122	122	yes	142.2
707	Sponges	134.8	185	185	yes	137.2
706	Snowcrab	518	518	518	yes	100.0
705	Shrimp	343	383	383	yes	111.7
704	Cucumbers	144.4	259	259	yes	179.4
703	Crabs and lobsters	396.4	397	397	yes	100.2
702	Brittle stars	40	40	40	yes	100.0
701	Anemones	79.6	83	83	yes	104.3
601	High topographic roughness	1363.6	1814	1814	yes	133.0
503	Snowcrab Survey biodiversity hot spots	290.15	97	97	no	33.4
502	Slope Survey biodiversity hot spots	150.85	151	151	yes	100.1
501	RV Survey biodiversity hot spots	1107.4	1108	1108	yes	100.1
430	Thorny Skate	356.4	415	415	yes	116.4
429	Sea Raven	190	320	320	yes	168.4
428	Ocean Pout	109.2	109	109	no	99.8
427	Mustache Sculpin	4	5	5	yes	125.0
426	Monkfish	89.6	90	90	yes	100.4
425	Longfin Hake	66.8	199	199	yes	297.9
424	Atlantic Argentine	78	74	74	no	94.9
423	Witch Flounder	245	413	413	yes	168.6
422	Winter Skate	278.4	149	149	no	53.5
420	Spotted Wolffish	4	5	5	yes	125.0
419	Spiny Dogfish	169.2	175	175	yes	103.4
418	Smooth Skate	52	52	52	yes	100.0
417	Silver Hake	326.2	463	463	yes	141.9
415	Sandlance	7.4	8	8	yes	108.1
414	Red Hake	27.8	28	28	yes	100.7
413	Pollock	134.2	187	187	yes	139.3

411	Northern Wolffish	11.2	12	12	yes	107.1
410	Mackerel	11.2	12	12	yes	107.1
409	Northern Shortfin Squid	168.4	208	208	yes	123.5
408	Longhorn Sculpin	185.4	347	347	yes	187.2
407	Herring	54	54	54	yes	100.0
406	Halibut	41.6	50	50	yes	120.2
404	Cusk	232	123	123	no	53.0
402	Capelin	47.4	82	82	yes	173.0
401	Atlantic Wolffish	414.4	341	341	no	82.3
329	Scotian Slope West	810.4296	810.41	869	no	100.0
328	Scotian Slope West Fan	150.1515	150.781	163	yes	100.4
327	Scotian Slope East	531.85485	532.099	597	yes	100.0
326	Scotian Slope East Laurentian Fan	401.72535	401.715	414	no	100.0
325	Scotian Slope East Gully Fan	309.3084	163.875	236	no	53.0
324	Scotian Slope East Canyon	107.4114	120.465	182	yes	112.2
323	Scotian Rise	1149.03375	0	0	no	0.0
322	Scotian Rise Debris Flow	111.0765	0	0	no	0.0
321	Outer Scotian Shelf Saddle	78.80655	79.532	101	yes	100.9
320	Outer Scotian Shelf	147.67455	184.057	302	yes	124.6
319	Outer Scotian Shelf Bank	648.3558	994.83	1061	yes	153.4
318	Outer Gulf of Maine Shelf	28.99755	33.358	60	yes	115.0
317	Outer Gulf of Maine Shelf Channel	74.0175	74.193	86	yes	100.2
316	Outer Gulf of Maine Shelf Basin	22.2027	0	0	no	0.0
315	Outer Gulf of Maine Shelf Bank	91.55595	143.62	157	yes	156.9
314	Outer Bay of Fundy	53.1978	18.774	29	no	35.3
313	Middle Scotian Shelf	749.11755	955.516	1155	yes	127.6
312	Middle Scotian Shelf Basin	169.101	269.422	310	yes	159.3
311	Middle Scotian Shelf Bank	145.05375	167.95	197	yes	115.8
310	Middle Gulf of Maine Shelf Tertiary Cretaceous	11.55855	11.94	18	yes	103.3
309	Middle Gulf of Maine Shelf	200.08185	285.253	349	yes	142.6
308	Middle Gulf of Maine Shelf Basin	56.9532	57.496	83	yes	101.0
307	Middle Gulf of Maine Shelf Bank	1.881	0	0	no	0.0
306	Laurentian Channel	358.9329	388.956	441	yes	108.4
305	Inner Scotian Shelf	338.30715	279.127	369	no	82.5
304	Inner Gulf of Maine Shelf	118.8717	208.311	274	yes	175.2
303	Inner Bay of Fundy Shallow Basin	22.2297	0	0	no	0.0
302	Inner Bay of Fundy	77.22405	7.624	13	no	9.9
301	Inner Bay of Fundy Basin	2.8371	0	0	no	0.0
204	Natural disturbance high	497.7756	575.154	843	yes	115.5
203	Natural disturbance medium	1383.9549	1697.285	2063	yes	122.6
202	Natural disturbance low medium	783.0549	1018.759	1793	yes	130.1
201	Natural disturbance low	1217.3916	1217.387	1313	no	100.0
105	Scope for growth very high	463.4298	594.182	637	yes	128.2
104	Scope for growth high	250.0578	393.922	452	yes	157.5
103	Scope for growth moderate	563.20095	804.042	894	yes	142.8
102	Scope for growth low	982.89315	1030.164	1245	yes	104.8
101	Scope for growth very low	443.178	855.138	1068	yes	193.0

Appendix 62. Scenario 13

Feature ID	Feature Name	Target	Amount Held	Occurrences Held	Target Met	% Target Met
4322	Yellowtail Flounder 4X	39.2	102	102	yes	260.2
4321	Yellowtail Flounder 4VW	242.8	417	417	yes	171.7
4312	Winter Flounder 4X5Y	39.8	167	167	yes	419.6
4311	Winter Flounder 4VW	19.8	89	89	yes	449.5
4212	White Hake 4X5Y	124.6	101	101	no	81.1
4211	White Hake 4VW	179.4	500	500	yes	278.7
4162	Sebastes Unit 3	134	146	146	yes	109.0
4161	Sebastes Unit 2	143.8	424	424	yes	294.9
4122	American Plaice 4X5Y	91.6	132	132	yes	144.1
4121	American Plaice 4VW	412.8	528	528	yes	127.9
4052	Haddock 4X5Y	165.2	394	394	yes	238.5
4051	Haddock 4VW	244.2	453	453	yes	185.5
4033	Cod 4X5Y	678.4	219	219	no	32.3
4032	Cod 4VsW	612.8	484	484	no	79.0
4031	Cod 4Vn	207.2	207	207	no	99.9
709	Whelks	452	452	452	yes	100.0
708	Urchins	85.8	161	161	yes	187.6
707	Sponges	134.8	189	189	yes	140.2
706	Snowcrab	518	532	532	yes	102.7
705	Shrimp	343	426	426	yes	124.2
704	Cucumbers	144.4	216	216	yes	149.6
703	Crabs and lobsters	396.4	397	397	yes	100.2
702	Brittle stars	40	40	40	yes	100.0
701	Anemones	79.6	93	93	yes	116.8
601	High topographic roughness	1363.6	2269	2269	yes	166.4
503	Snowcrab Survey biodiversity hot spots	290.15	97	97	no	33.4
502	Slope Survey biodiversity hot spots	150.85	181	181	yes	120.0
501	RV Survey biodiversity hot spots	1107.4	1108	1108	yes	100.1
430	Thorny Skate	356.4	467	467	yes	131.0
429	Sea Raven	190	314	314	yes	165.3
428	Ocean Pout	109.2	109	109	no	99.8
427	Mustache Sculpin	4	11	11	yes	275.0
426	Monkfish	89.6	100	100	yes	111.6
425	Longfin Hake	66.8	243	243	yes	363.8
424	Atlantic Argentine	78	74	74	no	94.9
423	Witch Flounder	245	474	474	yes	193.5
422	Winter Skate	278.4	149	149	no	53.5
420	Spotted Wolffish	4	5	5	yes	125.0
419	Spiny Dogfish	169.2	185	185	yes	109.3
418	Smooth Skate	52	52	52	yes	100.0
417	Silver Hake	326.2	470	470	yes	144.1
415	Sandlance	7.4	11	11	yes	148.6
414	Red Hake	27.8	28	28	yes	100.7
413	Pollock	134.2	195	195	yes	145.3

411	Northern Wolffish	11.2	12	12	yes	107.1
410	Mackerel	11.2	12	12	yes	107.1
409	Northern Shortfin Squid	168.4	231	231	yes	137.2
408	Longhorn Sculpin	185.4	355	355	yes	191.5
407	Herring	54	54	54	yes	100.0
406	Halibut	41.6	53	53	yes	127.4
404	Cusk	232	123	123	no	53.0
402	Capelin	47.4	90	90	yes	189.9
401	Atlantic Wolffish	414.4	342	342	no	82.5
329	Scotian Slope West	1080.5728	1080.682	1137	yes	100.0
328	Scotian Slope West Fan	200.202	200.692	217	yes	100.2
327	Scotian Slope East	709.1398	709.257	803	yes	100.0
326	Scotian Slope East Laurentian Fan	535.6338	535.979	551	yes	100.1
325	Scotian Slope East Gully Fan	412.4112	164.329	239	no	39.8
324	Scotian Slope East Canyon	143.2152	168	247	yes	117.3
323	Scotian Rise	1532.045	0	0	no	0.0
322	Scotian Rise Debris Flow	148.102	0	0	no	0.0
321	Outer Scotian Shelf Saddle	105.0754	105.216	128	yes	100.1
320	Outer Scotian Shelf	196.8994	203.962	339	yes	103.6
319	Outer Scotian Shelf Bank	864.4744	1100.454	1177	yes	127.3
318	Outer Gulf of Maine Shelf	38.6634	38.674	71	yes	100.0
317	Outer Gulf of Maine Shelf Channel	98.69	98.969	120	yes	100.3
316	Outer Gulf of Maine Shelf Basin	29.6036	0	0	no	0.0
315	Outer Gulf of Maine Shelf Bank	122.0746	138.962	153	yes	113.8
314	Outer Bay of Fundy	70.9304	18.774	29	no	26.5
313	Middle Scotian Shelf	998.8234	1033.817	1254	yes	103.5
312	Middle Scotian Shelf Basin	225.468	273.271	322	yes	121.2
311	Middle Scotian Shelf Bank	193.405	193.675	222	yes	100.1
310	Middle Gulf of Maine Shelf Tertiary Cretaceous	15.4114	15.517	23	yes	100.7
309	Middle Gulf of Maine Shelf	266.7758	290.82	360	yes	109.0
308	Middle Gulf of Maine Shelf Basin	75.9376	76.385	104	yes	100.6
307	Middle Gulf of Maine Shelf Bank	2.508	0	0	no	0.0
306	Laurentian Channel	478.5772	479.135	540	yes	100.1
305	Inner Scotian Shelf	451.0762	277.224	365	no	61.5
304	Inner Gulf of Maine Shelf	158.4956	200.076	267	yes	126.2
303	Inner Bay of Fundy Shallow Basin	29.6396	0	0	no	0.0
302	Inner Bay of Fundy	102.9654	7.624	13	no	7.4
301	Inner Bay of Fundy Basin	3.7828	0	0	no	0.0
204	Natural disturbance high	663.7008	664.199	964	yes	100.1
203	Natural disturbance medium	1845.2732	1959.669	2377	yes	106.2
202	Natural disturbance low medium	1044.0732	1194.651	2022	yes	114.4
201	Natural disturbance low	1217.3916	1217.404	1363	yes	100.0
105	Scope for growth very high	617.9064	620.705	664	yes	100.5
104	Scope for growth high	333.4104	401.019	461	yes	120.3
103	Scope for growth moderate	750.9346	792.091	887	yes	105.5
102	Scope for growth low	1310.5242	1310.531	1573	yes	100.0
101	Scope for growth very low	590.904	934.701	1209	yes	158.2

Appendix 63. Scenario 14

Feature ID	Feature Name	Target	Amount Held	Occurrences Held	Target Met	% Target Met
903	Northern bottlenose whale critical habitat	91.822	91.744	137	no	99.9
902	Right whale Bay of Fundy critical habitat	73.503	73.3	94	no	99.7
901	Right whale Roseway ATBA	328.896	328.665	374	no	99.9
802	Coral areas with greater than three families	56	55	55	no	98.2
801	Coral areas by count	294.4	295	34	yes	100.2
4322	Yellowtail Flounder 4X	39.2	142	142	yes	362.2
4321	Yellowtail Flounder 4VW	242.8	356	356	yes	146.6
4312	Winter Flounder 4X 5Y	39.8	159	159	yes	399.5
4311	Winter Flounder 4VW	19.8	52	52	yes	262.6
4212	White Hake 4X 5Y	124.6	167	167	yes	134.0
4211	White Hake 4VW	179.4	398	398	yes	221.9
4162	Sebastes Unit 3	134	218	218	yes	162.7
4161	Sebastes Unit 2	143.8	357	357	yes	248.3
4122	American Plaice 4X 5Y	91.6	226	226	yes	246.7
4121	American Plaice 4VW	412.8	517	517	yes	125.2
4052	Haddock 4X 5Y	165.2	384	384	yes	232.4
4051	Haddock 4VW	244.2	245	245	yes	100.3
4033	Cod 4X 5Y	678.4	679	679	yes	100.1
4032	Cod 4VsW	612.8	613	613	yes	100.0
4031	Cod 4Vn	207.2	208	208	yes	100.4
712	Tunicates	15.2	16	16	yes	105.3
711	Stars revised	300.6	301	301	yes	100.1
710	Soft coral	162.6	164	164	yes	100.9
709	Whelks	452	453	453	yes	100.2
708	Urchins	85.8	124	124	yes	144.5
707	Sponges	134.8	220	220	yes	163.2
706	Snowcrab	518	518	518	yes	100.0
705	Shrimp	343	345	345	yes	100.6
704	Cucumbers	144.4	154	154	yes	106.6
703	Crabs and lobsters	396.4	397	397	yes	100.2
702	Brittle stars	40	98	98	yes	245.0
701	Anemones	79.6	97	97	yes	121.9
601	High topographic roughness	1363.6	1857	1857	yes	136.2
503	Snowcrab Survey biodiversity hot spots	248.7	249	249	yes	100.1
502	Slope Survey biodiversity hot spots	129.3	131	131	yes	101.3
501	RV Survey biodiversity hot spots	949.2	1000	1000	yes	105.4
430	Thorny Skate	356.4	561	561	yes	157.4
429	Sea Raven	190	623	623	yes	327.9
428	Ocean Pout	109.2	274	274	yes	250.9
427	Mustache Sculpin	4	4	4	yes	100.0
426	Monkfish	89.6	93	93	yes	103.8
425	Longfin Hake	66.8	199	199	yes	297.9
424	Atlantic Argentine	78	135	135	yes	173.1

423	Witch Flounder	245	340	340	yes	138.8
422	Winter Skate	278.4	279	279	yes	100.2
420	Spotted Wolffish	4	4	4	yes	100.0
419	Spiny Dogfish	169.2	199	199	yes	117.6
418	Smooth Skate	52	95	95	yes	182.7
417	Silver Hake	326.2	327	327	yes	100.2
415	Sandlance	7.4	8	8	yes	108.1
414	Red Hake	27.8	28	28	yes	100.7
413	Pollock	134.2	237	237	yes	176.6
411	Northern Wolffish	11.2	12	12	yes	107.1
410	Mackerel	11.2	12	12	yes	107.1
409	Northern Shortfin Squid	168.4	169	169	yes	100.4
408	Longhorn Sculpin	185.4	543	543	yes	292.9
407	Herring	54	61	61	yes	113.0
406	Halibut	41.6	44	44	yes	105.8
404	Cusk	232	232	232	yes	100.0
402	Capelin	47.4	48	48	yes	101.3
401	Atlantic Wolffish	414.4	415	415	yes	100.1
329	Scotian Slope West	810.4296	810.456	857	yes	100.0
328	Scotian Slope West Fan	150.1515	150.419	156	yes	100.2
327	Scotian Slope East	531.85485	532.008	601	yes	100.0
326	Scotian Slope East Laurentian Fan	401.72535	401.954	413	yes	100.1
325	Scotian Slope East Gully Fan	309.3084	309.335	369	yes	100.0
324	Scotian Slope East Canyon	107.4114	155.937	218	yes	145.2
323	Scotian Rise	1149.03375	1149.148	1170	yes	100.0
322	Scotian Rise Debris Flow	111.0765	111	111	no	99.9
321	Outer Scotian Shelf Saddle	78.80655	78.873	93	yes	100.1
320	Outer Scotian Shelf	147.67455	148.006	244	yes	100.2
319	Outer Scotian Shelf Bank	648.3558	726.468	780	yes	112.0
318	Outer Gulf of Maine Shelf	28.99755	29.339	53	yes	101.2
317	Outer Gulf of Maine Shelf Channel	74.0175	81.525	110	yes	110.1
316	Outer Gulf of Maine Shelf Basin	22.2027	28.37	38	yes	127.8
315	Outer Gulf of Maine Shelf Bank	91.55595	92.649	100	yes	101.2
314	Outer Bay of Fundy	53.1978	280.374	308	yes	527.0
313	Middle Scotian Shelf	749.11755	1073.694	1325	yes	143.3
312	Middle Scotian Shelf Basin	169.101	169.228	203	yes	100.1
311	Middle Scotian Shelf Bank	145.05375	212.072	325	yes	146.2
310	Middle Gulf of Maine Shelf Tertiary Cretaceous	11.55855	13.093	18	yes	113.3
309	Middle Gulf of Maine Shelf	200.08185	238.684	308	yes	119.3
308	Middle Gulf of Maine Shelf Basin	56.9532	69.938	107	yes	122.8
307	Middle Gulf of Maine Shelf Bank	1.881	2.675	5	yes	142.2
306	Laurentian Channel	358.9329	358.909	409	no	100.0
305	Inner Scotian Shelf	338.30715	338.324	396	yes	100.0
304	Inner Gulf of Maine Shelf	118.8717	167.253	211	yes	140.7
303	Inner Bay of Fundy Shallow Basin	22.2297	22.524	23	yes	101.3
302	Inner Bay of Fundy	77.22405	133.691	155	yes	173.1
301	Inner Bay of Fundy Basin	2.8371	3.14	8	yes	110.7
204	Natural disturbance high	497.7756	597.359	854	yes	120.0
203	Natural disturbance medium	1383.9549	1924.839	2303	yes	139.1
202	Natural disturbance low medium	783.0549	1116.676	1903	yes	142.6
201	Natural disturbance low	1217.3916	1217.372	1264	no	100.0

105	Scope for growth very high	463.4298	832.237	887	yes	179.6
104	Scope for growth high	250.0578	494.901	529	yes	197.9
103	Scope for growth moderate	563.20095	748.186	869	yes	132.8
102	Scope for growth low	982.89315	984.205	1223	yes	100.1
101	Scope for growth very low	443.178	712.419	907	yes	160.8

Appendix 64. Scenario 15

Feature ID	Feature Name	Target	Amount Held	Occurrences Held	Target Met	% Target Met
903	Northern bottlenose whale critical habitat	91.822	91.744	137	no	99.9
902	Right whale Bay of Fundy critical habitat	73.503	73.3	94	no	99.7
901	Right whale Roseway ATBA	328.896	328.823	379	no	100.0
802	Coral areas with greater than three families	56	55	55	no	98.2
801	Coral areas by count	294.4	316	43	yes	107.3
4322	Yellowtail Flounder 4X	39.2	142	142	yes	362.2
4321	Yellowtail Flounder 4VW	242.8	352	352	yes	145.0
4312	Winter Flounder 4X 5Y	39.8	168	168	yes	422.1
4311	Winter Flounder 4VW	19.8	55	55	yes	277.8
4212	White Hake 4X 5Y	124.6	175	175	yes	140.4
4211	White Hake 4VW	179.4	444	444	yes	247.5
4162	Sebastes Unit 3	134	223	223	yes	166.4
4161	Sebastes Unit 2	143.8	439	439	yes	305.3
4122	American Plaice 4X 5Y	91.6	226	226	yes	246.7
4121	American Plaice 4VW	412.8	581	581	yes	140.7
4052	Haddock 4X 5Y	165.2	417	417	yes	252.4
4051	Haddock 4VW	244.2	249	249	yes	102.0
4033	Cod 4X 5Y	678.4	679	679	yes	100.1
4032	Cod 4VsW	612.8	613	613	yes	100.0
4031	Cod 4Vn	207.2	208	208	yes	100.4
712	Tunicates	15.2	15	15	no	98.7
711	Stars revised	300.6	301	301	yes	100.1
710	Soft coral	162.6	166	166	yes	102.1
709	Whelks	452	538	538	yes	119.0
708	Urchins	85.8	132	132	yes	153.8
707	Sponges	134.8	256	256	yes	189.9
706	Snowcrab	518	519	519	yes	100.2
705	Shrimp	343	343	343	yes	100.0
704	Cucumbers	144.4	158	158	yes	109.4
703	Crabs and lobsters	396.4	398	398	yes	100.4
702	Brittle stars	40	109	109	yes	272.5
701	Anemones	79.6	109	109	yes	136.9
601	High topographic roughness	1363.6	2262	2262	yes	165.9
503	Snowcrab Survey biodiversity hot spots	248.7	249	249	yes	100.1
502	Slope Survey biodiversity hot spots	129.3	197	197	yes	152.4
501	RV Survey biodiversity hot spots	949.2	1083	1083	yes	114.1
430	Thorny Skate	356.4	707	707	yes	198.4
429	Sea Raven	190	592	592	yes	311.6
428	Ocean Pout	109.2	273	273	yes	250.0
427	Mustache Sculpin	4	4	4	yes	100.0
426	Monkfish	89.6	92	92	yes	102.7
425	Longfin Hake	66.8	230	230	yes	344.3
424	Atlantic Argentine	78	169	169	yes	216.7

423	Witch Flounder	245	377	377	yes	153.9
422	Winter Skate	278.4	279	279	yes	100.2
420	Spotted Wolffish	4	4	4	yes	100.0
419	Spiny Dogfish	169.2	186	186	yes	109.9
418	Smooth Skate	52	115	115	yes	221.2
417	Silver Hake	326.2	335	335	yes	102.7
415	Sandlance	7.4	8	8	yes	108.1
414	Red Hake	27.8	28	28	yes	100.7
413	Pollock	134.2	253	253	yes	188.5
411	Northern Wolffish	11.2	12	12	yes	107.1
410	Mackerel	11.2	11	11	no	98.2
409	Northern Shortfin Squid	168.4	210	210	yes	124.7
408	Longhorn Sculpin	185.4	540	540	yes	291.3
407	Herring	54	54	54	yes	100.0
406	Halibut	41.6	55	55	yes	132.2
404	Cusk	232	232	232	yes	100.0
402	Capelin	47.4	48	48	yes	101.3
401	Atlantic Wolffish	414.4	415	415	yes	100.1
329	Scotian Slope West	1080.5728	1080.588	1132	yes	100.0
328	Scotian Slope West Fan	200.202	201.034	221	yes	100.4
327	Scotian Slope East	709.1398	709.31	784	yes	100.0
326	Scotian Slope East Laurentian Fan	535.6338	535.651	567	yes	100.0
325	Scotian Slope East Gully Fan	412.4112	412.54	474	yes	100.0
324	Scotian Slope East Canyon	143.2152	143.267	191	yes	100.0
323	Scotian Rise	1532.045	1532.226	1581	yes	100.0
322	Scotian Rise Debris Flow	148.102	148.178	160	yes	100.1
321	Outer Scotian Shelf Saddle	105.0754	105.147	119	yes	100.1
320	Outer Scotian Shelf	196.8994	197.214	304	yes	100.2
319	Outer Scotian Shelf Bank	864.4744	865.151	926	yes	100.1
318	Outer Gulf of Maine Shelf	38.6634	38.697	65	yes	100.1
317	Outer Gulf of Maine Shelf Channel	98.69	99.215	132	yes	100.5
316	Outer Gulf of Maine Shelf Basin	29.6036	33.489	46	yes	113.1
315	Outer Gulf of Maine Shelf Bank	122.0746	122.611	130	yes	100.4
314	Outer Bay of Fundy	70.9304	277.023	302	yes	390.6
313	Middle Scotian Shelf	998.8234	1010.31	1280	yes	101.2
312	Middle Scotian Shelf Basin	225.468	225.491	260	yes	100.0
311	Middle Scotian Shelf Bank	193.405	236.584	358	yes	122.3
310	Middle Gulf of Maine Shelf Tertiary Cretaceous	15.4114	16.093	21	yes	104.4
309	Middle Gulf of Maine Shelf	266.7758	266.985	343	yes	100.1
308	Middle Gulf of Maine Shelf Basin	75.9376	75.973	113	yes	100.0
307	Middle Gulf of Maine Shelf Bank	2.508	2.675	5	yes	106.7
306	Laurentian Channel	478.5772	478.679	532	yes	100.0
305	Inner Scotian Shelf	451.0762	451.303	513	yes	100.1
304	Inner Gulf of Maine Shelf	158.4956	172.792	219	yes	109.0
303	Inner Bay of Fundy Shallow Basin	29.6396	29.68	32	yes	100.1
302	Inner Bay of Fundy	102.9654	112.412	134	yes	109.2
301	Inner Bay of Fundy Basin	3.7828	3.755	11	no	99.3
204	Natural disturbance high	663.7008	666.484	966	yes	100.4
203	Natural disturbance medium	1845.2732	2283.165	2678	yes	123.7
202	Natural disturbance low medium	1044.0732	1363.718	2234	yes	130.6
201	Natural disturbance low	1217.3916	1217.778	1348	yes	100.0

105	Scope for growth very high	617.9064	888.804	942	yes	143.8
104	Scope for growth high	333.4104	572.565	614	yes	171.7
103	Scope for growth moderate	750.9346	751.537	891	yes	100.1
102	Scope for growth low	1310.5242	1310.711	1557	yes	100.0
101	Scope for growth very low	590.904	747.208	966	yes	126.5

Appendix 65. Scenario 16

Feature ID	Feature Name	Target	Amount Held	Occurrences Held	Target Met	% Target Met
903	Northern bottlenose whale critical habitat	91.822	91.822	138	yes	100.0
902	Right whale Bay of Fundy critical habitat	73.503	0	0	no	0.0
901	Right whale Roseway ATBA	328.896	135.951	156	no	41.3
802	Coral areas with greater than three families	56	56	56	yes	100.0
801	Coral areas by count	294.4	324	46	yes	110.1
4322	Yellowtail Flounder 4X	39.2	102	102	yes	260.2
4321	Yellowtail Flounder 4VW	242.8	387	387	yes	159.4
4312	Winter Flounder 4X 5Y	39.8	170	170	yes	427.1
4311	Winter Flounder 4VW	19.8	89	89	yes	449.5
4212	White Hake 4X 5Y	124.6	101	101	no	81.1
4211	White Hake 4VW	179.4	450	450	yes	250.8
4162	Sebastes Unit 3	134	141	141	yes	105.2
4161	Sebastes Unit 2	143.8	325	325	yes	226.0
4122	American Plaice 4X 5Y	91.6	144	144	yes	157.2
4121	American Plaice 4VW	412.8	473	473	yes	114.6
4052	Haddock 4X 5Y	165.2	351	351	yes	212.5
4051	Haddock 4VW	244.2	428	428	yes	175.3
4033	Cod 4X 5Y	678.4	219	219	no	32.3
4032	Cod 4VsW	612.8	484	484	no	79.0
4031	Cod 4Vn	207.2	208	208	yes	100.4
712	Tunicates	15.2	26	26	yes	171.1
711	Stars revised	300.6	301	301	yes	100.1
710	Soft coral	162.6	163	163	yes	100.2
709	Whelks	452	467	467	yes	103.3
708	Urchins	85.8	161	161	yes	187.6
707	Sponges	134.8	163	163	yes	120.9
706	Snowcrab	518	518	518	yes	100.0
705	Shrimp	343	344	344	yes	100.3
704	Cucumbers	144.4	225	225	yes	155.8
703	Crabs and lobsters	396.4	397	397	yes	100.2
702	Brittle stars	40	113	113	yes	282.5
701	Anemones	79.6	80	80	yes	100.5
601	High topographic roughness	1363.6	2086	2086	yes	153.0
503	Snowcrab Survey biodiversity hot spots	248.7	249	249	yes	100.1
502	Slope Survey biodiversity hot spots	129.3	167	167	yes	129.2
501	RV Survey biodiversity hot spots	949.2	1021	1021	yes	107.6
430	Thorny Skate	356.4	453	453	yes	127.1
429	Sea Raven	190	318	318	yes	167.4
428	Ocean Pout	109.2	109	109	no	99.8
427	Mustache Sculpin	4	11	11	yes	275.0
426	Monkfish	89.6	90	90	yes	100.4
425	Longfin Hake	66.8	176	176	yes	263.5
424	Atlantic Argentine	78	74	74	no	94.9

423	Witch Flounder	245	443	443	yes	180.8
422	Winter Skate	278.4	149	149	no	53.5
420	Spotted Wolffish	4	4	4	yes	100.0
419	Spiny Dogfish	169.2	170	170	yes	100.5
418	Smooth Skate	52	53	53	yes	101.9
417	Silver Hake	326.2	469	469	yes	143.8
415	Sandlance	7.4	8	8	yes	108.1
414	Red Hake	27.8	28	28	yes	100.7
413	Pollock	134.2	179	179	yes	133.4
411	Northern Wolffish	11.2	12	12	yes	107.1
410	Mackerel	11.2	12	12	yes	107.1
409	Northern Shortfin Squid	168.4	201	201	yes	119.4
408	Longhorn Sculpin	185.4	352	352	yes	189.9
407	Herring	54	54	54	yes	100.0
406	Halibut	41.6	67	67	yes	161.1
404	Cusk	232	123	123	no	53.0
402	Capelin	47.4	88	88	yes	185.7
401	Atlantic Wolffish	414.4	341	341	no	82.3
329	Scotian Slope West	810.4296	810.514	856	yes	100.0
328	Scotian Slope West Fan	150.1515	150.264	163	yes	100.1
327	Scotian Slope East	531.85485	531.922	623	yes	100.0
326	Scotian Slope East Laurentian Fan	401.72535	401.755	416	yes	100.0
325	Scotian Slope East Gully Fan	309.3084	164.329	239	no	53.1
324	Scotian Slope East Canyon	107.4114	196.236	275	yes	182.7
323	Scotian Rise	1149.03375	0	0	no	0.0
322	Scotian Rise Debris Flow	111.0765	0	0	no	0.0
321	Outer Scotian Shelf Saddle	78.80655	79.192	99	yes	100.5
320	Outer Scotian Shelf	147.67455	166.474	263	yes	112.7
319	Outer Scotian Shelf Bank	648.3558	856.432	912	yes	132.1
318	Outer Gulf of Maine Shelf	28.99755	39.761	67	yes	137.1
317	Outer Gulf of Maine Shelf Channel	74.0175	74.204	92	yes	100.3
316	Outer Gulf of Maine Shelf Basin	22.2027	0	0	no	0.0
315	Outer Gulf of Maine Shelf Bank	91.55595	159.764	173	yes	174.5
314	Outer Bay of Fundy	53.1978	18.774	29	no	35.3
313	Middle Scotian Shelf	749.11755	887.224	1078	yes	118.4
312	Middle Scotian Shelf Basin	169.101	253.779	294	yes	150.1
311	Middle Scotian Shelf Bank	145.05375	180.281	210	yes	124.3
310	Middle Gulf of Maine Shelf Tertiary Cretaceous	11.55855	11.94	18	yes	103.3
309	Middle Gulf of Maine Shelf	200.08185	275.77	341	yes	137.8
308	Middle Gulf of Maine Shelf Basin	56.9532	66.983	93	yes	117.6
307	Middle Gulf of Maine Shelf Bank	1.881	0	0	no	0.0
306	Laurentian Channel	358.9329	369.083	418	yes	102.8
305	Inner Scotian Shelf	338.30715	338.34	406	yes	100.0
304	Inner Gulf of Maine Shelf	118.8717	189.158	245	yes	159.1
303	Inner Bay of Fundy Shallow Basin	22.2297	0	0	no	0.0
302	Inner Bay of Fundy	77.22405	7.624	13	no	9.9
301	Inner Bay of Fundy Basin	2.8371	0	0	no	0.0
204	Natural disturbance high	497.7756	568.688	844	yes	114.2
203	Natural disturbance medium	1383.9549	1612.871	2002	yes	116.5
202	Natural disturbance low medium	783.0549	995.825	1752	yes	127.2
201	Natural disturbance low	1217.3916	1217.351	1300	no	100.0

105	Scope for growth very high	463.4298	566.899	601	yes	122.3
104	Scope for growth high	250.0578	376.315	429	yes	150.5
103	Scope for growth moderate	563.20095	834.788	948	yes	148.2
102	Scope for growth low	982.89315	982.963	1207	yes	100.0
101	Scope for growth very low	443.178	685.349	868	yes	154.6

Appendix 66. Scenario 17

Feature ID	Feature Name	Target	Amount Held	Occurrences Held	Target Met	% Target Met
903	Northern bottlenose whale critical habitat	91.822	91.822	138	yes	100.0
902	Right whale Bay of Fundy critical habitat	73.503	0	0	no	0.0
901	Right whale Roseway ATBA	328.896	135.972	157	no	41.3
802	Coral areas with greater than three families	56	56	56	yes	100.0
801	Coral areas by count	294.4	335	56	yes	113.8
4322	Yellowtail Flounder 4X	39.2	102	102	yes	260.2
4321	Yellowtail Flounder 4VW	242.8	395	395	yes	162.7
4312	Winter Flounder 4X 5Y	39.8	174	174	yes	437.2
4311	Winter Flounder 4VW	19.8	91	91	yes	459.6
4212	White Hake 4X 5Y	124.6	101	101	no	81.1
4211	White Hake 4VW	179.4	462	462	yes	257.5
4162	Sebastes Unit 3	134	150	150	yes	111.9
4161	Sebastes Unit 2	143.8	355	355	yes	246.9
4122	American Plaice 4X 5Y	91.6	142	142	yes	155.0
4121	American Plaice 4VW	412.8	476	476	yes	115.3
4052	Haddock 4X 5Y	165.2	397	397	yes	240.3
4051	Haddock 4VW	244.2	471	471	yes	192.9
4033	Cod 4X 5Y	678.4	219	219	no	32.3
4032	Cod 4VsW	612.8	484	484	no	79.0
4031	Cod 4Vn	207.2	208	208	yes	100.4
712	Tunicates	15.2	47	47	yes	309.2
711	Stars revised	300.6	302	302	yes	100.5
710	Soft coral	162.6	165	165	yes	101.5
709	Whelks	452	452	452	yes	100.0
708	Urchins	85.8	124	124	yes	144.5
707	Sponges	134.8	167	167	yes	123.9
706	Snowcrab	518	524	524	yes	101.2
705	Shrimp	343	366	366	yes	106.7
704	Cucumbers	144.4	197	197	yes	136.4
703	Crabs and lobsters	396.4	397	397	yes	100.2
702	Brittle stars	40	113	113	yes	282.5
701	Anemones	79.6	81	81	yes	101.8
601	High topographic roughness	1363.6	2387	2387	yes	175.1
503	Snowcrab Survey biodiversity hot spots	248.7	249	249	yes	100.1
502	Slope Survey biodiversity hot spots	129.3	174	174	yes	134.6
501	RV Survey biodiversity hot spots	949.2	1052	1052	yes	110.8
430	Thorny Skate	356.4	455	455	yes	127.7
429	Sea Raven	190	319	319	yes	167.9
428	Ocean Pout	109.2	109	109	no	99.8
427	Mustache Sculpin	4	11	11	yes	275.0
426	Monkfish	89.6	95	95	yes	106.0
425	Longfin Hake	66.8	211	211	yes	315.9
424	Atlantic Argentine	78	74	74	no	94.9

423	Witch Flounder	245	457	457	yes	186.5
422	Winter Skate	278.4	149	149	no	53.5
420	Spotted Wolffish	4	4	4	yes	100.0
419	Spiny Dogfish	169.2	181	181	yes	107.0
418	Smooth Skate	52	61	61	yes	117.3
417	Silver Hake	326.2	492	492	yes	150.8
415	Sandlance	7.4	8	8	yes	108.1
414	Red Hake	27.8	30	30	yes	107.9
413	Pollock	134.2	195	195	yes	145.3
411	Northern Wolffish	11.2	12	12	yes	107.1
410	Mackerel	11.2	12	12	yes	107.1
409	Northern Shortfin Squid	168.4	231	231	yes	137.2
408	Longhorn Sculpin	185.4	354	354	yes	190.9
407	Herring	54	54	54	yes	100.0
406	Halibut	41.6	69	69	yes	165.9
404	Cusk	232	123	123	no	53.0
402	Capelin	47.4	88	88	yes	185.7
401	Atlantic Wolffish	414.4	343	343	no	82.8
329	Scotian Slope West	1080.5728	1080.753	1131	yes	100.0
328	Scotian Slope West Fan	200.202	200.338	205	yes	100.1
327	Scotian Slope East	709.1398	709.118	801	no	100.0
326	Scotian Slope East Laurentian Fan	535.6338	536.015	554	yes	100.1
325	Scotian Slope East Gully Fan	412.4112	164.329	239	no	39.8
324	Scotian Slope East Canyon	143.2152	189.46	269	yes	132.3
323	Scotian Rise	1532.045	0	0	no	0.0
322	Scotian Rise Debris Flow	148.102	0	0	no	0.0
321	Outer Scotian Shelf Saddle	105.0754	105.373	127	yes	100.3
320	Outer Scotian Shelf	196.8994	197.031	315	yes	100.1
319	Outer Scotian Shelf Bank	864.4744	986.541	1055	yes	114.1
318	Outer Gulf of Maine Shelf	38.6634	41.676	70	yes	107.8
317	Outer Gulf of Maine Shelf Channel	98.69	99.319	118	yes	100.6
316	Outer Gulf of Maine Shelf Basin	29.6036	0	0	no	0.0
315	Outer Gulf of Maine Shelf Bank	122.0746	139.764	153	yes	114.5
314	Outer Bay of Fundy	70.9304	18.774	29	no	26.5
313	Middle Scotian Shelf	998.8234	998.966	1215	yes	100.0
312	Middle Scotian Shelf Basin	225.468	249.375	291	yes	110.6
311	Middle Scotian Shelf Bank	193.405	193.96	225	yes	100.3
310	Middle Gulf of Maine Shelf Tertiary Cretaceous	15.4114	16.194	24	yes	105.1
309	Middle Gulf of Maine Shelf	266.7758	298.482	369	yes	111.9
308	Middle Gulf of Maine Shelf Basin	75.9376	76.036	105	yes	100.1
307	Middle Gulf of Maine Shelf Bank	2.508	0	0	no	0.0
306	Laurentian Channel	478.5772	478.692	536	yes	100.0
305	Inner Scotian Shelf	451.0762	451.113	536	yes	100.0
304	Inner Gulf of Maine Shelf	158.4956	194.575	253	yes	122.8
303	Inner Bay of Fundy Shallow Basin	29.6396	0	0	no	0.0
302	Inner Bay of Fundy	102.9654	7.624	13	no	7.4
301	Inner Bay of Fundy Basin	3.7828	0	0	no	0.0
204	Natural disturbance high	663.7008	664.533	956	yes	100.1
203	Natural disturbance medium	1845.2732	1889.536	2295	yes	102.4
202	Natural disturbance low medium	1044.0732	1095.075	1908	yes	104.9
201	Natural disturbance low	1217.3916	1217.364	1340	no	100.0

105	Scope for growth very high	617.9064	618.049	656	yes	100.0
104	Scope for growth high	333.4104	370.066	428	yes	111.0
103	Scope for growth moderate	750.9346	873.25	989	yes	116.3
102	Scope for growth low	1310.5242	1311.09	1560	yes	100.0
101	Scope for growth very low	590.904	694.273	917	yes	117.5