Fisheries and Oceans Canada
Pêches et Océans Canada

AQUATIC INVASIVE SPECIES

Identification Booklet of Marine Species in the Maritime Provinces of Canada

Canada

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MARINE INVASIVE SPECIES

WHAT ARE MARINE INVASIVE SPECIES?

Non-native species are animals, plants, or other organisms that have been transported outside of their natural range, usually as a result of human activities. Not all non-native species are invasive; "invasive species" are non-native species that have negative impacts on people, the economy, and/or the environment. Negative impacts occur once invasive species establish large populations in their newly established range, which is the result of having a competitive advantage over native species and the absence of natural predators. Invasive species living in the ocean (estuaries, coastal waters, open ocean, etc.) are called marine invasive species.

WHY DO WE CARE?

Marine invasive species are a significant concern around the world, due to their negative impacts. These species can:

1. negatively affect people; for example, by interfering with recreational activities such as boating, swimming, and fishing

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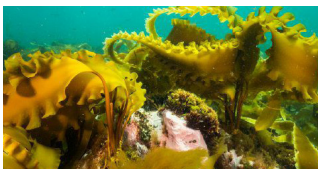
2. harm the economy; for example, by disrupting the fishing and aquaculture industries



Nick Hawkins

3. threaten aquatic ecosystems; for example, by changing habitats and out-competing native species for food or space

Many marine invasive species in the Maritime Provinces (New Brunswick, Nova Scotia, and Prince Edward Island) originate from warmer-water regions of the world. Therefore, because coastal waters in the Maritime Provinces are warming due to climate change, more marine invasive species are expected to arrive and the impacts of existing invasive species are expected to worsen in the future.

HOW DO THEY GET AROUND?

The movement of invasive species in the marine environment can occur at any life stage, and therefore not only involves larger forms, such as juveniles and adults, but also smaller forms (often microscopic), including eggs and larvae. Some organisms, such as invasive seaweeds and tunicates, can also be moved as small fragments that break from their main body. Pathways are the mechanisms that allow invasive species to travel to new areas in their various forms. Below, you'll find the main pathways applicable to marine invasive species in the Maritime Provinces.

- **Contaminant:** The introduction of a species through the movement of another species or organic materials; in other words, species living with, on, or inside of:
  - » Live molluscs and other species transported for aquaculture
  - » Live seafood

- **Release:** The accidental or intentional release of species into the environment
  - » Aquarium fish, seaweeds, and other animals
  - » Sport fish
  - » Live bait

- **Stowaway:** The introduction of species as hitchhikers via a variety of human-made vectors
  - » Hitchhiking on/in watercraft (hull, ballast water, and other compartments)
  - » Aquaculture equipment (ropes, buoys, cages, socks, etc.)
  - » Fishing and angling equipment

- **Unaided:** Once introduced by other pathways, species can spread to new regions by natural dispersal
  - » Larvae and fragments floating with ocean currents
  - » Active movement of animals (crabs crawling, fish swimming)

WHAT CAN YOU DO?

Everyone using aquatic habitats can help prevent the introduction and spread of invasive species. Once marine invasive species establish at a new location, they are often there to stay, as they can quickly establish large populations which are very difficult to manage. Therefore, the best approach for protecting our ecosystems from these invaders is to prevent their introduction and spread, and to do this, everybody's cooperation is essential.

PREVENT THE INTRODUCTION AND SPREAD OF INVASIVE SPECIES

- Learn about the species in this booklet and how to recognize them
- Do not move organisms from one area to another
- Avoid moving water as much as possible
- Dispose of residual water on land, away from any waterways

Don't let it loose

Never release aquarium pets, water garden plants, live food (fish, crabs, snails, etc.), or live bait into rivers, streams, lakes, ponds, storm sewers, or the ocean. Sport fish may only be released back into the waters from which they were caught (i.e., catch-and-release) and never moved from one body of water to another.

Clean, drain, dry, and decontaminate

Learn how to clean, drain, dry, and decontaminate watercraft, trailers, and equipment to help prevent the spread of aquatic invasive species

Clean: components on dry land, away from waterways, ditches, and storm drains

- All plants, animals, mud, and other debris should be removed and disposed of on land
- Wash, scrub, and/or rinse all components. All items (such as angling equipment, buckets, and anchors) that could have come into contact with the water should be cleaned by hand washing
- Avoid cleaning at car washes as aquatic invasive species could make their way into the environment through drainage systems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Drain: all water from the watercraft, trailers, and equipment

- Drain all spaces or items that can hold water such as:
  - » internal compartments or water holds for stability, bilges or livewells
  - » equipment such as coolers, bait buckets, and ropes
- Water should be drained from the engines and the watercraft should be tilted when stored to allow the bilge to drain
- Remove the drain plug prior to transport

Dry: completely all parts of the watercraft and equipment and ensure there is no water. This can be done either by:

- air for a minimum of 30 days
- using towels, wet/dry vacuums, or pressurized air

Every part of the watercraft and equipment must be dry to the touch before entering a new waterbody.

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Decontaminate:

- This is an additional step that may involve one or more temperature, pressure, or chemical treatments
- Decontamination treatments depend on the species in the area and the type of watercraft or equipment and may involve both internal and external components

REPORT

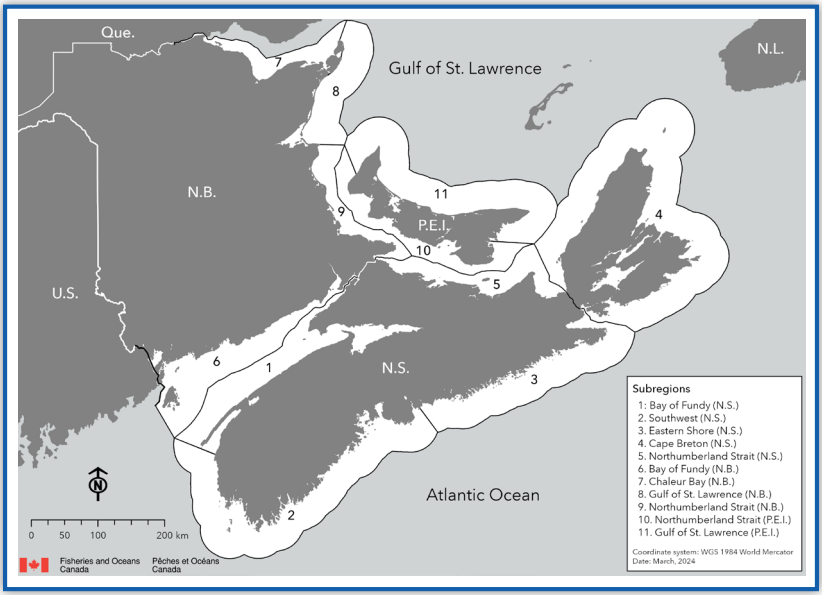
If you find a marine invasive species:

1. Try to identify it by using this booklet and by accessing the Fisheries and Oceans Canada website: https://www.dfo-mpo.gc.ca/species-especes/ais-eae/identify-eng.html
2. Take photos of various angles, and note the location (ideally with GPS coordinates), any identifying features of the species, and the observation date
3. Contact Fisheries and Oceans Canada to report your sighting. The contact information is on the back cover of this booklet

ABOUT THIS BOOKLET

This booklet contains information on notable species that have invaded marine environments of the Maritime Provinces, including where they are, how to identify them, and what you can do to prevent their spread and establishment.

The geographic distributions of species in this booklet are briefly described in the text, but more information on their distributions in the Maritime Provinces can be found on the DFO website; links for each species' webpage can be found in the species profiles below. In the descriptions in this booklet and the maps on the website, the coastlines of the Maritime Provinces have been sub-divided into regions for ease of reference*:



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The species distributions described in this booklet represent our knowledge as of 2024; however, the distributions of marine invasive species constantly change, as they can spread rapidly. To keep up to date on the latest ranges of these species, please refer to the maps presented on the DFO website (which are updated regularly) – or contact us using the information on the back cover of this booklet!

* These maps represent approximate distributions and are not for decision making purposes.

† N.B.: New Brunswick; N.L.: Newfoundland and Labrador; N.S.: Nova Scotia; P.E.I.: Prince Edward Island; Que.: Quebec; U.S.: United States

OYSTER THIEF

(*Codium fragile spp. fragile*)

S. Pereira, DFO

ORIGIN AND DISTRIBUTION

Oyster thief, a seaweed from Japan, first appeared in the Maritime Provinces in 1989 on the southwest coast of Nova Scotia, and is now present throughout most areas of the Maritime Provinces.

For more information on the distribution of this species, consult the DFO webpage for oyster thief.

CHARACTERISTICS

- Shaped like a small bush, soft and velvety to the touch
- Y-shaped cylindrical branches, up to 10 mm in diameter
- Colour: light to dark green
  - When found on the beach, the branches may be bleached white and resemble thick spaghetti
- Size: up to 100 cm long

S. Pereira, DFO

rangerpuffin, iNaturalist, CC-BY-NC

C. McKindsey, DFO

HABITAT

Oyster thief lives underwater in areas down to 18 m and can also be found in tide pools. It grows on rocky bottoms, reefs, wharves and pilings, and even crustaceans, molluscs, or other seaweeds.

P. Archambault, DFO

SIMILAR SPECIES

- Oyster thief has some similar characteristics to rockweeds (*Ascophyllum nodosum* and species in the genus *Fucus*), such as a shrubby shape and branching pattern
- Unlike oyster thief, rockweeds' fronds ("leaves") are flattened, and some species have golden-yellow bulbs, which are filled with a jelly-like liquid

Jan van der Straaten, Saxifraga Foundation CC-BY-NC-SA

ECOLOGICAL AND ECONOMIC IMPACTS

- Replaces native species such as kelp, which is an important habitat for many species such as lobster and urchin
- Uproots eelgrass, an important habitat for fish, molluscs, and crustaceans
- Attaches to molluscs, preventing them from feeding
- Can disrupt shellfish aquaculture by causing fouling problems and loss of crop (sometimes by attaching to shellfish and floating away, explaining the name "oyster thief")

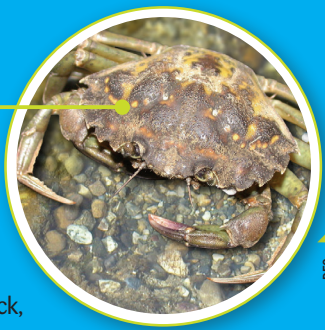
S. Pereira, DFO

PATHWAYS OF INTRODUCTION AND SPREAD

- Can be spread through movement of gear, and attached to the hulls of watercraft
- New plants can establish from small plant fragments that can disperse with ocean currents

EUROPEAN GREEN CRAB

(*Carcinus maenas*)



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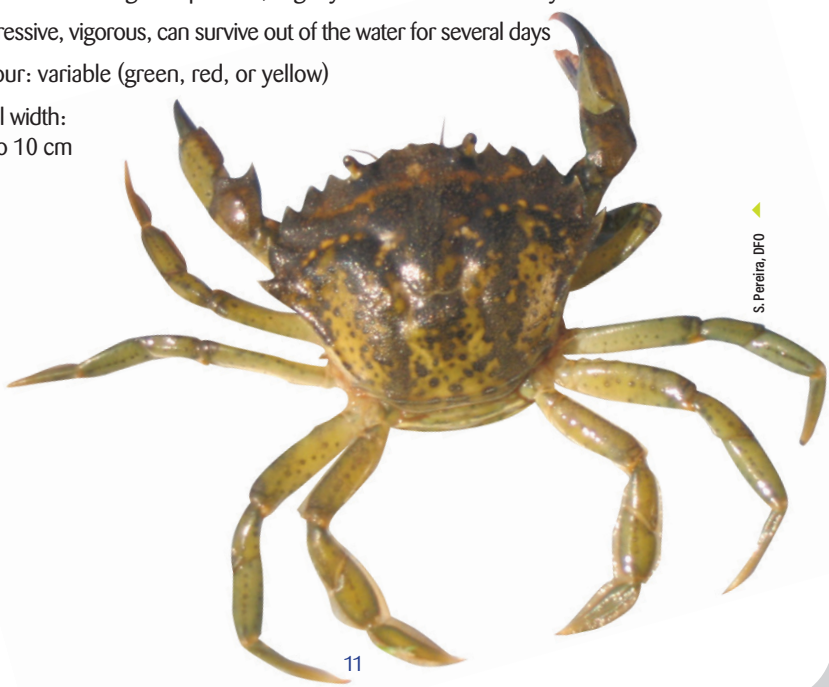
ORIGIN AND DISTRIBUTION

The European green crab is native to Europe and North Africa. It was first observed in the Maritime Provinces in 1951 in the Bay of Fundy and has since spread to many areas throughout New Brunswick, Nova Scotia, and Prince Edward Island.

For more information on the distribution of this species, consult the DFO webpage for European green crab.

CHARACTERISTICS

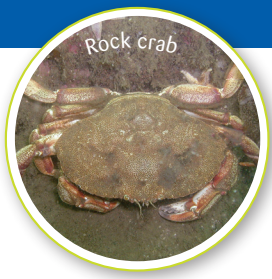
- Shell pentagon-shaped, with five obvious spines on each side and three between the eyes
- Tips of its back legs are pointed, slightly flattened and are hairy
- Aggressive, vigorous, can survive out of the water for several days
- Colour: variable (green, red, or yellow)
- Shell width: up to 10 cm



S. Pereira, DFO

HABITAT

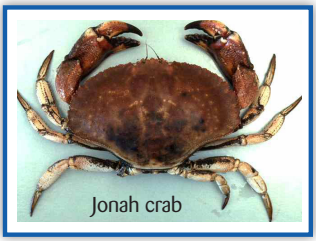
Found in shallow water, generally on muddy, sandy or pebble bottoms or in vegetation. Prefers sheltered areas. Common in salt marshes, on sandy beaches and on rocky coasts. Can tolerate a wide range of salinities.



R. Larocque, DFO

SIMILAR SPECIES

- The green crab is sometimes mistaken for crabs native to the Maritime Provinces, including:
  - The Atlantic rock crab (*Cancer irroratus*) and Jonah crab (*Cancer borealis*), which look similar to one another and are both larger (shell width up to 15 cm for rock crab, 18 cm for Jonah crab) and have oval-shaped shells with nine smooth spines on either side of the eyes
  - The mud crab (*Dyspanopeus sayi*), which is smaller than the green crab (0.5-3 cm adult shell width) and usually has either white or black claw tips (see pg. 14 for photo)
- The green crab can also be mistaken for the invasive Asian shore crab (pgs. 13-14), but the Asian shore crab is approximately twice as small, has only 3 spines, and has banded colouration on its legs



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ECOLOGICAL AND ECONOMIC IMPACTS

- Destroys eelgrass beds, which are essential habitats for juvenile fish and other animals
- Feeds on invertebrates and fish, reducing diversity
- Is an important predator of shellfish; has negative impacts on shellfish aquaculture

PATHWAYS OF INTRODUCTION AND SPREAD

- Moved with shellfish (aquaculture and live seafood)
- Potential for release into the environment when used as live bait
- Crabs and larvae can be moved via watercraft and with gear
- Crawling adults or larvae drifting with the ocean currents (long larval stage of up to 90 days)

ASIAN SHORE CRAB

(*Hemigrapsus sanguineus*)

© Molly Jacobson

ORIGIN AND DISTRIBUTION

The Asian shore crab is a small crab native to East Asia, which is now established in both Europe and North America. In Canada, it was first observed on the southern shores of Nova Scotia and New Brunswick in 2017, and has not been detected elsewhere in Eastern Canada to date.

For more information on the distribution of this species, consult the DFO webpage for Asian shore crab.

CHARACTERISTICS

- Three spines on each side of the shell, just behind the eyes
- Square-shaped shell
- Bulb-like structure in the fork of the male claws, at the base of the movable finger
- Colour: mottled, with reddish, greenish, or dark purple areas on its back; light and dark alternating banding pattern on legs
- Shell width: up to 4.4 cm

S. Kingsbury, DFO

Ansel Oommen, Bugwood.org

HABITAT

The Asian shore crab is usually found on rocky beaches and in shallow water down to 4 m deep, but can also live on sandy and pebble beaches, in mussel or seagrass beds, and in salt marshes. In North America, it has been observed on human-made structures such as rock piers, bulkheads and wooden pilings, and aquaculture gear.

SIMILAR SPECIES

- The Asian shore crab may be confused with:
  - The invasive European green crab (pgs. 11-12), but the green crab doesn't have banded colouration on its legs, has five spines on either side of its shell instead of three, and adult green crabs are 6-10 cm wide, twice the size of adult Asian shore crabs
  - The native mud crab, but mud crabs lack purple colouration, do not have banded patterns on their legs, and have black or white claw tips, distinguishing them from the Asian shore crab


Mud crab

David Mozzoni, iNaturalist
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ECOLOGICAL AND ECONOMIC IMPACTS

- Through predation, reduces abundances of native molluscs, crustaceans, worms, and seaweed
- Competes with native species for food and space, forming dense populations of up to 300 individuals per square meter

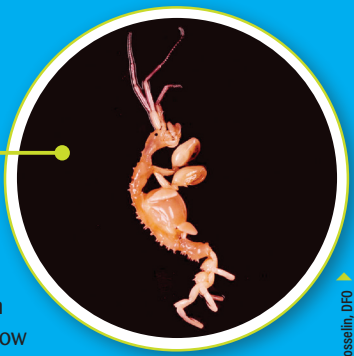
S. Kingsbury, DFO

PATHWAYS OF INTRODUCTION AND SPREAD

- Moved via watercraft, such as in ballast water (larvae, juveniles, or adults)
- Spreads naturally with the ocean currents as larvae or can move along the bottom as juveniles and adults

JAPANESE SKELETON SHRIMP

(*Caprella mutica*)



T. Gosselin, DFO

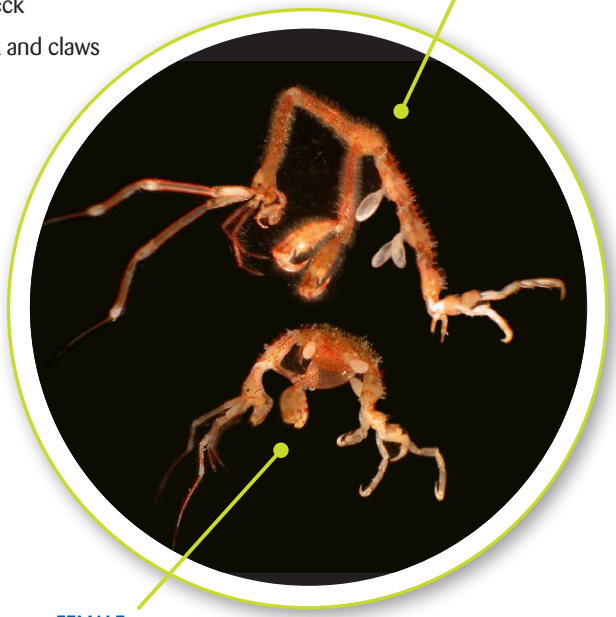
ORIGIN AND DISTRIBUTION

The Japanese skeleton shrimp is an amphipod crustacean from East Asia. It was first reported in Canada in 1998 in Prince Edward Island, and is now found in all of the Maritime Provinces.

For more information on the distribution of this species, consult the DFO webpage for Japanese skeleton shrimp.

CHARACTERISTICS

- Long cylindrical body, males with a long two-segmented neck
- Males very hairy on neck and claws
- Females carry eggs in a ventral (belly) pouch, which is covered with dark red spots
- Colour: variable, from pale orange to red
- Size: up to 3 cm



Melissa Frey

HABITAT

Common on human-made structures such as ropes, buoys, artificial reefs, breakwaters and mussel aquaculture socks, and often very abundant.

SIMILAR SPECIES

There are several native caprellid species (such as *Caprella linearis*) that resemble the Japanese skeleton shrimp. However, these native species grow mainly on natural structures and are not hairy

Jim Greenfield, iNaturalist

ECOLOGICAL AND ECONOMIC IMPACTS

- May compete with mussels for food and space
- Infests human-made structures such as buoys and mussel aquaculture socks, sometimes reaching densities of over 100,000 individuals per square meter

B. Thomas, MAPAQ

PATHWAYS OF INTRODUCTION AND SPREAD

- Moved in residual water (e.g. ballast) and on gear (e.g. ropes, buoys, aquaculture socks)
- Eggs and larvae can spread naturally by drifting in ocean currents

COFFIN BOX BRYOZOAN

(*Membranipora membranacea*)

S. Pereira, DFO

ORIGIN AND DISTRIBUTION

This European invertebrate was first found in the Maritime Provinces in Nova Scotia in 1992. It has been detected and is established in several areas in all three Maritime provinces.

For more information on the distribution of this species, consult the DFO webpage for coffin box bryozoan.

CHARACTERISTICS

- Tiny filter-feeding animals that form colonies with a rough texture
- Colour: white
- Colonies are rounded and can reach over 10 cm in width
- Individuals within colonies are roughly rectangular (coffin-shaped, hence the name "coffin box"), and very small, each about 0.4 x 0.1 mm

Mamey Pratt

I. Bérubé, DFO

HABITAT

This species can be found underwater from the surface to depths greater than 10 m, on kelp and other seaweed, rocks, boat hulls, and other living and non-living surfaces. It grows best in areas with strong currents and/or significant tidal water exchange.

SIMILAR SPECIES

- Coffin box bryozoan can be mistaken for *Electra pilosa* and *Cryptosula pallasiana*, two native bryozoans
- *Electra*'s colonies are shaped differently (star-shaped) while those of *Cryptosula* are thicker and orange-colored

I. Bérubé, DFO

ECOLOGICAL AND ECONOMIC IMPACTS

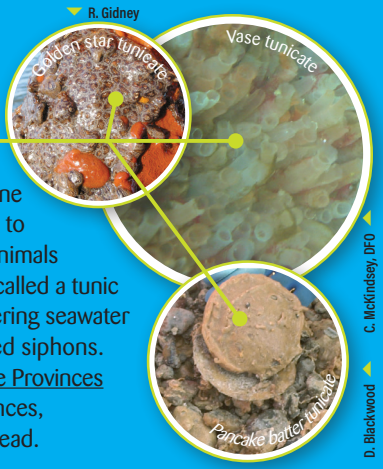
- Forms a crust on kelp, weakening it and causing it to break when exposed to waves
- Proliferation has contributed to substantial declines in kelp abundance; for example, up to 99% loss of kelp in some areas of Nova Scotia
- Disturbs kelp ecosystems, allowing the establishment of invasive seaweeds such as oyster thief and turf algae

Robert Scheibling

PATHWAYS OF INTRODUCTION AND SPREAD

- Larvae moved via watercraft ballast water
- Mostly spreads from larval dispersal with currents. Can also raft on dislodged seaweed or drifting on human-made objects

INVASIVE TUNICATES



R. Gidney

C. McKindsey, DFO

D. Blackwood

Tunicates, also called sea squirts, are small marine animals that spend most of their lives attached to an underwater surface. They are soft-bodied animals with a strong but flexible outer layer, which is called a tunic (hence the name "tunicate"). They feed by filtering seawater through tube-like openings in their body called siphons. The invasive species of tunicates in the Maritime Provinces share many similarities in their habitat preferences, impacts, and pathways of introduction and spread.

HABITAT

Tunicates are typically found in sheltered areas, attached to either natural surfaces (rocks, eelgrass, other animals, etc.) or human-made structures such as boat hulls, buoys, ropes, docks, aquaculture gear, and wharf pilings.

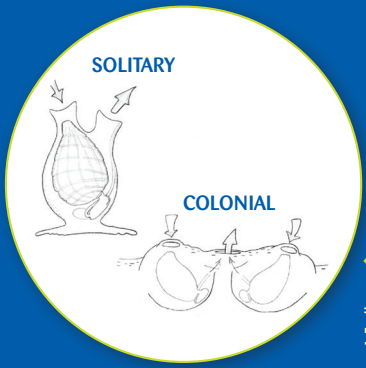
DFO Newfoundland and Labrador Region

M. Desraspes

C. McKindsey, DFO

SOLITARY OR COLONIAL

Tunicates can be either solitary or colonial. Solitary species grow as separate individuals but can form very dense groups. Colonial species are made up of many individual organisms embedded in a shared matrix and form folds, lobes, and jelly-like mats that can cover almost anything underwater.



A. Epelbaum

ECOLOGICAL AND ECONOMIC IMPACTS

- Outcompete other organisms for food and space, thereby altering the natural biological community
- Threaten aquaculture, fishing, and other coastal and offshore activities
- Increase the weight of aquaculture cultivation gear, damaging it and causing the work to be more demanding
- Increase operating costs for shellfish producers and processors (due to the need for rigorous cleaning, for example)

A. Demers, DFO

PATHWAYS OF INTRODUCTION AND SPREAD

- Shellfish movement for aquaculture
- Moved on/in watercraft (ballast, hull fouling, etc.) and on fishing and aquaculture gear
- Colonial tunicates can spread as colony fragments drifting in currents

SOLITARY TUNICATES

VASE TUNICATE
(*Ciona intestinalis*)

S. Pereira, DFO

ORIGIN AND DISTRIBUTION

The first record of vase tunicate, a northern European species, in the Maritime Provinces was in southern New Brunswick in 1852. It was uncommon in the region until 1997, when large populations of the species were discovered on the southwest coast of Nova Scotia. It has now been detected in all three Maritime provinces.

For more information on the distribution of this species, consult the DFO webpage for vase tunicate.

CHARACTERISTICS

- Body cylindrical, unstalked, translucent, soft, and smooth
- Solitary but can form dense aggregations
- Colour variable: from light greenish-yellow to orange or pink
- Size: up to 15 cm in length

A. Demers, DFO

B. Vercaemer, DFO

CLUBBED TUNICATE

(*Styela clava*)

DFO

ORIGIN AND DISTRIBUTION

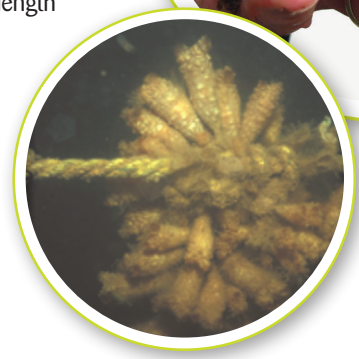
The clubbed tunicate, native to the western Pacific, is invasive in many parts of the world. In the Maritime Provinces, it was first reported in 1997 in Prince Edward Island. It is currently found in several bays of Prince Edward Island and in some areas of Nova Scotia.

For more information on the distribution of this species, consult the DFO webpage for clubbed tunicate.

CHARACTERISTICS

- Body firm and wrinkled with little bumps, shaped like a water-filled wineskin. Presence of a solid stalk. Leathery texture
- Solitary, but may grow in very dense clumps
- Colour: brown
- Size: up to 18 cm, with the stalk accounting for one third of its length

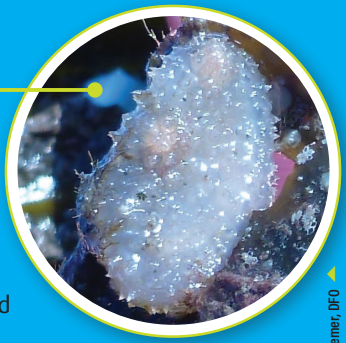
N. Simard, DFO



F. Hazel, DFO

EUROPEAN SEA SQUIRT

(*Ascidiella aspersa*)



B. Vercaemer, DFO

ORIGIN AND DISTRIBUTION

This European tunicate was first detected in the Maritime Provinces on the southwest Atlantic coast of Nova Scotia in 2012. To date, it has not been observed in New Brunswick or Prince Edward Island, although it has spread within Nova Scotia.

For more information on the distribution of this species, consult the DFO webpage for European sea squirt.

CHARACTERISTICS

- Body egg shaped, semi-translucent
- Firm, slightly bumpy surface
- Solitary but can develop dense aggregations
- Color: grayish with pinkish hue
- Size: up to 13 cm in length

B. Vercaemer, DFO

B. Vercaemer, DFO

B. Vercaemer, DFO

SOLITARY TUNICATES: SIMILAR SPECIES

- Invasive solitary tunicates (vase tunicate, clubbed tunicate, and European sea squirt) can be easily distinguished from one another by differences in their colour, texture and body shape
- Sea potatoes (*Boltenia ovifera*), sea grapes (species in the genus *Molgula*), and sea peaches (*Halocynthia pyriformis*) are native solitary tunicate species that may be confused for the vase and clubbed tunicates, or the European sea squirt. However, these native solitary tunicates usually grow alone or in small groups (not found in dense aggregations), and differ in their shape and texture from invasive tunicates
  - The sea potato is shaped like a rattle and has a long stalk that can reach 13 cm
  - Sea grapes are spherical, with two siphons close together at the top
  - The sea peach's body is firmer and more rounded, and its skin is rough

R. Bernier, DFO

R. Bernier, DFO

C. Nozères, DFO

C. Nozères, DFO

C. McKindsey, DFO

COLONIAL TUNICATES

GOLDEN STAR TUNICATE
(*Botryllus schlosseri*)

M. Desraspes

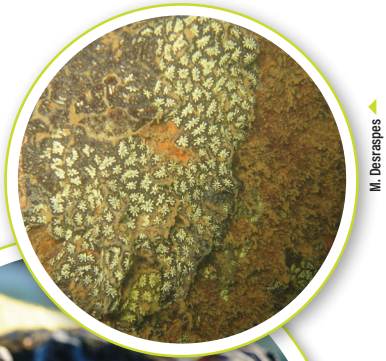
ORIGIN AND DISTRIBUTION

The golden star tunicate is thought to be native to Europe and possibly the east coast of the United States, and is now widely distributed throughout the world. It has been reported in the Maritime Provinces for several decades, and is now established throughout much of the region.

For more information on the distribution of this species, consult the DFO webpage for golden star tunicate.

CHARACTERISTICS

- Dense colonies of many small (1-2-mm) individuals
- Individuals that make up the colony form star or flower-shaped arrangements
- Colour variable: orange, yellow, red, greenish grey, violet, dark grey, or black
- Colony may reach 10 cm in size



M. Desraspes

DFO Newfoundland and Labrador Region

I. Bérubé, DFO

VIOLET TUNICATE

(*Botrylloides violaceus*)

I. Bérubé, DFO

H Gartner

ORIGIN AND DISTRIBUTION

The violet tunicate originates from Northeastern Asia. It was first observed in the Maritime Provinces on the southwest coast of Nova Scotia in 2001. It is now widely distributed in Nova Scotia, Prince Edward Island, along the south coast of New Brunswick, and in some areas of eastern New Brunswick.

For more information on the distribution of this species, consult the DFO webpage for violet tunicate.

CHARACTERISTICS

- Dense colonies of many small (2-4-mm) individuals
- Individuals within the colony may be distributed randomly or in a network of curving tracks
- Colour variable: whitish, yellow, orange, reddish-brown, violet
- Colony size often reaches 10 cm

S. Pereira, DFO

PEI-DFARD

PANCAKE BATTER TUNICATE

(*Didemnum vexillum*)

J. Martin, SABS

ORIGIN AND DISTRIBUTION

The pancake batter tunicate is likely native to Japan. It was first observed in the Maritime Provinces on the Bay of Fundy coast of Nova Scotia in 2013. To date, the distribution of this species is believed to be limited to the Bay of Fundy (New Brunswick and Nova Scotia coasts) and southern Nova Scotia.

For more information on the distribution of this species, consult the DFO webpage for pancake batter tunicate.

CHARACTERISTICS

- Dense colonies that resemble pancake batter
- Colour variable: white, cream, yellow or light brown
- Colony size is highly variable but colonies can measure over 100 cm long
- Individuals within colonies are 1-2 mm long

P. Barter

P. Valentine – D. Blackwood, USGS

I. Bérubé, DFO

COMPOUND SEA SQUIRT

(*Diplosoma listerianum*)

R. Groeneveld

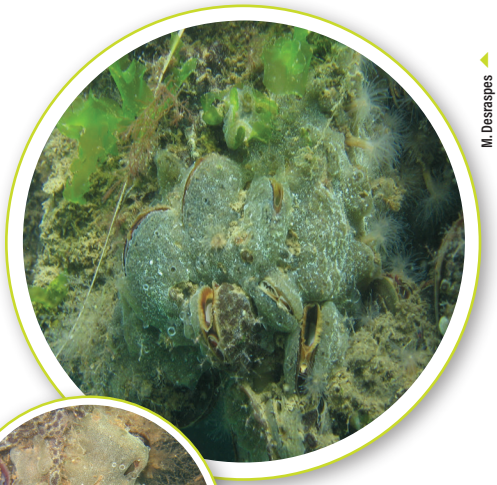
ORIGIN AND DISTRIBUTION

The compound sea squirt most likely originates from Northern Europe, and was first observed in the Maritime Provinces on the southwest coast of Nova Scotia in 2012. It has since been reported in other areas of Nova Scotia and in southern New Brunswick.

For more information on the distribution of this species, consult the DFO webpage for compound sea squirt.

CHARACTERISTICS

- Dense colonies that are soft, jelly-like, and translucent
- Forms fragile sheets which are hard to remove without tearing
- Colour: darkish grey
  - Large openings sometimes spotted with white dots
- Colonies can reach up to 20 cm in size
- Individuals within colony are cylindrical and approximately 2 mm long

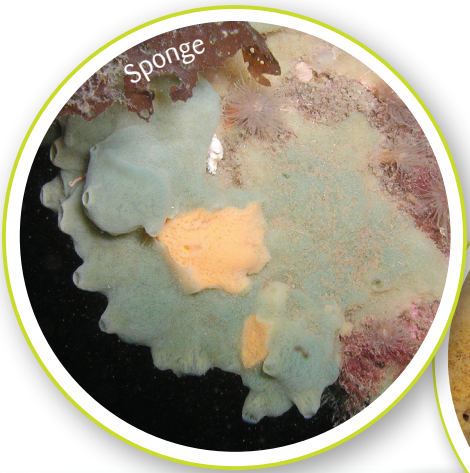


M. Desraspes

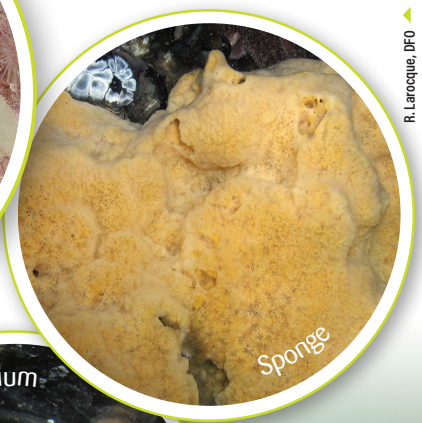
M. Desraspes

COLONIAL TUNICATES: SIMILAR SPECIES

- Invasive colonial tunicates (golden star tunicate, violet tunicate, pancake batter tunicate, and compound sea squirt) can be distinguished from each other by differences in their texture, the shape of their individual units, and sometimes coloration
    - The pancake batter tunicate and violet tunicate can be mistaken for one another, but the pancake batter tunicate cannot be found in red or orange
- The compound sea squirt and pancake batter tunicate may resemble certain types of sponges, but their texture is jelly-like whereas sponges are porous
- The compound sea squirt may also be mistaken for the native bryozoan *Alcyonidium*, but *Alcyonidium* does not have the characteristic openings of tunicates



R. Larocque, DFO



R. Larocque, DFO

I. Bérubé, DFO

C. McKindsey, DFO

To report an aquatic invasive species sighting to Fisheries and Oceans Canada, please go to:

dfo-mpo.gc.ca/contact/invasive-species-especes-envahissantes-eng.html

Fisheries and Oceans Canada. 2024. Aquatic Invasive Species: Identification Booklet of Marine Species in the Maritime Provinces of Canada. 30 p.

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