This guide identifies 15 of about 40 marine exotic (introduced) species that may be found along the New England coast. It includes 2 anticipated exotic and a few native species to illustrate distinguishing comparative traits. Some exotic species, such as the periwinkle snail, green fleece alga, green crab and many tunicates (sea squirts), have been here for a long time and are very common. Others, such as the Asian shore crab, the purple anemone, and the “mystery” tunicate, are relatively new arrivals. The “down under” barnacle and shore crab have not yet been observed on our shores. You may find exotic and native species attached to rocks, piers, floats, and other structures; under rocks; in the water; or in wrack at the high tide line.

Definitions
intertidal - the area between high and low tide
subtidal - areas below low tide
estuarine - where fresh and sea water mix
carapace - the shell of a crustacean
zooid - individual animal of colonial tunicate or bryozoan

* indicates first record of organism at this location, may be found further north or south
§ organism may be found further north or south

Club Tunicate

Styela clava

description brown, tough, bumpy exterior, stalked; up to 6 in (15 cm)
distribution introduced from Japan; Maine to New Jersey; attached, docks and protected areas; shallow subtidal

Star Tunicate

Botryllus schlosseri

description small zooids (0.06 in) with white or yellow markings; colonial, star-like appearance; up to 3-6 in (7.5-15 cm)
distribution introduced from Europe; Bay of Fundy to Chesapeake; attached, docks and protected areas; shallow subtidal

Orange or Red Sheath Tunicate

Botryllodes violaceus

description small zooids (0.1 in), arranged in loose circles, rows, or dense clusters; bright orange or reddish or dull purple; up to 5 in (13 cm)
distribution introduced from Pacific; Maine to Virginia§; attached, docks, protected areas; overgrows other organisms; shallow subtidal

Tunicate

Ascidella aspersa

description grayish to whitish with pink tinges; rigid surface with papillae, gritty, elongate; attached on side; up to 2 in (5 cm)
distribution introduced from Europe; Massachusetts to Connecticut; attached, docks and protected areas; shallow subtidal

Diplosoma Tunicate

Diplosoma listerianum

description smooth, thin encrusting colony, grayish tinge, often with small white spots; up to 8 in (20 cm)
distribution introduced; New Hampshire to Connecticut; attached, docks, protected areas; overgrows other organisms; hard subtidal surfaces

“Mystery” Tunicate

Didemnum sp., aff. D. lahillei

description cream to white; microscopic individual zooids; grizzly, large colonies with hanging lobes; colonies up to 12-18 in (30-46 cm)
distribution possibly introduced from Pacific; New Hampshire to Connecticut§; attached, hangs into water; docks and protected areas; subtidal

“Down Under” Barnacle

Elminius modestus

description usually smooth edges, 4 plates; up to 1 in (2.5 cm)
distribution anticipated introduction from Europe (native to New Zealand/Australia); hard surfaces; intertidal

Northern Rock Barnacle

Semibalanus balanoides

description the most common New England intertidal barnacle; 6 plates; broad basal plate; up to 1 in (2.5 cm)
distribution native; northern Atlantic to Delaware; hard surfaces; intertidal to shallow subtidal

Barnacles

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Sea Anemones

Purple Anemone
Sagartia elegans
description up to 200 tentacles; magenta to pink tentacles, tan to brown body; up to 8 in (20 cm)
distribution introduced from Europe; Salem, MA; attached, protected areas; subtidal to 30 ft (9 m)

Striped Anemone
Dianthus lineata
description up to 50-60 tentacles; white or orange stripes, greenish; up to 1.5 in (4-6 cm)
distribution introduced from the Pacific; Massachusetts to Florida; attached, protected areas; subtidal

Frilled Anemone
Metridium senile
description 100 to 1,000 tentacles; pink, cream, brown, sometimes striped or blotchy; up to 18 in (46 cm)
distribution native; Arctic to Delaware Bay; attached; intertidal to deeper than 100 ft (30 m)

Green Fleece Alga
Codium fragile
description yellow to pink to burgundy; flat, silky blades; simple or divided; single or in clumps; up to 15 in (40 cm) wide and 6 ft (2 m) long
distribution introduced from the Pacific; Nova Scotia to North Carolina; attached to hard surfaces, rocks, shells; bays, subtidal

Seaweeds

Sea Anemones

Mollusks

Common Periwinkle
Littorina littorea
description shell usually dark, transverse brown stripes on tentacles; rarely developed sutures on whorls; up to 1.7 in (4 cm)
distribution introduced from Europe; Nova Scotia to Virginia; prefers hard surfaces; estuarine; intertidal to subtidal during winter

Rough Periwinkle
Littorina saxatilis
description light shell, longitudinal stripes on tentacles, deep sutures on whorls; up to 0.5 in (1.3 cm)
distribution native; Arctic to New Jersey; hard surfaces; splash zone to intertidal

Yellow or Smooth Periwinkle
Littorina obtusata
description brown, olive, yellow or banded shell with no spire; round shell; up to 0.5 in (1.3 cm)
distribution native; Arctic to Long Island; on rockweed; intertidal

Eastern (Virginia) Oyster
Crassostrea virginica
description variable shape, elongated; grayish outside, single purple muscle scar; up to 10 in (25 cm)
distribution native; southern Maine to Gulf of Mexico; under rocks, systems; intertidal to subtidal

European Oyster
Ostrea edulis
description shell rounder than native oyster; grayish white, slightly scalloped, white muscle scar; up to 8 in (20 cm)
distribution introduced from Europe; Maine to Rhode Island; estuarine; intertidal to subtidal

Isopods

Asian Isopod
Synisodoma japonica
description elongated, flattened, wider in middle, mottled brown and tan; distinguished from native species by blunt, concave tail; up to 1.25 in (3 cm)
distribution introduced from the Pacific; Long Island Sound to South Carolina; hydroid fouling species; feeds on hydroids

Shore Crab
Hemigrapsus sanguineus
description banded legs; square shape; red spots on claws, variable color; distinguished from H. sanguineus by tuft of fuzz on claw rather than between claws; up to 1 in (2.5 cm)
distribution anticipated introduction from Europe (native to Pacific); under rocks,系统; intertidal to subtidal

Asian Shore Crab
Hemigrapsus sanguineus
description banded legs, red spots on claws, variable color; square shape, 3 marginal teeth; up to 1 in (2.5 cm)
distribution introduced from Asia; Maine to North Carolina; prefers rocks, cobble; intertidal to subtidal in winter

Crabs

Green Crab
Carcinus maenas
description green, reddish orange, or tan carapace with darker mottling; 3 marginal teeth; up to 3.6 in (7.6 cm)
distribution introduced from Europe; Nova Scotia to Delaware; hard and soft surfaces; intertidal to shallow subtidal

Eastern (Virginia) Oyster
Crassostrea virginica
description variable shape, elongated; grayish outside, single purple muscle scar; up to 10 in (25 cm)
distribution native; southern Maine to Gulf of Mexico; under rocks, systems; intertidal to subtidal

We are asking for your help to study the distribution of a few particular species:
- **introduced**
- **native**

If you see one of the exotic species, please send us information on the location (habitat, beach, town, state), time, date, size, abundance, and special comments by mail, email or web site (on back). Photos and preserved specimens are welcome. We appreciate your contributions to this research project.