AQUATIC LIFE

GOWANUS FIELD GUIDE

2020 EDITION

GOWANUS CANAL CONSERVANCY

Cover photo: Jordan Heiden

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GOWANUS FIELD GUIDE

2020 EDITION

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GOWANUS CANAL CONSERVANCY

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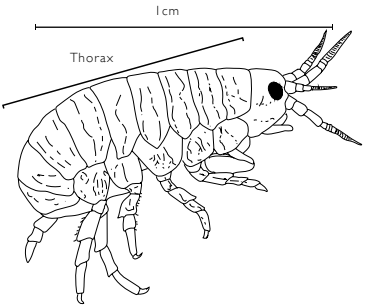
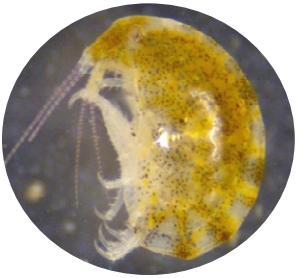
AMPHIPODA & ISOPODA

• *Amphipods & Isopods*

GAMMARIDEA

Gammarid Amphipod

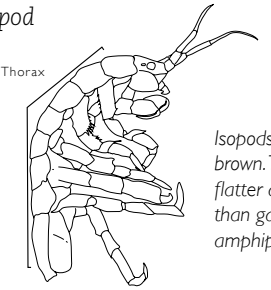




Gammarid Amphipods are grey/brown. Fatter and rounder than isopods.

ISOPODA

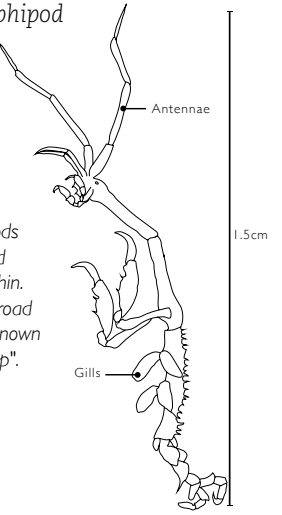
Isopod



Isopods are grey/brown. Thorax is flatter and thinner than gammarid amphipods.

CAPRELLIDAE

Caprellid Amphipod

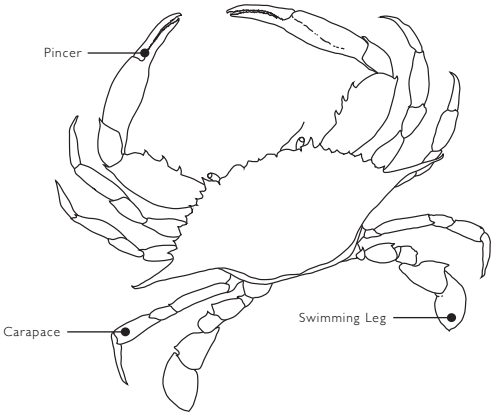


Caprellid Amphipods are grey/green and brown. Long and thin. Females have a broad pouch near gills. Known as "skeleton shrimp".

Orders: Amphipoda & Isopoda
Native to: These small crustaceans are found all around the world.
Habitat: Found in a variety of habitats. Can build tubes that they will live in, or wrap themselves in seaweed for protection.
Diet: Detritovores, scavengers, omnivores, predators. Eating behaviors vary from species to species. They can scrape organic material, catch floating particles, filter feed, capture live animals, and collect food with their antennae.
Ecosystem Services: Critical in the food web as prey for larger animals. They can also help in controlling algae growth.
Locomotion: Amphipods often swim by flexing top to bottom in a "C" shape and can move relatively quickly. Isopods live on the bottom of their habitats and move by crawling.
Notes: Citizen scientists will likely encounter a few different species of each group of these crustaceans in the Gowanus Canal. It is difficult to identify these animals down to species level.
Gowanus: Can be found in traps and sediment nearly year-round

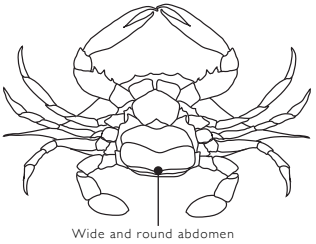
CALLINECTES SAPIDUS

• *Atlantic Blue Crab*

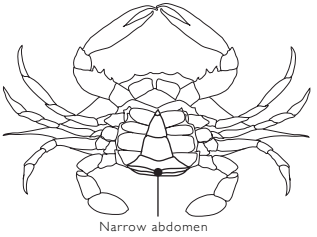


Legs and claws are bright blue. Oval carapace with pointed ends. Brownish color. Adult females have red tipped pincers.

Female Underside



Male Underside



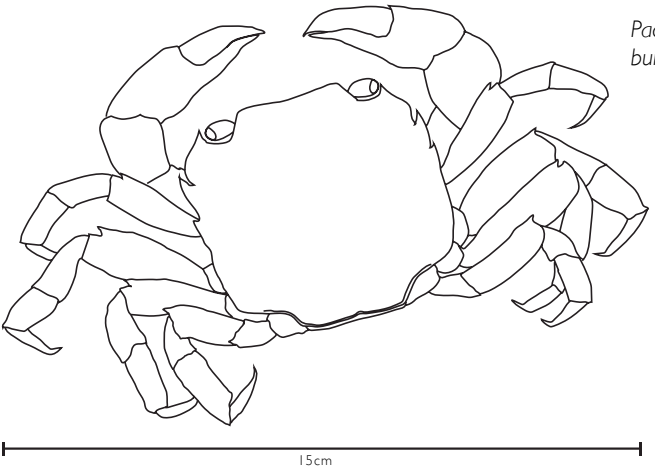
The above graphic can help identify the gender of most other crabs.

Infraorder: Brachyura
Native to: N. American Atlantic Coast and Gulf of Mexico
Habitat: Estuaries. Female blue crabs lay eggs in the ocean (females mate once in their lives).
Diet: Blue crabs eat bivalves (oysters, clams, and mussels), other crabs and crustaceans, snails, fish, plants, and other blue crabs in their soft shell state.
Ecosystem services: Keystone species in estuary food webs as both predators and prey
Edible: Economically important fishery
Special features: "Callinectes sapidus" means savory, beautiful swimmer. The hind legs that allow the crab to swim can rotate 20-40 times per minute.
Gender: Crabs are sexually dimorphic, which means males and females look different. Examine the size of its abdomen to tell the difference between male and female. This works for nearly any crab.
Gowanus: Blue crabs can be found along the length of the canal, often burrowing in wooden bulkheads between slats of cribbing. Blue crabs are generally found from May - November, as they "hibernate" in the winter. Female crabs may be seen with eggs under their apron during this time.

HEMIGRAPSUS SANGUINEUS

• *Pacific Shore Crab*

Pacific Shore Crab burrowing in a bulkhead.

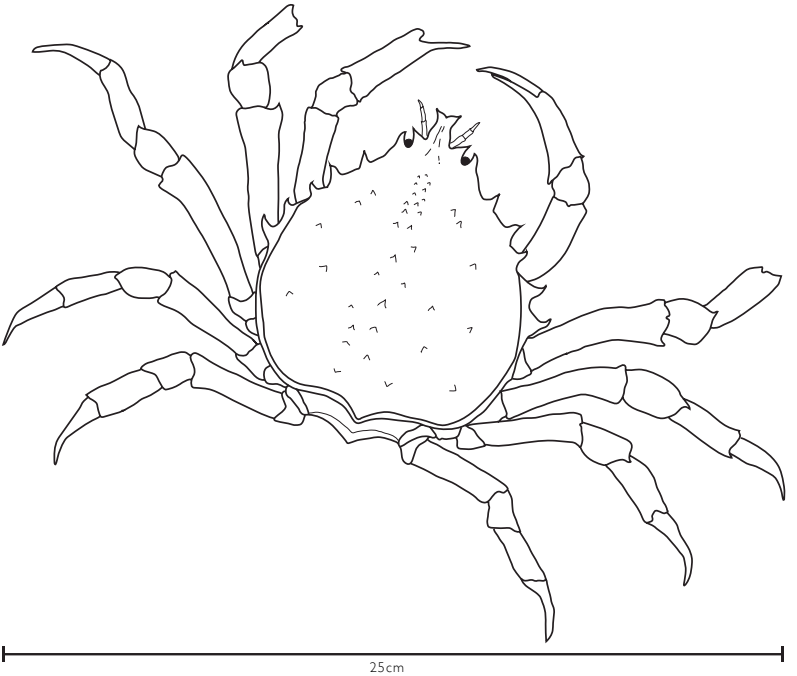


Square shaped carapace. Dark brown, tan, dark red. Alternating bands and large circular pattern of dark red and tan on legs.

Infraorder: Brachyura
Native to: N.Western Pacific
Habitat: Subtidal and intertidal shorelines, especially rocky environments
Diet: Young fish, invertebrates, and algae
Non native: Often out competes native species for resources, eats native species, reproduces frequently. First seen in New Jersey in 1988 and was likely introduced from the ballast tanks of large ships.
Size: The scaled image represents an adult crab. Observers are most likely to come across young crabs that will look much smaller.
Gowanus: Seen burrowing along the canal in gaps between sections of concrete bulkhead.

LIBINIA EMARGINATA

• *Portly Spider Crab*



Triangular shaped carapace. Brownish/tan. They camouflage themselves with other animals and algae. Known as "decorator crabs" because of their algae camouflage.

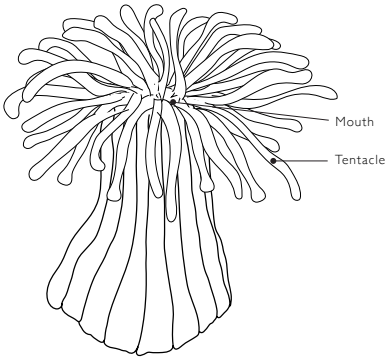
Infraorder: Brachyura
Native to: N. American Atlantic Coast, Gulf of Mexico
Habitat: Estuaries and coastal waters
Diet: Slow, nonaggressive scavengers. Sensitive organs on their legs help them find food.
Ecosystem services: Recycle organic and inorganic material because they scavenge.
Reproduction: Mate in large groups for protection.
Other: These crabs walk forward, unlike most crabs that walk side to side, but are capable of walking side to side. They have poor eyesight.
Gowanus: Portly spider crabs can be found in traps during the warmer months of the year.

CNIDARIA

• *Cnidarians*

DIADUMENE LEUCOLENA

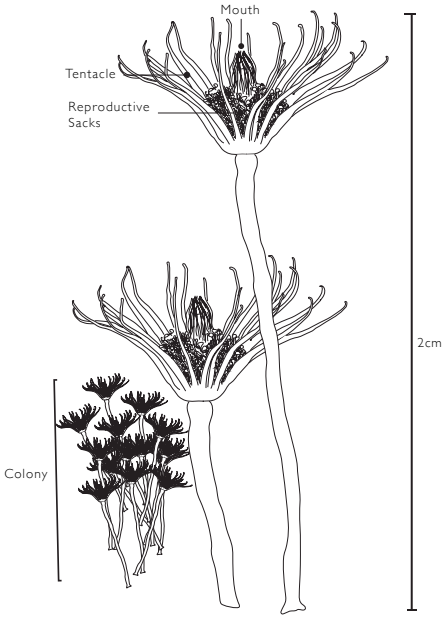
Ghost Anemone



Ghost Anemone are transparent, whitish or pinkish. When pulled out of the water they will retract their tentacles.

ECTOPLEURA CROCEA

Pink-Mouthed Hydroid



Pink-Mouthed Hydroids are pink in color. Clumped together and fuzzy looking. Most likely seen in summer.

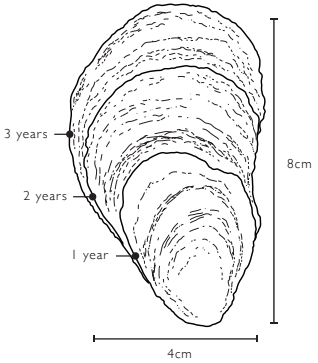
Phylum: Cnidaria. This is a group of animals that include jellyfish, corals, and anemones. They are named for their special stinging cells that help them capture prey.
Native to: D. leucolena: N. American Atlantic Coast; E. crocea: N. American Atlantic Coast.
Habitat: D. leucolena: Intertidal, often found on hard surfaces like docks and rocks, but can also be found on the hard surfaces of other animals; E. crocea: Intertidal, often found on hard surfaces like docks and rocks.
Diet: D. leucolena: zooplankton, uses its tentacles to stun its prey; E. crocea: zoo/phytoplankton and detritus, paralyzes prey with tentacles
Ecosystem services: E. crocea helps keep their ecosystem clean by eating floating plankton and detritus in the water and also play an important role in the food chain as prey for other animals.
Other: D. leucolena can move fairly quickly at a few inches in a few hours.
Gowanus: The ghost anemone was observed along the dock near the dead end of Smith Street close to the mouth of the canal.

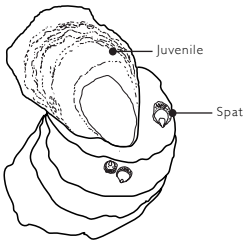
BIVALVA

• *Bivalves*

CRASSOSTREA VIRGINICA

Eastern Oyster

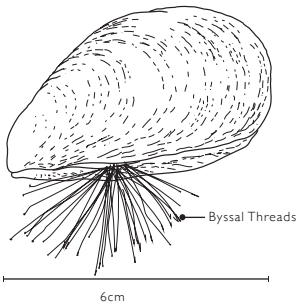




In the warm months oysters grow quickly, but are dormant in the winter when the new shell breaks down and constructs a ridge. Each visible ring can help determine an approximate age.

MYTILUS EDULIS

Blue Mussel



Cluster of Blue Mussels

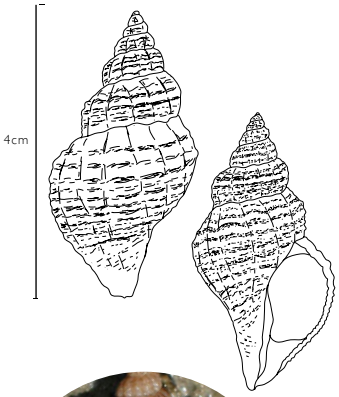
Class: Bivalvia; bivalves have two hinged shells: bi(two)valve(shell)
Native to: C. virginica: N. American Atlantic Coast and Gulf of Mexico
M. edulis: N. American Atlantic Coast., close relatives live in oceans all around the world
Habitat: Intertidal and subtidal regions of estuaries
Diet: Filter feeders eat plankton (tiny animals and algae) suspended in the water. Adult oysters can filter 50 gallons of water per day.
Ecosystem services: Help increase the clarity of water by removing particles and processing chemicals that might cause an imbalance in the ecosystem
Ecosystem engineers: They help build habitat for other animals by creating reefs.
Edible: Farmed and wild caught. Eaten raw or cooked. Economically important fisheries.
Attachment: Oysters cement themselves to a structure. Mussels use their byssal threads to stay in place; they can reattach if they are removed.
Gowanus: Oysters were once abundant in this former salt marsh. They are now installed in cages hanging from ropes on the esplanades at Whole Foods. They have also been spotted near the mouth of the canal clinging to concrete and stone.

GASTROPODA

• *Snails*

UROSALPINX CINEREA

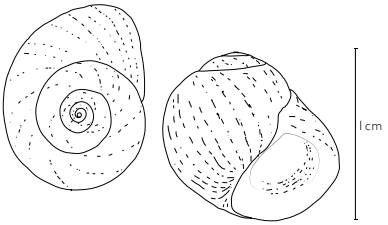
Atlantic Oyster Drill



Yellowish tan colored shell. Usually found on or near oysters. Eggs are greyish yellow.

LITTORINA SPP.

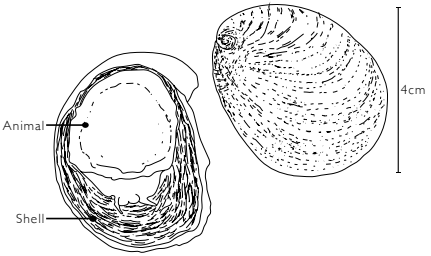
Periwinkle



Yellow, tan, or brown

CREPIDULA FORNICATA

Slipper Shell



Light pinkish pattern on shell. Could be confused with juvenile oysters. Often found stacked on top of one another.

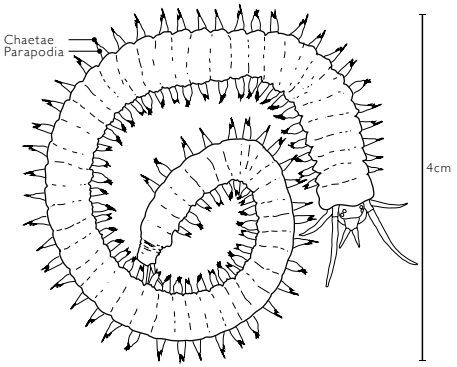
Class: Gastropoda
Native to: U. cinerea: N. American Atlantic Coast; Littorina SPP.: There are different species of this genus that live throughout the world.
C. fornicata: N. American Atlantic Coast
Habitat: Intertidal and subtidal regions of estuaries
Diet: U. cinerea: oysters, mussels, barnacles, and other invertebrates; Littorina SPP.: algae; C. fornicata: plankton and detritus.
Edible: There have been movements to create a market for slipper shells and oyster drills as food because they are invasive in some places and can be bad for shellfish farming.
Other: U. cinerea senses chemicals in the water to find prey. They drill through the shells of oysters, mussels, and other animals using a special organ called a radula, a tongue-like organ that acts like a conveyor belt of small teeth to scrape away at surfaces.
Gowanus: The periwinkle has been spotted near the mouth of the canal on a rip rap stone edge near Columbia Street.

POLYCHAETA

• *Polychaetes*

NEREIS SPP.

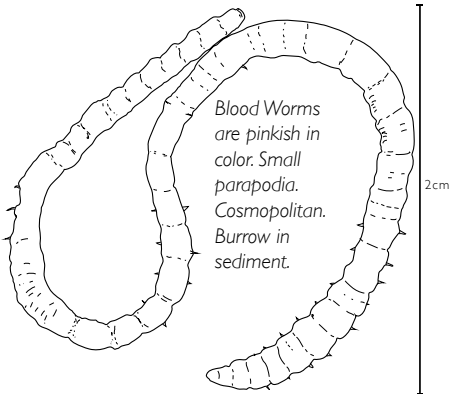
Clam Worm



Clam Worms have strong jaws, well developed parapodia. Crawls along the bottom and in crevices.

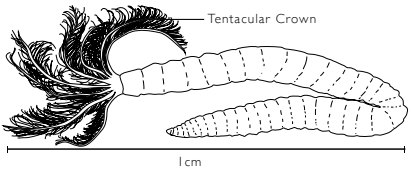
GLYCERA SPP.

Blood Worm



FABRICIA SPP.

Fan Worm

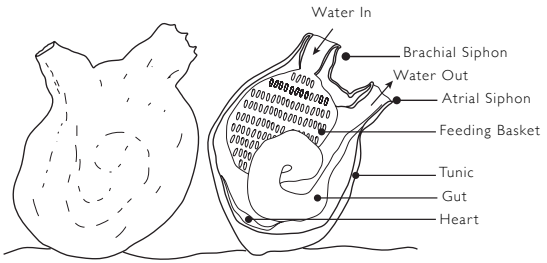


Fan Worms are tube dwelling. They build tubes using mucus and materials they find. Tubes help keep them safe and support their bodies.

Class: Polychaeta
Native to: Different species found throughout the world's oceans
Habitat: Nereis spp.: Epibenthic (crawls along the bottom), often found in mussel communities, rocks, and crevices.; Glycera spp.: Cosmopolitan, intertidal.; Fabricia spp.: Intertidal tube dwellers
Diet: Nereis spp.: Predators with strong jaws that eat small invertebrates; Glycera spp.: Deposit feeders that eat organic particles in sediment.; Fabricia spp.: Suspension feeders that sort through particles floating in the water using their tentacular crown
Ecosystem services: Help with "bioturbation" which means they help break down organic matter and make it available for other animals to use.
Special features: Polychaete worms are identifiable because of their parapodia (leg structures) that have bundles of hairs on the end called "chaetae". Polychaetes use these appendages to move.
Gowanus: Found often in sediment, occassionally in traps

TUNICATA
• *Tunicates*

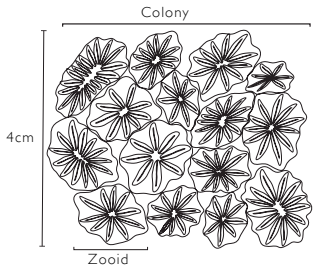
MOLGULA MANHATTENSIS
Northern Sea Squirt



brownish grey and somewhat transluscent

Northern Sea Squirt are solitary tunicates. Translucent when clean, often covered in mud.

BOTRYLLUS SCHLOSSERI
Golden Star Tunicate



can be black, dark purple, blue, or orange

Golden Star Tunicate has a flower pattern; each "petal" is an individual that takes in water and releases it from the center of the "flower" or zooid.

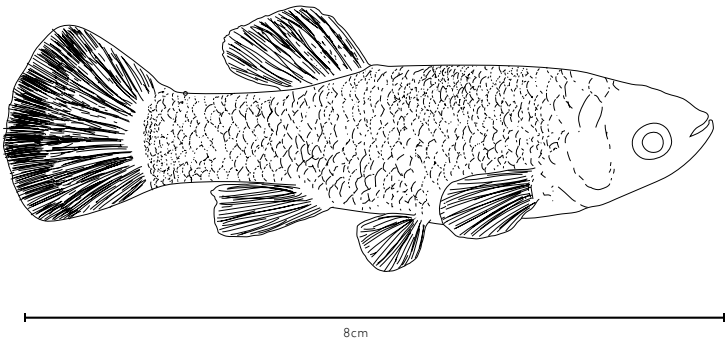
BOTRYLLOIDES VIOLACEUS
Orange Sheath Tunicate

can be orange, red or purple

Phylum: Tunicata; named for their outer covering layer called a "tunic".
Native to: M. manhattensis: N. American Atlantic Coast and Gulf of Mexico; B. schlosseri: N. American Atlantic Coast, Medditteranean Sea, and North Sea; B. violaceus: Pacific Coast.
Habitat: Intertidal and subtidal, tolerant of a wide range of temperatures and salinity.
Ecosystem services: Helps increase the clarity of the water they live in by filter feeding.
Identifying attributes: B. schlosseri and B. violaceus can be differentiated by their form rather than color since they often look like orange slime. B. schlosseri has a flower shape. M. manhattensis will squirt water out of its siphon if gently pressed.
Coloration: B. schlosseri reproduces asexually by budding in a colony (making the same color) and sexually, causing genetic variations that result in a variety of colors.
Gowanus: Can be found on any hard surface around April/May, including traps, settlement plates, and pilings.

FUNDULUS HETEROCLITUS

• *Mummichog*

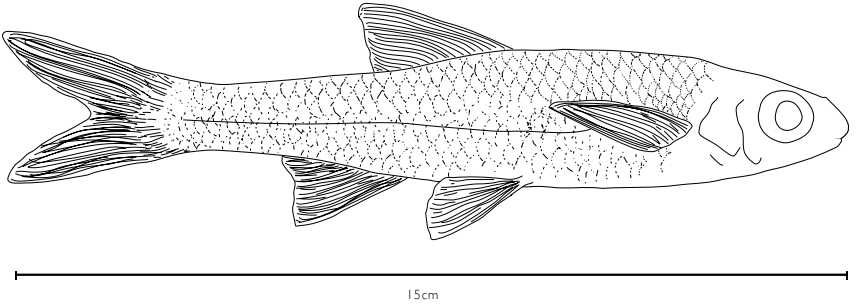


Dark green/brown. Changes color on sides and underside during mating season. Resident

Family: Fundulidae
Native to: N. American Atlantic Coast
Habitat: Protected coastal habitats, especially estuaries
Diet: Omnivores that eat algae and small animals including crustaceans and small fish
Ecosystem services: Plays an important role in the food web as prey for larger predators
Scientific research: Used as a model organism in environmental studies because of their tolerance to different environments
Gowanus: A common fish in the canal, mumichogs can be seen swimming near Sponge Park at the dead end of 2nd Street and along the edge of the Salt Lot. They are found mostly in or near the sediment, but can also be found in traps year-round.

MENIDA MENIDA

• *Atlantic Silverside*

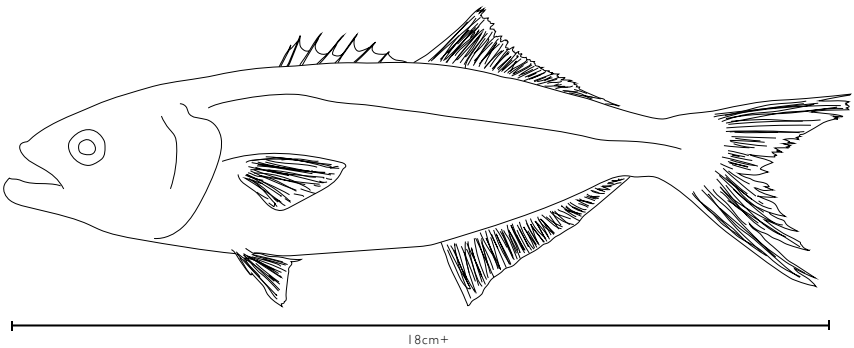


Mostly silver and white. Silver stripe runs down the side. School in large numbers. Transient

Family: Atherinopsidae
Native to: N. American Atlantic Coast
Habitat: Estuaries, near the shore, often found in seagrass beds
Diet: Omnivores that eat algae and small animals, including worms and crustaceans
Ecosystem services: Plays an important role in the food web by feeding larger fish and shore birds
Special features: Silver color and schooling behavior is used to confuse predators. The coloration makes it difficult to tell what direction they are heading in. Schooling behavior makes it less likely for an individual to get eaten.
Gowanus: Atlantic silversides have been caught and released near the dead end of 2nd Avenue and have been spotted swimming near the mouth of the bay. They can be seen on the top of the water because of their shimmer.

POMATOMUS SALTATRIX

• *Bluefish*

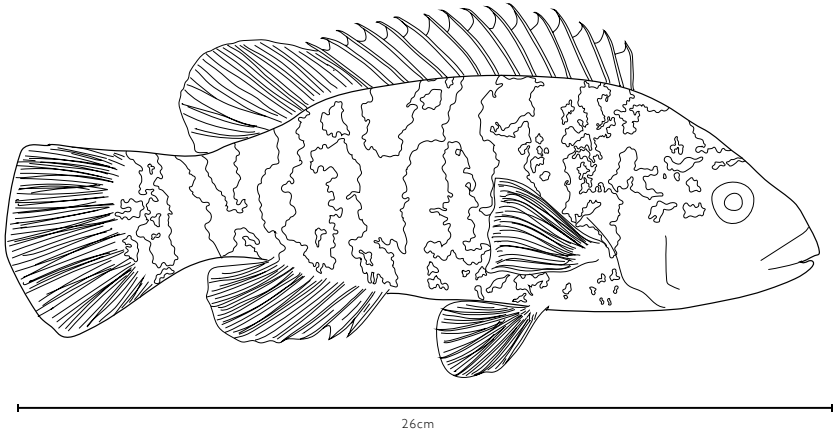


Light blue and silver. Sharp spines on fins. Transient.

Family: Pomatomidae
Native to: Temperate coastal waters throughout the world, except the Eastern Pacific.
Habitat: Pelagic fish (live in water column, not bottom or shore) that are also found in estuaries.
Diet: Small forage fish
Fishery: Sport fish. Management of this fishery is important because bluefish are overfished world wide.
Other: Bluefish migrate in schools through the open ocean to find warmer waters in the winter months.
Gowanus: Bluefish can be found mainly in the summer months

TAUTOGA ONITIS

• *Blackfish*



Dark green/brown. White blotchy pattern. Sharp spines on fins. Transient.

Family: Labridae
Native to: N. American Atlantic Coast
Habitat: Nearshore rocky environments
Diet: Mussels, gastropods, crustaceans
Ecosystem services: Predation is important in maintaining biodiveristy of invertebrate populations. For instance, by eating mussels, they clear space for other animals to settle and live.
Fishery: Primarily a sport fish. At risk of overfishing because of slow reproduction and growth.
Gowanus: Blackfish can be spotted nearly year-round

CITATIONS & CREDITS

GAMMARID AMPHIPOD
Illustration: Emma Garrison
Text: Emma Garrison
Layout: Jordan Heiden

CAPPRELID AMPHIPOD
Illustration: Emma Garrison
Text: Emma Garrison
Layout: Jordan Heiden

ISOPOD
Illustration: Emma Garrison
Text: Emma Garrison
Layout: Jordan Heiden

ATLANTIC BLUE CRAB
Illustration: Emma Garrison
Photograph: The Center for the Urban River
Text: Emma Garrison
Layout: Jordan Heiden

PACIFIC SHORE CRAB
Illustration: Emma Garrison
Photograph: Gowanus Canal Conservancy
Text: Emma Garrison
Layout: Jordan Heiden

PORTLY SPIDER CRAB
Illustration: Emma Garrison
Text: Emma Garrison
Layout: Jordan Heiden

GHOST ANEMONE
Illustration: Emma Garrison
Text: Emma Garrison
Layout: Jordan Heiden

PINK MOUTHED HYDROID
Illustration: Emma Garrison
Text: Emma Garrison
Layout: Jordan Heiden

EASTERN OYSTER
Illustration: Emma Garrison
Text: Emma Garrison
Layout: Jordan Heiden

BLUE MUSSEL
Illustration: Emma Garrison
Photograph: The River Project
Text: Emma Garrison
Layout: Jordan Heiden

ATLANTIC OYSTER DRILL
Illustration: Emma Garrison
Photograph: The River Project
Text: Emma Garrison
Layout: Jordan Heiden

PERIWINKLE
Illustration: Emma Garrison
Text: Emma Garrison
Layout: Jordan Heiden

SLIPPER SHELL
Illustration: Emma Garrison
Text: Emma Garrison
Layout: Jordan Heiden

CLAM WORM
Illustration: Emma Garrison
Photograph: The River Project
Text: Emma Garrison
Layout: Jordan Heiden

BLOOD WORM
Illustration: Emma Garrison
Text: Emma Garrison
Layout: Jordan Heiden

FAN WORM
Illustration: Emma Garrison
Text: Emma Garrison
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NORTHERN SEA SQUIRT
Illustration: Emma Garrison
Photograph: The River Project
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Layout: Jordan Heiden

GOLDEN STAR TUNICATE
Photograph: The River Project
Text: Emma Garrison
Layout: Jordan Heiden

ORANGE SHEATH TUNICATE
Photograph: The River Project
Text: Emma Garrison
Layout: Jordan Heiden

ATLANTIC SILVERSIDE
Illustration: Emma Garrison
Photograph: Billion Oyster Project
Text: Emma Garrison
Layout: Jordan Heiden

MUMMICHOG
Illustration: Emma Garrison
Photograph: Billion Oyster Project
Text: Emma Garrison
Layout: Jordan Heiden

BLACKFISH
Illustration: Emma Garrison
Photograph: Billion Oyster Project
Text: Emma Garrison
Layout: Jordan Heiden

BLUEFISH
Illustration: Emma Garrison
Photograph: Smithsonian Environmental Research Center
Text: Emma Garrison
Layout: Jordan Heiden

OTHER GOWANUS SPECIES

to be included in future editions

Amphibalanus improvisus, Bay Barnacle
Amphibola crenata, Mud-Flat Snail
Anguilla rostrata, American Eel
Armadillidium nasatum, Armadillidium Nasatum
Armadillidium vulgare, Pill-Bug
Bradybaena similaris, Asian Trampsnail
Cepaea nemoralis, Grove Snail
Chthamalus fragilis, Little Grey Barnacle
Clathria prolifera, Red Beard Sponge
Diadumene lineata, Orange-Striped Green Sea Anemone
Geukensia demissa, Ribbed Mussel
Helicina sp., Gastropod
Limax maximus, Leopard Slug
Monadenia fidelis, Pacific Sideband
Morone saxatilis, Striped Bass
Mya arenaria, Soft-Shell Clam
Opsanus tau, Oyster Toadfish
Palaemonetes paludosus, Glass Shrimp
Palaemonetes vulgaris, American Prawn
Pollicipes polymerus, Gooseneck Barnacle
Rhithropanopeus harrisii, Dwarf Crab
Semibalanus balanoides, Acorn Barnacle
Succinea putris, Amber Snail
Syngnathus fuscus, Northern Pipefish
Tautogolabrus adspersus, Cunner
Trachycladus spinispirulifer, Orange Wall Sponge
Tritia obsoleta, Eastern Mudsnail