

Creature Creations & Bulletin Board Magic

Theme: Natural History

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Education Director

New Jersey Marine Sciences Consortium

Subject Areas

Science, Art, Language Arts

Duration

One or two class periods

Setting

Classroom

Skills

Interpretation, identifying, describing, applying

Charting the Course

The myriad of species that inhabit the region called Down Jersey are an integral part of the continued connections between people and place. This activity examines only one of the ecosystems and habitats that can be found here. This activity is presented as a model and means to stimulate other creative ways to decorate the classroom to expand the students' knowledge of the many organisms and their interactions from within the environment.

Vocabulary

Species, organism, ecosystem, habitat, food web, food pyramid*

** others as identified by the teacher with extensions or variations of the activity*

Correlation to NJ Core Curriculum Content Standards

Science	Language Arts	Art
5.1 (1, 2, 3)	3.2 (1, 7)	1.2 (1, 2, 3)
5.6 (3, 6)	3.5 (1, 2, 4, 7)	1.3 (1, 2)
5.7 (1, 2, 4)		



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■ Objectives

Students will

1. Utilize simple pen and ink drawings of a variety of Delaware Bay estuary animals to create a variety of display projects for the classroom and/or school building.
2. Be able to identify some basic wildlife species that inhabit the estuary and bay.

■ Materials

Copies of the following pages in varying magnifications — a packet for each group of students, oaktag or poster board, scissors, glue, water color paints, markers, crayons, etc.

Optional: field guides of fish, invertebrates, birds, etc.

■ Making Connections

The myriad life forms that inhabit the Down Jersey region and the Delaware Bay estuary are an integral part of any investigation into the area. A significant part of the attraction and unique features of the area is directly related to the wildlife species that inhabit the saltmarsh and bay. This activity is well suited as an introduction to the animals, as a culminating activity following a field trip experience, as an awareness and identification activity. It also provides an opportunity for students to become familiar with utilizing field guides and field identification techniques.

■ Background

Utilize the field guides and other information contained in this packet to provide background information on the species included in this activity. Extensive background information on particular species could be obtained by individual students during a research component if initiated. The extent of involvement with researching individual species is left totally at the discretion of the teacher.

■ Procedure

1. Distribute the photocopied organisms. The number and size of the photocopies are dependent on the teacher's desired project(s) choices. Some may need to be enlarged or reduced, and for some projects, multiple copies will be needed (i.e., for the food pyramid, many of the "primary consumers" are needed in relative comparison to the "secondary consumers").

2. Have the students work in small groups, giving each group the task of creating one of the suggested projects below utilizing the accompanying drawings or have students work individually to identify their organism, color it accurately. And create one large mural, bulletin board or display using all the students in a class. The choice is obviously up to each teacher and the grade level and abilities of their students. This would also make for an excellent "extra credit" project.

Notes from the author:

The pages to follow come from the New Jersey Marine Sciences Consortium (NJMSC), a not-for-profit organization dedicated to providing New Jersey's citizens with an unbiased source of information about our marine and coastal resources. We accomplish our mission in a variety of ways including pre-college programs, professional development for



educators, family science programs, undergraduate and graduate programs, public outreach initiatives and managed research. The NJMSC operates a field station on Sandy Hook, New Jersey, within the Gateway National Park there. For more information about the NJMSC and its programs please call (732)872-1300, ext. 22.

On the pages to follow you will find information about many species common to New Jersey's marine and estuarine environments. Each picture is accompanied by the organism's common and Latin name, information on what that organism eats and what the organism is eaten by. It is hoped that you will duplicate these sheets and use them frequently.

These sheets have been used many times for many projects and purposes. Use a Xerox

machine to copy, recopy and resize the pictures included in this packet. Mount the pictures on a heavier piece of paper, cut them out and lightly "wash" over them with diluted watercolor paint. The Education Program at the NJMSC has used these sheets to complete the following projects:

■ Project/Activity Choices

- A Bulletin Board to familiarize students with our local, common species. This spring a board displayed the common organisms with individual plankters "raining" down. The headline on this bulletin board read, "Plankton Showers bring Summer Flounders."
- A Bulletin Board depicting the marine food pyramid. Duplicate plankton and zooplankton many times to create the base of the pyramid. Mid-level predators include crabs, small fish

(silversides, mummichogs) and mollusks. Top level predators include birds, larger fishes and humans.

- A Bulletin Board depicting the intricacies of the marine food web. Cut apart and using yarn or string, connect organisms according to who eats whom.
- A Food Web Game. By cutting apart these sheets you can create a set of cards which can be passed out to students standing in a circle, who can then pass around a rope linking prey to predator. Don't forget to start with the sun. In this manner you can go up and down food chains many times, creating an intricate and interdependent web.
- A Bulletin Board or graph depicting species abundance on a seasonal basis. If you collect data yourself though seining or have access to similar data, an interesting graph can be created. At the NJMSC we collect data year-round with good frequency and we'd be happy to supply data to interested teachers.

We're sure you will have many additional great ideas. Teachers are without a doubt the most creative and resourceful people on earth! Enjoy.



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4. Depending on the teacher's preference, students should work either in small groups or independently to determine the most realistic coloration of each organism.

■ Assessment

Option 1

If students were each assigned an organism, the assessment could be a written report about that species' life cycle, natural history, abundance and place in the food chain.

Option 2

If students worked together as a class to create one large mural and/or bulletin board, each student could be assigned to write a description of the topic/theme depicted (i.e., the food pyramid, the food web, etc.)

■ Extensions

This activity, although specifically addressing the estuary ecosystem, could easily be adapted to any other ecosystem within the Down Jersey region. Pen and ink drawings of indicative species would need to be obtained by the teacher. Other ecosystems (habitats) include, but are not limited to: freshwater stream or river, freshwater marsh, woodland, cedar swamp, hardwood forest, Pinelands, bog, a suburban lot, etc. In addition, Project/Activity Choices are those of the author. We would encourage other ideas that may be spurred by this activity.

The possibilities are endless!

■ Resources

The Biology of the Hudson-Raritan Estuary — A Teacher's Guide

Copyright 1998,
Education Program staff,
NJ Marine Sciences
Consortium, Building 22,
Fort Hancock, NJ 07732.

Bridges to the Natural World

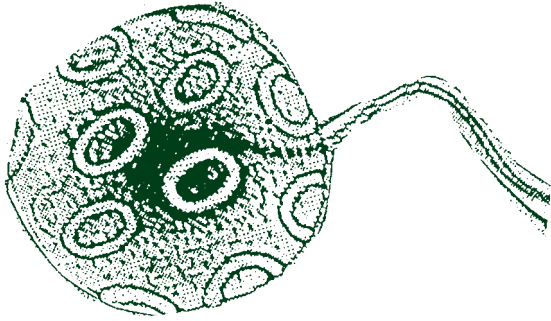
Copyright 1992,
New Jersey Audubon Society,
790 Ewing Avenue,
PO Box 125, Franklin Lakes,
New Jersey 07417-2271.

Permission needs to be
granted for use of artwork
which is copyrighted by
Carol Decker.

Any of the graphics
contained in this guide may
be used for a similar activity.

Any of the number of field
guide series may be used for
identification and realistic
coloring of the organisms.

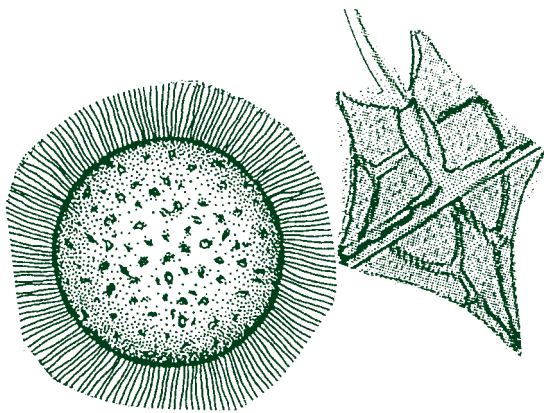




Phytoplankton

Eats: Sunlight

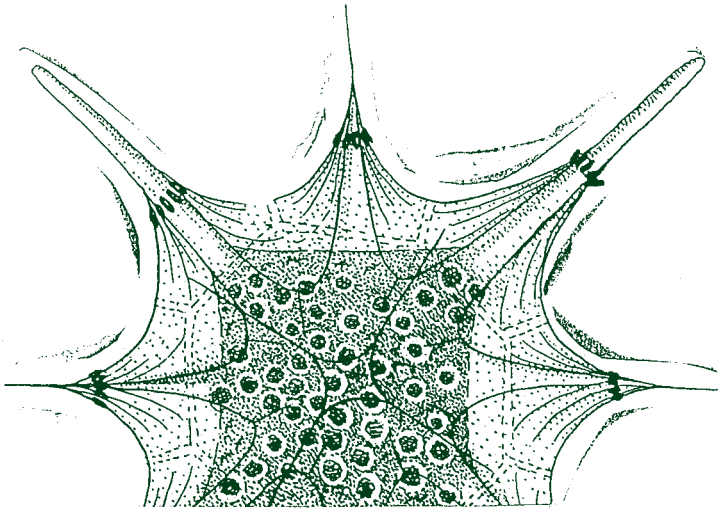
Eaten By: Menhaden
Hard-Shelled Clam
Soft-Shelled Clam
Grass Shrimp



Phytoplankton

Eats: Sunlight

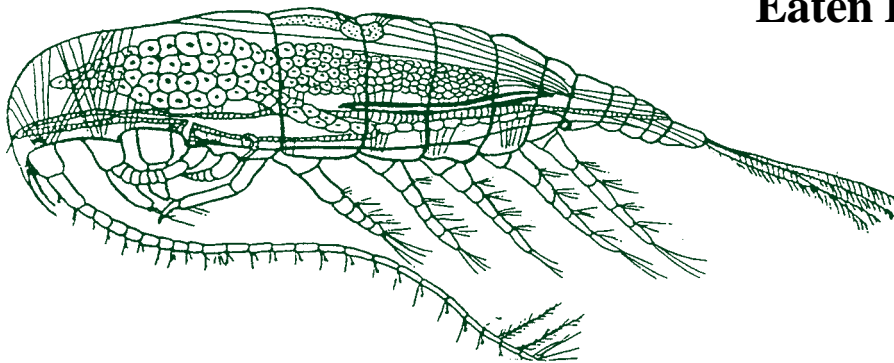
Eaten By: Menhaden
Hard-Shelled Clam
Soft-Shelled Clam
Grass Shrimp



Zooplankton

Eats: Phytoplankton

Eaten By: Grass Shrimp
Sand Shrimp
Menhaden
Siversides
Soft-Shelled Clam
Hard-Shelled Clam



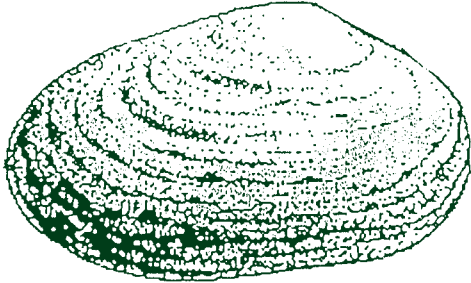
Zooplankton

Eats: Phytoplankton

Eaten By: Grass Shrimp
Sand Shrimp
Menhaden
Siversides
Soft-Shelled Clam
Hard-Shelled Clam

Soft-Shelled Clam

(Mya arenaria)



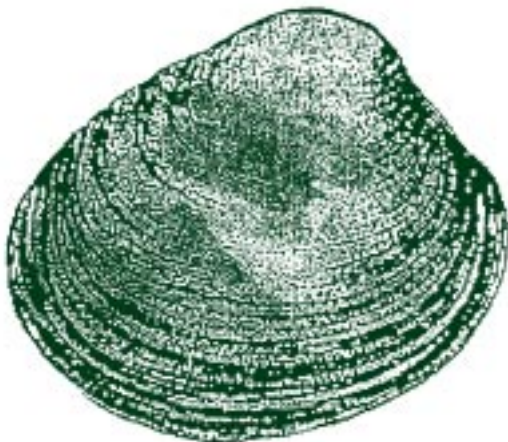
Eats: Phytoplankton
Zooplankton

Eaten By: Blue Claw Crab
Moon Snails
Menhaden
Mummichog
Striped Bass



Hard-Shelled Clam

(Mercenaria mercenaria)



Eats: Phytoplankton
Zooplankton

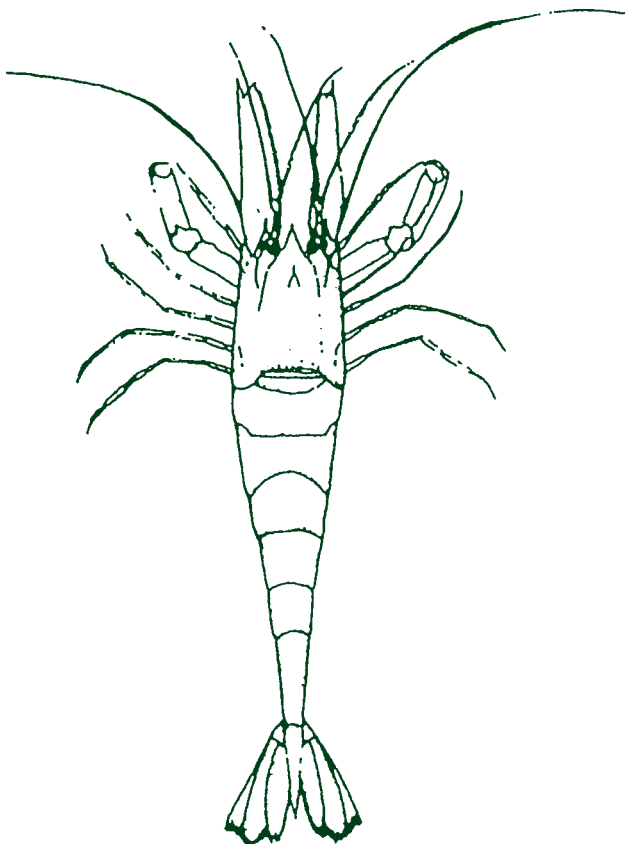
Eaten By: Blue Claw Crab
Mummichog
Bass
Moon Snail
Ring-Billed Gull

Grass Shrimp

(Hippolyte sp.)

Eats: Phytoplankton
Zooplankton

Eaten By: Weakfish
Flounder
Bluefish
Blue Claw Crab



Sand Shrimp

(Crangon septemspinosa)

Eats: Phytoplankton
Zooplankton

Eaten By: Great Blue Heron
Bluefish
Flounder
Weakfish
Silverside

Blue Claw Crab

(*Callinectes sapidus*)

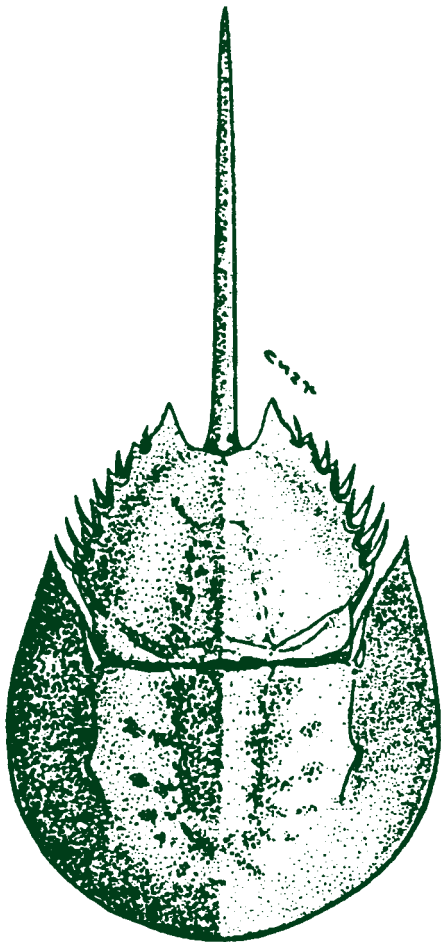


Eats: Silversides
Soft- and Hard-Shelled Clams
Young Blue Claw Crabs
Shrimp
Mussels

Eaten By: Hermit Crabs
Weakfish
Flounder
Birds
Humans

Horseshoe Crab

(*Limulus polyphemus*)



Eats: Worms
Clams
Dead Fish
Soft-Shelled Mollusks

Eaten By: Seagulls

Song Sparrows, Mourning Doves, Pigeons, Common Grackles, House Sparrows, House Finches, Cowbirds, and Starlings eat *Limulus polyphemus* eggs. Egrets, Herons and Black Skimmers come for the fish that eat the eggs.

• **Threatened by shoreline development**

Flat-Clawed Hermit Crab

(*Pagurus pollicaris*)



Eats: Plants

Young Clams

Fish and Snail Eggs

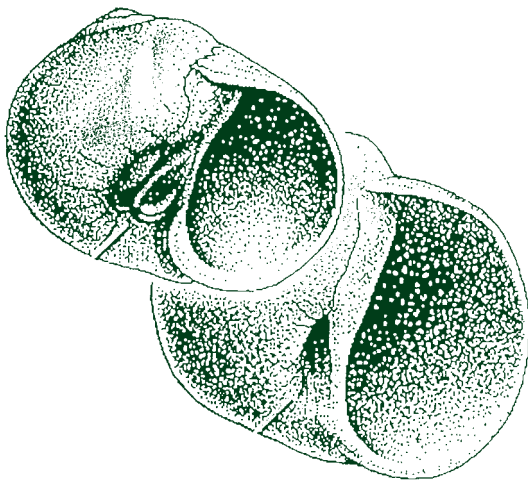
Dead Fish

Eaten By: Blue Claw Crab

• *Pagurus pollicaris* is a **scavenger**

Northern Moon Snail

(*Lunatia heros*)



Eats: Clams

Mussels

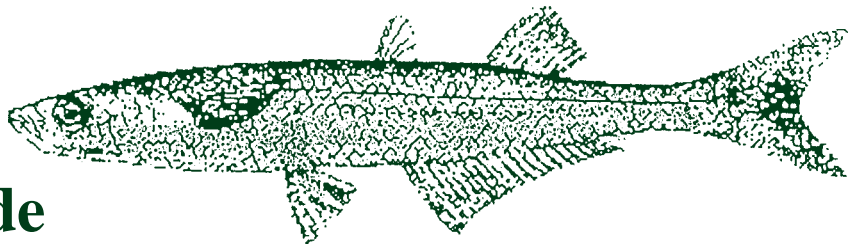
Moonsnails

Eaten By: Crab

Lobster

Birds

Other Moon Snails

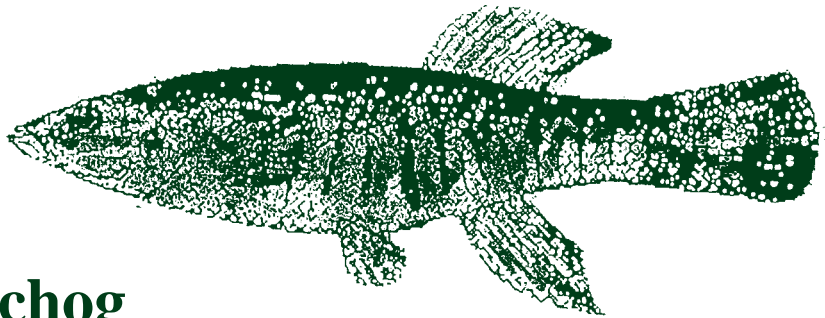


Atlantic Silverside

(Menidea menidea)

Eats: Phytoplankton
Zooplankton
Copepods
Shrimp
Young Squid
Worms
Insects
Fish Eggs

Eaten By: Stickleback
Mummichog
Diamondback Terrapin
Bluefish
Menhaden
Flounder

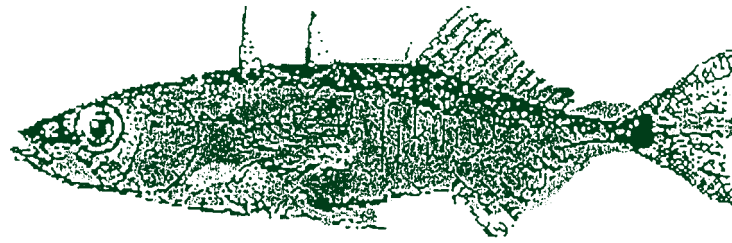


Striped Mummichog

(Fundulus majalis)

Eats: Small Clams, Lobsters
and Crabs
Insects
Insect Larvae
Fish

Eaten By: Weakfish
Flounder
Bluefish
Menhaden

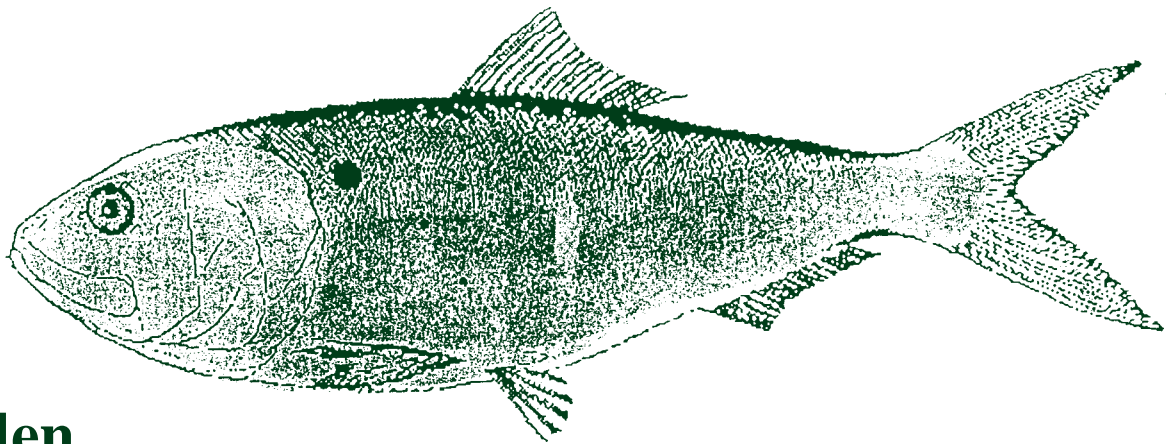


Threespine Stickleback

(*Gasterosteus aculeatus*)

Eats: Silversides
Fish Eggs

Eaten By: Bluefish
Weakfish
Menhaden
Bass
Birds



Menhaden

(*Brevoortia tyrannus*)

Eats: Phytoplankton
Zooplankton
Amphipods
Isopods
Copepods
Small Clams, Lobsters
and Crabs

Eaten By: Birds
Humans

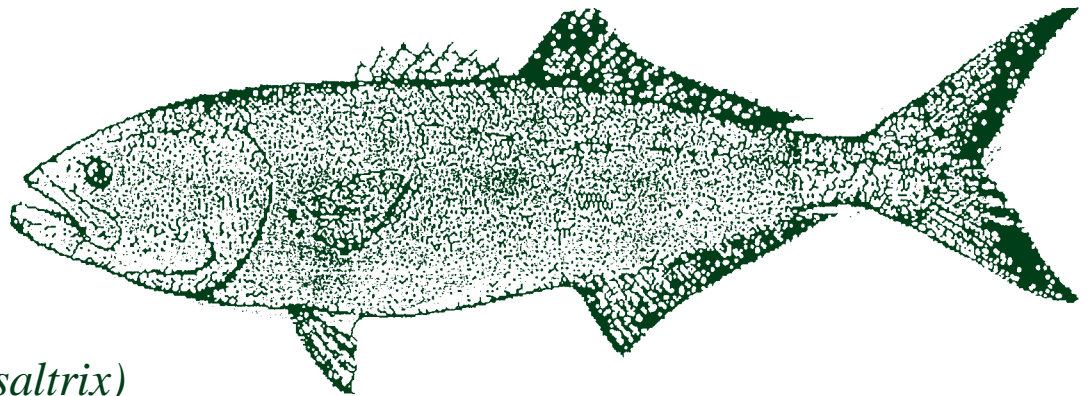


Striped Bass

(Morone saxatilis)

Eats: Clams
Calico Crabs
Herring
Menhaden
Mullet

Eaten By: Birds
Humans

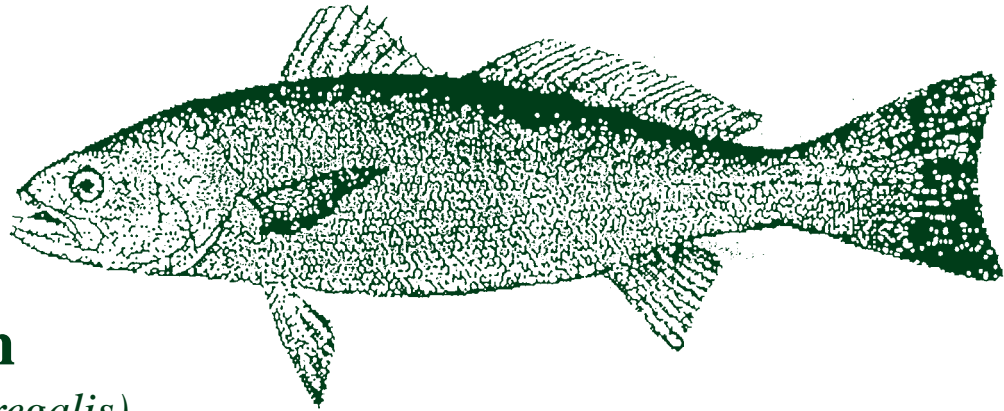


Bluefish

(Pomatomus saltrix)

Eats: Shrimp
Squid
Crabs
Worms
Butterfish
Herring
Sand Lance
Menhaden
Silversides
Anchovies

Eaten By: Birds
Humans



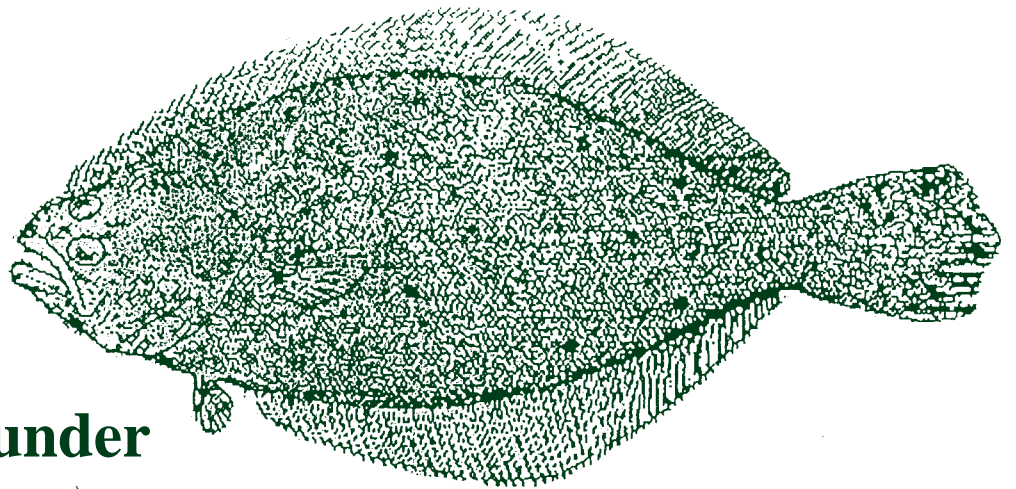
Weakfish

(Cynoscion regalis)

Eats: Grass Shrimp
Sand Shrimp
Crabs
Worms

Silversides
Anchovies
Mummichogs
Killifish

Eaten By: Birds
Humans



Summer Flounder

(Paralichthys dentatus)

Eats: Worms
Shrimp
Rock Crabs
Silversides

Mummichogs
Bluefish
Weakfish
Killifish

Eaten By: Birds
Humans



Northern Lobster

(Homarus americanus)

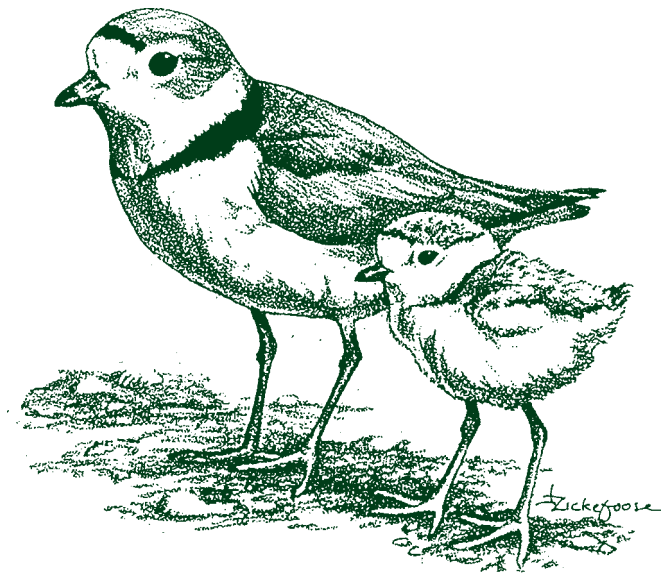
Eats: Blue Mussel
Amphipods
Sand Dollars
Silversides
Mummichogs

Eaten By: Birds
Humans

Piping Plover

(Charadrius melodus)

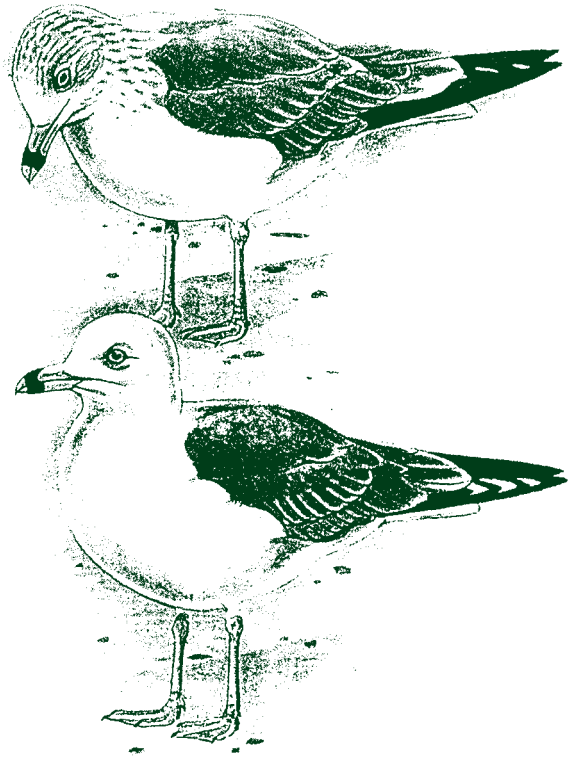
Eats: Marine Worms
Amphipods
Isopods
Copepods
Small Crabs
Mussels
Snails
Small Eggs of Animals



Ring-Billed Gull

(*Larus delawarensis*.)

Eats: Clams
Mussels
Small Fish
Garbage



Osprey

(*Pandion haliaetus*)

Eats: Striped Bass
Bluefish
Menhaden
Flounder
Weakfish





Snowy Egret

(Egretta thula)

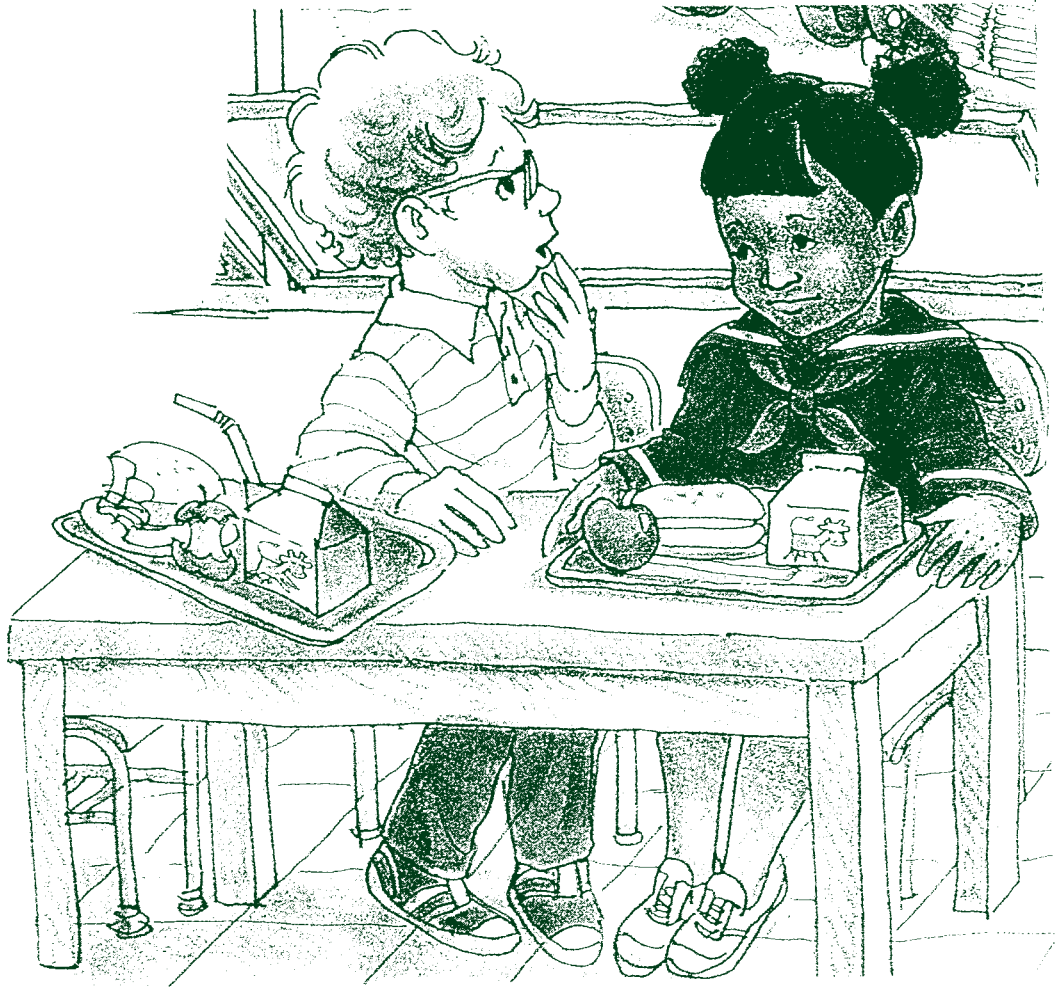
Eats: Fiddler Crabs
Silversides
Shrimp
Insects
Snakes
Frogs



Great Blue Heron

(Ardea herodias)

Eats: Fish
Shrimp
Insects
Salamanders
Snakes



Humans

(Homo sapiens)

Eats: Northern Lobster Striped Bass
Blue Claw Crab Summer Flounder
Bluefish Weakfish
Menhaden

- **Has been known to leave garbage behind.**