

Florida 4-H Youth
Development Program

4-H State Marine Ecology Event SPECIES IDENTIFICATION COMPANION GUIDE

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Senior and Intermediate Version

Developed by

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**Florida 4-H State
Marine Ecology Event**

**SPECIES IDENTIFICATION
COMPANION GUIDE**

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About the 4-H State Marine Ecology Event (MEE)

The MEE is a statewide competition for Florida's 4-H youth. Counties can enter teams and/or individuals. They compete in five different sections of the Event. These sections are plant identification, invertebrate identification, vertebrate identification, a natural history scavenger hunt, and a multiple choice test on marine plants and animals, ecosystems, and environmental issues related to the coast.

Guidelines, rules, registration forms, date and location of the event, and additional study materials can be obtained by going to Florida 4-H website: <http://florida4h.org>

How to Use the Companion Guide

The first three sections of the contest challenge youth to correctly identify selected plants and animals found along Florida's coast. Photos and/or drawings of these animals can be found in the MEE Species Identification Guide CD. The "Companion Guide" supplements the CD and provides identifying features and/or characteristics for the animals and plants youth are expected to know. *(Note: Youth do not need to know any scientific names. They are listed only to help clarify the identity of the organism since many can have more than one common name.)*

Interesting facts about many of the organisms are provided in the "Did You Know?" section of the descriptions. This information provides the content for Section 4 of the MEE - the "Natural History Scavenger Hunt." Please note that not all organisms will have this information. For the "scavenger hunt" youth will be given a sheet of "clues." They will need to use these clues to find appropriate matches from specimens or photos provided. A sample "clue" sheet may be found on the 4-H Marine Ecology Event website (go to "state events") at <http://florida4h.org>

Youth should refer to the Companion Guide while viewing the CD or during field trips to coastal habitats (if possible!). Youth can quiz each other on the identity of the organisms or on the natural history information. Youth can even make up their own clue sheets or use the photos in the CD to create practice sessions for Sections 1, 2, 3, and 4 of the MEE. A pdf of the Species Identification Guide CD (PowerPoint presentation) can be downloaded off the 4-H website. GOOD LUCK!



Section 1: Marine and Coastal Plant Identification

2014 changes: The following plant has been removed from the list- Salt joint grass. However, two new plants have been added and are marked in yellow. Additional "Did You Know" information may have been added.



Algae/Seaweed - Did you know? These marine plants lack true roots, stems, and leaves. However, like plants on land, seaweeds are very important because they produce food and oxygen through photosynthesis.

Sea lettuce (*Ulva lactuca*)

How to identify: This green seaweed grows in paper-thin sheets that are flat or ruffled.

Did you know? It is usually found on rocky bottoms and coral reefs. It is an edible seaweed and is sometimes added to salads or dried for seasoning.

Dead man's fingers (*Codium* sp.)

How to identify: This green seaweed forms branches arranged in "twos." It is smooth and often slippery to touch. It feels rubbery.

Sand moss (*Caulerpa* sp.)

How to identify: This is a green alga. There are many types of *Caulerpas* but ALL have long horizontal stalks with root-like holdfasts. Some *Caulerpas* look like rows of green "feathers" others look like little clusters of little green berries.

Disc algae (*Halimeda* sp.)*

Did you know? This stiff green calcareous algae is also known as "oatmeal algae" because when it dies it breaks apart into flakes that look like oatmeal. These "flakes" form calcareous sand. It removes calcium from the surrounding water and produces a calcareous skeleton. When alive it can form dense low mounds on the seafloor that provide a home for many marine invertebrates.

Shaving brush algae (*Penicillus capitatus*)

How to identify: It gets its name because it is shaped like a man's old-fashioned shaving brush. **Did you know?** Shaving brush is another green calcareous alga – it forms a calcium carbonate (limestone) skeleton that contributes to sand formation when the alga dies.

Petticoat algae (*Padina* sp.)*

How to identify: This brown algae forms curled, fan-like branches from one stalk. Look for its growth lines. **Did you know?** It is sometimes called "peacock's tail" algae.

Sargassum weed (*Sargassum* sp.)

How to identify: This brown seaweed (Phaeophyta) is also known as gulfweed. It is golden brown in color and easily identified by its little round air or gas bladders that help keep it afloat. **Did you know?** Sargassum weed forms large floating mats of seaweed at the surface of the ocean. These mats become a refuge for many sea creatures both big and small. This seaweed also may be found floating in the surf zone at the beach (or washed up on shore). If you collect any, shake it out in a bucket and see if there is something living in it!

Red algae (*Gracilaria* sp.)

How to identify: This is a bushy but "graceful" looking red seaweed. It can be greenish, grayish, or purplish red. It has slender and pointed tips. **Did you know?** This alga is grown in aquaculture facilities both as a food source for some marine animals, but also for a chemical compound that it produces which is used to thicken products like ice cream and toothpaste!



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Seagrasses - Did you know? *These marine plants are important because they serve as nursery grounds and a food source for many marine animals. They help to stabilize seafloor sediments. Unlike algae, they have true roots, stems, leaves, and flowers. Sea grasses are generally found in shallow, clear waters.*

Shoal grass (*Halodule wrightii*)

How to identify: This grass has thin, flat blades (about 1 mm wide) and horizontal root-like structures called rhizomes. **Did you know?** *This seagrass is the first to colonize a disturbed area and can grow in just a few inches of water close to shore.*

Manatee grass (*Syringodium filiforme*)

How to identify: This grass has blades that are round like spaghetti. **Did you know?** *Manatees like to eat it. This is the second most common seagrass in Florida.*

Turtle grass (*Thalassia testudinum*)

How to identify: It has blades that are flat, ribbon-like (about 1 cm wide), and longer than other seagrasses. Each blade can grow to up to 14 inches long! **Did you know?** *It is the most common seagrass. Green sea turtles graze on it.*

Widgeon grass (*Ruppia maritima*)

How to identify: It has short flat blades. This grass can be confused with shoal grass but can be distinguished by its “branchy” growth pattern. It can grow in both fresh and saltwater.

Marsh plants – Did you know? *Some marshes are dominated by trees, like mangroves, others are dominated by marsh grasses, like *Spartina* and *Juncus*. In southern coastal areas of Florida, one is more likely to see mangrove marshes/swamps while in northern coastal areas, marsh grasses will dominate.*

Sawgrass (*Cladium jamaicense*)

How to identify: The blades of this marsh grass have serrated edges, giving it the name sawgrass. **Did you know?** *It is found throughout the Everglades in swampy areas and brackish water marshes.*

Smooth cord grass (*Spartina alterniflora*)

How to identify: This plant has broad flat, dark green leaves. It is usually found at the seaward edge of a salt marsh.

Salt meadow cord grass (*Spartina patens*)

How to identify: This is a wiry grass that is smaller and more delicate looking than other marsh grasses. The leaves are slender with the edges rolled together so it appears to be round but it’s really not! If you push gently on the tip of the leaf, it will bend. Salt meadow cord grass is usually found growing near saltwater, but further upland than the smooth cord grass.

Needle rush (*Juncus roemerianus*)

How to identify: This plant has round stems with sharp tips. Dead stems look dark gray. It can grow up to 2 meters tall! It often grows mixed in with smooth cord grass, but is taller and darker than cord grass.

Southern glasswort (*Salicornia virginica*)

How to identify: The stems of this plant can appear red in color and are somewhat round, fleshy, and segmented. **Did you know?** *This plant is edible but tastes quite salty! Some say it tastes like pickles!*

Saltwort (*Batis maritima*)

How to identify: This is a spreading small shrub that has aromatic, fleshy leaves and is found around salt marshes and mangrove swamps. It has woody-looking stems. **Did you know?** *This plant is edible but tastes quite salty!*



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Spike grass (*Distichlis spicata*)

How to identify: This marsh grass is short and wiry (spike-like). It has V-shaped narrow leaves that point diagonally upward. It is found higher in the marsh but is more tolerant of salty conditions.

Sea oxeye or Sea daisy (*Borrchia frutescens*)

How to identify: This is a bushy plant with single yellow flowers at the end of stiff, compact branches. The leaves of this plant are often silvery and hairy.

Sea lavender (*Limonium carolinianum*)

How to identify: Look for its silvery, greenish white leaves that grow in clumps. Tiny flowers are lavender.

Red mangrove (*Rhizophora mangle*)

How to identify: The red mangrove can be found growing close to the water. This mangrove is distinguished by its reddish prop roots. The leaves are shiny, dark green and have smooth edges. Seeds sprout on the tree and form long pencil shaped structures called propagules. ***Did you know?*** *The prop roots can trap sediment and provide a substrate for marine life to grow on as well as shelter for them to hide. The red mangrove is also called the "walking tree" because the long prop roots make it look like the tree has legs! The propagules of the red mangrove fall off the tree and float straight up and down. The "fatter" end is heavier and will eventually sink to the bottom and take hold in the sediments.*

Black mangrove (*Avicennia germinans*)

How to identify: The black mangrove tree can be distinguished by having dark, stick-like roots that can grow up out of the soil. Leaves are darker on top with lighter undersides. Leaves have salt crystals on their surface. The seeds are lima-bean shaped. ***Did you know?*** *The roots are called "pneumatophores" and they allow the black mangrove tree to get air even when the roots are covered by water.*

White mangrove (*Laguncularia racemosa*)

How to identify: This tree is usually found higher in elevation than black or red mangroves (farther from water's edge). The leaves are yellow-green and broad. There are two glands at the base of each leaf. These glands excrete salt. There may be a notch at the top of the leaf. Seeds are small, almond shaped. The small flowers are white.

Buttonwood (*Conocarpus erectus*)

How to identify: This small tree is often associated with mangrove communities. It is usually found on higher and drier land than reds and blacks (further back from the water). It is called buttonwood because the flowers grow close together and have a button like appearance in cone-like fruits. Leaves are leathery with a pointed tip and smooth edges.

Beach plants – *These plants are often found on coastal sandy areas and/or dunes.*

Sea oats (*Uniola paniculata*)

How to identify: This is a tall, erect grass with slender leaves that form narrow tips. It has a well-developed seed-head. ***Did you know?*** *This plant is important because it helps keep a dune in place by holding the sand particles together with its long roots. In fact, the roots may be up to 30 feet long!*

Dune panic grass (*Panicum amarulum*)

How to identify: This plant has elongated, light blue-green leaves. Seed head is slender.

Seaside goldenrod (*Solidago sempervirens*) **NEW!**

How to identify: This plant is found along coastal roadsides and behind beaches and even coastal marshes. It blooms bright yellow flowers on tall stalks from October into November. After the flowers die, fine white bristles form in their place. The leaves are long and narrow (2-3 inches) and alternate on the stem. ***Did you know?*** *This plant is often used in naturalized home gardens because of its bright color.*



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Railroad vine or Goats Foot Morning Glory (*Ipomoea pes-caprae*)

How to identify: This vine runs along the ground. Its flower is bright pinkish purple. It is also known as goat's foot morning glory because of the notch in the leaf.

Beach morning glory (*Ipomoea imperati*)

How to identify: This vine has a white flower with yellow center. The leaves are rounded but longer than RR vine. They can also vary in shape more. See arrow on slide.

Sea grape (*Coccoloba uvifera*)

How to identify: The sea grape is a small tree with big round, stiff leaves that can grow up to 10 inches across. The seeds grow in long clusters. ***Did you know?*** *The fruits can be made into jelly!*

Sea purslane (*Sesuvium portulacastrum*)

How to identify: This sprawling plant has thick fleshy leaves with small star-shaped pink flowers. ***Did you know?*** *It forms thick carpets on the higher parts of a beach but can also be found in salt marsh areas. It is edible but tastes quite salty!*

Firewheel or Indian blanket (*Gaillardia pulchella*)

How to identify: This plant is easy to identify by its single flower that is brick red with yellow tipped petals. The leaves are rather fuzzy or hairy and elongated.

Dune (or beach) Sunflower (*Helianthus debilis*)

How to identify: This plant has rough, alternate leaves. It can grow to 4 ft. tall but one foot tall is more common. Look for the bright yellow flowers with dark maroon centers.

Bay bean or Beach pea (*Canavalia rosea or maritima*)

How to identify: This vine has alternate leaves composed of three leaflets. The leaves lie flat on the ground in the morning but may be seen folded along the midrib later in the day. This reduces their heat absorbing area. They have pink to purple pea-like flowers and thick pea pods up to 6 inches.

Marsh elder (*Iva frutescens*)

How to identify: This plant has light green leaves that are "toothed" and small yellow white flowers. It can grow to about 40 inches.

Prickly pear cactus (*Opuntia compressa*)

How to identify: This cactus is identified by its round, fleshy stems. It has both long and short spines. When ripe, the fruit is a bright purple color. ***Did you know?*** *Although the fruits are edible, they are difficult to pick as even the fruit has tufts of thin, sharp spines! Be careful when touching this plant!*

Beach pennywort (*Hydrocotyle bonariensis*)

How to identify: This plant is easily identified by umbrella-shaped leaves. It has whitish green flowers in separate stems.

Saw palmetto (*Serenoa repens*) NEW!

How to identify: This clumping, bushy palm has large fan shaped leaves. Its multiple trunks creep along the ground to create a dense ground cover. Its leaves are usually green but some can be blue-green in color. It has yellow berries that turn black and ripen August through October. The leaf stalks are lined with fine teeth giving the plant its common name. ***Did you know?*** *The small, yellow-white, fragrant flowers of this plant bloom in the spring and are a source of commercially important honey.*

Cabbage palm (*Sabal palmetto*)

How to identify: It has a gray tan trunk with a crown of large fan-like leaves. ***Did you know?*** *It is the state tree of Florida!*



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Sand Bur or sandspur (*Cenchrus tribuloides*)

How to identify: This grass has small round burs that resist removal from clothing and skin. **Did you know?** *It's good because it helps stabilize dune. It's bad because it hurts when you step on one or have to pull them off your clothing or skin!*

Introduced Coastal Plants – Did you know? *These plants came to Florida from somewhere else. They are also called invasive plants because they easily spread and crowd out native plants (and animals), thus harming the balance of the ecosystem.*

Paper bark tree (*Melaleuca quinquenervia*)

How to identify: The bark of this tree is spongy, white, and paper-like. It grows to 50 feet in height. The leaves are 1-2 inches long, gray-green, and oval in shape. Flowers are white and the seeds are small, woody, and button-like. **Did you know?** *Melaleuca was introduced from Australia to help dry up wetlands in Florida. It has spread rapidly throughout southern Florida and is considered an invasive exotic. It is related to the eucalyptus tree.*

Australian pine (*Casuarina spp.*)

How to identify: It has dark green needle-like, segmented twigs around 5 inches in length. The cones are like brown little balls. **Did you know?** *It is not a true pine tree. Casuarinas were introduced as coastal windbreaks. These trees grow rapidly and their "needles" release a chemical into soil that prevents other plants from growing there.*

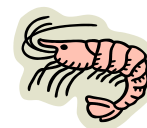
Brazilian pepper (*Schinus terebinthifolius*)

How to identify: This is a small tree that can grow up to 30 feet tall. Leaves are 1-2 inches long. The flowers are white. The fruits grow in clusters and go from green to bright red. **Did you know?** *The fruits of this plant are ripe (red) around Christmas time, which is why some people call it the "Florida holly." The poisonous sap and red berries of the tree can cause human health problems. Leaves can smell like turpentine when crushed. This shrub is considered an invasive plant in Florida. Brazilian pepper is related to poison ivy, so people who are allergic to poison ivy should avoid this plant*



Section 2: Marine & Coastal Invertebrates Identification

2014 changes: The following invertebrates have been removed from the list- Spaghetti worm or medusa worm, mangrove tunicate. The invertebrates added are in yellow. Additional "Did You Know" information has also been added.



Poriferans (sponges) – Did you know? Sponges may not look like animals, but they are! They have many pores or openings where water goes in (ostia) and where water goes out (osculum). Sponges are filter feeders. They collect food from the water as it moves through their body. Many small marine animals take advantage of this and seek shelter in the holes and canals of the sponge. Sponges grow attached to the seafloor. Sponges are found around coral reefs, sea grass beds, on mangrove roots, etc.

Tube sponge (*Callyspongia sp.*)

How to identify: This sponge looks like a cluster of tubes growing upward. It is drab (brown/gray) in color. Individual tubes may grow to 3 feet in height and 2 inches across the opening on top.

Loggerhead sponge (*Sphaciospongia vesparium*)

How to identify: This sponge can be identified by its log-like shape and the dark holes on top. It is one of the largest sponges and can be 3 ft in diameter and more than 2 ft high. It is dark brown in color but often coated with bottom sediments giving it a grayish appearance. **Did you know?** Large loggerhead sponges often have a hollow center that gives them the appearance of a discarded tire. Many marine animals will utilize the hollow center as a home.

Basket sponge (*Hircinia canaliculate*)

How to identify: As its name implies it is shaped like a basket. It is rough to touch.

Sheepswool sponge (*Hippospongia lachne*)

How to identify: This sponge has an irregular shape and is softer than most other sponges. **Did you know?** This sponge has great commercial importance because of the softness of its skeleton. Because of this it is harvested for use as a natural "bath sponge."

Cnidarians – Did you know? This group includes jellyfish, corals, sea anemones, and man-of-wars. These animals have radial symmetry and tentacles with stinging cells that help them capture food. Some build a hard calcareous skeleton around their body (like corals), while others (like jellyfish) don't. To avoid confusion, many scientists now refer to jellyfish as "jellies" because they are not fish.

Portuguese Man-of-War (*Physalia physalia*)

How to identify: Look for the bluish balloon-like float and long tentacles. You may either see it floating in the water or washed up on the shore. **Did you know?** This is not a "jellyfish" but actually a whole colony of animals called hydrozoans. The animals are on the tentacles that hang down below the float. **Warning:** Some tentacles grow very long (up to 33 feet!) and can really hurt if you come in contact with any of them. Do NOT touch it if you see it washed up on shore and stay clear of it in the water.

Common (moon) jelly (*Aurelia aurelia*)

How to identify: The gonads (reproductive organs) of this jellyfish form a purple 4-leaf-clover-like shape in the middle of the bell. **Did you know?** The moon jelly is harmless to most people, although some people report a mild reaction to touching moon jellies.



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Cannonball jelly - (*Stomolophus meleagris*)

How to identify: This jellyfish can have a diameter of 7 inches! It is a milky color becoming brown toward the edges. **Did you know?** *The sting of this jelly is too mild to bother most people. The bell of this jelly is considered a delicacy in Asia, where it is often fried and added to salads.*

Upside down jelly (*Cassiopeia xamachana*)

How to identify: This unusual jellyfish is often seen lying upside down on the bottom. **Did you know?** *The tentacles of this jelly contain microscopic algae called **zooxanthellae**. The animal's waste products provide a source of nutrients for the algae that help it grow. Like a plant, the zooxanthellae make "food" through photosynthesis for the jelly! This is an example of **mutualism**. In order for its algae to get the sunlight it needs the jelly must lie upside down on the bottom. It is found in quiet, stagnant waters around mangroves, bays, and lagoons. When disturbed, this jelly will fire its stinging cells into the water. So you can be stung by this jelly without even touching it! Its sting is irritating, but not extremely painful.*

Sea whip (*Leptogorgia* sp.)

How to identify: This is a type of soft coral. It can grow up to 36" high. It is a colony of many animals. When alive it can be purple, red, yellow-orange, or tan. Its branches are long and whip-like. It grows attached to rocks or other solid structures on the sea floor. **Did you know?** *It can be found on rocky bottoms, coral reefs. It is generally found in calm areas on the back side of reefs.*

Sea fan (*Gorgonia* sp.)

How to identify: This is a type of soft coral. Sea fans are flattened and have a net-like appearance. They can be pink, purple, or even yellow. **Did you know?** *It can be found on rocky bottoms, coral reefs. It is generally found in calm areas on the back side of reefs. Sea fans are oriented with the widest side facing into the current (more surface area). This helps them filter more water and collect more food.*

Giant (pink-tipped) sea anemone (*Condylactus gigantean*)

How to identify: This sea anemone has light colored or white tentacles with pink/purple tips. **Did you know?** *These large sea anemones are capable of producing a mild sting that can be felt by some people. These sea anemones can have symbiotic shrimp that hide among the tentacles. They are found around coral reefs or in shallow seagrass beds.*

Brown sea anemone (*Aiptasia pallida*)

How to identify: These are small anemones that attain a height of only about 2 inches. They are pale to dark brown in color, nearly transparent and are often overlooked.

Large star coral (*Montastraea cavernosa*)

How to identify: This hard coral has round to oblong cups that are not connected but close together. The coral cups sit a little higher, giving the coral a bumpy appearance.

Brain coral (*Diploria labyrinthiformis*)

How to identify: This hard coral can form very large clumps that are 6-8 feet across. It is called brain coral because it has deep winding curves like our brain. **Did you know?** *This coral is found on the fore reef (toward the front) and helps break down the wave energy that hits the reef.*

Elkhorn coral (*Acropora palmate*)

How to identify: This hard coral has a treelike appearance but with flat branches that resemble the horns of a moose (Ok, so why didn't they call it moose horn coral instead?) It is brownish yellow with lighter tips. **Did you know?** *It grows on exposed areas of the coral reef and can be closer to the waters' surface than many other corals.*

Staghorn coral (*Acropora cervicornis*)

How to identify: This brownish yellow coral has round branches that form tight clusters with pointed tips. The coral mass can grow up to 5 feet high or take on a sprawling form. **Did you know?** *It can be found in more protected areas of the reef.*



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Fire coral (*Millepora alcicornis*)

How to identify: When alive it is a mustard color with lighter tips or edges. The surface is smooth and if you look close at a specimen, you will see tiny pores. This is where the polyps lived. It can take on a variety of shapes so don't be fooled! **Did you know?** *This is not a true coral can but a hydrozoan. It can sting you if you touch it (alive). It is usually found around coral reefs.*

Ctenophores (see below for general description)

Comb jelly (*Mnemiopsis sp.*)

How to identify: Jelly-like but have rows of fine "hairs" or "comb rows" that propel them through the water. When light reflects off these animals, a rainbow of colors can often be seen. **Did you know?** *Although comb jellies resemble jellyfish, they are not. They lack stinging cells that true jellies have. This particular species is found in coastal waters of Florida.*

Annelid worms – Did you know? *These are segmented worms that live in the ocean. Some are able to move around and hunt for food (like bristle worms) while others must stay in one place and build a tube around themselves and/or burrow in sand or mud for protection. These "worms in a tube" must collect food in some way when it "floats" by them.*

Bristle worm (*Hermodice sp. or Eurythoe sp.*)

How to identify: Bristle worms are segmented worms that have many fine spines along the sides of their long body that are sharp as glass wool. They can be greenish to orange-yellow in color. They can be 4-10 inches long depending on the species. **Did you know?** *They should NOT be handled with bare hands. The spines are very difficult to remove from fingers! They are good predators on small marine life. Some types will even bite on a hook! They can be found in reefs, on sand and mud, sea grass beds, and other places.*

Christmas tree worm (*Spirobranchus giganteus*)

How to identify: This is a showy worm when you can see it. It can be seen on the surface of dead or living coral. It forms a tube down into the coral. **Did you know?** *It is very light sensitive and will quickly go down in its tube when something passes over it. It is found in coral reefs.*

Molluscs – Did you know? *These animals have a shell-producing gland called a mantle, but not all molluscs produce a shell. Most have a muscular foot and a rasping tongue called a radula. This "tongue" helps the animal feed.*

Chiton

How to identify: This oblong animal has 8 shingle-like shells covering it and a large muscular foot. If you could pry one off a rock and look underneath you would see its mouth (with radula). However, chitons suck on rocks so tightly that you will probably damage them if you try to remove them. **Did you know?** *It lives in rocky intertidal areas (area between high tide and low tide).*

Limpet

How to identify: This mollusk has a single "volcano" shaped shell. Many types of limpets have holes on the top (a.k.a. "keyhole"). **Did you know?** *They are found attached to rocks in intertidal areas.*

Tusk shell (*Dentalium sp.*)

How to identify: These animals are appropriately named because their shell is cone-shaped like a tusk! They have a radula and tentacle like projections on their wide end. They are small, white, and seldom more than an inch long. **Did you know?** *They live in sand or mud and are often washed up on beaches.*



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Slipper shell (*Crepidula* sp.)

How to identify: These shells often attach themselves to other shells. They resemble a small boat with a little "seat" inside. Although they look like bivalves, they are actually gastropods.

Bay scallop (*Aequipecten irradians*)

How to identify: Scallops are identified by their wider hinge area (sometimes called "ears"). They are often gray-brown in color. The lower valve (shell) is usually lighter than the upper valve. ***Did you know?***

When you eat scallops you are actually eating the adductor muscles that open and close the shell.

Atlantic ribbed mussel (*Geukensia demissa*)

How to identify: These bivalves can be recognized by their "ribs" that line the surface of their shell. They attach themselves to marsh grasses or other solid underwater objects with strong byssus threads. ***Did you know?*** *They are found in the intertidal areas/creeks of salt marshes.*

Pen shell (*Atrina rigida*)

How to identify: This shell is thin but long and brownish in color. The inside of the shell is usually a beautiful mother of pearl. It is wide on one end and narrow on the other. It's often found with the wide end sticking up out of the sand. The edges of its shell can be sharp, so be careful! ***Did you know?*** *The pen shell gets its name because its shape is like an old fashion quill (feather) pen.*

Eastern oyster (*Crassostrea virginica*)

How to identify: This shell is often rough and heavy looking at the surface but variable in the way it is shaped. The inside is often white except for the purplish area of the muscle scar.

Did you know? *Oyster reefs are ecologically important because they provide a home for many animals such as mud crabs, barnacles, worms, shrimp, etc. Oysters are filter feeders.*

Quahog (*Mercenaria* sp.)

How to identify: This is a rather large, heavy clamshell with well defined growth lines. The interior is usually white with a purple stain. ***Did you know?*** *These clams are commercially important in some regions of the eastern US. The purple mark on the clam was used by Native Americans to make their wampum (money). The larger the purple mark, the more valuable!*

Sunray venus (*Macrocallista nimbosa*)

How to identify: This bivalve has a longer than average shell. It is usually shiny and smooth. It is mostly lavender gray with radial markings that extend out from the hinge/umbo area.

Giant Atlantic cockle (*Dinocardium robustum*)

How to identify: This shell has radial ribs extending from its narrow end. It can be quite large and heavy. The inside of the shell is often pink-rose in color and more pale or white at margin. Small cockles are often mistaken for scallops, but they do not have the "ears" around the hinge like a scallop does.

Coquina clam (*Donax variabilis*)

How to identify: These shells can range in color from white to yellow, to purple and even deep red. Their shells can have ray or even plaid patterns. ***Did you know?*** *These small colorful clams make their home on Florida's sandy beaches. They burrow in the sand between waves and are eaten by birds, crabs, etc.*

Marsh periwinkle (*Littorina irrorata*)

How to identify: These small snails (1") live in the intertidal zone and are usually found just above the water line on marsh grasses, pilings, oyster clumps, etc. The shell is usually a creamy gray color with red brown streaks running around the shell (parallel to the spiral of the shell).

Atlantic deer cowry (*Macrocypraea* sp.) NEW!

How to identify: This animal has a glossy, egg-shaped shell. Young deer cowries may have bands or lines across the shell but as they mature the spots appear. ***Did you know?*** *Like all mollusks, the cowry has a shell producing gland called a mantle. However, the cowry's black, grey, and brown mantle extends beyond the shell opening and can cover the entire outer shell surface, keeping it nice and shiny!*



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Florida horse conch (*Pleuroploca gigantea*)

How to identify: This large gastropod is actually not a conch but more related to tulip shells. They can be identified by their large size, and orange flesh/shell color. **Did you know?** *They can be found in grass flats or sandy/mud flat areas. The horse conch is a voracious predator that preys on other snails. It is also the official state shell of Florida!*

Florida crown conch (*Melongena corona*)

How to identify: This conch can easily be distinguished by its "crown" of spines on its "shoulder." It may vary in color – but brownish gray is common. **Did you know?** *It is commonly found on mud flats around mangroves and oyster beds. It is a predatory snail, using its radula and acidic saliva to drill holes into other mollusks so it can eat them!*

West Indian Fighting Conch (*Strombus pugilis*)

How to identify: This relative to the queen conch can be easily distinguished by its orange brown coloring and smaller lip. It only grows to about 4 inches.

Pink or Queen conch (*Strombus gigas*)

How to identify: This famous gastropod is noted for its beautiful pink color inside the shell. All true conchs have a notch on the lower part of their "lip." **Did you know?** *Although protected in many parts of the world (including FL), this conch is sought after for its meat, which is used to make conch chowder. It is found on sand bottoms and seagrass beds in south Florida.*

Banded tulip (*Fasciolaria hunteria*)

How to identify: This tulip shell can be distinguished from other tulips by its thin, dark spiral rings and lighter color. **Did you know?** *It is found in seagrass beds and sandy/mud bottoms of bay or coastal waters. Tulip snails prey on other snails for food.*

Atlantic moon snail or Shark's eye (*Polinices duplicatus*)

How to identify: This gastropod is known for its very large "foot." This foot can almost cover its shell when the animal is on the move. They "plow" through the sand/mud feeding on bivalves. Note "eye-like" appearance of the shell. The round shell is gray/tan in color. **Did you know?** *The smooth, egg masses of moon snails are surrounded by a "sand collar" held together with mucous.*

Florida rock shell (*Thais haemastoma*)

How to identify: This small gastropod is common around oyster beds where they feed on young oysters by boring into them. The shell is fairly thick and cream-orange/brown in color (darker colors can occur too.)

Common sundial (*Architectonica* sp.) **NEW!**

How to identify: This shell is shaped like a flattened cone and looks like a "pinwheel". Its bottom is concave and has coloring that resembles a spiral staircase.

Netted olive (*Oliva reticularis*)

How to identify: Olive shells are glossy with folds and wrinkles along their "lip." They do not have an operculum. The netted olive usually has brown markings and/or bands.

Lightning whelk (*Busycon contrarium*)

How to identify: This shell has small knobs on its "shoulder" and has brown streaks. Live specimens will have an operculum. Whelks lay eggs in strands of cases that look like what you see in the photo. This is a left-handed whelk. **Did you know?** *Whelks and their egg cases are commonly found along sandy beaches and intertidal flats.*

Pear whelk (*Busycon spiratum*)

How to identify: This whelk has a smooth surface, a wide "shoulder" and lacks the sharper "points" that other whelks have.



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Common octopus (*Octopus vulgaris*)

How to identify: The octopus has 8 arms, a beak, a radula, but no internal shell. They can change colors (to blend in), squirt ink, and can make a quick escape! **Did you know?** *They are found in shallow water hiding in cracks, crevices, under rocks, etc. The octopus is usually nocturnal (feeds at night) and preys on crabs and other crustaceans.*

Squid (*Loligo pealei*)

How to identify: Can be easily distinguished from the octopus by having 10 arms and wing-like fins. Its body is more streamlined than that of the octopus. **Did you know?** *Squids (like octopi) have special skin cells called chromatophores. These cells help the squid to quickly change color and blend in with their surroundings.*

Arthropods – Did you know? *These animals have a hard shell (exoskeleton), a segmented body, and jointed appendages (such as legs). Crustaceans are arthropods that live mostly underwater. Examples of crustaceans are barnacles, shrimps, crabs, and lobsters.*

Acorn barnacle (*Balanus* sp.)

How to identify: Acorn barnacles live in volcano shaped shells attached to rocks or wooden structures. They are usually found in the intertidal zone. **Did you know?** *Barnacles feed by sticking their feather-like cirri (feet) out of the shell, into the water and waving them in order to collect food. Or to put it another way... they feed upside down, on their backs, by kicking food in their mouth.*

Gooseneck barnacle (*Lepas* sp.)

How to identify: These barnacles have a fleshy "neck" ending in a more flattened body that is white in color. **Did you know?** *These barnacles grow on anything that is floating in the ocean. They are often found on washed up beach debris.*

Horseshoe crab (*Limulus polyphemus*)

How to identify: It is shaped like a horseshoe and has a long spike-like tail. **Did you know?** *This "crab" is not really a crab (and not even a crustacean!) but more related to a spider. They "plow" through sandy or muddy bottoms in search of small animals to eat. Females usually grow larger than males. Some people think the animal's long spike-like tail is for defense, but it really isn't. The tail is used to help right the animal if it gets turned over.*

Green striped hermit crab (*Clibanarius vittatus*)

How to identify: This hermit crab has green and white down its legs. Claws are spoon tipped (rounded). It is often found in tulip shells, crown conchs, or whelk shells as adults.

Flame-streaked box crab or Shame-faced crab (*Calappa flammea*)

How to identify: This crab has flattened claws that it will hold close to its face. It is grayish in color with flame-like markings that are purplish brown. **Did you know?** *These crabs are called box crabs because of the way they can pull their legs and claws close to their body and sit like a "box" on the sea floor!*

Calico crab (*Hepatus epheliticus*) NEW!

This pretty crab has a rounded gray-yellow shell (carapace) with irregular spots of dark brown or red, each lined with a darker ring. It is found on sandy bottoms in shallow water. **Did you know?** *Calico crabs are also "box crabs" because of the way they can pull their legs and claws close to their body and sit like a "box" on the sea floor!*

Blue crab (*Callinectes sapidus*)

How to identify: This crab can be distinguished by its greenish blue coloration and flattened (last pair) of legs. **Did you know?** *Its scientific name means "good tasting"? Soft shell crabs are blue crabs that have shed their old shell and are waiting for their new one to harden. Blue crabs can be found on mud bottoms in shallow water but can also be found stalking through sea grass beds looking for food!*



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Decorator crab (*Stenocionops sp., Macrocoeloma sp. Microphrys sp.*) Back on list!

How to identify: Look for the debris stuck on this crab's body! Plus, look for the two spines that curve in above his eyes. These crabs are all very similar and are usually small with triangular shaped shells and thin, long legs, and claws. **Did you know?** *The shell is covered with little hairs in which the crab attaches seaweed, seagrass, and other objects as camouflage – that's why he is called the decorator crab!*

Spider crab (*Libinia dubia*) NEW !

How to identify: This crab's shell and legs have lots of spines and bumps. The shell is round in shape and brown to yellowish in color. The chelipeds (claws) are shorter than the legs. This crab has very sharp and strong tips on its legs. It lives around muddy shores in shallow water.

Gulf (or False) arrow crab (*Metoporphaphis calcarata*) New name, right species!

This small little crab is easily identified by its long skinny legs, its pointed rostrum, and dull brown color. It lives in sea grass beds and other vegetation near the bottom as well as hard substrates. They also have a spine sticking out at the joints of their legs... (Bring magnifiers!)

Yellowline arrow crab (*Stenorhynchus seticornis*) NEW animal, right species

This little crab is similar to the gulf arrow crab but more colorful. It is easily identified by its long skinny legs, its long pointed rostrum, and yellow-orange or red bands on legs. Check out those blue fingers on its claws! This crab crawls slowly around the bottom of coral reefs. **Did you know?** *This is a popular little crab for the aquarium, although delicate.*

Stone crab (*Menippe mercenaria*)

How to identify: This crab has large black tipped claws and a heavy looking but smooth shell. Adults can be dark brown, mottled and speckled with gray. Immature stone crabs are often dark with light colored rings on their legs and bluish purple shell. **Did you know?** *Stone crabs can make sounds. On the inside of the claw is a pattern that looks like a fingerprint. The crab will rub this "fingerprint" against his shell, producing a sound. Stone crab claws are commercially important as seafood. They usually have a "crusher" and a "pincer" claw - can you tell which is which? (Try to find out!)*

Mud crab (*Panopeus or Eurypanopeus sp.*)

How to identify: This crab is smaller than a stone crab and has "teeth" around the edge of its shell. Its shell is a little rougher in texture than the stone crab with more of a "mud" color. Another way to identify this crab is to look for the "tooth" between the fingers of the claws. **Did you know?** *It is found in shallow water and/or intertidal areas of Florida among oyster clumps and/or under rock rubble. Like the stone crab it has a crusher type claw (for crushing shells) and a cutting "pincer" claw (for tearing meat). It feeds on young oysters or other small shelled animals that live around the clump.*

Ghost crab (*Ocypode quadrata*)

How to identify: These crabs are sandy-gray in color and have a rather square shell. Their eyes are on long stalks. **Did you know?** *They are found on sandy beaches of Florida where they dig holes above the high tide line. They usually feed at night along the water's edge.*

Fiddler crab (*Uca pugilator*)

How to identify: Male fiddler crabs have one claw larger than the other. The females have equal size claws. They have a square shaped shell. **Did you know?** *Male fiddler crabs will wave their larger claw to attract females of the same species or to warn males to stay away and to attract females to their burrow. Each species of fiddler crab has a unique wave!*

Atlantic Mole crab or sand flea (*Emerita talpoida*)

How to identify: The mole crab is oval in shape and sandy in color, if not slightly pink. The tail and legs are held tightly beneath them. **Did you know?** *The mole crab burrows just below the surface of the sand where waves wash up on the shore. They have large antennae that stick out above the sand. These antennae collect food particles in the water.*



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White shrimp (*Penaeus setiferus*)

How to identify: Look for "teeth" on upper and lower part of the rostrum (horn) and grooves on the side of it (rostrum). This shrimp is pale in color. **Did you know?** *This is a commercially important shrimp.*

Mantis shrimp (*Squilla or Gonodactylus spp.*)

How to identify: You can easily identify a mantis shrimp by its raptorial claws lined with "teeth." The tail has spines. The body can be different colors. **Did you know?** *Mantis shrimp are sometimes called thumb splitters (or busters) because their claws can strike out quickly and cut a hand if one is not careful. They live in reefs, sea grass beds or even in sandy areas of the sea floor.*

Banded coral shrimp (*Stenopus hispidus*)

How to identify: This pretty little shrimp is easily identified by its reddish-purple and white coloring. It grows to about 2" long. **Did you know?** *It is found around coral reefs and is a type of cleaner shrimp. These shrimp set up "cleaning stations" around the reef. They will stand in one place and wave their antennae to attract a fish that might need some parasites removed. Fish wait patiently while the shrimp does this and when done, the fish moves on.*

Grass or Arrow shrimp (*Tozeuma carolinense*)

How to identify: These shrimp range in color from green to purple to clear, depending on the type of habitat they are found in. Their small, thin bodies have a "humped" appearance and a pointed head.

Glass shrimp (*Palaemonetes vulgaris*)

How to identify: These shrimp look like miniature bait or eating shrimp. They are fairly clear or transparent looking. The dark mass in the abdomen of one of these shrimp is developing eggs.

Spiny lobster (*Panulirus argus*)

How to identify: The Florida spiny lobster does not have the large claws of a Maine lobster but it does have longer, spiny antennae and two "horns" over the eyes. It is brownish in color with yellowish spots on the tail and carapace. **Did you know?** *When they are young they live in grassy areas and sponges but when they are big enough they move into deeper water around reefs or other rocky areas. This lobster is commercially important because its tail (abdomen actually) is very popular as seafood.*

Beach flea (amphipod) (*Orchestia sp.*)

How to identify: The beach flea is small in size (5 mm or so), lies on its side in a curved position, has segmented shells, and is usually gray, brown, or green in color. **Did you know?** *This little crustacean is commonly found in seaweed and/or the wrackline on a beach. It lies on its side but can spring or leap to 50 times its own length much like a dog flea can (though they are NOT fleas).*

Echinoderms – Did you know? *This group includes starfish, sea urchins, sea cucumbers, and brittle stars. They have "spiny skin" and radial symmetry.*

Atlantic purple sea urchin (*Arbacia punctulata*)

How to identify: This urchin has sharp dark-purple spines but the spines around the mouth are flattened at the tips. The test (or shell) of this urchin is about 2" in diameter but the spines are about 1" long. Their color is brown to brownish red or reddish purple depending on where they are found.

Variegated urchin (*Lytechinus variegates*)

How to identify: It is often green and white but color may vary. These urchins can be reddish purple or pinkish red too! The test (shell) can be 3 inches in diameter with rather short spines. **Did you know?** *It will often camouflage itself with bits of shell, sea grass, or seaweed.*



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Pencil urchin (*Eucidaris tribuloides*)

How to identify: Pencil urchins can be identified by their blunt, thick spines. The spines on the upper part of the shell are longer than the lower part. It is light brown in color with stripes or shading of darker brown. There may be a greenish or reddish color to it as well. ***Did you know?*** *It is found on reefs or in shallow water.*

Keyhole sand dollar (*Mellita quinquiesperforata*)

How to identify: It has a very flat test with five holes. Live specimens can be light brown or gray in color. Look for the starfish design in the middle. ***Did you know?*** *It is found in shallow, sandy areas.*

Common Sea star (*Echinaster* sp.)

How to identify: This sea star has five arms that are rather short and blunt with small spines (though they are hard to see on dead, dry specimens). It can be orange or brown in color.

Nine-armed Luidia (*Luidia* sp.)

How to identify: This starfish is easily identified by its 9 long, skinny arms (rays). (Ok, so this specimen lost parts of two arms... you get the idea.) ***Did you know?*** *Starfish can regenerate lost arms!*

Cushion star (*Oreaster reticulatus*)

How to identify: This large sea star has 5 thick bumpy arms. It can be reddish, orange, or brown in color. It has a network of knobby-looking squares and triangles across its body. ***Did you know?*** *This is the largest sea star in Florida and is a protected species. It can grow up to 20 inches across! It lives in shallow coastal waters, in sand and sea grass areas as well as coral reefs.*

Brittle star (*Ophionereis reticulata* or similar species)

How to identify: Brittle stars have a well defined central disc with very long, slender arms. ***Did you know?*** *They are called brittle stars because when handled or picked up, their arms often break off.*

Sea cucumber (*Pentacta pigmaea*)

How to identify: Sea cucumbers look more like giant fat worms or sausages. They really don't have much in the way of spines, nor much of any shell. ***Did you know?*** *They feed on organic matter in the bottom sediments. If they are roughly handled or threatened by some animal, they may throw out their insides. Luckily they can regenerate these back!*

Tunicates (sea squirts) – *Did you know?* Tunicates have soft bodies enclosed in a sac like covering (or tunic!). They attached to objects underwater and have two openings. They filter feed by bringing water in one opening and pushing it out the other opening. Do you know why they are called sea squirts? It has nothing to do with their size! **(NOTE: Mangrove tunicate was removed from list.)**

Leathery sea squirt (*Styela plicata*)

How to identify: This sea squirt has a tan colored surface. It is often found growing in large clumps of many individuals. Each tunicate can grow to about 2 ¾ inches.



Section 3: Marine and Coastal Vertebrates Identification

2014 changes: The vertebrates added are in **yellow**. Additional "Did You Know" information has also been added to some animals.



Fishes - Did you know? Fishes are animals that have fins for swimming and gills for breathing. Many (but not all) have scales. Some have a skeleton made of cartilage (rays and sharks) but most have a skeleton made of bone (snappers, groupers, catfish, angelfish, etc.). (* Indicates a revision or addition.)

Southern stingray (*Dasyatis sp.*)

How to identify: Flat shape, dark brown/gray in color, common in bays and estuaries. **Did you know?** A barb near the base of the stingray's tail can inflict a painful wound if someone steps on the stingray with bare feet. Can you do the stingray shuffle?

Spotted eagle ray (*Aetobatus narinari*)

How to identify: These rays are flat in shape, dark above with distinct whitish spots and/or streaks.

Smooth butterfly ray (*Gymnura micrura*)

How to identify: It can be distinguished from other rays by its short tail that lacks a spine.

Bonnethead shark (*Sphyrna tiburo*)

How to identify: This shark is smaller in size than other types of hammerhead sharks- they grow to only three or four feet in length. The bonnethead shark has a much more rounded snout than its cousin the hammerhead. **Did you know?** It can be found in bays and estuaries and off beaches. It is the smallest species of hammerhead shark.

Scalloped hammerhead (*Sphyrna lewini*)

How to identify: The head is shaped like a double-ended hammer and has indentations or notches along its front edge. **Did you know?** It can be found offshore or inshore.

Blacktip shark (*Carcharhinus limbatus*)

How to identify: This shark is a dark bluish gray in color and whitish below. It may have a whitish stripe on the side of its body. The fins have black tips but they usually fade as the shark gets older.

Nurse shark (*Ginglymostoma cirratum*)

How to identify: The nurse shark is brown in color, has a small mouth, and can be distinguished by having "barbels" at the front end of its mouth.

Gulf killifish (*Fundulus grandis*)

How to identify: There are many types of killifish. This killifish has a blunt head, pale spots and very faint bars on its side. It kind of looks like a large guppy!

Menhaden (*Brevoortia spp.*)

How to identify: This fish is silvery with greenish, bluish back. Its fins are golden yellow. It also has a single dark shoulder spot.

Sheepshead porgy (*Archosargus probatocephalus*)

How to identify: This fish is flattened side to side but can be easily distinguished by its vertical dark bands (see arrow). **Did you know?** This fish feeds on mollusks (mussels, oysters) and crustaceans (crabs, shrimp). Because it must break through the shells of their prey - it has a set of awesome teeth that look more human than fish-like. Catch one or go to a seafood market and check them out!



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Pinfish (*Lagodon rhomboides*)

How to identify: The spot above the pectoral fin (behind gill, see arrow) is a distinguishing characteristic. They have sharp spines in their dorsal fin (Get it? Pinfish!). **Did you know?** *These fish are very common in estuaries; they are known as "bait-stealers" although their mouth is quite small.*

Whiting or Kingfish (*Menticirrhus sp.*)

How to identify: This is another member of the drum family. It can be distinguished from the croaker by its SINGLE rigid barbell under its chin. It is silvery-white in color. **Did you know?** *It is common off sandy beaches but also found in sand/mud bottoms of bays.*

Atlantic croaker (*Micropogonias undulates*)

How to identify: This member of the drum family can be recognized by its silver color and many tiny chin barbels. (Note the kingfish only has ONE.) **Did you know?** *It makes a drumming/croaking sound when caught. It usually lives in bays and estuaries, nearshore coastal waters.*

Spotted seatrout (*Cynoscion nebulosus*)

How to identify: The spotted seatrout has prominent round black spots on its back (and even into tail) and one or two prominent "canine" like teeth present in the upper jaw. Its lower jaw extends beyond its upper jaw. **Did you know?** *Seatrout are important as sportfish and live inshore over seagrass beds sandy/mud bottoms.*

Silver seatrout (*Cynoscion nothus*)

How to identify: The silver seatrout is straw colored on top. It looks similar to the spotted seatrout but lacks the spots and has bigger eyes. It has two canine-like teeth in upper jaw.

Striped burrfish (*Chilomycterus schoepfi*)

How to identify: This a "porcupine fish" that has its spines up all the time. Note: Other types of porcupine fish have big spines that lay flat until they "puff" up. **Did you know?** *This puffer fish can inflate itself if threatened. Their teeth form a strong parrot-like beak - watch your fingers! They are usually found inshore, over grass beds, docks, patch reefs.*

Checkered puffer (*Sphoeroides testudineus*) **NEW!**

How to identify: This puffer lacks the hard spines of the burrfish This puffer has brownish blotches on its top and a white belly. **Did you know?** *This puffer fish can also inflate itself if threatened. Their teeth form a strong parrot-like beak - watch your fingers! They are usually found inshore, over grass beds, docks and oyster areas.*

Toadfish (*Opsanus spp.*)

How to identify: They are well camouflaged and have a large, wide mouth. They have brown, tan, and white patches over the body. **Did you know?** *These fish live on bottom under rocks, shells, etc, in seagrass beds, bays, and estuaries. They are also known as "oyster crackers" because their powerful jaws can crush oysters.*

Mullet (*Mugil spp.*)

How to identify: They are bluish-gray or green above, silver on sides. They have a small upturned mouth. Note the location of fins and overall body shape. **Did you know?** *Mullet are common baitfish. Schools of small mullet can be seen just under the water's surface. Mullet often jump out of the water when pursued.*

Tarpon (*Megalops atlanticus*)

How to identify: The tarpon has a dark green to bluish back and silvery sides. Its large mouth is turned upward. Large specimens can have very large, if not huge scales. **Did you know?** *Most tarpon caught weigh 40-150 lbs; the Florida record is 243 lbs! They are found in coastal waters in bays, over seagrass beds, channels, around docks, etc. They are popular as sportfish.*



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Hardhead catfish (Arius felis)

How to identify: This fish has four barbels (whiskers) on its chin. **Did you know?** *The catfish has sharp serrated poisonous spines in its dorsal and pectoral fins. Catfish are very slippery so don't pick one up with bare hands and be careful not to get pricked by those spines!*

Gafftopsail catfish (sailcat) (Bagre marinus)

How to identify: This catfish is similar to hardhead catfish but it has long "tassles" (long, fleshy pieces) at the end of its dorsal and pectoral fins. It also has flattened barbels at the edges of its mouth. **Did you know?** *This catfish is very slippery and has poisonous spines in its fins, so be careful!*

Black seabass (Centropristis striata)

How to identify: The black sea bass is very dark in color. The dorsal fin has rows of white stripes. Look for the sharp spine near the back of the gill, just above the pectoral fin. **Did you know?** *Black seabass start life as females. Some older, larger females change and turn into males so they can breed.*

Gag grouper (Mycteroperca microlepis)

How to identify: The gag grouper has dark "worm-like" markings on its side. Like all groupers it has a large mouth. **Did you know?** *It is found around reefs/hard bottom areas. Young may be found in sea grass beds. Groupers can change their sex (female to male) as they grow.*

Red grouper (Epinephelus morio)

How to identify: This grouper is brownish red in color and has blotches on its side and black dots around the eyes. The second spine of dorsal fin is longer than others. **Did you know?** *It is found in reefs and other hard bottom areas. Young red groupers can be found in sea grass beds. Groupers can change their sex (female to male) as they grow.*

Nassau grouper (Epinephelus striatus)

How to identify: This grouper can be distinguished by a stripe on its forehead and brown or red vertical bars on the rest of its body. **Did you know?** *It is found around reefs and other hard bottom areas. Groupers can change their sex (female to male) as they grow.*

Goliath grouper (Epinephelus itajara)

How to identify: This grouper's head and fins have small black spots. There are dark vertical bars on the side of its body and its fins are more rounded than other groupers, especially the tail. **Did you know?** *It is the largest of the groupers (record 680 lbs)! It can be found under ledges, deep holes around coral reefs/hard bottom areas.*

Grey snapper (Lutjanus griseus)

How to identify: Also known as mangrove snapper. This snapper can be distinguished from other snappers by a dark band through the eye. This band fades as the snapper gets older or when it dies. It is red brown in color. The anal fin is rounded. Look for the two canine teeth in upper jaw. **Did you know?** *It can be found around coral reef areas OR inshore around mangroves.*

Red snapper (Lutjanus campechanus)

How to identify: The red snapper is an overall reddish pink in color, has red eyes, and an anal fin that is sharply pointed. **Did you know?** *It can be found in deeper reefs/waters offshore. It is a popular fish for the dinner table. It can grow to a larger size than the gray snapper.*

Yellowtail snapper (Ocyurus chrysurus) NEW!

This fish is easily identified by its broad yellow-green line running down the side of its body, from its eye then to all of its tail or caudal fin. It is found inshore, over sandy bottoms, and coral reefs. Often in schools. **Did you know?** *This fish is a popular game and food fish.*



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King mackerel (*Scomberomorus cavalla*)

How to identify: This is a very streamlined, fast fish, with a deeply forked tail. Its back is bluish-green, with silvery sides. It can grow up to 50 pounds or so. **Did you know?** *It is a popular sportfish. It is usually found offshore.*

Spanish mackerel (*Scomberomorus maculatus*) **NEW!**

How to identify: This is a very streamlined, fast fish, with a deeply forked tail. It has distinct yellowish brown spots on its sides (the king mackerel does not). They are often found over grass beds and reefs.

Yellowfin tuna (*Thunnus albacares*)

How to identify: This is a "heavier" looking fish than the mackerels. Note the long length of the pectoral fins, second dorsal fin and anal fin. Live specimens have a golden yellow stripe on the side. **Did you know?** *Tuna are found mostly offshore, in or near the Gulfstream current.*

Greater Amberjack (*Seriola dumerili*)

How to identify: The greater amberjack is one of the largest members of the jack family. It can be distinguished by having a dark band through its eye and a deeply forked tail. **Did you know?** *Amberjacks are offshore fish often found around reefs and wrecks.*

Jack crevalle (*Caranx hippos*)

How to identify: This fish has a steep sloping head and a sickle-shaped, deeply forked tail. Note the spot on the gill cover. The jack's body is designed for fast swimming.

Permit (*Trachinotus falcatus*)

How to identify: The permit is a flattened fish with a deeply forked tail. Note the long dorsal and anal fins. Grows to 50 pounds! Looks like a pompano but has a shorter body. For differences between permit and pompano go to <http://myfwc.com/research/saltwater/fish/permit/identification/>

Pompano (*Trachinotus carolinus*) **NEW!**

How to identify: The pompano is very similar to the permit but coloring, body shape, and fins are different. Grows to 8 pounds! For differences between permit and pompano go to <http://myfwc.com/research/saltwater/fish/permit/identification/>

Lookdown (*Selene vomer*)

How to identify: This fish is like a flat plate sitting on its edge. The front of the head has a very steep slope, hence the name "lookdown."

Bluefish (*Pomatomus saltatrix*)

How to identify: The bluefish is greenish-blue in color and has sharp teeth in a large mouth. **Did you know?** *They travel in schools and are aggressive predators that feed on smaller fish. They are common along beaches and inlets of Florida.*

Great barracuda (*Sphyraena barracuda*)

How to identify: This fish has a long, streamline shape with some really mean looking sharp teeth. Note lower jaw extends beyond the upper jaw. **Did you know?** *Barracudas are voracious and opportunistic predators and have been known to be attracted to shiny objects in the water that resemble prey. Removing shiny jewelry before going in the water around reefs or mangroves would make just sense!*

Triggerfish (*Balistes* spp.)

How to identify: These fish have tough leathery skin and are flattened vertically. They have a special dorsal spine that can "lock" in the up position. How many dorsal spines do you see? **Did you know?** *They use this spine to wedge themselves into a crack or crevice so that predators can't get to them.*



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Blue angelfish (*Holocanthus bermudensis*)

How to identify: This fish has blue green coloring but is not as brightly colored as the queen angelfish. It lacks the queen's "crown". The tail of the blue angelfish is mostly blue. **Did you know?** *These fish live around coral reefs.*

Queen angelfish (*Holocanthus ciliaris*)

How to identify: Queen angelfish have a blue – ringed "crown" on the head (a patch/dark spot) (Blues do not). The queen has a more yellow tail. **Did you know?** *These fish live around coral reefs.*

Spadefish (*Chaetodipterus faber*)

How to identify: This disc shaped fish has 4-6 black vertical bands on each side. **Did you know?** *When spadefish are very young they are dark brown in color and are often found drifting on the surface of water mimicking (looking like) a piece of debris.*

Lined seahorse (*Hippocampus erectus*)

How to identify: Seahorses have long tube shaped mouths. They use their tail to hang on to underwater objects. The male seahorse has a pouch between his abdomen and tail. **Did you know?** *The female deposits eggs into the male's pouch and then he keeps the developing baby seahorses until they are ready to "hatch". Baby seahorses are miniature versions of the adults and can feed immediately.*

Pipefish (*Sygnathus* sp.)

How to identify: Pipefish are related to the seahorses; males have a pouch in which they incubate the fertilized eggs. They have a long "pipe" like body, one small dorsal fin and a long tube shaped snout/mouth.

Gulf flounder (*Paralichthyes albigutta*)

How to identify: This flatfish has 3 distinct spots and is often blotchy in appearance. **Did you know?** *Flounders are called "flatfish" but don't start out being flat. A young flounder when it hatches from an egg looks like a normal fish but as it grows, the right eye "migrates" over to the other side.*

Southern flounder (*Paralichthyes lethostigma*)

How to identify: This flatfish does not have the distinct spots but is blotchy in appearance.

Snook (*Centropomus undecimalis*)

How to identify: This fish has a distinct black lateral line, two dorsal fins, and a large mouth. The lower jaw is longer than the upper jaw. **Did you know?** *It is popular as a sportfish for anglers.*

Doctorfish/surgeonfish (*Acanthurus* sp.)

How to identify: Doctorfish/surgeonfish get their name because they have a sharp spine at the base of their tail. Some are brown, others are blue in color. **Did you know?** *The tail spine normally lays flat against the body of the fish, but will extend out and inflict a painful wound if a person or predator tries to grab the fish near the tail. They are usually found around reefs.*

Hogchoker (*Trinectes maculatus*)

How to identify: A hogchoker is a type of small flatfish. It does not have a pectoral fin (flounders do). It is brown in color with darker brown bars. It is rounder in shape than a flounder.

Planehead filefish (*Monacanthus hispidus*)

How to identify: This fish is brown/gray with blotches over body. Note: It has one long spine on its head above its eye. This spine DOES NOT LOCK like in the triggerfish.

Lizardfish (*Synodus* sp.) *How to identify:* They have a very large mouth with sharp little teeth. They are various shades of brown, tan, or white. **Did you know?** *These fish live on the bottom, often in sand. They ambush their prey by "jumping" out of the sand and grabbing the prey with their sharp teeth.*



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Batfish (*Ogcocephalus* sp.)

How to identify: This unusual fish has a flattened head and limb-like pectoral fins. Their skin is rough, often bumpy, and their coloration helps them blend in with the bottom. **Did you know?** They use their pectoral fins to "walk" across the seafloor in search of food.

White grunt (*Haemulon plumieri*)

How to identify: This common grunt has a light bluish-gray body color, a head with horizontal blue stripes, a white underbelly, and a large, bright orange mouth! **Did you know?** It makes a grunting sound when caught. It is found around reefs, pilings, etc.

Black drum (*Pogonias cromis*)

How to identify: This fish has vertical dark bars and has barbels beneath its chin. In large specimens the bars may be hard to see. **Did you know?** Its teeth are designed to crush oysters. It can grow to 30 pounds and be as large as 42 inches - like the one you see here!. It can be found in salt marsh creeks/channels, oyster bars.

Red drum or Redfish (*Sciaenops ocellatus*)

How to identify: This fish has a copper bronze body and usually has at least one, if not more, distinct spots at the base of its tail. It does not have barbels under its chin. **Did you know?** The redfish is a prized sporting fish. It is commonly found in estuaries and shallow coastal regions such as bays, along tidal creeks, oyster beds, seagrass areas.

Dolphin fish (Mahi mahi) (*Coryphaena hippurus*)

How to identify: This fish is bright greenish-blue above. Notice the shape of the head and the deeply forked tail. The single dorsal fin extends from the head all the way to the tail. **Did you know?** Young live in floating sargassum weed for protection. This fish is found offshore. The head of the male is more blunt and vertically sloped (male shown in slide). In older males the head forms pronounced crest or hump. Females have a more gently sloped head.

Wahoo (*Acanthocybium solanderi*)

How to identify: The wahoo is a type of mackerel that is long and slender. It can grow to 5 feet long. It has a pointed snout, elongated jaws with teeth. It is dark greenish blue above, silvery below, with wavy vertical bars on its side. **Did you know?** It is a fast fish that feeds on other fish and squid. It is a popular sportfish. It can be found near the surface of open ocean areas and over coral reefs.

Blue Marlin (*Makaira nigricans*)

How to identify: The blue marlin can be up to 10 feet long. The upper jaw ends in a long point (the bill). It is dark blue or brown above and silvery below. It has blue vertical bars on its side. The fins are dark blue. **Did you know?** This is a member of the billfish family and is popular as a sportfish. It is a very fast swimmer and feeds on other fish. It is found near the surface or at mid depth in the open ocean (offshore).

Sailfish (*Istiophorus platypterus*)

How to identify: The sailfish has a very distinct "sail" for a dorsal fin. It has a long body and a long upper jaw that forms a "bill." It is dark blue above, silvery below. **Did you know?** It is a very fast swimmer and can be found at the sea's surface or mid-depth in open/offshore water.

REPTILES – Did you know? Reptiles are animals that are cold-blooded. They breathe with lungs and have scales. Although most reptiles live on land or in freshwater habitats, some live in the marine environment (such as sea turtles and crocodiles).

Green turtle (*Chelonia mydas*)

How to identify: Green turtles have very smooth shells and lack the hooked beak of the hawksbill turtle. **Did you know?** The "green" in this turtle's name refers to the color of its fat. They are primarily plant



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eaters and can often be found around seagrass beds. This is the sea turtle which is most commonly hunted for its meat (although NOT in US waters!)

Loggerhead turtle (Caretta caretta)

How to identify: Loggerheads can be recognized by their broad, brown heads. **Did you know?** They commonly nest on Florida's beaches between about April and August.

Leatherback turtle (Dermochelys coriacea)

How to identify: The leatherback has distinct ridges on its shell. The shell lacks plates and instead is smooth and leathery. It has slate gray to blue-black skin. They have long flippers. **Did you know?** This is the largest sea turtle and its main food is jellyfish (yum!). It can be found in the open ocean, bays, and estuaries.

Hawksbill turtle (Eretmochelys imbricate)

How to identify: This turtle can be identified by the mottled coloration as well as by its sharply-pointed mouth/beak and pointed scutes along the back edge of the shell. **Did you know?** In the past, the hawksbill turtle was hunted for its beautiful speckled shell.

American alligator (Alligator mississippiensis)

How to identify: Alligators have a "U" shaped, rounded snout. When an alligator's mouth is closed, the lower teeth are not as visible. **Did you know?** They live in freshwater marshes, swamps and lakes though they have been known to venture into brackish water at times (or even backyard pools!)

American crocodile (Crocodylus acutus)

How to identify: Crocodiles have a more "V" shaped snout. The upper and lower teeth of crocodiles are more visible when the mouth is closed than an alligator. (They have a more "toothy" grin!). **Did you know?** They are typically found in brackish calm waters of extreme southern Florida but may also venture into freshwater.

Birds - Did you know? Birds are animals with feathers. Some feathers are designed to help birds fly, other feathers help repel water. Some water birds have a special gland near their tail that produces a water proofing oil. The bird uses its beak to spread this oil through its feathers when it grooms or "preens" itself.

Brown pelican (Pelecanus occidentalis)

How to identify: Look for the big pouch under their long bill. Watch them dive head first into the water for fish. They love to hang out around piers and docks. **Did you know?** The brown pelican population was almost devastated because of the use of the pesticide DDT prior to 1970. DDT accumulated in the tissues of the fish eaten by this bird and caused the pelicans to lay very thin-shelled eggs which often dried out or broke before hatching. Today, the main human threats to the pelican are probably discarded fishing line, which entangles the birds and loss of nesting areas due to development.

Anhinga (Anhinga anhinga)

How to identify: They have a long neck and a straight pointed bill. **Did you know?** The anhinga does NOT have oil glands to help waterproof its feathers. So what does it do when its feathers get wet? It sits and spreads them out to dry! Anhingas like shallow freshwater places like ponds and swamps rather than coastal beaches. They will swim at the surface and then dive down under water to spear their food.

Double crested cormorant (Phalacrocorax auritus)

How to identify: The cormorant is often confused with the anhinga. The cormorant has a hooked bill, while that of the anhinga is straight. Their hooked bill helps them grasp their food and hang onto it. **Did you know?** Cormorants, like anhingas, will dive underwater for their food. They too must dry their feathers in the sun.



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Roseate spoonbill (*Ajaia ajaja*)

How to identify: Spoonbills have a spoon-shaped mouth. Adult birds have red eyes, bald heads.

Did you know? Spoonbills feed by swinging their head from side to side.

Great blue heron (*Ardea herodias*)

How to identify: It is a large, grayish heron with a yellowish bill. In flight it folds its neck in. Found around salt and brackish waters. *Did you know?* A color variation of this species is the great white heron (not the same as great egret!). The great white heron can be distinguished by its yellowish-green legs, whereas the great egret has black legs.

Yellow-crowned night heron (*Nycticorax violaceus*)

How to identify: As its name says, this bird has a yellow crown. Notice the white patch under the red eye and the long feathers on top of its head.

Black-crowned night heron (*Nycticorax nycticorax*)

How to identify: They have a heavier body, a short, thicker neck, and shorter legs than yellow-crowned night heron. This heron has a dark cap on its head, red eyes, and is dark on its back, but white below. Not as common as yellow-crown.

Snowy egret (*Egretta thula*)

How to identify: These egrets are recognized by their black beaks and legs. Their feet are yellow.

Great egret (*Casmerodius albus*)

How to identify: The all white body, black legs and yellow bill, make the great egret easy to identify.

White ibis (*Eudocimus albus*)

How to identify: The adults are white with black wing tips. Their bill has a downward curve and is red. Young birds are brown above and white below with brown bill and legs.

Mallard duck (*Anas platyrhynchos*)

How to identify: As with most ducks, male mallards are more colorful than females. Female and young mallards are light brown with white accents.

Frigate bird (*Fregata magnificens*)

How to identify: The male frigate bird has a bright red pouch which can be puffed up during courtship to attract a female. Females have a white breast and black neck. It spends most of its time in the air soaring. Look for the forked tail. *Did you know?* The frigate bird is also called the "man-o-war bird" because it attacks other birds and steals their food.

American coot (*Fulica americana*)

How to identify: The coot has a dark body and a white bill. It will feed on shore, at the water's surface, or just under it. It also nods its head as it swims.

Purple gallinule (*Porphyryula martinica*)

How to identify: Adults have a green back and purple head. It has a white plate in the front of its head.

Laughing gull (*Larus atricilla*)

How to identify: A common gull that has a black head in summer and mottled head in winter and is seldom far from saltwater.

Ring-billed gull (*Larus delawarensis*)

How to identify: A common gull, often found further inland. The most distinguishing feature of this bird is the black ring on the yellow bill of the adult. Adults have greenish yellow legs.



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Least Tern (*Sterna spp.*)

How to identify: Terns can be identified by their slender shape, long narrow wings, forked tails, and pointed bills. They dive into the water.

Bald eagle (*Haliaeetus leucocephalus*)

How to identify: The white head and tail make this bird easy to identify. An eagle will get its white head after reaching 4 years of age. The chest of the bald eagle is dark, while that of the osprey is white. Immature eagles are brown. ***Did you know?*** *Use of the pesticide DDT prior to the 1970's resulted in a dramatic decrease in the bald eagle population. As eagles ate fish that contained DDT, the DDT caused the eagles to lay very soft-shelled eggs that dried out or broke. Today the population is on the rise and nests can often be seen on special nesting platforms built above power lines. They can be seen in coastal marshes of the Gulf of Mexico, in the Florida Keys, and other coastal areas of Florida.*

Osprey (*Pandion haliaetus*)

How to identify: The bird's plumage (feathers) are dark above and light below. Ospreys have white on their heads and are often mistaken for eagles, but the chest of the osprey is white, while that of the eagle is dark. Wings are held in an arched position during flight. Their call is a series of loud clear whistles. ***Did you know?*** *The osprey, or fish hawk, can often be seen flying with a fish in its talons (claws). It will hover over the water then fly down to the surface and grab a fish, sometimes even diving under it. Ospreys nest on high perches such as the top of dead trees or poles.*

Ruddy turnstone (*Arenaria interpres*)

How to identify: These birds have slender pointed bills and have short orange-red or yellow legs. In flight they have a very striking black, brown, and white pattern on their wings and tail. ***Did you know?*** *This bird can be identified on a beach more by its behavior than appearance. It prefers beaches where there are plenty of rocks or weeds to turn over in its search for food.*

Willet (*Catoptrophorus semipalmatus*)

How to identify: This is a common bird that can be identified better in flight by its wing pattern. Standing birds are rather plain but a little over a foot tall with skinny legs and long pointed bill.

Black skimmer (*Rynchops niger*)

How to identify: The lower and heavier looking bill is longer than the upper. ***Did you know?*** *This bird has an unusual way to feed. The longer lower bill is dragged through the water to catch/scoop up food. They can be seen on beaches or exposed sand bars in groups – with all facing into the wind.*

American oystercatcher (*Haematopus palliatus*)

How to identify: This bird has black and white plumage, large white wing stripe, and a red bill. It feeds on shellfish and may be found in small groups usually away from other shorebirds.

Belted kingfisher (*Ceryle alcyon*)

How to identify: Look for the dark band across their chest and the crest of feathers on top of their head. These feathers are raised when the bird is alarmed. These birds are often seen perched on wires or branches overlooking the water.

Redwing blackbird (*Agelaius phoeniceus*)

How to identify: The shoulders (not the entire wings) of the male blackbird are bright red with a yellow margin. Females are commonly mistaken for sparrows.

Boat-tailed grackle (*Cassidix mexicanus*)

How to identify: Male grackles have blue and purple iridescent feathers when seen in the sunlight. Females are a dull brown in color.



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Wood stork (*Mycteria americana*)

How to identify: The wood stork has a bald head and neck. **Did you know?** *The wood stork has become endangered because of a loss of wetland habitat. The stork requires water of a certain depth range in order to feed. Wood storks are also called "preacher birds" because of the way they stand around in groups looking dignified and solemn.*

Limpkin (*Aramus guarauna*)

How to identify: This bird is slow moving and found in the deep swamp. It gets its name from its slow way of walking. Like other wading birds, it has long legs and a long bill. **Did you know?** *Limpkins like to eat apple snails.*

Marine Mammals – Did you know? *Marine mammals, like all mammals, are warm blooded, breathe air using lungs (not gills!), and have hair. (Though very little on whales and dolphins.)*

Manatee (*Trichechus manatus*)

How to identify: Manatees are air-breathing marine mammals. They can be seen breathing at the surface. They are large and slow moving animals. **Did you know?** *They are also called sea cows because they eat aquatic vegetation. They are relatives of the elephant. They can be found in freshwater and saltwater environments. The biggest threat to them is being hit and injured/killed by boats.*

Whales - DID YOU KNOW? *Whales are marine mammals that breath air through one or two blowholes on top of their head and then to a pair of lungs. There are two main types of whales - Those that have teeth and those that have baleen. Baleen are brush-like structures that hang from the roof of a whale's mouth. Baleen filters food (such as krill) from the water. To feed baleen whales take a mouthful of water, close their baleen plates, and force the water out of their mouths through the baleen. They then probably use their large tongues to scrape the plankton off the inside of the baleen and swallow it- yum! Baleen whales have 2 blowholes while toothed whales have only one. Whales live in social groups called pods.*

Bottlenose dolphin (*Tursiops truncatus*)

How to identify: Dolphins are small toothed whales. They have smooth skin, are bluish gray above, paler on their sides and whitish gray on their throat and belly. They have a beak that is long and broad. Do not get this animal confused with the dolphin fish (mahi mahi)! Dolphins and porpoises are not the same animal. **Did you know?** *Dolphins use echolocation to find prey in the water.*

Humpback whale (*Megaptera novaeangliae*)

How to identify: The humpback is a baleen whale. It has a big head with bumps (protuberances). It can grow about 52 feet long. The humpback's tail (fluke) may have patches of white. **Did you know?** *The humpback feeds mostly on plankton! Humpbacks are very vocal whales and are best known for their unique and amazing "songs." The name "humpback" comes from the way it arches its back out of the water before it makes a dive.*



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