

# Explore our Puget Sound beaches

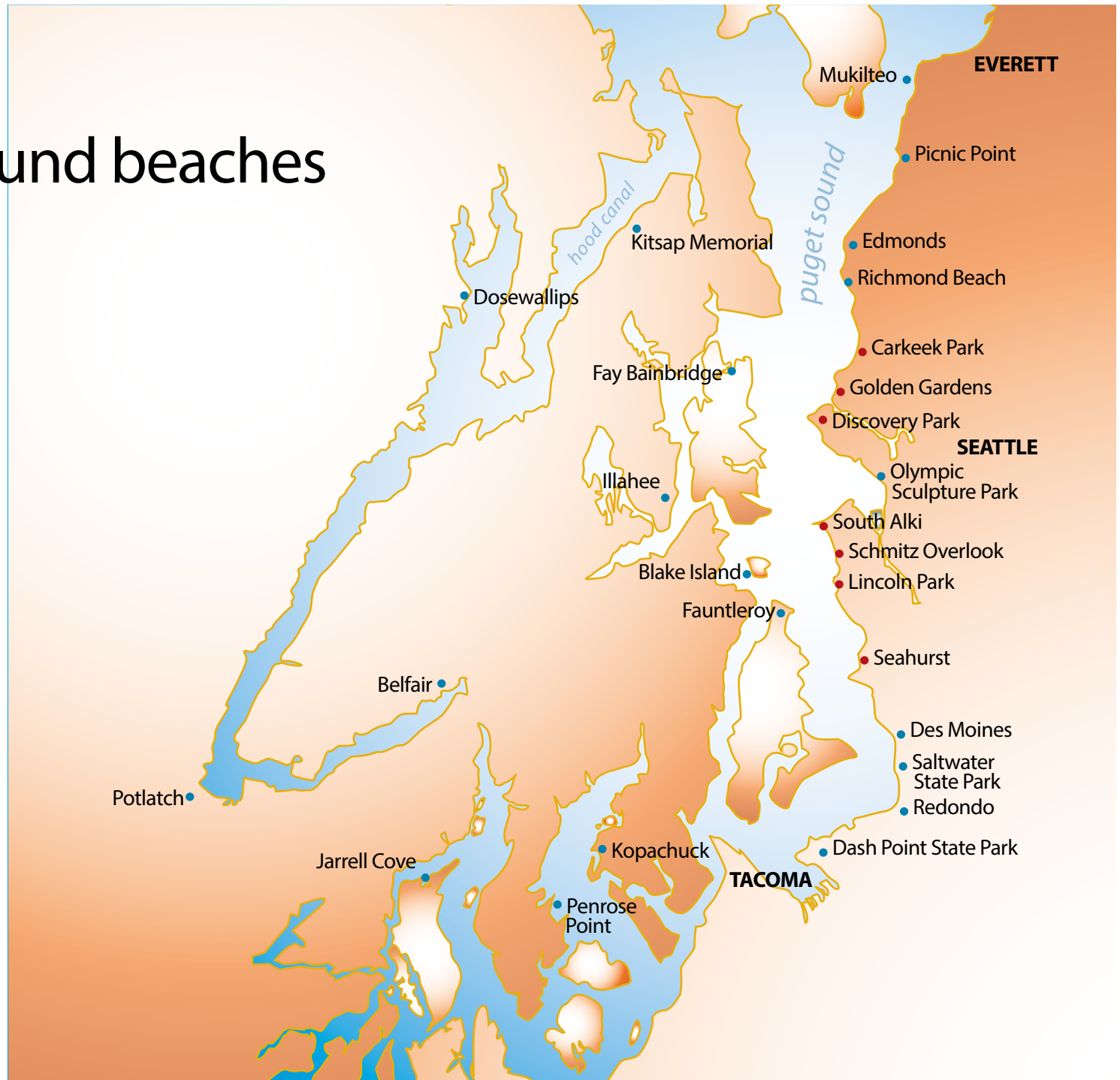
## What is the Puget Sound?

The Sound is actually a long arm of the Pacific Ocean that reaches deep within Washington state. And, just like ocean beaches, the tide changes on Puget Sound beaches four times each day—revealing all kinds of living treasures. The best time to explore is at low tide, when you can find extraordinary sea creatures that live most of their lives underwater.

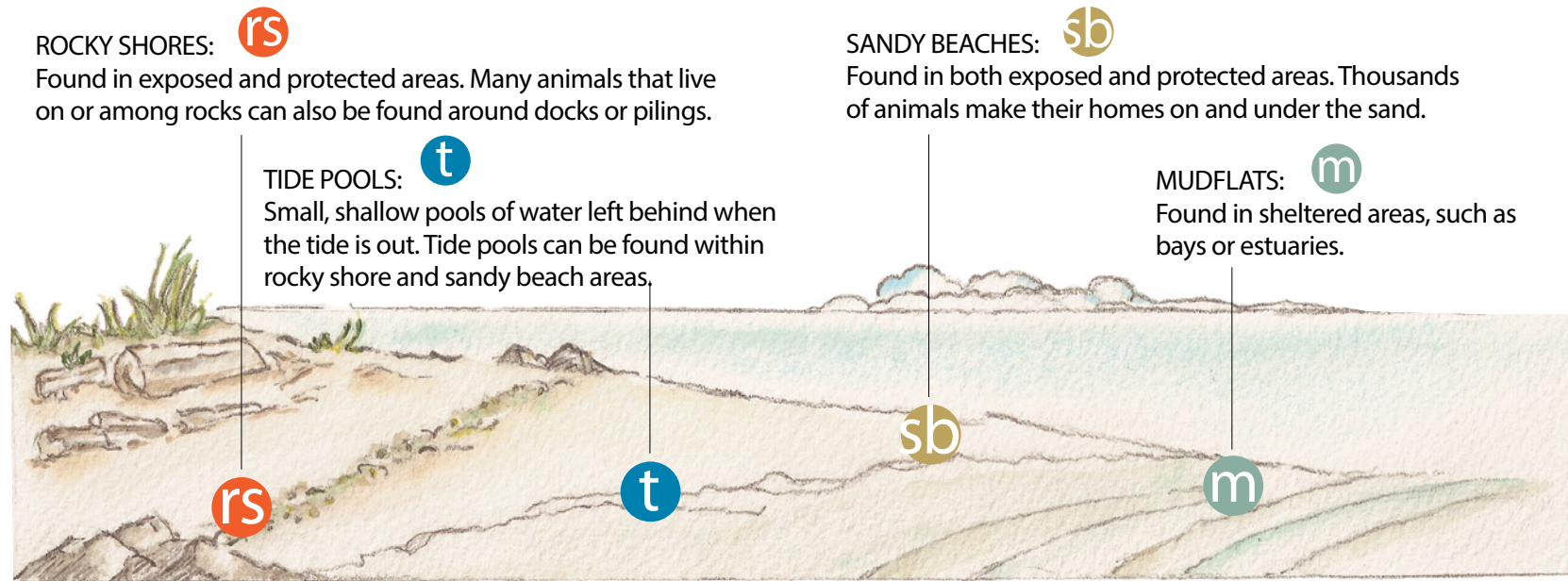
## Visit a Puget Sound beach!

Our map shows some of Puget Sound's many public beaches.

• Those with a red dot are Marine Protected Areas, which means they've been designated as nature preserves. Nothing—dead or alive—may be taken or harvested from these areas.



# Exploring the intertidal zone



## ROCKY SHORES:

Found in exposed and protected areas. Many animals that live on or among rocks can also be found around docks or pilings.

## TIDE POOLS:

Small, shallow pools of water left behind when the tide is out. Tide pools can be found within rocky shore and sandy beach areas.

## SANDY BEACHES:

Found in both exposed and protected areas. Thousands of animals make their homes on and under the sand.

## MUDFLATS:

Found in sheltered areas, such as bays or estuaries.

## Puget Sound is in trouble!

**But we can all take action to help restore it to health.**

Beautiful Puget Sound features more than 2,500 miles of shoreline for all of us to enjoy. But as pollution increases, the Sound becomes less healthy: marine life dies, salmon runs shrink, and economic impacts are felt not only in the region—but around the country and world as well. If we don't care for our Puget Sound now, future generations may not know the pleasures of exploring tide pools, digging for clams or swimming in the chilly, salty surf.

Each of us can make a difference for Puget Sound, one action at a time. If every one of the more than four million people living in the Puget Sound region makes even one small change, our combined efforts will have a tremendous positive impact.

## Take action to save the Sound.



### In your yard:

Use fertilizers and pesticides sparingly, or just use compost.



### With your car:

Take your car to a commercial car wash and have oil leaks fixed.



### Around your dog:

Pick up dog poop, bag it and place it in the trash (not in the yard waste bin).



### At home and more:

From cleaning products to septic maintenance, be aware of how you care for your home.

[Learn more at SeattleAquarium.org](https://www.seattleaquarium.org)





## WHO (and what) LIVES IN THE INTERTIDAL ZONE?

Our pocket guide includes nearly 50 detailed descriptions of commonly found intertidal residents.

**Explorer's note:** Remember beach creatures are alive. If you touch, touch gently with one wet finger. When you visit the beach, don't take anything home with you or leave any litter behind.

### Jellies



#### **Moon jelly**

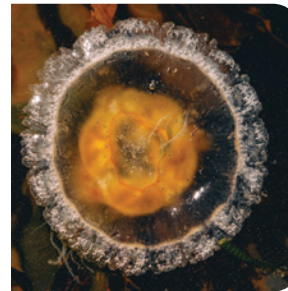
*Aurelia labiata*

Translucent bell with four U-shaped reproductive organs (gonads) and short, trailing tentacles.

**At home/size:** Near surface/up to 16" wide.

**Look for:** Moon jellies stranded on the beach (but don't touch them!).

**Fast fact:** They may use sunlight to migrate.  
! Even the most gentle touch can harm a jelly.



#### **Fried egg jelly**

*Phacellophora camtschatica*

One of our largest jellies, resembling a huge fried egg.

**At home/size:** Floating on the surface/up to 24" in diameter with tentacles to 20' long.

**Look for:** Yellowish/orange coloration in the center, similar to the yolk of a fried egg.

**Fast fact:** Caution! This is one of the few jellies with a toxin strong enough to sting humans.

### Sea anemones



#### **Aggregating anemone** rs sb

*Anthopleura elegantissima*

Jellyfish cousin resembling a flower.

**At home/size:** Attached to hard surfaces/2" diameter.

**Look for:** Pink tentacles on the green body.

**Fast fact:** They can clone and form masses (aggregations) on rocks.

! If you touch, please do so gently.



## Sea anemones, cont.



### Moonglow anemone rs sb

*Anthopleura artemisia*

Common, often seen burrowing in sand.

**At home/size:** Attached to rocks, docks; in sand/usually 2" across.

**Look for:** White bands on the tentacles.

**Fast fact:** Its column may be burrowed into sand up to 8" below the tentacles and mouth.

! If you touch, please do so gently.



### Mottled anemone rs sb

*Urticina crassicornis*

Anemone with green, green/red or red column.

**At home/size:** Attached to hard surfaces/4" diameter.

**Look for:** Varying column colors.

**Fast fact:** Has lived to 80 years in captivity.

! If you touch, please do so gently.

## Worms



### Calcareous tube worm rs m sb

*Serpula vermicularis*

Earthworm relatives with bodies that are made up of visible rings.

**At home/size:** In mud or muddy sand; in mussel beds/from less than 1" to 12" long, depending on type.

**Look for:** The white shells of tube worms on the sides of large rocks.

**Fast fact:** There are over 9,000 species of segmented worms; most of them are marine dwellers.

## Chitons



### Mossy chiton rs

*Mopalia muscosa*

Oval, flat mollusk with eight overlapping shells (or valves) bound by a leathery girdle.

**At home/size:** Rocks or tide pools/up to 2¾" long, edged in stiff bristles.

**Look for:** Dead chitons' valves, called butterfly shells, on shore.

**Fast fact:** Chitons graze on rocks for algae.

## Chitons, cont.



### Hairy chiton rs

*Mopalia kennerleyi*

Commonly seen with mossy chitons, this mollusk has soft bristles.

**At home/size:** On rocks or in tide pools/up to 3" long.

**Look for:** A small notch at the rear of the animal (usually).

**Fast fact:** Chitons use an internal compass to navigate at night.

## Limpets



### Keyhole limpet rs

*Diodora aspera*

A common mollusk with a single, volcano-shaped shell.

**At home/size:** On rocky beaches from the low intertidal to subtidal/shell width to 2¾"

**Look for:** A hole in the top of the shell—this is unique in limpets.

**Fast fact:** Unlike most limpets, the keyhole is primarily a carnivore, eating encrusting animals.



### Mask limpet rs

*Lottia persona*

Its conical shell has an off-center, pointed peak.

**At home/size:** High intertidal cracks and crevices/shell width to 1½"

**Look for:** White dots on top.

**Fast fact:** A 1" mask limpet needs 75" square of rock space each year to feed on algae.



### Shield limpet rs

*Lottia pelta*

One of the most conical limpets, nearly as high as it is wide.

**At home/size:** On rocks in the low intertidal to subtidal/shell width to 2¾"

**Look for:** Brown and white stripes radiating from the shield limpet's center.

**Fast fact:** This limpet may be found living on other organisms such as large brown seaweeds and mussels.

## Limpets, cont.



### Plate limpet rs

*Lottia scutum*

Our flattest limpet, resembling a dinner plate.

**At home/size:** On rocks from the low intertidal to subtidal/ shell width to 2".

**Look for:** Blotches radiating from the center of the plate limpet's shell.

**Fast fact:** Look close—the plate limpet might have green seaweed or small barnacles on its shell.

## Snails



### Moon snail sb

*Neverita lewisii*

Among the largest intertidal snails, with a big foot protruding from its shell's opening.

**At home/size:** In sand or mixed substrate, foraging for clams/ up to 5½" wide.

**Look for:** Distinctive sandy egg collar, resembling a plunger, in spring and summer.

**Fast fact:** The collar can contain up to 500,000 eggs.



### Periwinkles rs

*Littorina spp.*

Tiny, spiral-shelled snails found in eelgrass, seaweed or on rocky shores.

**At home/size:** On rocks and barnacles/up to ⅝" wide.

**Look for:** A variety of shell colors on this versatile little creature.

**Fast fact:** Some scientists believe that land snails evolved from periwinkles.



### Frilled dog whelk rs

*Nucella lamellosa*

Its shell may be solid or striped in brown, grey, black or orange.

**At home/size:** Rocky beaches/up to 2" wide.

**Look for:** Masses of eggs, resembling yellow rice grains, attached to rocks' undersides.

**Fast fact:** The dog whelk probes between its prey's shells with a tongue-like proboscis.

## Sea slugs



### Sea lemon rs m sb

*Doris montereyensis*

One of the many shell-less sea snails (nudibranchs) with plume-like gills on top.

**At home/size:** On rocky and cobble beaches/usually to 4" long.

**Look for:** Egg masses that resemble curled white ribbons on rocks in spring and summer.

**Fast fact:** The color of this and other brightly colored slugs serves as a warning to potential predators of toxins in their bodies.

! If you touch, please do so gently.



### Shaggy mouse rs m sb

*Aeolidia papillosa*

A shaggy, brownish-to-gray sea slug that resembles a wet mouse.

**At home/size:** On rocky and cobble beaches/up to 2¾" long.

**Look for:** Egg masses that resemble soft white noodles on rocks.

**Fast fact:** The shaggy mouse feeds on sea anemones and is apparently unaffected by their stings.

! If you touch, please do so gently.

## Bivalves



### Blue mussel rs

*Mytilus trossulus*

Bivalve with a smooth, wedge-shaped shell in blue, black, tan or brown.

**At home/size:** Sheltered areas, attached to hard surfaces/up to 4½", usually much smaller.

**Look for:** Byssal threads attaching the mussel to its home.

**Fast fact:** Mussels filter up to three gallons of seawater per hour over their gills.



### Giant Pacific (or Japanese) oyster rs

*Crassostrea gigas*

A large, non-native oyster with a gray/white, fluted shell.

**At home/size:** On firm or rocky beaches, attached to rocks or each other/up to 12" long.

**Look for:** Purple or black colorations, which indicate new growth.

**Fast fact:** These oysters often house irregular, dull pearls.



## Bivalves, cont.



### Heart cockle m sb

*Clinocardium nuttallii*

A cockle with an oval shell that is prominently ribbed; light to dark brown in color.

**At home/size:** Sand or mud beaches, on or near the surface/up to 5½" wide.

**Look for:** The mottled color of a young cockle.

**Fast fact:** The cockle uses its long foot like a pole vault to push away from its predators.



### Pacific littleneck clam m sb

*Leukoma staminea*

A common bivalve with an oval shell that is light brown to gray, often with an irregular brown pattern.

**At home/size:** On sand or gravel beaches, to a depth of about 4"/up to 3" wide.

**Look for:** Short "teeth" on the inside edge of the shell.

**Fast fact:** Tiny pea crabs sometimes live within this clam.



### Japanese littleneck clam m sb

*Venerupis philippinarum*

A common, non-native clam with an oval shell that is light brown to gray, often with streaks of brown.

**At home/size:** On sand or gravel beaches, to a depth of about 4"/up to 3" wide.

**Look for:** A smooth inside edge on the shell; purple or yellow coloration inside.

**Fast fact:** These clams were introduced to our area less than 100 years ago.



### Pacific geoduck m sb

*Panopea abrupta*

A giant clam, with a neck that may exceed 3'.

**At home/size:** 3-5 feet under the sand/shell, up to 8"; weight, up to 20 pounds.

**Look for:** The geoduck's neck, poking an inch or so out of the sand at low tide.

**Fast fact:** These huge creatures can have a life span of up to 150 years.

**!** Trying to "catch" a geoduck by pulling on its neck may kill the clam.

## Bivalves, cont.



### Gaper clam m sb

*Tresus spp.*

This large clam's siphon may be confused with that of a geoduck.

**At home/size:** In sand, sand and gravel, sand/mud intertidal areas. Can burrow as deep as 36"/weight to 4 lbs.; size to 8".

**Look for:** White to yellowish shell, often with a brown shell covering that peels off. Siphon has thick leather-like plates at tip.

**Fast fact:** At low tide, can be seen spitting jets of water.



### Rough piddock

*Zirfaea pilsbryi*

A bivalve with gray to brown wedge-shaped shells that are divided into three separate sections.

**At home/size:** Buried in soft rocks, mud or hard clay/up to 3" wide.

**Look for:** The piddock's siphon peeking out from its burrow in a rock.

**Fast fact:** Piddocks can burrow up to 20" deep into soft rock.

## Barnacles



### Acorn barnacle rs

*Balanus glandula*

A shrimp-like animal housed in a hard shell.

**At home/size:** Attached to rocks, docks and other hard surfaces/up to ¾" in diameter.

**Look for:** Acorn barnacles feeding underwater, using their legs (called cirri) to sweep up plankton.

**Fast fact:** Acorn barnacles live most of their lives standing on their heads, attached to hard surfaces by an exceptionally powerful glue.



### Thatched barnacle rs

*Semibalanus cariosus*

Larger barnacles with homes resembling thatched huts.

**At home/size:** Attached to rocks, docks and other hard surfaces/up to 1½" in diameter.

**Look for:** Downward-pointing spines covering shell plates.

**Fast fact:** The thatched barnacle's sharp spines are thought to discourage predators.

## Isopods



### Isopods rs

*Pentidotea wasnesenskii*

Small, flat, elongated crustaceans with seven pairs of legs.

**At home/size:** Under rocks, in mussel beds or on seaweeds/up to 1¾" long.

**Look for:** Isopods swimming across tide pools at night.

**Fast fact:** Isopods can assume many colors to help them blend in with their backgrounds.

## Shrimp



### Shrimp rs sb

*Pictured: Pandalus danae*

Arthropods with jointed legs, four antennae, many body segments and exterior skeletons.

**At home/size:** Sand, mud, tidepools, rocky beaches/up to 3" long.

**Look for:** Volcano-shaped sand or mud mounds created by burrowing ghost shrimp.

**Fast fact:** Some species are born male and become female.

## Crabs



### Shore crab rs m sb

*Hemigrapsus spp.*

Crustacean with 10 legs, two of them claws, and a hard upper shell, or carapace.

**At home/size:** Under rocks/carapace square, width to 2¼", depending on species.

**Look for:** Tiny eyes and antennae at the shell's front.

**Fast fact:** As it grows, the crab discards its old shell and replaces it with a larger one.



### Kelp crab rs m sb

*Pugettia producta*

One of several "spider" crabs found in Puget Sound.

**At home/size:** In kelp beds or on pilings/carapace width to 3½".

**Look for:** Large adult kelp crabs on dock pilings and sandy beaches.

**Fast fact:** Kelp crabs' extremely sharp legs allow them to climb up kelp beds.

## Crabs, cont.



### Dungeness crab m sb

*Metacarcinus magister*

A commercially important, red-brown to purple crab.

**At home/size:** Low intertidal to subtidal in sandy and eelgrass habitats/width to 9".

**Look for:** Empty crab shells (molts) of Dungeness and red rock crabs on beaches.

**Fast fact:** Female Dungeness crabs may lay up to 2.5 million eggs per year.



### Red rock crab rs

*Cancer productus*

Brick-red cousin to the Dungeness.

**At home/size:** Gravel, rocks; low intertidal to subtidal/carapace width to 8".

**Look for:** Black-tipped claws that distinguish them from the Dungeness.

**Fast fact:** Their pincers are 20 times more powerful than those of Dungeness crabs.



### Hermit crab rs m sb

*Pictured: Pagurus armatus*

A small crab that uses snail shells as its home.

**At home/size:** Tide pools/up to 1½" long.

**Look for:** Legs protruding from the shell.

**Fast fact:** When they outgrow their shells, they move into larger ones.

! Pulling a hermit crab from its shell will kill it.

## Spiny-skinned



### Purple sea star rs

*Pisaster ochraceus*

Spiny-skinned animals with chunky arms radiating from a central disk with tube feet on the underside.

**At home/size:** Rocky habitats/diameter to 14".

**Look for:** Five arms (usually) and three colors—purple, orange or brown.

**Fast fact:** All sea stars can regenerate their arms, but the loss can reduce their self-defense and foraging abilities.

! Sea stars can be damaged if picked up.



## Spiny-skinned, cont.



### Mottled star rs sb

*Evasterias troschelii*

Distinguished by long, narrow arms.

**At home/size:** Rocks, sand/diameter to 16".

**Look for:** Five arms (usually) and three colors—orange, brown or blue-gray.

**Fast fact:** Found in more protected areas.

! Sea stars can be damaged if picked up.



### Sunflower star rs sb

*Pycnopodia helianthoides*

The biggest, fastest star, named for its sunflower resemblance.

**At home/size:** Soft bottom, rocks/up to 39" wide.

**Look for:** Large size in yellow, orange, brown, pink, red or purple.

**Fast fact:** Full size, these stars may have 15,000 tube feet.

! Sea stars can be damaged if picked up.



### Red sea cucumber rs sb

*Cucumaria miniata*

An elongated, soft animal with a mouth at one end and tube feet in five rows down the length of the body.

**At home/size:** Under or between rocks/average 6" in length.

**Look for:** Sea cucumber tentacles peeking out from under rocks.

**Fast fact:** Sea cucumbers will blow some of their guts out if frightened.



### Sand dollar sb

*Dendraster excentricus*

Round, flat, sea urchin relative that is dark brown or purple; skeletons are white.

**At home/size:** Sandy areas with standing water/up to 4" across.

**Look for:** Gills extending through the flower-shaped pattern on top.

**Fast fact:** The "wings of a dove" inside their skeletons are their teeth.

! Sand dollars may not survive if turned over.

## Fishes



### Tide pool sculpin rs sb

*Oligocottus maculosus*

Small brown, green or reddish fish with five stripes on its back.

**At home/size:** Tide pools, under rocks/up to 3½" long.

**Look for:** Changing colors to match surroundings.

**Fast fact:** If displaced, they may use their sense of smell to get back home.



### Gunnel rs sb

*Pictured: Pholis laeta*

Eel-like fishes in variable solid or patterned colors.

**At home/size:** Under seaweed, rocks or eelgrass; in tide pools/up to 18" long.

**Look for:** Finger-length gunnells hiding under rocks.

**Fast fact:** Gunnells have reduced scales on their bodies which allow them to breathe through their wet skin.



### Prickleback rs sb

*Xiphister mucosus*

Another group of eel-like fishes.

**At home/size:** Under seaweed, rocks, eelgrass; in tide pools/length to 20".

**Look for:** Prickly dorsal fins.

**Fast fact:** Some species have fleshy cirri (crests) on their heads.

! If you touch a tide pool fish, you may damage its delicate slime layer.



### Northern clingfish rs

*Gobiesox maeandricus*

Brownish fish with a tadpole-like tail.

**At home/size:** Under rocks, low intertidal to subtidal/length to 6½".

**Look for:** Suction disk on the underside.

**Fast fact:** Clingfish attach to the underside of rocks for protection, but occasionally they fall prey to their own kind—they are cannibalistic.



## Seaweeds



### Rockweed rs

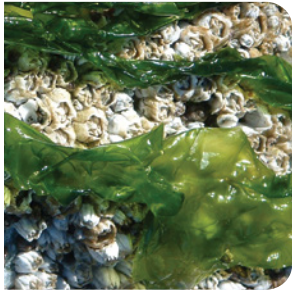
*Fucus spp.*

A brownish-green seaweed that stands upright and features flattened stems with several branches.

**At home/size:** On top of rocks/3"-7" tall.

**Look for:** Rockweed found in the high to low intertidal on a rocky beach.

**Fast fact:** Rockweed can lose 90 percent of its water and still survive.



### Sea lettuce rs

*Ulva spp.*

A slippery, grass-green seaweed with ruffled edges.

**At home/size:** On rocks or floating on mudflats/up to 7" long.

**Look for:** Green water in a tide pool, indicating that sea lettuce has released reproductive cells there.

**Fast fact:** Sea lettuce is edible and used in foods such as sushi, soup and stew.



### Sugar kelp rs

*Laminaria saccharina*

One of several large brown algae common to the shore area.

**At home/size:** Rocky habitats from the low intertidal to subtidal/blades to 11" long and 7" wide.

**Look for:** Two rows of wrinkled patches running the length of the blade.

**Fast fact:** The name is taken from a form of sugar found within this kelp.



### Bull kelp rs

*Nereocystis luetkeana*

One of the largest seaweeds; forms beds in Puget Sound during summer.

**At home/size:** Rocky habitats, low intertidal to subtidal/up to 65' long.

**Look for:** Softball-size floats and large holdfasts, like roots, attached to rocks.

**Fast fact:** Our state's fastest-growing native vegetation; can exceed 6' per day.

## Seaweeds, cont.



### Nori rs

*Porphyra spp.*

A seaweed with very thin, brownish-purple blades.

**At home/size:** Most common in low to high intertidal rocky habitats/length to 2'.

**Look for:** Nori's iridescent blades—they show up best in good light.

**Fast fact:** This seaweed is farmed and sold for use in sushi.



### Turkish towel rs

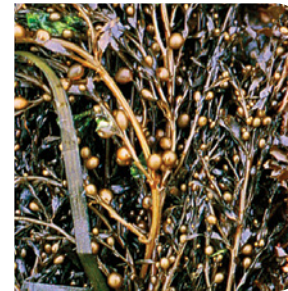
*Mastocarpus papillatus*

Characterized by thick, purple/red blades.

**At home/size:** Rocky habitats, low intertidal to subtidal/up to 20" long.

**Look for:** Rubbery bumps on blades.

**Fast fact:** Sometimes harvested for carrageenan, found in products like ice cream and toothpaste.



### Sargassum rs

*Sargassum spp.*

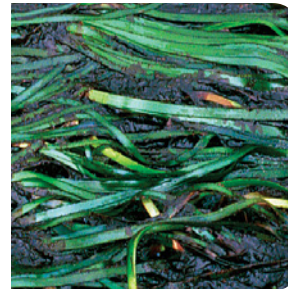
Long, stringy, yellowish-brown growth identifies this seaweed.

**At home/size:** Low intertidal to subtidal in protected rocky habitats/length up to 6½'.

**Look for:** Tiny floats attached to sargassum's many branching blades.

**Fast fact:** Sargassum was introduced from Japan in the early 1900s and competes for space with native vegetation.

## Plants



### Eelgrass m sb

*Zostera spp.*

A bright green, blade-like plant with one or more veins running along its length.

**At home/size:** Rooted in mud or sand in sheltered waters/up to 4' long.

**Look for:** Other small creatures using the eelgrass as their home.

**Fast fact:** Eelgrass beds are important nurseries for young fish and invertebrates.

# Explore our Puget Sound beaches

Remember, the beach is home to countless marine plants and creatures—do your part to help take care of them and Puget Sound!

## Beach naturalists:

Visit [SeattleAquarium.org/beach-naturalist](http://SeattleAquarium.org/beach-naturalist) for schedules.  
To volunteer or for more information, call (206) 693-6214 or  
email [beachnaturalist@seattleaquarium.org](mailto:beachnaturalist@seattleaquarium.org).

## Beach reporting numbers:

Toxic chemical and oil spills: Seattle (206) 684-7587

Department of Ecology: (425) 649-7000

Department of Ecology, emergency oil spill line: 1 (800) OILS-911

WA Department of Health, Shellfish Safety Hotline: 1 (800) 562-5632

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King County Flood Control District

WRIA 8 - Lake Washington/Cedar/Sammamish Watershed

Water Resource Inventory Area

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