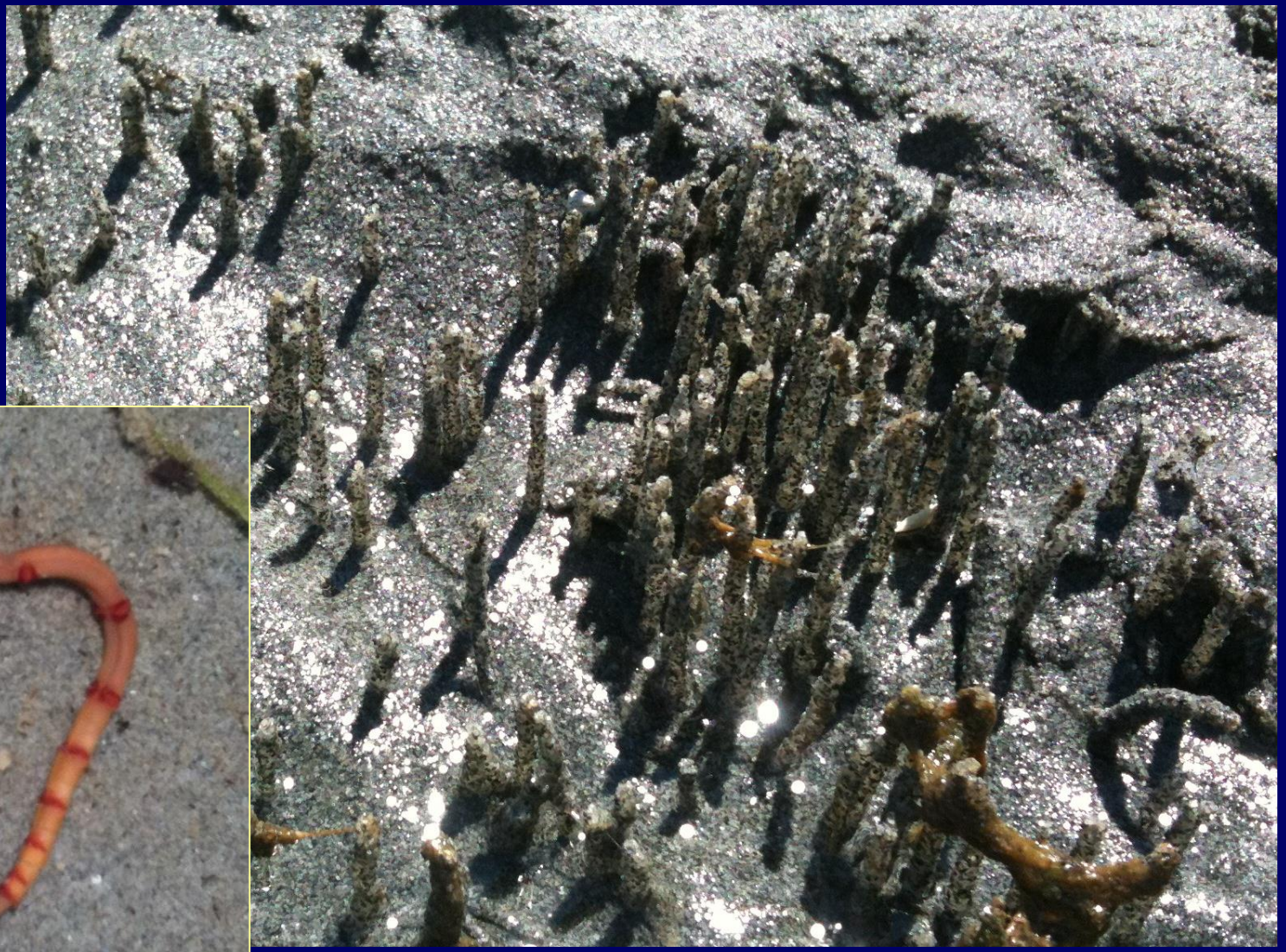


GREEN SEAWEEDS

GREEN SEAWEEDS

Sea Hair - *Ulva intestinalis*

formerly *Enteromorpha*

Seagrasses


Seagrasses
Species of Zostera and Phyllospadix
Side Two
Zostera marina. Native eelgrass
Roots buried in sand or muddy sand
Low intertidal to shallow subtidal
Low to moderate energy beaches L to 2m, W 3-10 mm
Eelgrass is a marine flowering plant with roots, leaves, flowers and seeds. Eelgrass beds are species rich and ecologically important habitats for the health and survival of nearshore invertebrate and fish communities. They provide havens for hundreds of marine animals and serve as nurseries and feeding areas for juvenile salmon. Many of the eelgrass food web organisms go unnoticed because they are microscopic. Decaying eelgrass recycles nutrients into the food web.
Zostera marina vegetative shoot
25 cm
4 cm
Z. marina reproductive shoot with inflorescence
female
male
1 cm
Zostera marina bed on the west side of Whidbey Island
Photo inset shows the red epiphyte Smithora naiadum
Smithora naiadum
Zostera japonica Japanese eelgrass
Roots buried in sand or muddy sand

SEAGRASSES

Eelgrass

Zostera marina

Whatcom County

SEAGRASSES

Eelgrass

Zostera marina and Z. japonica

Doug Stark

SEAGRASSES

The invasive *Spartina*

Whatcom County

Brown Seaweeds

BROWN SEAWEEDS

Wireweed

Sargassum muticum

BROWN SEAWEEDS

Rockweed

Fucus distichus

Whatcom County

BROWN SEAWEEDS

Sea fungus
(like tar spot, but more loosely adhered)

Ralfsia sp.

Brown Seaweeds The KELPS

Side Four

Key on Sides One and Six

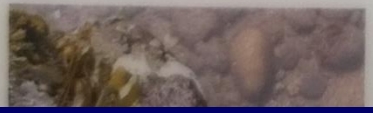
Agarum sp.
Sea collander
Haptera hf L 1-2 meters

Saccharina subsimplex
Split kelp
Small haptera hf
L to over 2 meters

Alaria marginata
Winged kelp
Haptera hf L to several meters

Costaria costata
Seersucker
Haptera hf
L to several meters

Saccharina latissima
Sugar kelp
Haptera hf
L to several meters

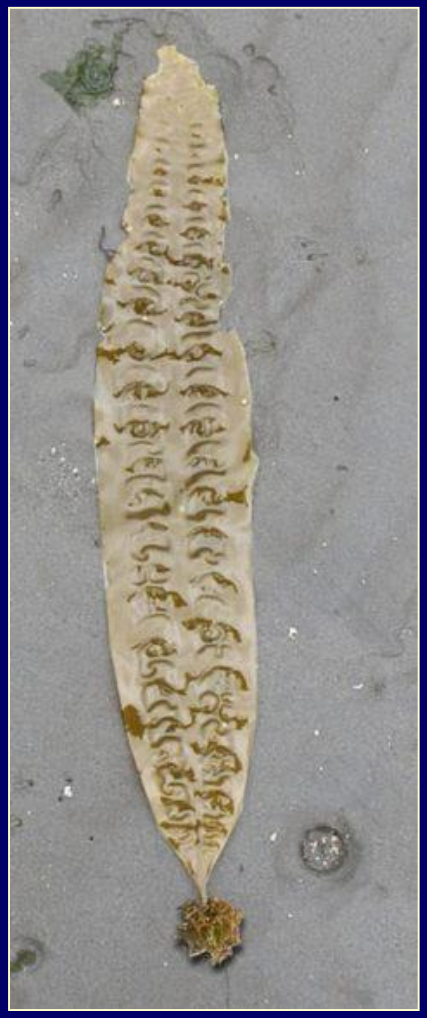


Kelp beds thrive on rocky, high-energy beaches in the low intertidal and subtidal. They provide habitat for a diverse community of invertebrates, fish and other seaweeds. The impressive giants we see on the beach are the macroscopic sporophyte

THE KELPS - BROWN SEAWEEDS

Sugar kelp & Winged kelp

Saccharina latissimi *Alaria marginata*



Mary Jo Adams

THE KELPS – BROWN SEAWEEDS

Bull Kelp

Nereocystis leutkeana

Mary Jo Adams

Red Seaweeds

Side Five
Key on sides one and six

Osmundea spectabilis
Sea laurel
Low, subtidal L to 30 cm

Neorhodomela sp.
Black pine
Mid to low intertidal L to 20 cm

Delesseria decipiens
Winged rib
Low, subtidal L to 25 cm

Plocamium sp.
Sea comb
Low, subtidal L to 25 cm

RED SEAWEEDS

Black pine

Neorhodomela sp.

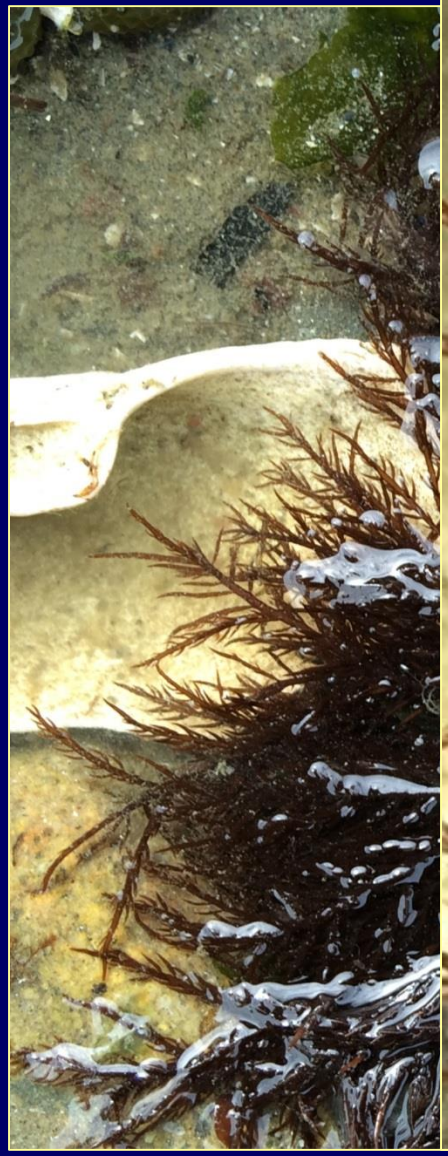
RED SEAWEEDS

Flattened sea brush

Odonthalia washingtoniensis

Mary Jo Adams

RED SEAWEED



Red Seaweeds

Side Six

Blades without veins or midribs

Callophyllis (blades from three species)
Lower intertidal to subtidal depending on species
L ~ 4 - 30 cm depending on species

Blades with fine or prominent veins, midribs, and ruffled edges depending on species

Hymenena sp. and *Cryptopleura* sp.
Lower intertial to subtidal depending on species
L ~6 - 25 cm depending on species

RED SEAWEEDS

Filamentous red & Possible red blades

Many red blades

RED SEAWEEDS

Red Laver (Nori)

Porphyra sp.

Mary Jo Adams

RED SEAWEEDS

Turkish washcloth – tar spot

Mastocarpus sp.

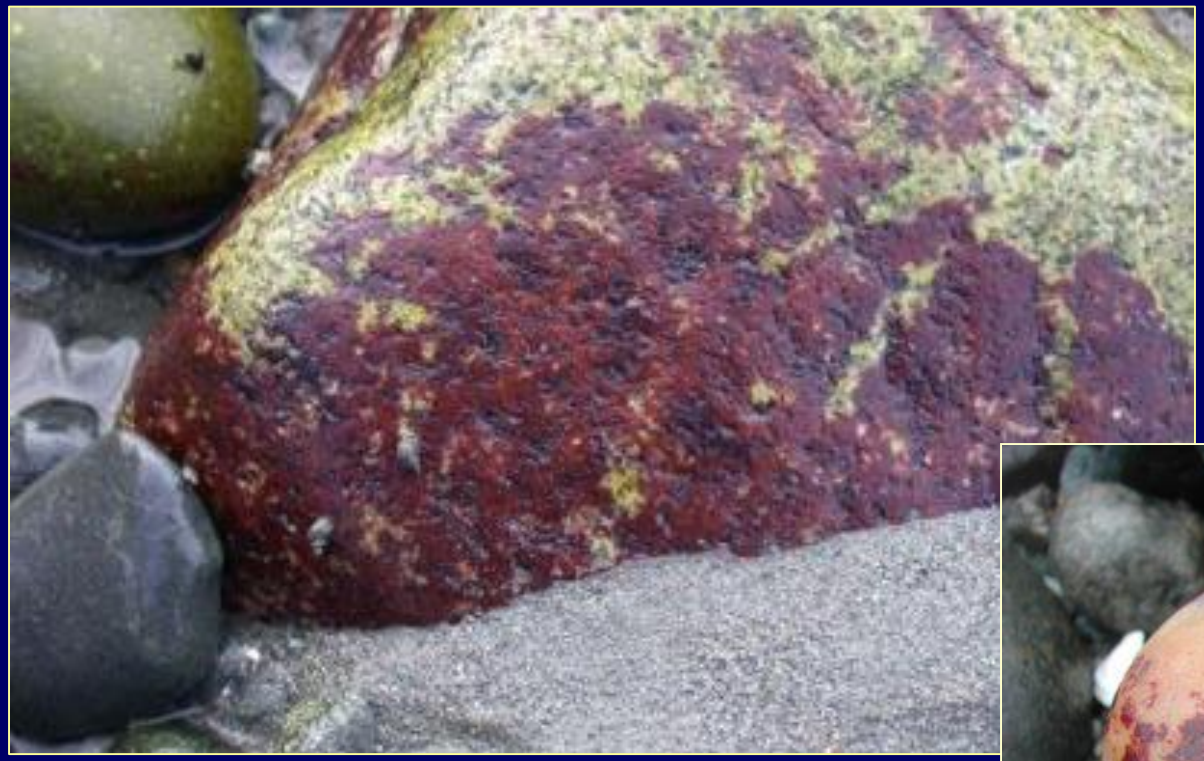
Tar Phase

Blade Phase

RED SEAWEEDS

Rusty rock

Hildenbrandia sp.



Mary Jo Adams

RED SEAWEEDS

Turkish towel

Chondracanthus exasperatus (formerly *Mastocarpus*)

Doug Stark photo

Aggregating Animals

What does it feel like?

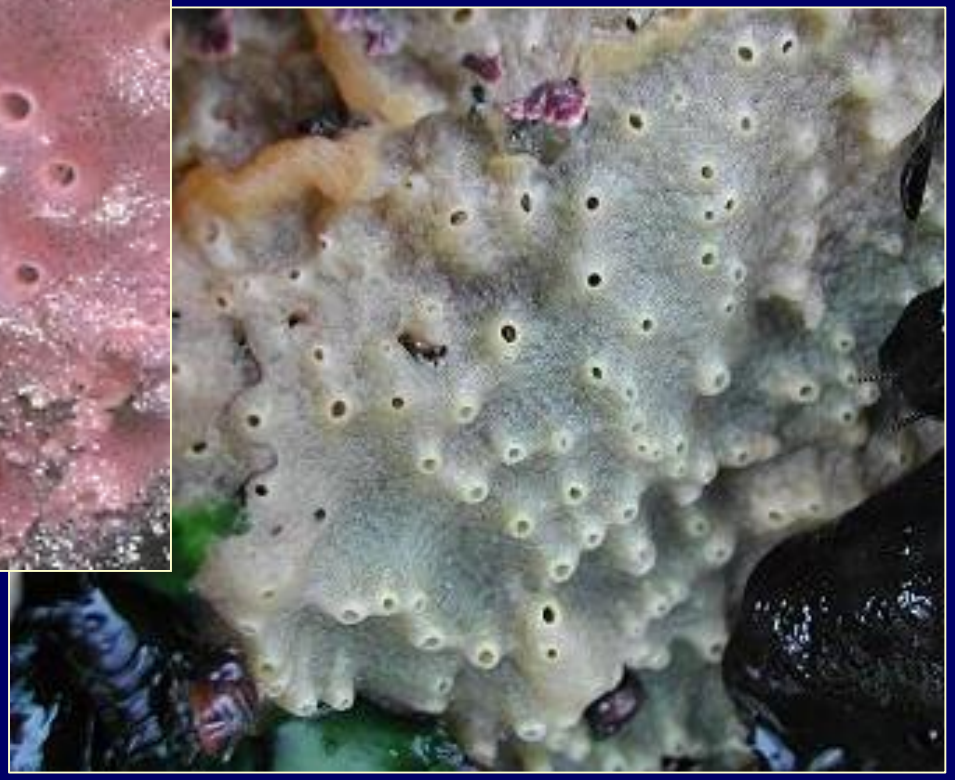
Doug Stark photo

SPONGES (*Porifera*)

Mary Jo Adams photo

Purple sponge

Haliclona sp.



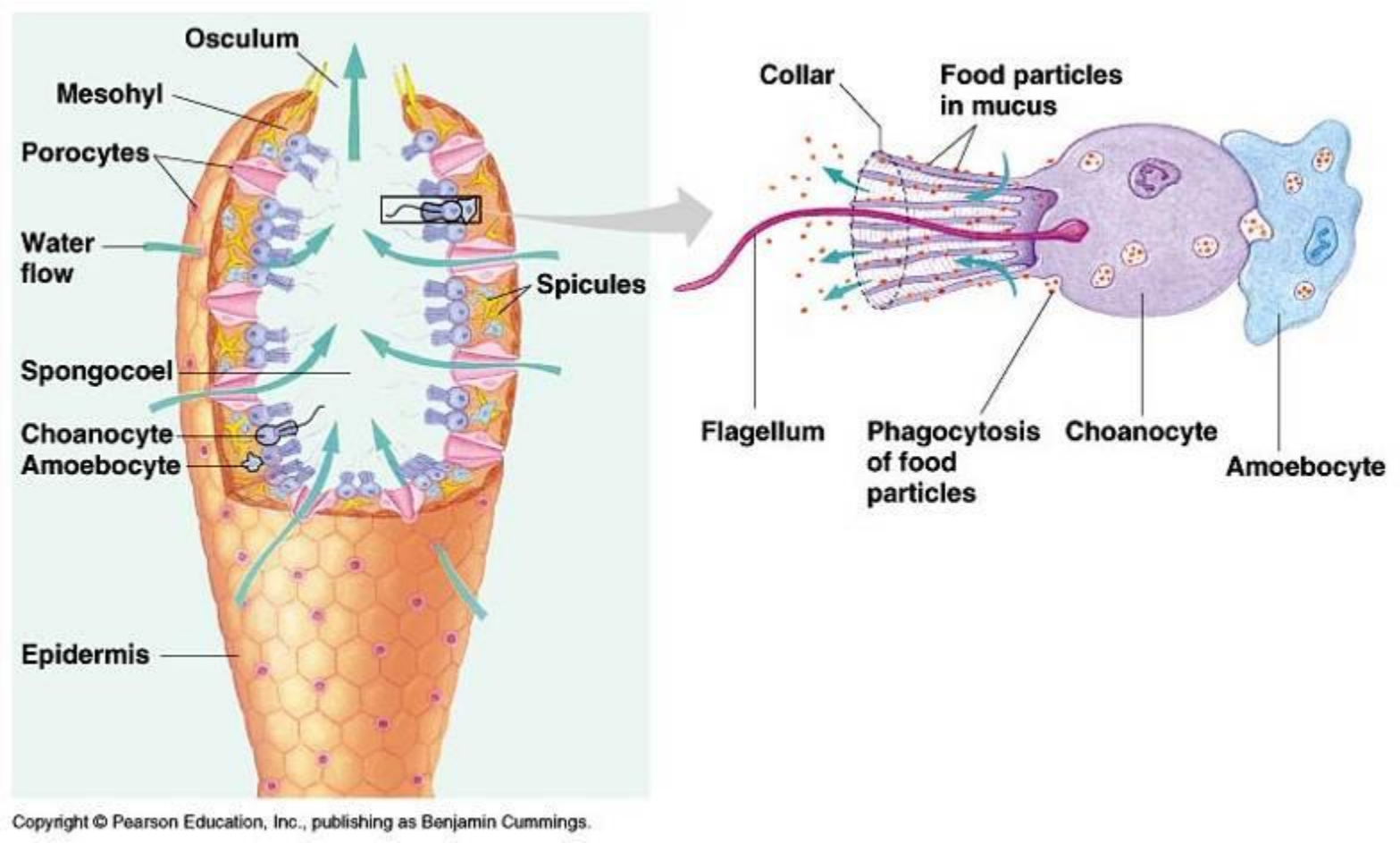
Doug Stark photo

Bread crumb sponge

Halichondria sp.

SPONGES

The sponge very basic body plan…



SPONGES

Rough scallop sponge on young rock scallop

Myxilla incrustans or Mycale adhaerens.

Doug Stark photo

ANEMONE

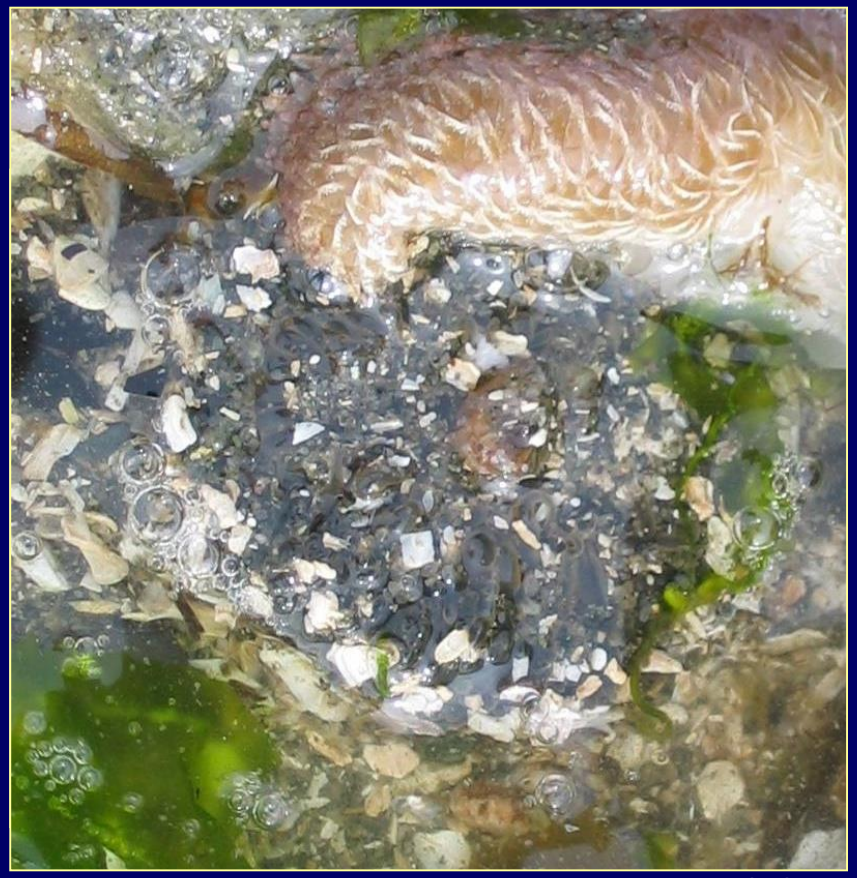
Aggregating / pink-tipped anemone

Anthopleura elegantissima

Doug Stark

ANEMONE

Pink-tipped green anemone
a.k.a.
Aggregating anemone
Anthopleura elegantissima

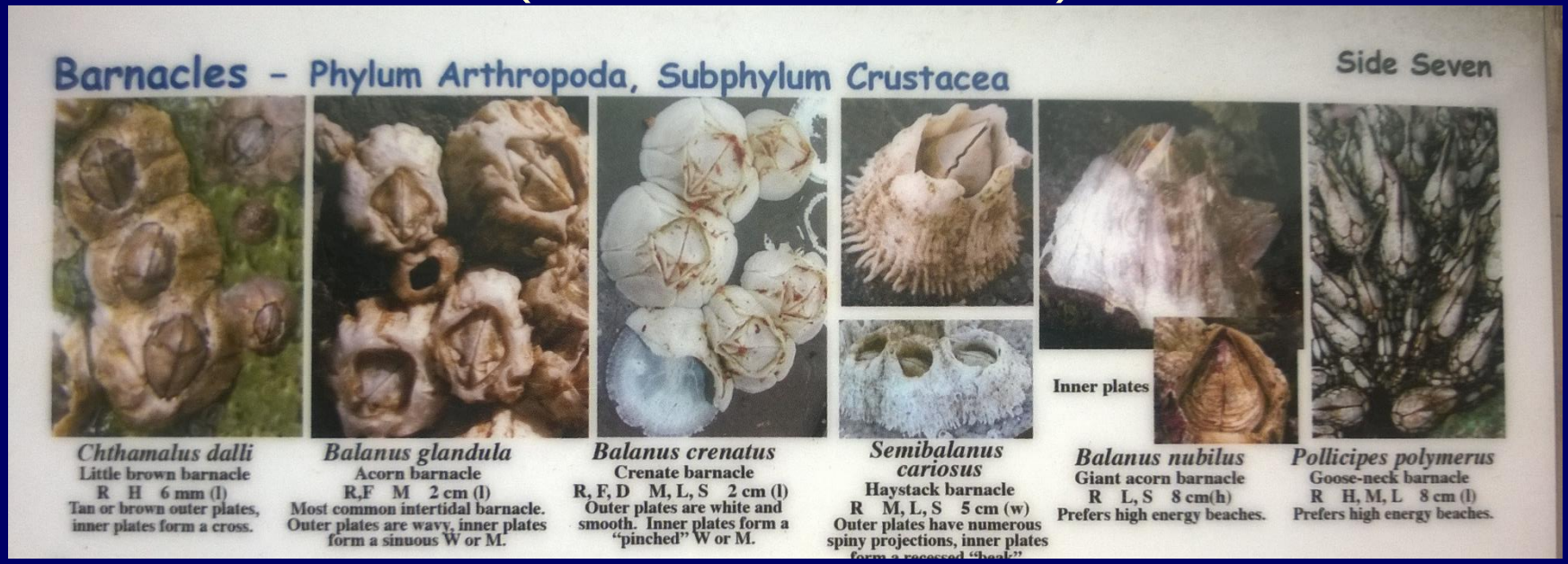


Doug Stark photos

Point Whitehorn

Aggregating Shelled Animals

Barnacles - Side 7 (Also, mussels side 4)



MOLLUSCA

Blue mussels
Mytilus trossulus

ARTHROPODA

Thatched / Haystack barnacles
Semibalanus cariosus

Acorn barnacle

Balanus glandula

Mary Jo Adams photos

ARTHROPODA

Little brown barnacle
Chthalamus dali

Crenate barnacle
Balanus crenatus

ARTHROPODA

Thatched barnacle

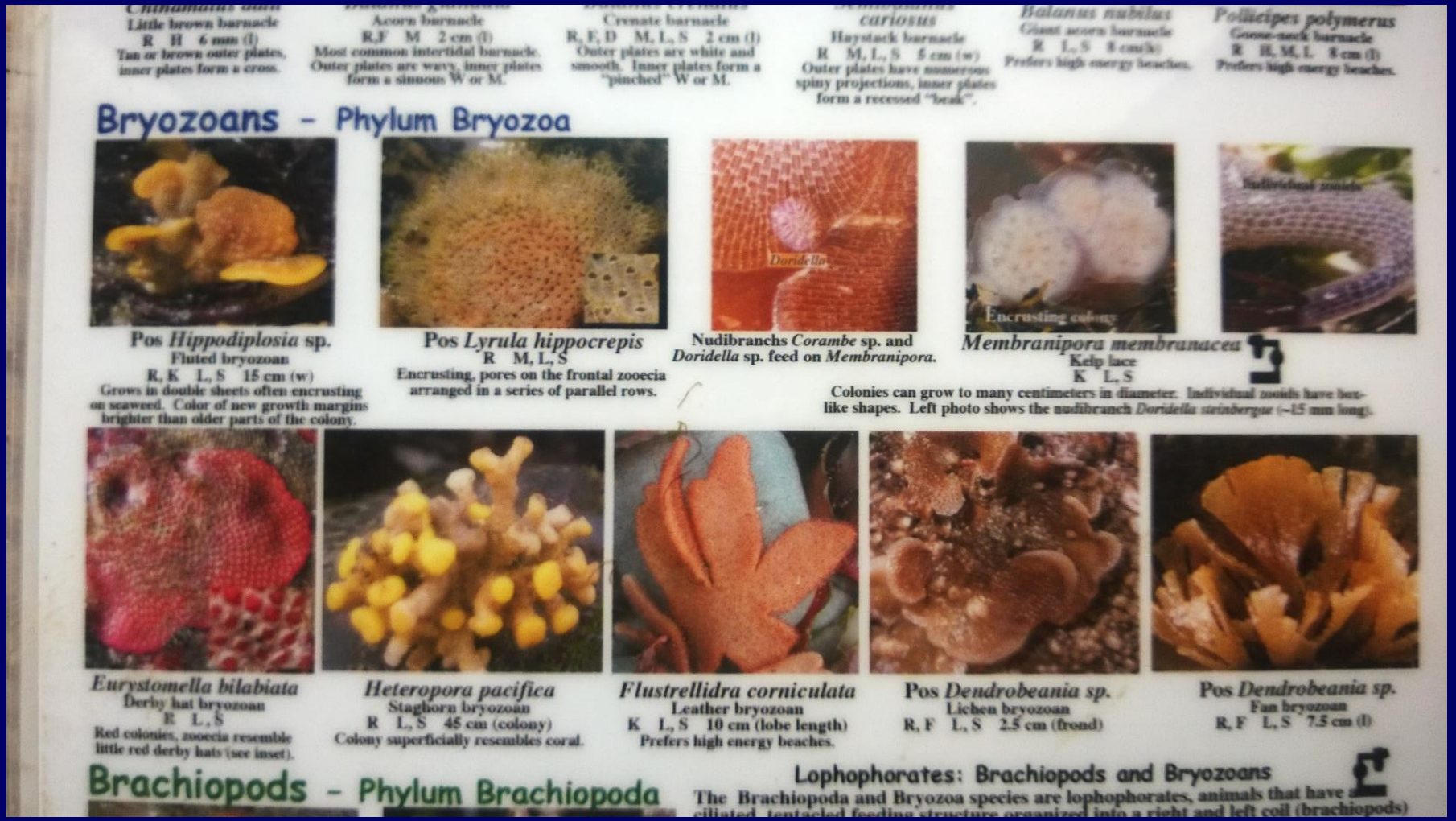
Doug Stark photo

ARTHROPODA

Barnacles on shell

Doug Stark photo

Bryzoans – Side 7



BRYZOANS

- Crusty
- Can see “pores”, esp with hand lens
- Patterned

BRYZOAN

Kelp lace Bryzoan
Membranipora membranacea

Mary Jo Adams

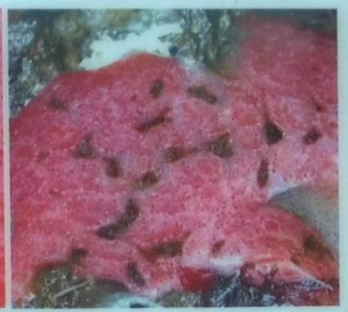
ASCIDIANS (Tunicates and sea squirts) – Side 7

A stalk (pedicle) made of connective tissue attaches the animal to a substrate.

Ascidians - Phylum Urochordata

shell, or spicules embedded in it. Sea squirts can live as solitary individuals or live in colonies. Colonial sea squirts can be "social" (individuals connected by tunic material) or "compound" (clones living within a common tunic). Many ascidian colonies superficially resemble sponges.

Styela montereyensis
Stalked tunicate
R, F L, S 30 cm (l)
Solitary ascidian with a wrinkled tough outer covering connected to the substrate by a long stalk. Light tan with red siphons.



***Aplidium* spp.**
Sea pork
R L, S 20 cm (colonies)
Compound ascidian, colonies are shades of brown orange or red. Prefers high energy beaches.

Metandrocarpa taylori
Orange social ascidian, Sea buttons
R L, S 7 mm (w)
Red, orange, (occasionally yellow or green) social individuals are connected impermanently by thin tunic. Two raised "button hole" siphons in each center.

Clavelina huntsmani
Light-bulb tunicate
R, F L, S 3 cm (individual h)
Social ascidian with two luminous pink streaks showing through the tunic.

Cnemidocarpa finmarkiensis
Red sea squirt
R L, S 5 cm (w)
Smooth bright red solitary tunicate with square-shaped siphon openings.

Pyura haustor
Wrinkled sea squirt
R L, S 8 cm (l)
Solitary ascidian with bright red siphons and a wrinkled exterior. Often covered with shell bits or small organisms.

***Didemnum* sp.**
Invasive didemnum
R L, S In our area it forms smooth firm "rubbery" amorphous colonies with a drippy appearance. Colonies are yellowish to tan.
A fast spreading invasive.

***Didemnum / Tridemnum* spp.**
Native white glove leather ascidian
R L, S Amorphous colonies
Smooth with tiny greyish pits.
Often mistaken for sponge.

ASCIDIANS

Tunicates

Jim Ramaglia photo

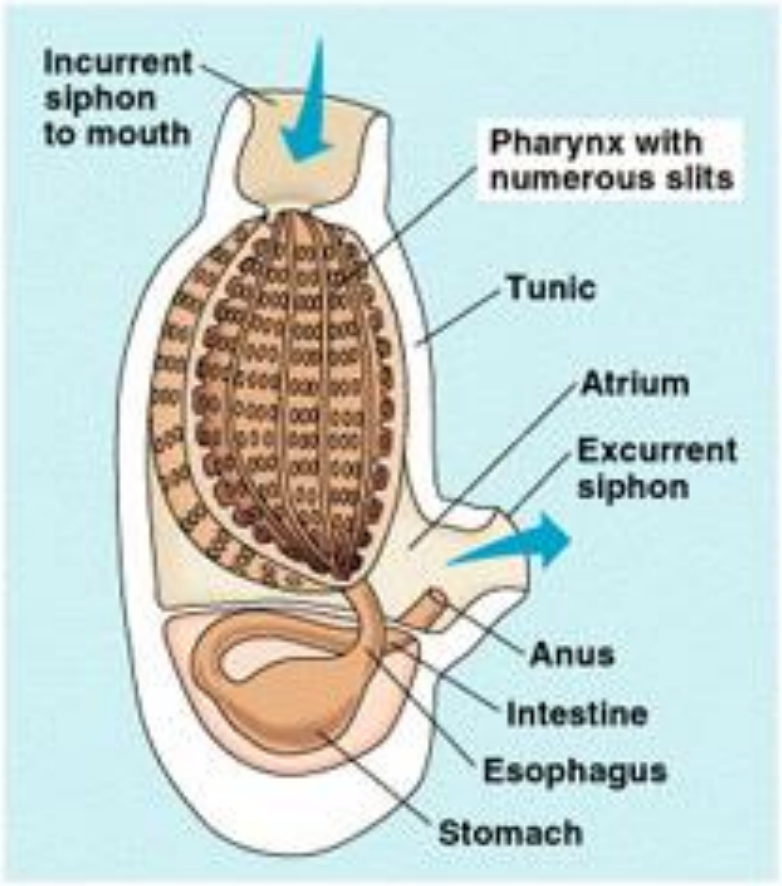
Sea squirt

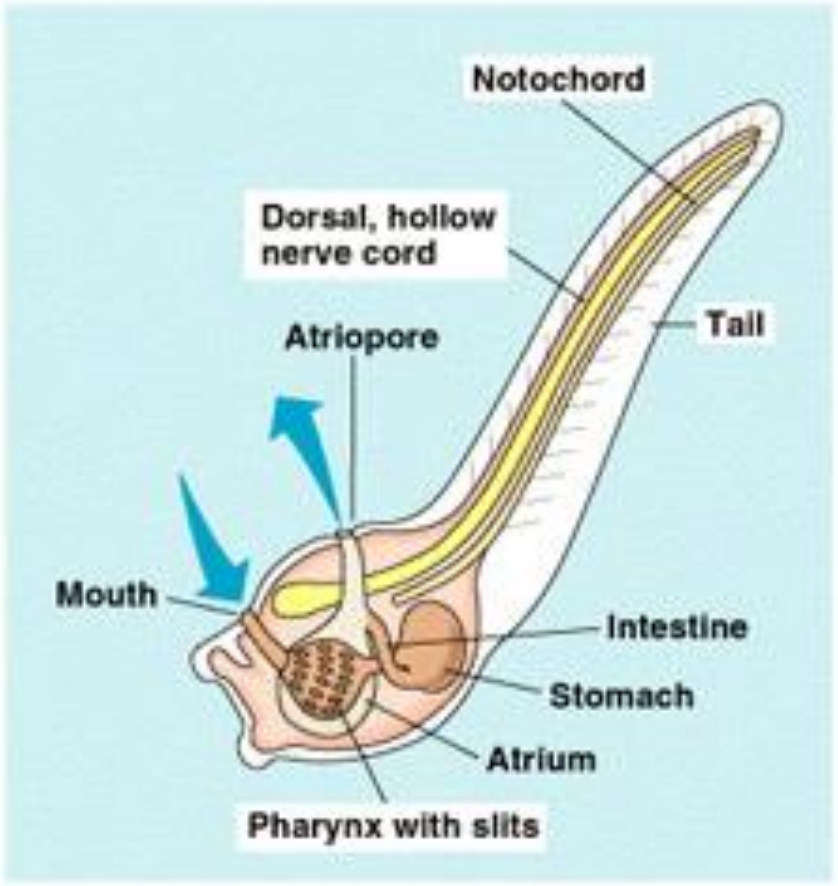
Doug Stark photo

Sea Pork – colonial tunicates

Tunicate adult

Tunicate “tadpole”





ASCIDIANS

Red Colonial Ascidians (Tunicates)

Applidium sp.

ASCIDIANS

Sea pork on Pacific Oyster

Doug Stark photo

ASCIDIANS

“Rock snot” – Invasive colonial Tunicate *Didemnum* sp

Doug Stark photo

ASCIDIANS

Other invasive Tunicates

Club tunicate –
Styela clava

Janna Nichols photo

Transparent Ciona Tunicate
Ciona savignyi
Sigh-OH-na sa-VEE-nee

Rick Zade photo

Doug Stark photo

Sponge (*or invasive tunicate?)*

Wrinkled whelk *Nucella lamelosa* egg masses

Barnacle–eating nudibranch

Onchidoris bilamellata & egg masses

FISH

Pacific Herring eggs

WDFW photo

Al Hanners photo

Upper shoreline:
Sandy gravel shoreline used by spawning forage fish

WDFW photos

Surf smelt eggs in sand

Doug Stark photo

FISH

Tidepool sculpin

Porichthys notatus

FISH

Saddleback gunnels in sea lettuce

Ulva sp.

Wendy Harris

FISH

High cockscomb blenny

FISH

Plainfin Midshipman

Porichthys notatus

Doug Stark photo

Gull with plainfin midshipman

Porichthys notatus

Wendy Harris

FISH

WDFW photo

Sand Lance