Rocky Intertidal: High Energy Action

Photo: Rocky intertidal zone, Hammonassett Beach State Park, Madison CT; courtesy of Judy Benson.

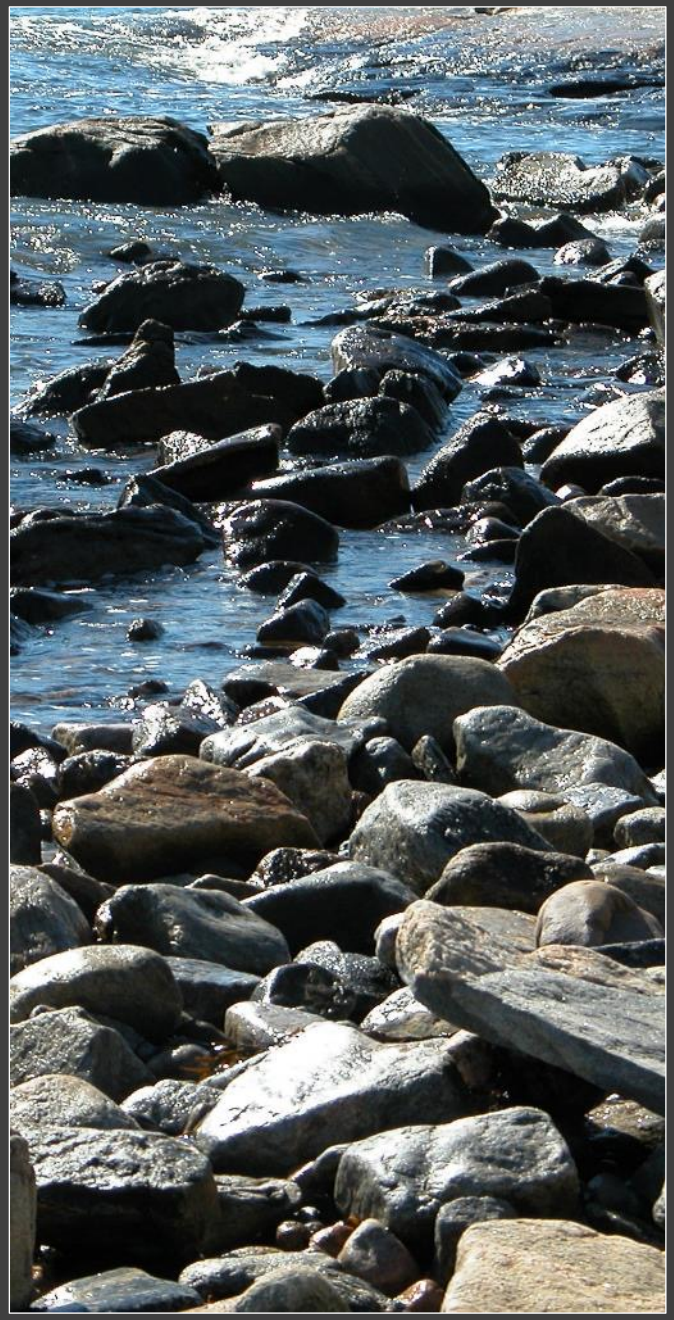
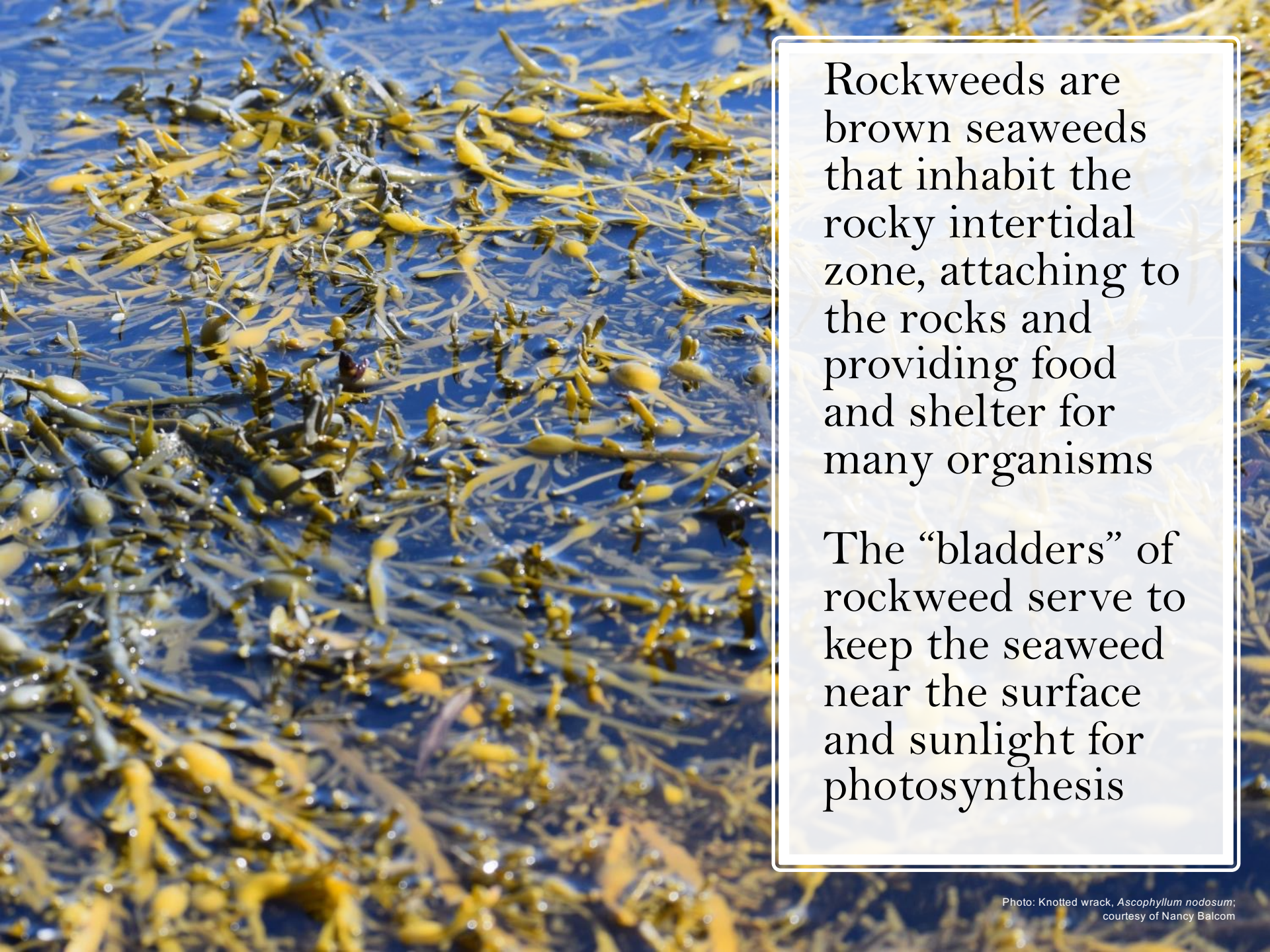


Photo: (left) Rocky intertidal zone; courtesy of Nancy Balcom; (right) courtesy of Judy Benson

Intense wave action among the rocks, exposure to drying air during daily low tides, freezing winter and extreme summer temperatures, freshwater rainfall and predation create harsh conditions for organisms living in the rocky intertidal zone

Photo: Zonation patterns in rocky intertidal zone; courtesy of Nancy Balcom

Zonation is evident in the rocky intertidal zone - lighter bands of barnacles higher on the rocks give way to darker bands of periwinkle snails, blue mussels, and various seaweeds lower on the rocks



Rockweeds are brown seaweeds that inhabit the rocky intertidal zone, attaching to the rocks and providing food and shelter for many organisms

The “bladders” of rockweed serve to keep the seaweed near the surface and sunlight for photosynthesis

Photo: Knotted wrack, *Ascophyllum nodosum*; courtesy of Nancy Balcom

Photo: Sea lettuce, *Ulva lactuca*; courtesy of Nancy Balcom

Green sea lettuce grows abundantly in nutrient-rich waters, and is grazed upon by snails, crabs, some fish, and waterfowl

Deadman's fingers, or green fleece, is a spongy, thick green alga (seaweed) that grows in the subtidal zone

Photo: (left) Deadman's fingers, *Codium fragile*; courtesy of Tessa Getchis; Deadman's fingers and holdfast; courtesy of Nancy Balcom

Irish moss is a red alga that grows in dense clumps at the low tide line; it serves as food and habitat for many other species

Photo: Irish moss, *Chondrus crispus*; courtesy of Nancy Balcom

Photos: Periwinkle, *Littorina littorea*; courtesy of Nancy Balcom

Periwinkles are snails that live in huge numbers in the rocky intertidal area, scraping algae off the rocks with their radula (tongue-like organ)

Blue mussels grow in large clumps in the intertidal zone, attaching to the rocks and each other with strong, elastic threads called byssus or byssal threads

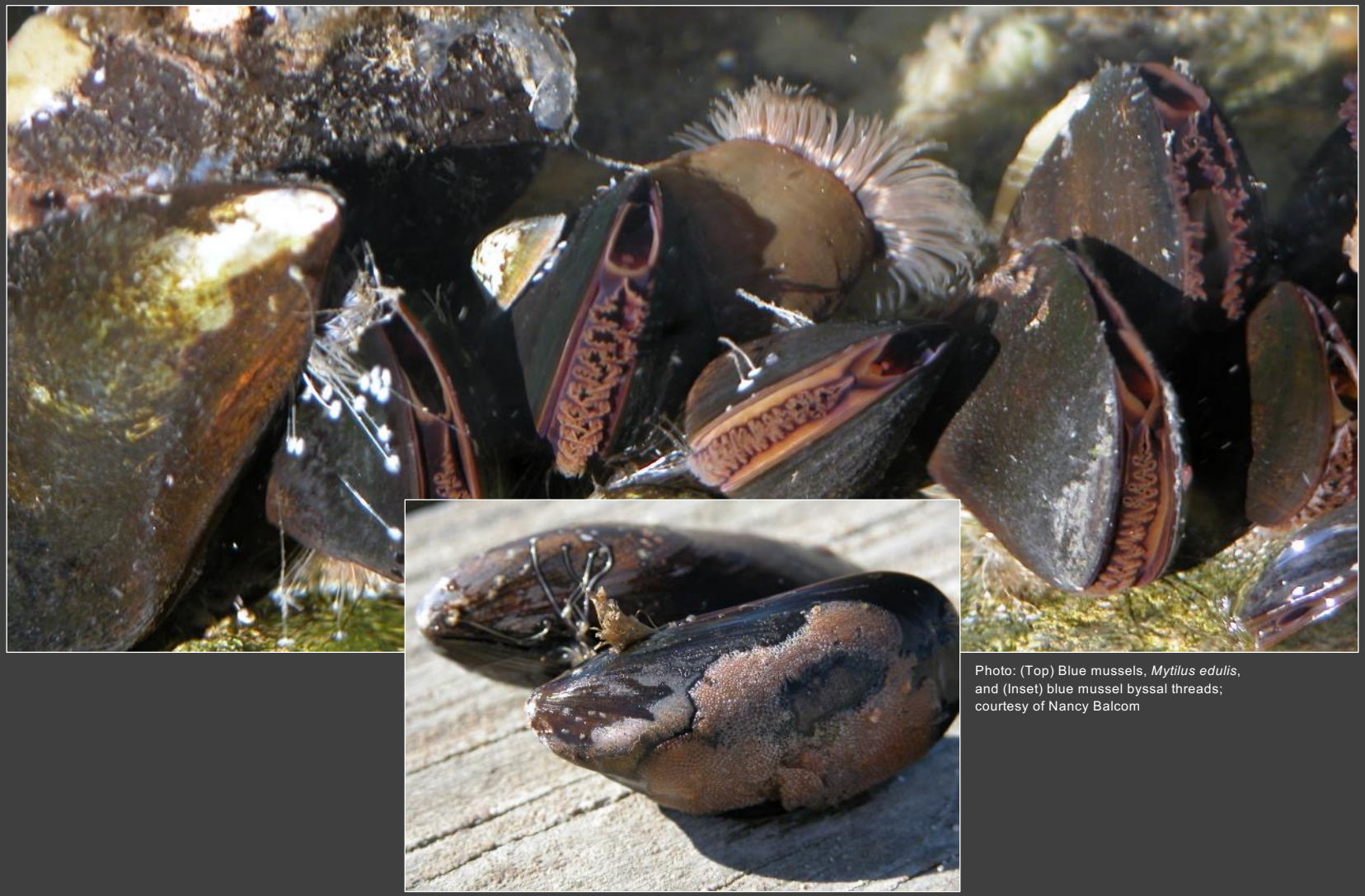


Photo: (Top) Blue mussels, *Mytilus edulis*, and (Inset) blue mussel byssal threads; courtesy of Nancy Balcom

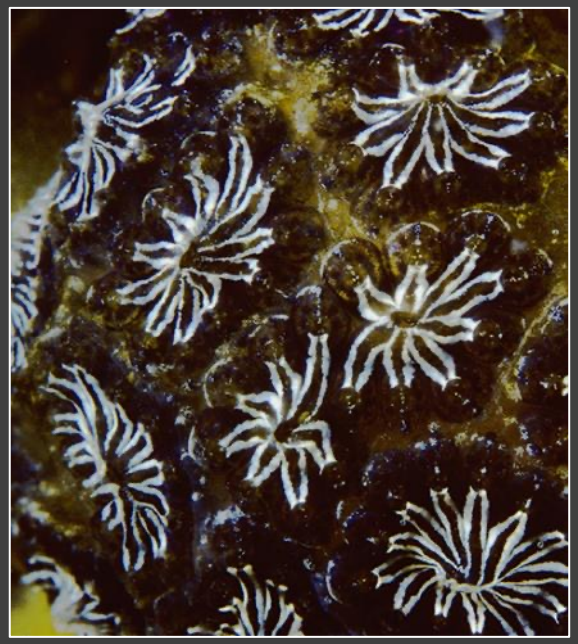
Photo: Barnacles; courtesy of Nancy Balcom

Barnacles feed during high tide by waving feathery appendages through the water, sweeping plankton into their mouths; as the tide recedes, the valves at the top close tightly

Photos: Asian shore crabs, *Hemigrapsus sanguineus*; courtesy of Nancy Balcom

The Asian shore crab is a species endemic to Japan and Asia; introduced to Long Island in the early 1990s, it is the most dominant crab in the intertidal zone, easily found between and under rocks at low tide

Photos: Pacific rough sea squirt, *Styela clava* (left) and golden star tunicate, *Botryllus schlosseri* (middle); courtesy of Tessa Getchis; (right) close-up of golden star tunicate, *Botryllus schlosseri*; courtesy of Robert Bachand



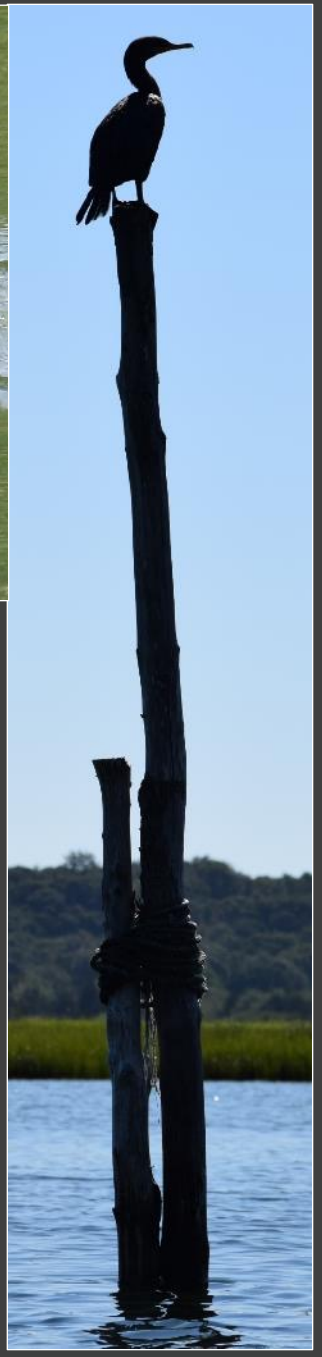
Several tunicate species or sea squirts inhabit the Sound; some are solitary organisms and others are colonial—made up of many individuals

Clusters of sea grapes are commonly found on pilings, floats, and docks; solitary tunicates, they have two siphons used to filter water and food and excrete wastes

Photos: Sea grapes, *Molgula spp.*; courtesy of Tessa Getchis

Photo: (left) Ring-billed gull, *Larus delawarensis*; courtesy of Nancy Balcom; (right) Herring gull, *Larus argentatus*; courtesy of Thomas Morris

Numerous gull species (‘seagulls”) live year-round or visit Long Island Sound, including the ring-billed gull (left) and herring gull (right) which nest in large colonies on islands from early May through July



Double-crested cormorants live here year-round; they are more numerous in summer when they breed on rocky islands

Photos: (left and center) Doubled-crested cormorants, *Phalacrocorax auratus*; courtesy of Thomas Morris; (right) courtesy of Nancy Balcom