

NON-INDIGENOUS AQUATIC SPECIES OF CONCERN FOR ALASKA

Fact Sheet 9

Single Horn Bryozoan *Schizoporella unicornis*

BIOLOGY & PHYSIOLOGY

Physical Description: All Bryozoans are sedentary colonial animals that superficially resemble mosses (Bryozoa means "moss animals"). Individual animals are called zooids. The zooids are about 0.4 inches long. They secrete a protective exoskeleton around themselves called a zoecium. Each zooid has a single opening, the orifice. Through this opening is a ring of tentacles called the lophophore, which is centered on the mouth of the zooid. The tentacles are funnel-shaped and ciliated. Individual zooids within a colony are fused with other zooids by thin strands of tissue. The body of the zooid is covered with pores. The texture of the zoecium can vary from chitinous, limey, rubbery, membranous or gelatinous. Bryozoan colonies can be over 4 inches wide.



Photo by: Melissa Phipps

The colonies are usually dingy orange or can be white to dull red. They can form encrusting, branching, or disc-like colonies that are several layers thick as new layers grow over old dead ones. Some Bryozoans can be found year-round while others die off in winter and regenerate the following summer.

Nutrition Requirements: Bryozoans are suspension feeders. Each zooid within a colony has ciliated tentacles which are extended to filter phytoplankton, unicellular algae, and bacteria from the water column. It is estimated that each zooid can clear approximately 1/3 of a fluid ounce of water per day.

Reproduction: All freshwater and most marine Bryozoans are hermaphroditic (having both ovaries and testes on a single individual). The reproductive organs of some marine Bryozoans do not mature at the same time, while others will synchronize the production of both egg and sperm. Some species are dioecious (having different sexes within a colony). Some species release their eggs and sperm directly into the water where they fuse, but the majority of species will brood their eggs within the zoecium or in special chambers known as ovicells and capture free-swimming sperm with their tentacles. New colonies are mostly formed by sexual reproduction. Bryozoans can also reproduce asexually by budding off new zooids as the colony grows; this is the main way by which a colony expands in size. If a piece of the colony breaks off, the piece can continue to grow and form a new colony. Buds are protuberances of the body that can develop into mature, complete individuals. Budding is stimulated by environmental conditions such as rising water temperatures and increasing light intensity during the spring.

Lifecycle Stages: During sexual reproduction, the fertilized eggs divide and develop into free-swimming larvae, which escape from the brood chamber and swim away. These larvae eventually settle on a suitable substrate and metamorphose into a new zooid, which becomes the parent zooid, or ancestrula, of a new bryozoan colony.

Habitat: Of the 5,000 species of bryozoans, most live in the sea where they are among the most widespread and numerous sessile (attached and non-moving) animals. Bryozoans prefer hard substrates with colonies forming on mussel shells, barnacles, docks, pilings, blades of algae, and other structures. Several species are important reef builders; thus, Bryozoans provide habitat for other marines organisms such as juvenile fish. Most Bryozoans are found in the low intertidal zones down to a depth of approximately 185 feet.

DISPERSAL POTENTIAL

Historical and Current Introduction/Spread: The Single Horn Bryozoan originates from Japan. It was first recorded on the Pacific Coast in 1927 and is currently established in California, Oregon and Washington. The Single Horn Bryozoan may have been introduced to California from Japan in 1932 when Pacific oysters were planted in Morro Bay. It was first discovered in Kodiak, Alaska sometime between 1944 and 1949 where it is currently established. It has also been introduced in North America, Australia and Europe.

Dispersal Methods: Long distance dispersal occurs by ship fouling, ballast water, and/or through the oyster industry. Short distance dispersal has know to occur by: free-swimming larvae, larvae being carried by currents, and broken sections of colonies being carried off to new locations by currents where they form new colonies.

IMPACTS AND CONTROL

General Impacts: Studies have shown that species of the Genus Schizoporella can inhibit the addition and/or subsequent increase of other species in the community. Stolons are extensions on the body of the Single Horn Bryozoan. Stolons develop at the colony interfaces, providing defensive and offensive mechanisms in intra- and inter-specific interactions. Stolons also prevent continued overgrowth by competitors, either by a redirection in the growth of both colonies or by an eventual reversal of overgrowth of the competitor. Species from the Genus Schizoporella are some of the most fouling Bryozoans known. They will attach themselves to mussels, barnacles, and manmade structures such as docks.

Management Information: The best means for preventing bryozoans from invading new habitat is to implement ballast water control measures and to control their spread from the oyster aquaculture industry. There are no known biological, chemical or mechanical measures for controlling the spread of bryozoans once they are established.

Key Notes: The Single Horn Bryozoan is often confused with Schizoporella errata on both the Atlantic and Pacific coasts. Southern California studies have shown a high mortality rate for Bryozoans during red tides. Bryozoans are preyed upon by grazing organisms such as sea urchins and fish. They are also subject to competition and overgrowth from sponges, algae, and tunicates. In most bryozoans, several different types of zooids coexist within the same colony. Each type will have a different function within the colony such as feeding, producing and brooding eggs, or more rarely, producing sperm.