

OLYMPIC COAST NATIONAL MARINE SANCTUARY

Navigating the Future

Management Plan Review



Marine Invasive Species

What are marine invasive species?

A marine invasive species is a species that is not native to a given marine ecosystem, and once introduced it causes or is likely to cause economic or environmental harm or harm to human health. Invasive species tend to be fast growing and are one of the leading threats to the world's biodiversity.

Which invasive species are found here?

In coastal Washington, the marine invasive species of most concern are the European green crab (*Carcinus maenas*) and several non-native species of sea squirts (colonial tunicates or ascidians).



European green crab (*Carcinus maenas*)

The European green crab, native to the North and Baltic seas, was introduced to California in the 1980s, probably through ship water discharge or hull fouling. It has invaded numerous coastal regions outside of its native range, including South Africa, Australia, and both coasts of North America. First seen in San Francisco Bay in 1989, green crab were sighted in Willapa Bay and Grays Harbor, Washington, in 1998 and on the west coast of Vancouver Island in 1999.

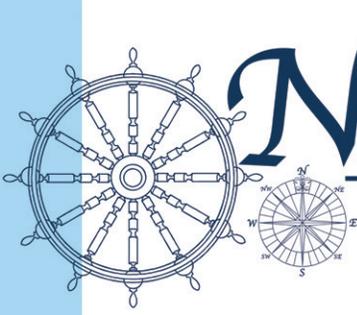


Aquaculture equipment fouled with invasive sea squirts

Invasive sea squirts were introduced to the West Coast in the past decade, likely transported as larvae in ships' ballast water or carried externally on ship hulls.

What problems do invasive species cause?

Green crab are aggressive predators that eat native mollusks, crustaceans, marine worms, and green algae, which are important food sources for many native birds and fish. In California, the green crab has caused losses as high as 50% in Manila clam stocks. Green crab have been linked to the decline in the scallop fishery in the northeast United States and are a concern for the Dungeness crab, oyster,



Navigating the Future

Management Plan Review



and clam fisheries and aquaculture operations in the Pacific Northwest.

Sea squirts have no known predators and form dense colonies that cover boat hulls, pilings and other hard surfaces, out-competing or suffocating other sea life, including clams, mussels and oysters. They displace native species and are a nuisance. As they continue to spread, they pose a serious threat to our multi-million dollar shellfish industry.

How can we combat invasive species?

Research is being conducted to understand ways invasive species enter our waters and ways we can reduce the risk of further introductions. Researchers are also mapping and monitoring invasive species populations. Eradication programs are being implemented in some cases to remove these organisms before they reproduce or spread further.

To reduce the risk of new invasive species introductions, the Washington state legislature passed SB 5923 in 2007 that updated regulations governing ballast water discharge in state waters (Chapter 77.120RCW). Under this law, ballast water can only be discharged within three miles of shore if it either has been exchanged in the open sea, or has been treated to kill or remove organisms. Washington state's Ballast Water Program is implemented by the Washington Department of Fish and Wildlife.

What is the sanctuary doing to combat marine invasive species?

Sanctuary staff, in partnership with the Makah Tribe, routinely searches for green crab in Neah and Makah bays. To date, no green crab have been found at these locations.

In addition, the sanctuary assembled taxonomic experts to conduct species surveys at multiple shoreline sites. For these surveys, a team of experts descended on a stretch of shoreline to locate and identify as many species as possible during a low tide. This work resulted in comprehensive lists of native and non-native species found on the sanctuary's shores. The sanctuary also collaborated with the Smithsonian Environmental Research Center to deploy plates in the nearshore environment and off docks on which the settlement of planktonic larvae was monitored.

These surveys have documented 13 non-native invertebrate and algal species, including two species of invasive sea squirts and one barnacle species. No eradication programs are currently underway in the sanctuary.

Marine Invasive Species Contact:

Mary Sue Brancato
Resource Protection Specialist
 (360) 457-6622 x20
Mary.Sue.Brancato@noaa.gov