



# GLOBAL

# MARINE INVADERS!



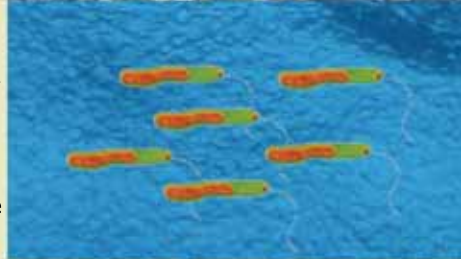
The **Zebra Mussel** (*Dreissena polymorpha*) was introduced into the U.S. Great Lakes in the late 1980's through repeat introductions from ballast water and now infests more than 40% of U.S. waterways. It outcompetes native species and alters ecosystems. It fouls hard surfaces in mass numbers causing problems on infrastructure and vessels. Between 1989 and 2000 its impacts were estimated to have cost between U.S \$750 million to \$1 billion.



The **European Green Crab** (*Carcinus maenus*) has caused a significant reduction in clam and shore crab numbers in California since its arrival in 1993. It has been introduced to the U.S., Australia and South Africa and is highly adaptable to new environments. As a voracious predator it consumes a large number of species, becoming dominant in invaded areas by displacing native crabs and competing with fish and bird species for food.



**Cholera** is a water-borne potentially deadly intestinal disease caused by the bacteria *Vibrio cholera*. Some cholera epidemics are associated with ballast water, such as the one that affected more than 10,000 people in South America. The same strain of cholera was also found in ships' ballast and seafood in the U.S., believed to have been transported from South America. The bacteria is concentrated in phytoplankton and zooplankton and may be found in shellfish in areas where it has been introduced.



The **Northern Pacific Seastar** (*Asterias amurensis*) has invaded the southern coasts of Australia and is believed to have been carried by ballast water from Japan. It feeds on native shellfish, including commercially valuable scallop, oyster and clam species. It spreads in plague proportions once established and is even a pest in its native environment- millions of dollars are spent in Japan to prevent its impact on the shellfish farming industry.



The **North American Comb Jelly** (*Mnemiopsis leidyi*) was introduced to the Black Sea and Asov Sea in ship's ballast water in the early 1980's and has contributed significantly to the collapse of the Black Sea Fisheries, worth 100's of millions of dollars a year. It has since invaded the Marmara, Aegean and Caspian Seas via ballast water. The Comb Jelly feeds on zooplankton, fish eggs and larvae and therefore causes negative impacts throughout the entire food chain.



# Protect our Waters from MARINE INVADERS!



Marine species are introduced to new environments mainly through ships ballast water and hull fouling. Up to 7,000 species are transferred around the world via commercial vessels every day.

If these species become established (invasive) they can cause ecological, economical and social problems. They can threaten native species and disrupt habitats, cause health epidemics and cost enormous financial resources to eradicate.

Marine introduced species can become established quickly and without warning, therefore prevention of the arrival and settling of invasive species and monitoring of habitats is essential!

The species on this leaflet are amongst the world's top ten worst invaders and have caused substantial ecological and economic damage. They are all extremely difficult to eradicate once established.

## What can you do?

- Raise awareness about the problem.
- Encourage the monitoring of your local harbours and coral reefs.
- Support measures to prevent the transport and exchange of ballast water between harbours.
- Support measures to reduce hull fouling on recreational and commercial vessels.
- If you see anything suspicious in local waters call Greenline: 722111
- For more information visit: [www.iucn.org/themes/marine/invasives/coralreefs/seychelles](http://www.iucn.org/themes/marine/invasives/coralreefs/seychelles)



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