

## Some examples of Aquatic Invasive Species (AIS):

For educational purposes only, Source : <http://www.imo.org/en>

Name	Native to	Introduced to	Impact
Cholera <i>Vibrio cholerae</i> (various strains)	Various strains with broad ranges	South America, Gulf of Mexico and other areas	Some cholera epidemics are reported to be have been associated with ballast water
Cladoceran Water Flea <i>Cercopagis pengoi</i>	Black and Caspian Seas	Baltic Sea	Reproduces to form very large populations that dominate the zooplankton community and clog fishing nets and trawls, with associated economic impacts.
Chinese mitten crab <i>Eiocheir sinensis</i>	Northern Asia	Western Europe, Baltic Sea and west coast North America	Undergoes mass migrations for reproductive purposes. Burrows into river banks and dykes causing erosion and siltation. Preys on native fish and invertebrate species, causing local extinctions during population outbreaks. Interferes with fishing activities.
Toxic algae(red/brown/green tides) various species	Various species with broad ranges	Several species have been transferred to new areas in ships' ballast water	May form harmful algae blooms. Depending on the species, can cause massive kills of marine life through oxygen depletion, release of toxins and/or mucus. Can foul beaches and impact on tourism and recreation. Some species may contaminate filter-feeding shellfish and cause fisheries to be closed. Consumption of contaminated shellfish by humans may cause severe illness and death.
Round goby <i>Neogobius melanostomus</i>	Black, Asov and Caspian Seas	Baltic Sea and North America	Highly adaptable and invasive. Increases in numbers and spreads quickly. Competes for food and habitat with native fishes including commercially important species, and preys on their eggs and young. Spawns multiple times per season and survives in poor water quality.

North American comb jelly <i>Mnemiopsis leidyi</i>	Eastern seaboard of the Americas	Black, Azov and Caspian Seas	Reproduces rapidly (self-fertilising hermaphrodite) under favourable conditions. Feeds excessively on zooplankton. Depletes zooplankton stocks; altering food web and ecosystem function. Contributed significantly to collapse of Black and Asov Sea fisheries in 1990s, with massive economic and social impact. Now threatens similar impact in Caspian Sea.
North Pacific seastar <i>Asterias amurensis</i>	Northern Pacific	Southern Australia	Reproduces in large numbers, reaching 'plague' proportions rapidly in invaded environments. Feeds on shellfish, including commercially valuable scallop, oyster and clam species.
Zebra mussel <i>Dreissena polymorpha</i>	Eastern Europe (Black Sea)	Introduced to: western and northern Europe, including Ireland and Baltic Sea; eastern half of North America	Fouls all available hard surfaces in mass numbers. Displaces native aquatic life. Alters habitat, ecosystem and food web. Causes severe fouling problems on infrastructure and vessels. Blocks water intake pipes, sluices and irrigation ditches. Economic costs to USA alone of around US\$750 million to \$1 billion between 1989 and 2000.
Asian kelp <i>Undaria pinnatifida</i>	Northern Asia	Southern Australia, New Zealand, west Coast of the United States, Europe and Argentina	Grows and spreads rapidly, both vegetatively and through dispersal of spores. Displaces native algae and marine life. Alters habitat, ecosystem and food web. May affect commercial shellfish stocks through space competition and alteration of habitat.
European green crab <i>Carcinus maenus</i>	European Atlantic coast	Southern Australia, South Africa, the United States and Japan	Highly adaptable and invasive. Resistant to predation due to hard shell. Competes with and displaces native crabs and becomes a dominant species in invaded areas. Consumes and depletes wide range of prey species. Alters inter-tidal rocky shore ecosystem.