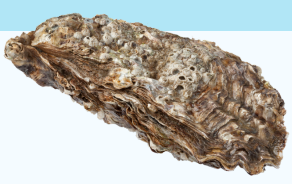
NSW
INVASIVE MARINE SPECIES
Socio-economic Impacts

MARINE PESTS ARE NON-NATIVE, HUMAN-INTRODUCED MARINE PLANTS OR ANIMALS THAT, ONCE ESTABLISHED, HAVE THE POTENTIAL TO HARM NSW'S MARINE ENVIRONMENT, INDUSTRY & RESOURCES



AQUACULTURE

Aquaculture is one of the fastest growing segments in the world food economy. There are numerous inherit risks from IMS such as the introduction of exotic species, damaged infrastructure, prey on stock and potential spread of diseases [3].

An example of an IMS now used in aquaculture in Australia is the Pacific oyster (*Crassostrea gigas*). Classified as a Class 2 Noxious Fish in all NSW waters, this species has been farmed under close observation since 1991 [1].

FISHERIES

Commercial and recreational fishing can be impacted by IMS by an increase in pressure on fish populations, displacement of native species populations, and initiation of restricted fishing zones.

The European green crab (*Carcinus maenas*) is an example of an IMS that inhabits NSW waters and preys on juvenile native species [4].

TOURISM

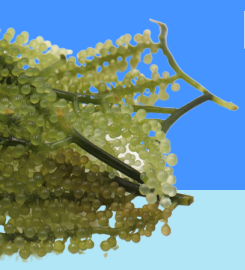
IMS can significantly damage the natural aesthetic and amenity value of shorelines and coastal areas popular to tourism.

As tourism provides strong economic support for numerous areas, these species have the ability to cause a strong socio-economic impact.

An example from our neighbouring state Queensland, the Crown-of-thorns starfish (*Acanthaster planci*) has spread throughout coral reefs in locations where the economy is driven by tourism [2].

NSW
INVASIVE MARINE SPECIES
Socio-economic Impacts

MARINE PESTS ARE NON-NATIVE, HUMAN-INTRODUCED MARINE PLANTS OR ANIMALS THAT, ONCE ESTABLISHED, HAVE THE POTENTIAL TO HARM NSW'S MARINE ENVIRONMENT, INDUSTRY & RESOURCES

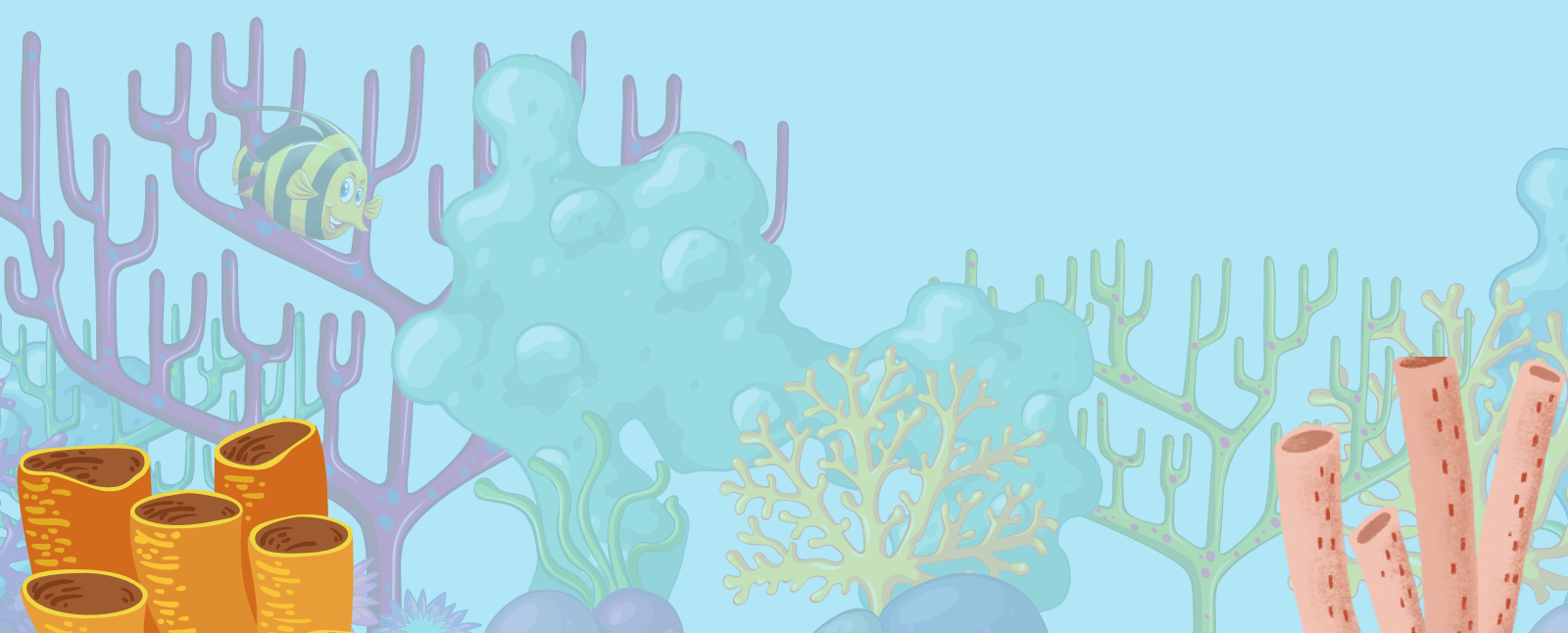


BOATING

Ultimately, boating is a major vector for the introduction and spread of IMS in Australia. Therefore, IMS can cause an indirect consequence on commercial shipping due increased restrictions on movement, strict ballast discharge requirements, and biosecurity act.

They can also impact recreational boating through paint and hull damage, increased drag (fuel expenses), and maintenance costs.

Caulerpa taxifolia is an example of an IMS species in NSW that is known to have higher abundance and biomass in areas of high recreational boating. It is thought that this is a result of fragments created by motor-boat propellers [5].

REFERENCES

1. Bishop, M.J., Krassoi, F.R., McPherson, R.G., Brown, K.R., Summerhayes, S.A., Wilkie, E.M. & O'Connor, W.A. 2010. Change in wild-oyster assemblages of port stephens, nsw, australia, since commencement of non-native pacific oyster (crassostrea gigas) aquaculture. *Marine and Freshwater Research*, 61(6): 714-723.
2. MacNeil, M.A., Mellin, C., Pratchett, M.S., Hoey, J., Anthony, K.R.N., Cheal, A.J., Miller, I., Sweatman, H., Cowan, Z.L., Taylor, S., Moon, S. & Fonnesbeck, C.J. 2016. Joint estimation of crown of thorns (acanthaster planci) densities on the great barrier reef. *PeerJ*, 4:e2310.
3. Naylor, R.L., Williams, S.L. & Strong, D.R. 2001. Aquaculture—a gateway for exotic species. *Science*, 294(5547): 1655-1656.
4. Walton, W.C., MacKinnon, C., Rodriguez, L.F., Proctor, C. & Ruiz, G.M. 2002. Effect of an invasive crab upon a marine fishery: green crab, carcinus maenas, predation upon a vernerid clam, katelysia scalarina, in tasmania (australia). *Journal of Experimental Marine Biology and Ecology*, 272(1): 171-189.
5. West, E.J., Davis, A.R., Barnes, P.B. & Wright, J.T. 2009. The role of recreational activities in creating fragments of invasive caulerpa taxifolia. *Journal of Experimental Marine Biology and Ecology*, 376(1): 17-25.