Shellfish reefs are 'most imperilled sea habitat'

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GLOBALLY, 85 per cent of reefs have been lost. Destructive fishing practices, disease and coastal development threaten many of the survivors. What sounds like an apocalyptic vision of the future for the world's tropical corals is in fact a chilling assessment of the current state of reefs built in cooler waters by oysters and other bivalve shellfish.

According to a report from The Nature Conservancy (TNC), released this week at the International Marine Conservation Congress in Washington DC, shellfish reefs are the world's most imperilled marine habitats - faring worse than coral reefs and mangrove forests.

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"Shellfish like oysters, cockles and mussels have been feeding people for millennia," says co-author Robert Brumbaugh, a member of TNC's global marine team based in Summerland Key, Florida. "But there is very little appreciation for their plight." Shellfish biologists hope that TNC's global survey will galvanise conservation efforts in a similar way to the 1998 report of the Global Coral Reef Monitoring Network, which raised the alarm on tropical reefs.

Shellfish reefs protect shores from erosion and provide shelter for other animals, while bivalves also filter out suspended organic matter, clearing waters for plants such as seagrass. Because shellfish have been thought of almost exclusively as a human food source, little thought has been given to their role as "ecosystem engineers".

TNC's team scoured the literature, surveyed scientists and analysed fisheries statistics to assess the health of reefs in 144 bays and estuaries in 44 "ecoregions" across the globe. In most bays, shellfish reefs are down to around 10 per cent of their historical abundance. In many former strongholds - such as in North America, Europe and Australia - they are all but extinct. Reasons for the decline vary, but include overfishing, introduction of exotic species, and disturbance from human activities.

In Europe, Pacific oysters introduced for aquaculture are now moving from southern latitudes into the North Sea, where they are outcompeting native mussels - with knock-on effects for other wildlife. In the Gulf of Mexico off the south-eastern US, meanwhile, the water demands of Atlanta and other cities mean river flows are down, making estuaries more salty and allowing invading marine predators to feast on native oysters.

The good news is that oyster reefs can bounce back, if managed with care. On the east coast of Florida, years of disturbance from boat wakes have created "dead

margins" of dislodged oyster shells. Volunteers led by Linda Walters of the University of Central Florida in Orlando use an amphibious mechanical digger to remove the debris, then lay down mesh mats with empty shells tied on. These encourage larvae to settle, and after 18 months the mats host the same density of oysters as a pristine reef. The team has laid 8500 mats and will set 3500 more in the next few months.