A 'WIN-WIN-WIN' PLAN FOR HEALTHY SEAS

A combination of natural and social sciences, and effective South-North partnerships, are helping to support fisheries in the developing world.

by **Jane Lubchenco**

Marine ecologist Jane Lubchenco was named by US President Barack Obama as the State Department's first Science Envoy for the Ocean. She also served in the Obama administration as undersecretary of commerce for oceans and atmosphere and administrator of the National Oceanic and Atmospheric Administration. She is distinguished university professor at Oregon State University, and a TWAS Fellow since 2004. She received the 2014 TWAS Medal.

The ocean is vital to the future of all people on Earth, but especially those in developing countries. If used properly and equitably, the ocean can provide food security, jobs, and revenue to support development and alleviate poverty. Recognizing the centrality of the ocean to sustainable development, the UN recently focused one of 17 Sustainable Development Goals on the ocean: "Conserve and sustainably use the oceans, seas and marine resources for sustainable development".

Sustainable fisheries are essential for achieving sustainable use of the ocean, but most small-scale fisheries that could deliver these essential benefits are in serious trouble and getting worse each year. A fisherman in the Philippines, for example, used to catch more than 40kg (88 pounds) of fish in the '40s, but now, with the same effort, is catching just 3kg (6.6 pounds). As fish become scarce, fishermen are forced to fish harder and harder, resulting in more overfishing. To make matters worse, illegal fishing and habitat destruction from some types of fishing gear also contribute significantly to the depletion and disruption of ocean ecosystems.

Many nations may be tempted to give up on fisheries as doomed, and pivot to aquaculture for seafood. However, recent scientific findings suggest that both sustainable aquaculture and sustainable fisheries will be needed for food security, and that it is possible to increase fish catches while also increasing biomass of fish in the ocean. Getting fishing right could mean more seafood on plates, more fish in the ocean and more profitable fisheries. This seemingly impossible win-win-win is, in fact, possible and is under way in a number of countries.

Guided by innovative efforts that combine natural and social sciences, such as the Fish Forever programme of Rare, the Environmental Defense Fund and the Sustainable Fisheries Group at the University of California at Santa Barbara, fishermen in the Philippines, Brazil, Belize and elsewhere are turning their fisheries around. Each situation is different, but the common elements of success include using rights-based approaches to fishery management, strong engagement of the entire community, scientifically determined catch levels, and use of fully protected marine reserves that provide conservation benefit and recharge adjacent fishing grounds.

Thus a powerful alternate trajectory to the present downward course is feasible and provides hope for the future. Solidly grounded in natural and social science, innovative efforts are showing how to fish smarter, not harder, how to use the ocean without using it up. ◘