

Oceans in the Anthropocene: End of the high seas; need for repair and reasoned management

PETER F. SALE¹

¹Biological Sciences, University of Windsor, Windsor ON
Canada N9B3P4, E-mail <sale@uwindsor.ca>

A short eighty years ago, it was conventional wisdom among fisheries biologists that we could never overfish the oceans. They were too vast. World War II, a grand experiment in reducing fishing effort, revealed that folly. Today we have reduced the global standing stock of fishery species by about 90%, while resculpting benthic communities across most of the continental shelves through our trawling. We have polluted the oceans extensively with nutrients, metals, and plastics.

In 1982, coral bleaching in Galápagos and Panamá told us our CO₂ emissions were now warming and acidifying ocean surface waters. The consequences of these changes extend through global oceanic current systems and oceanic food chains, while sea level, essentially stable for 6000 years, has begun to rise again.

Over 2.6 billion people, half in tropical developing countries, live within 100 km of a coast. For this 37% of humanity in particular, the oceans are vitally important providers of goods, services and quality of life. Our coastal populations, and their need for goods and services, grow while the capacity of the oceans to provide those goods and services declines. If we want to restore the capacity of the oceans to serve our needs, radical changes are needed in how we manage the coastal ocean, and how we ration access to high seas resources. Improved management of sectoral conflicts, management that is integrated on ecologically appropriate spatial and temporal scales, and appropriately participatory management must be put in place with high compliance, at least within already recognized Exclusive Economic Zones. We also need further research and discussion of the long-term ramifications of the marine effects of our CO₂ pollution, because that alteration to the atmosphere has set in train swift biological responses by marine species, and very long term changes in the planetary system that are both as yet poorly understood.