

Ocean Research Priorities Plan

Recommendations for Improving Ecosystem Health



THE ISSUE

Plastics (pre- and post-consumer) are the largest part of the marine debris problem: 90% of floating marine debris is comprised of plastic materials, 60-80% overall.¹ Any solutions the committee adopts must address this issue. Due to photo-degradation, the materials become smaller bits of plastic that persist in the ocean. These plastic pieces sorb pollutants up to a million times their level in ambient seawater.² Many species ingest the plastic bits. The committee must provide more research in this area. We must acknowledge also that plastics affect all global watersheds.

Land-based debris (litter) is the principal marine debris problem; nearly 80% comes from land-based sources.³ Since there is no viable way to remove small plastic debris from the ocean, we must focus our efforts on preventing the parent materials from entering watersheds.

SOLUTIONS

1. Research should identify geographic “hot spots” for production of litter and marine debris.
2. We must dedicate funds to existing research to better characterize trash in urban runoff.
3. Investigate the impacts on marine ecosystems of (a) photo-degraded plastics, (b) plastic additives as hormone disrupters, (c) rafting of non-native marine species on plastics, and (d) pollutants sorbed to plastic.
4. The plan must include anti-litter education for beach visitors, cigarette smokers, boaters, motorists, pedestrians, commercial establishments, and the general public.
5. The plan must regulate the quantity of product and packaging waste generated by companies.
6. Increase enforcement of anti-litter laws as a deterrent to the most litter-prone segments of the population.
7. Develop a fee system to raise money for implementing solutions, including advanced disposal fees, litter enforcement fees, excessive amount of single use and disposable consumer product fees, and increased garbage tipping fees.
8. Pass legislation to help strengthen research, prevention, and enforcement efforts to reduce marine debris (like the Marine Debris Research, Prevention and Reduction Act (S 362 now moving through Congress).
9. CA has made significant progress in getting debris on the state TMDL list. We must incorporate this model into other coastal states.

Captain Charles Moore, Captain of the Oceanographic Research Vessel *Algalita*
and Founder of Algalita Marine Research Foundation

1 J.G.B. Derraik, “The pollution of the marine environment by plastic debris: a review” *Marine Pollution Bulletin* 44 (2002):843; Gregory, M.R., Ryan, P.G. “Pelagic plastics and other seaborne persistent synthetic debris: a review of Southern Hemisphere perspectives” in Coe, J.M. Rogers, D.B. (Eds.), *Marine Debris- Sources, Impacts and Solutions*, (1997) Springer-Verlag, New York, pp. 49-66

2 Mato, Yukie, Tomohilo Isobe, Hideshige Takada, et al, “Plastic Resin Pellets as a Transport Medium for Toxic Chemicals in the Marine Environment,” in *Environmental Science & Technology* 35 (2001): 318-324.

3 U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Office of Public and Constituent Affairs, “Turning to the Sea: America’s Ocean Future” (1999): 56. See also, UNEP, United Nations Environment Programme (1995) “Global Programme of Action for the Protection of the Marine Environment from Land-based Activities.” Note by the secretariat. UNEP (OCA)/LBA/IG.2/7