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**Title:**

DEVELOPING PROPOSING BIOINDICATORS TO MONITOR PLASTIC POLLUTION IN THE NORTH PACIFIC

**Authors:**

Matthew Savoca, Stanford University  
Susanne Kühn, Wageningen Marine Research, The Netherlands  
Chengjun Sun, First Institute of Oceanography, Qingdao China  
Stephanie Avery-Gomm, Environment and Climate Change Canada, Ottawa, ON, Canada  
Anela Choy, Scripps Institution of Oceanography, University of California, San Diego, CA  
Sarah Dudas, Fisheries and Oceans Canada, Nanaimo, BC, Canada  
Sanghee Hong, Korea Institute of Ocean Science and Technology, Republic of Korea  
David Hyrenbach, Hawai'i Pacific University, Waimānalo, HI USA  
Tsung-Hsien Li, National Museum of Marine Biology, Checheng, Pingtung, Taiwan  
Connie Ng, City University of Hong Kong, China  
Jennifer Provencher, Environment and Climate Change Canada, Ottawa, Canada  
Jennifer Lynch, National Institute of Standards and Technology, Waimānalo, HI

**Abstract:**

Synthetic marine debris has become a ubiquitous component of the Anthropocene ocean. Plastic ingestion by marine wildlife was first reported half a century ago and since that time, roughly one thousand species have been reported to consume this debris. This study focuses on plastic ingestion by marine organisms in the North Pacific Ocean. We assess the scope of the problem and identify key bioindicator species to develop a monitoring program for plastic debris in North Pacific food webs. Using data from 1969-2020, our meta-analysis confirmed that food webs in the North Pacific are among the most polluted globally; roughly half of all fish and seabird species surveyed in the region had consumed plastic, and more than three-quarters of sea turtles and bivalves. While there is not enough standardized data to assess if the problem is worsening, standardization and reporting of methods are improving over time. Using a rubric-evaluation approach, we evaluated 344 species for their potential to serve as bioindicators of plastic pollution in North Pacific food webs. This analysis identified 12 species that would be ideal to focus monitoring efforts on in the North Pacific and elsewhere. Linking our results and suggested bioindicator species to other monitoring programs worldwide will be paramount to track humanity's progress on mitigating plastic pollution in the marine environment.