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Postdoctoral Research Opportunity:

Estimating the impacts of cleanups on ocean biodiversity by evaluating the risks of common macroplastic debris items to marine life

Project leads

- Dr. Britta Baechler: Senior Manager of Ocean Plastics Research, Ocean Conservancy; Adjunct professor, University of Toronto
- Dr. Chelsea Rochman: Professor, University of Toronto; Scientific Advisor- Ocean Conservancy

Research concept

You are out walking your favorite stretch of beach as the sun rises. During your stroll you encounter 30 cigarette butts embedded in the sand, picking each up as you go. At the end of your walk you think to yourself, “How might those cigarette butts have affected ocean animals had I not picked them up?”.

Ocean Conservancy aims to help the public understand this very question. By integrating evidence on adverse impacts of plastics on marine life from the scientific literature with our global ICC (marine debris) database, we seek to develop a model to quantify the positive impact of inland and coastal cleanups of plastic pollution by estimating the risks of commonly-encountered single-use plastic products on marine life. Analyses will be conducted by taxa (e.g., seabirds, marine mammals, sharks, sea turtles, fish, shellfish), and may include variables such as encounter rate, functional traits, body morphologies, and other characteristics to calculate the risk of contamination and subsequent impact. This evidence-based, action-oriented work builds on earlier studies (e.g. Wilcox et al. 2016) by advancing our scientific understanding about the risks of macroplastics to marine wildlife, and allowing ocean advocates, environmental managers, and policy-makers to improve the collective impact of macroplastics interventions on ocean health. Ultimately, it will help identify key policy, mitigation and/or cleanup strategies to better protect marine biodiversity.

This postdoctoral scholar will have a unique opportunity to conduct applied research at the nexus of academia, conservation and policy. In addition to publishing this work in top-ranking international journals, we aim to develop a novel decision support tool centered around the impacts of plastic pollution to global coastlines and the ocean – putting information about plastic sources, emissions and sinks into a risk framework perspective. The resulting tool, or ‘risk calculator’, will allow

environmental conservation organizations and other advocates to better communicate the magnitude of impact from plastics reduction policy and cleanup efforts in terms of wildlife health.

Project outcomes

1. At least one paper published in an open-access journal that estimates the risk of common macroplastic debris items found on beaches globally to marine biodiversity;
2. Public-facing 'impact calculator' tool to help quantify and track the impact of global cleanup efforts, including ICC, to marine wildlife.

Project staffing

We seek a postdoctoral researcher, co-advised over 1-year (with the possibility of extending for a second year) by Dr. Britta Baechler and Dr. Chelsea Rochman to achieve desired project outcomes. The position will be co-supervised by University of Toronto faculty (Rochman) and Ocean Conservancy staff (Baechler), and there is a preference for the researcher to be located in Toronto, Canada; however, leading candidates with a remote preference will also be considered. Our ideal candidate will have an understanding of marine biology/ecology and demonstrated interest in marine conservation. We seek someone who possesses advanced quantitative analysis and modeling skills, and who has previously conducted impactful research that resulted in peer-reviewed publications. Strong written and oral communication skills, and a record of successfully leading and participating in collaborative research are also desired.

To apply

Applicants should submit the following materials via email to Dr. Baechler at bbaechler@oceanconservancy.org:

- 1) A 1-2 page cover letter describing how your interests, background and professional experience match the project goals, 2) Curriculum Vitae, and 3) Names, affiliations and contact information for three recent professional references.

Review of applications will be ongoing until the position is filled. We aim to initiate the project by mid-October, 2022.