Proposal for a Master thesis in Master in Sustainable Development

Aim: Investigate marine litter and microplastics at arctic coasts

Background and rationale
Marine litter and microplastics are found everywhere. However, arctic regions are understudied. Arctic regions are less densely inhabited. Clean-up activities are often rare, or, at least, results are not reported in the scientific literature. Thus, empirical data are scarce.
Citizen science is an easy- to implement approach to activate people and increase the work output of collecting marine litter. To understand the routes of transport of waste unintentionally entered the sea, a thorough survey of coasts all over the world is needed. In addition, to raise knowledge about the possible origin and sources of marine litter and microplastics, a sophisticated analysis is essential.

Research Questions
- How much marine litter and microplastics is found at the coasts of Svalbard?
- Is there a quantitative difference in the amount of litter at various sites along the coast?
- Is there a qualitative difference in the composition of litter at various sites along the coast?
- Can the origin and source of the litter and the polymer composition of microplastics be determined?

Procedures and Methods
This proposal could be split into two master theses, e.g. one on marine litter, and one on microplastics.
Depending on the major focus of interest of master student, the design of this survey can be resumed in three principal steps:
- Beach survey and litter characterization following standard protocols
- The selection of sampling sites will depend on cruise schedule, weather and sea conditions.
- Guiding and instructing non-academic individuals in collecting marine litter
- Polymer characterization of the plastic litter component and provenience investigation via Attenuated total reflection (ATR).

What we offer
- Expedition to Svalbard onboard a vessel of Swan Hellenic in June 2024 (transport, accommodation and lodging covered)
- Access to necessary facilities, such as laboratory with devices needed, office space and computer.
- Reference data base as well as scientific networks to determine and verify origin and source of litter

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Prospected outcome

- Collection and removal of litter at sampling sites (i.e. ‘clean-up’ of beaches at Svalbard)
- Possibility for the prospective students to publish their research in an academic journal

Your profile

You should enjoy working systematically and carefully, as well as scientific writing. Ideally, you have experience in working with citizen scientists.

If your interest is peaked, please contact:

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