

Report on ocean science and community engagement on an expedition around Iceland



The Opal sailing out of Skálfandi Bay

From 14th to 21st May 2021, I went on a sailing expedition organised by the non-profit organisation [Ocean Missions](#). The NGO has the mission of raising awareness with regards to ocean issues and aims at educating the public about getting involved in ocean decision-making. On board were six ocean scientists from different disciplines, members of the public who were eager to learn more about ocean science, the captain and a communications team.

The expedition

We sailed from Húsavík in the North of Iceland around the Westfjords and Snæfellsnes all the way to Reykjavík within seven days. Life in board was divided into shifts where everyone helped the crew with sailing the ship, keeping things in order, conducting experiments, cooking and cleaning. Each shift was four hours long followed by four-hour break in which to relax and enjoy the scenery or get some sleep. During the first few days, the seas were rough and many of the passengers were seasick. We made good progress, however, and came to Siglufjörður and Hornstrandir in the Westfjords in good time.

The expedition was documented by filmmaker Cat Koppel in [My Icelandic Expedition with Ocean Missions](#).



Science on board

Beach cleaning surveys

During our stops at ports and in remote bays, we landed and conducted several beach cleaning surveys. Hundred metre transects were measured and all beach litter, mostly household items, pieces of plastic and fishing gear, were all collected, weighed and packed to be analysed in a laboratory on land. We cleaned beaches and conducted litter surveys in Siglufjörður, Hornvík on Hornstrandir and Dritvík on Snæfellsnes.

Manta trawling

The other main scientific activity organised by the crew scientists was regular manta trawling. A manta trawl is a device that floats at the water surface and as the boat pulls it through the ocean, it collects plankton and small particles in its tail-like net. The manta was put out three times for 30 minutes each at Siglufjörður, Aðalvík on Hornstrandir, Dritvík on Snæfellsnes and in Faxaflói near Reykjavík. Each time, the tail or cod end was emptied through two sieves, and we then went through the materials caught, dividing zooplankton and microplastics into two different containers to be analysed on land. We found a variety of zooplankton like krill, copepods and two tiny fish, as well as some unidentifiable particles which could be plastic, and some particles of what was likely to be boat paint.



Beach clean and survey at Hornstrandir



Manta trawling



Sorting through trawl



Identifying zooplankton



Zooplankton

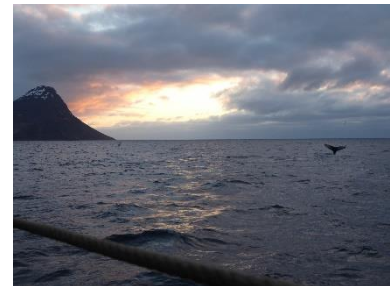
Species identification

We conducted two pelagic bird surveys as well as observing a variety of seabirds during the entire expedition. We also sailed very close to two well-known seabird colonies at Hornbjarg and Látrabjarg. We observed Northern fulmars (*Fulmarus glacialis*), common guillemots (*Uria aalge*), gannets (*Morus bassanus*), puffins (*Fratercula arctica*), kittiwakes (*Rissa tridactyla*), razorbills (*Alca torda*), eider ducks (*Somateria mollissima*) and Arctic terns (*Sterna paradisaea*).



Northern Fulmar

With a marine mammal scientist on board and several biologists working as whale watching guides, we also attempted to observe and potentially identify and record marine mammals. On the very first night at the mouth of Eyjafjörður, we observed humpback whales (*Megaptera novaeangliae*) feeding. The passengers learned how to take pictures for photo identification of the whales and about the catalogue of individuals held at Húsavík Research Centre. We also spotted humpback whales in the Westfjords as well as one in Faxaflói. There, having passed Snæfellsnes, we observed one minke whale (*Balaenoptera acutorostrata*) and two pods of white beaked dolphins (*Lagenorhynchus albirostris*). We had also hoped to encounter Orcas (*Orcinus orca*) to record their underwater sounds but did not find any.



Humpback whale in the Westfjords

Community engagement

It was my intention to study the expedition in regard to existing practices of community engagement and capacity building. At the same time, I had hoped that I could engage some community members of the towns we landed in and bring the expedition crew and their findings to the local inhabitants. This proved difficult in most cases as I was not part of the original crew, and thus not involved in deciding the sailing schedule and actual landfalls and had little to no warning when we would land where and how long we could stay. This was, of course, also due to the weather and sailing conditions and can never be altogether strategized.

In Siglufjörður, the crew reported that in years past, the workers at the recycling plant had met them enthusiastically and were happy to support the mission and get involved. This year, we met nobody from this group, although they were informed of our arrival.

In Ísafjörður, some community members greeted the Opal at the harbour and came on board. They then had the chance to look around the boat, talk to the scientists and crew and get an idea as to what we were doing. This proved to be a valuable exchange as we were planning on looking into microplastics right outside the harbour and got some local perspectives on these plans.

Other than these two ports, we either sailed through the night or stayed in remote bays, so the next port we landed in was already Reykjavík. This prevented us effectively from carrying out more community engagement activities, but these decisions obviously had to be made prioritising safe navigation, weather forecast and expedition schedule.



Opal in Ísafjörður

Positive take-aways for capacity building

- Presentations by scientists on board showing their research
- Discussions on board between scientists, crew and passengers
- Presence of social media – engagement of audience globally
- Community invited on board in ports
- Local community projects in Húsavík funded by income from expedition

Potential to increase capacity building on the expedition

There is potential to announce to local contacts the possibility of landing in the towns in a certain time window and organising a gathering in order to report on the goings-on of the expedition, make contacts, gather local knowledge and co-create research with the local communities. This would give locals some ownership over the science that is going on right on their doorstep and would empower them to get involved in ocean decisions. Other ideas include:

- Clearly communicate purpose and message, audience of the trip to participants before and during expedition
- Passengers could learn from ongoing science onboard as well as attempting to formulate/investigate their own research questions to increase impact
- Clarify the role of (social) media presence – danger of commercialisation through staged research shots
- Not clear communication on board as to plans, changes of plans, priorities etc.
- Clarify education criteria or programme in order to give credit or learning experience to participants
- Further channels to be explored in dissemination of local data with the respective communities

