COPERNICUS OCEAN HACKATHON 2025

FINAL REPORT

Overview & Goals

The Copernicus Ocean Hackathon 2025 was held at Reykjavik University and was organized by the Iceland Ocean Cluster, Startup Iceland, and Náttúrufræðistofnun. The event brought together participants from various backgrounds, including students, researchers, entrepreneurs, and industry professionals, all excited to tackle some of the most pressing challenges in the Blue Economy using Copernicus marine data and other valuable datasets.

The Hackathon aimed to achieve two primary objectives:

1. **Encourage the use of Copernicus data:** This was particularly important for Náttúrufræðistofnun and Copernicus, to promote awareness and application of their valuable datasets.
2. **Inspire innovation in the Blue Economy:** For us at the Iceland Ocean Cluster, the goal was to get participants to think about pressing challenges in the Blue Economy and how data-driven solutions can shape the future.

To guide participants in developing solutions, the Hackathon focused on four key challenges:

1. **Marine Pollution:** Plastic waste, oil spills, and toxic chemicals are severely polluting marine ecosystems, threatening wildlife and human health. Every year, an estimated 8 million metric tons of plastic enter our oceans, forming massive garbage patches that disrupt marine life and ecosystems.
2. **Overfishing and Unsustainable Practices:** Many fish populations are on the brink of collapse due to overfishing, jeopardizing food security and the livelihoods of coastal communities. Sustainable fishing practices and smart monitoring systems are critical to balancing demand with ecological health.
3. **Climate Change and Rising Sea Levels:** Oceans absorb around 90% of the excess heat caused by climate change, leading to rising sea levels, coral bleaching, and disrupted ecosystems. Coastal cities and island nations are increasingly at risk of flooding and erosion.
4. **Marine Biodiversity Loss:** Habitat destruction, invasive species, and rising ocean temperatures are leading to a decline in marine biodiversity, threatening ecosystem services that humans depend on, such as clean water and fisheries.

Hackathon Structure

The Hackathon was structured over three days, each with a specific focus:

Day 1: Lectures & Team Formation
The first day was focused on getting the participants inspired to create solutions using the Copernicus datasets. That was done by introducing them to opportunities in the Blue Economy through lectures from entrepreneurs in the field, an investor who discussed the importance of the oceans and the opportunities in creating new startups, and a professor in Physical Oceanography. Finally we got Fabrice Messal from Mercator Ocean International to go through some of the data provided and how to use them.

Following these talks, participants finalized their teams and decided on the ideas they would develop throughout the Hackathon.

Day 2: Work & Mentorship Sessions
The second day was dedicated to execution. Teams spent the day refining their ideas and developing solutions. We also introduced mentorship sessions, where experts provided guidance on:
- How to best utilize Copernicus data.
- Refining their concepts into viable solutions.
- Technical challenges and problem-solving approaches.

This day was crucial in helping teams transform their initial ideas into structured projects with real-world applications.

Day 3: Finalizing & Presenting Solutions
The final day was dedicated to preparing for the final presentations. In the morning, teams had additional work time to refine their solutions, ensuring they could clearly articulate their ideas. To support them, we hosted a pitch training session, where participants received guidance on how to structure their presentations, communicate their key insights, and deliver a great pitch. Following this, teams focused on finalizing their presentations, incorporating feedback and fine-tuning their delivery before presenting their solutions to the judges.

At the end of the day, teams presented their ideas, and the top three were awarded based on the quality of the presentation, how well they used the Copernicus data, how well they connected the solution to a specific challenge, how innovative their idea was, how feasible and finally the quality of the team.

Hackathon Outcomes

The Hackathon showcased impressive innovation from the participating teams, with a diverse range of data-driven solutions aimed at addressing key challenges in the Blue Economy. Some of the standout ideas included **cultivating a carbon-neutral future**, which focused on sustainable marine carbon sequestration, and a **prediction model for aquaculture** designed to improve fish stock safety using advanced forecasting techniques. Another team worked on **optimizing fish farming locations**, leveraging environmental data to identify the most suitable sites.

Other innovative solutions included a **route planner for sailboats** using wind energy, enabling vessels to optimize energy efficiency, and a **model for predicting pelagic fish locations**, enhancing sustainable fishing practices. Teams also tackled pressing environmental concerns with solutions for **predicting oil spills**, utilizing ocean data to anticipate and mitigate disasters, and **evaluating biological pump efficiency**, which aimed to assess carbon sequestration effectiveness across different marine locations. These ideas demonstrated both creativity and technical expertise, highlighting the potential for real-world applications.

1st Place: Kelpture

2nd Place: Ocean Guardian

3rd Place: Blue Insight

Media Coverage

The Hackathon also gained media coverage, with **RÚV**, the Icelandic national news, reporting on the event. The coverage highlighted the importance of the Hackathon, mentioning Copernicus, the Iceland Ocean Cluster and Startup Iceland as key organizers. Additionally, RÚV interviewed participants.

Participation

In terms of participation, the Hackathon had:
- **60 sign-ups** initially.
- **4 withdrawals** before the event.
- **8 teams (31 participants) presenting** their final solutions on the last day.

Lessons Learned & Future Improvements

While the Hackathon was very successful, we identified a few areas for improvement that could enhance future events. One key takeaway was the challenge of **in-person vs. online participation**. Although eight participants signed up to join remotely, only one team presented on the final day, highlighting the logistical difficulties of a hybrid format. Coordinating online mentorship and engagement proved challenging, and the overall experience was significantly better for those attending in person. As a result, we will likely limit participation to in-person attendees in future editions to ensure more effective collaboration and engagement.

Another improvement would be **extending the Hackathon by one more day**. While teams made impressive progress within the given timeframe, an additional day would allow them to further develop functional prototypes, refine their solutions, and improve the overall quality of their final presentations. This adjustment would not only enhance the depth of innovation but also provide participants with more time to incorporate feedback and create stronger, more impactful solutions.

Conclusion

The Hackathon successfully met its goals of encouraging data usage, fostering innovation in the Blue Economy, and identifying top talent. With some adjustments for the next edition, we believe we can make an even greater impact in promoting sustainable, data-driven solutions for ocean-related challenges.

Overall, we are very pleased with the results, and the Hackathon was a big success in terms of engagement, idea generation, and fostering collaboration. Additionally, some teams have expressed interest in further developing their projects, and The Iceland Ocean Cluster will support them by providing facilities and resources to continue working on their solutions.

We extend our gratitude to all participants, mentors, judges, and partners for making this event a success.