LIFE BELOW WATER

CPS CHALLENGE |CREATIVITY& INNOVATION

INTRODUCTION

SDG 14

LIFE BELOW WATER

TEAM MEMBERS

- **AMLAN NAG**
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- **MD TAWHID HAQUE**
- **MEGHA DHAMIJA**
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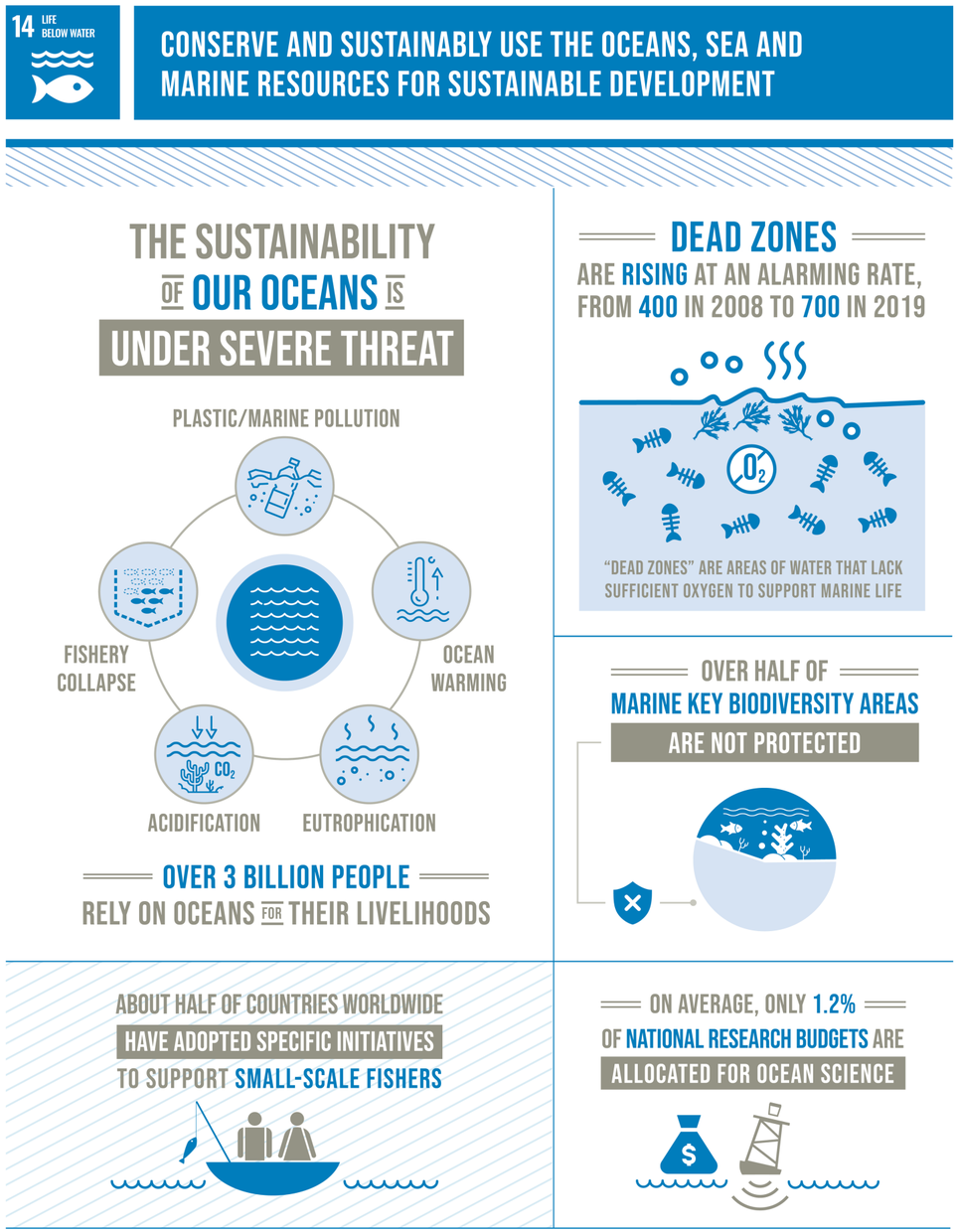
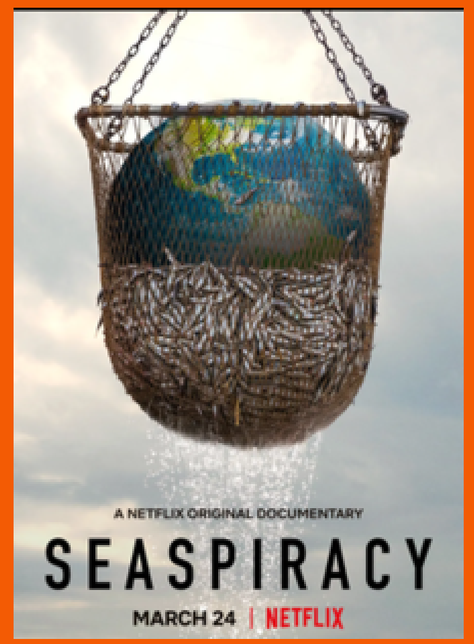
CLARIFICATION





3 I'S

Influence, Impact, Imagination

CLARIFICATION

- There are tons of issues affecting life under water, both in saltwater and freshwater environments.
- So, as the first step of Creative Problem Solving, we started clarifying the incredibly broad problem we had chosen.
- Open interaction and brainstorming among our group members shed light on various issues lying around our chosen SDG.
- Further resource collection and discussions identified ‘Fishing’ as a common factor in all the problems we explored.

Use of 3 I’s for the convergence of the problem statement

- Each group member identified different problems associated with the SDG using data collection and contributed the problem statement related to their problems.
- We reviewed the most important data from every team member.
- Influence, Impact, and Imagination is the criteria we used for the conversion of the problem statement
- This resulted in our first attempt of the drafting of our problem statement.

IELLEGAL FISHING

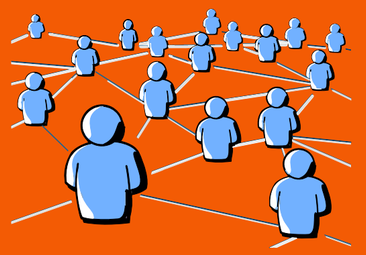
How might we help consumers make an informed decision about the marine products they purchase, and create awareness about the impacts of illegal fishing?

IDEATE

- Our team discussed and stretched as many ideas as possible in this ideation stage that would answer our problem statement.

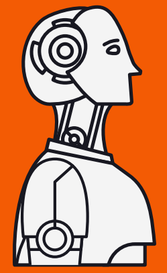
- We used brainstorming and our connections as the tools of ideation in this stage.

- We identified several ideas, generally falling within three main areas: laws and regulations, marketing and public engagement, and technology and information.



- But, due to the broad nature of our SDG, we had to go back to the clarification stage in order to refine our problem statement.

- After multiple cycles of clarification, ideation and development, we framed our refined problem statement.



NARROWING DOWN OUR PROBLEM STATEMENT

6 step processes to monitor complete supply chain of marine products to prevent illegal fishing:

1. Determine when and where each fishing vessel is fishing using AIS data
2. Determine whether each vessel was fishing legally or illegally based on behaviour
3. Determine likely target species based on geographic location
4. Determine change in transport vessel mass after transshipment event
5. Determine who purchases catch from each transshipment vessel
6. Tie purchased marine products to the produced lots of seafood (nothing yet)

CONVERGENCE FROM NARROWING DOWN PROBLEM STATEMENT

How might we integrate existing open-source technology tools used to monitor illegal fishing behaviour at sea in a way that could empower stakeholders to verify the supply chain (and legality thereof) of the marine products arriving at ports in the Greater Vancouver Fishing Industry?

- where and when each vessel was fishing
- whether it was fishing legally or illegally
- what species was it likely targeting
- how much fish was transferred to the transport vessel

RESISTERS & ASSISTERS

Assisters

- NGOs (BC Seafood Alliance, Living Oceans Society, and many others)
- Ministry of Agriculture, Food, and Fisheries
- Government of Canada losing $93.8 million in tax revenue and Canadian fishers losing $379 million a year in potential revenue.
- Canada and Canadians generally value sustainability as a progressive developed nation.

Resisters

- Canadians spend $160 million on seafood caught illegally every year, whoever profits from that will be a resistor.
- Flag of convenience: when a vessel operates under a different flag instead of its own country's flag to take advantage of lower fees or so that it is not subject to fishing rules or regulations that it would face under its own flag.

THE PLAN

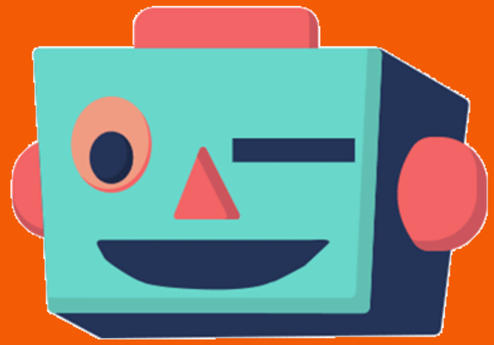
- Use the Automated Identification System to determine when and where each fishing vessel is fishing.
- Use available resources on migratory and spatiotemporal patterns of marine species to infer likely target species of any given vessel.
- Use satellite imagery (Copernicus is open to the research community) and the AIS system to determine whether vessels were fishing legally or illegally.
- Use satellite imagery to estimate the mass of products transferred from fishing to transport vessel based on changes in the transport vessel’s wake.
- Create an app to visualize this information based on an inputted MMSI value.
- Create awareness within stakeholder communities (port authorities to gain acceptance, public to build enthusiasm) about this newly available information.

THE ACTIONS

Short Term to Long Term

- Build and Launch social media handles and website and maintain the profiles regularly to establish a digital presence.
- Continue to connect with experts and authorities to further validate our problem and solution
- Integrate technologies into a cohesive system and build a reverse-engineering process of detecting changes in vessel mass based on changes in wake patterns.
- Iteratively validate and adjust our solution in coordination with the Greater Vancouver Fishing Industry and Ministry of Agriculture, Food, and Fisheries.
- Once we can manage how seafood that gets to the port can be regulated, or at least be traced for illegal sourcing, we will eventually get to the supply chain from port to consumers.

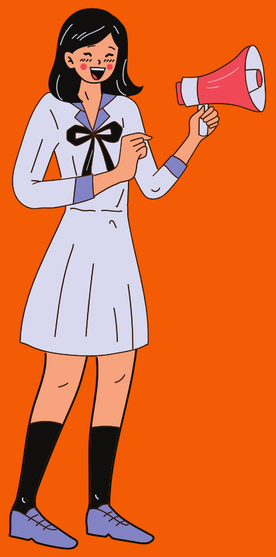
PROTOTYPE



Big Problem Requires Smart Solution

https://www.figma.com/proto/qzhc4iFzu9rYTZSIk4OMWX/ORGB?node-id=11%3A495&scaling=scale-down&page-id=0%3A1

Thank you!



"Our fish are getting Sicker
Let's do something Quicker"

Quick Q&A ?