

TECHFEST 2022-23 OCEAN REVIVAL

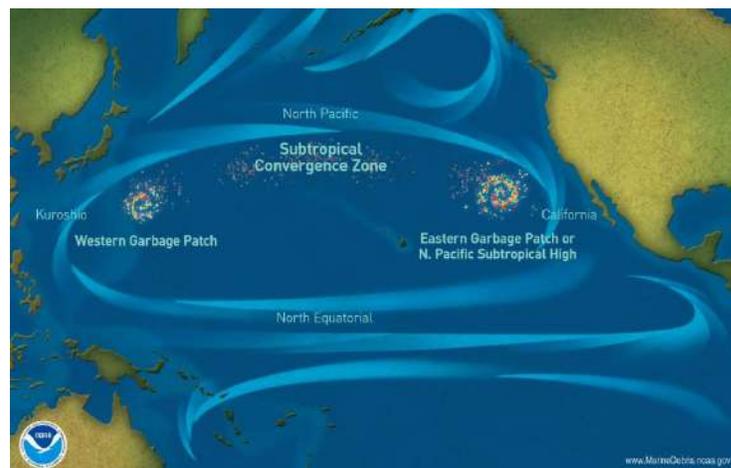
AIM

Marine pollution is a growing problem in today's world due to the advent of large-scale agricultural activity and industrialization. The ocean is one of the most unexplored parts of our planet, with a magnitude of undiscovered species and mysteries. It turns out from the studies conducted over the last few decades, this magnificent environment is under serious threat from human intervention, with plastics set to outnumber fish by 2050.

Note: The following themes are just guidelines to help you. You are free to think like an unconventional thinker and come up with great innovations. Do not limit yourselves to these themes.

GREAT GARBAGE PACIFIC PATCH

The Great Pacific Garbage Patch (see figure 1.1), also known as the Pacific trash vortex, is a collection of marine debris in the North Pacific Ocean that spans waters from the West Coast of North America to Japan. The largest accumulation zone of ocean plastic on the planet. It measures 1.6 Million sq. km. This patch contains 1.8 Trillion pieces of plastic and was estimated to be approximately 80,000 tonnes. GPGP affects the human Foodchain, economy, and Entanglement of Marine Life. Participants are expected to come up with innovative solutions or prototypes to clean GPGP.



BLUE CARBON ECOSYSTEM

Blue carbon is the carbon stored in coastal and marine ecosystems of mangroves, tidal marshes, and seagrass meadows that protect healthy and provide numerous benefits and services that are essential for climate change adaptation along coasts globally.

Mangroves are among the world's most dynamic ecosystems; these are the group of trees that live along typical coastlines with low oxygen soil, it stabilizes the coastline by reducing erosion, protecting water quality, reducing the impact of tsunamis by absorbing the water and waves during storms, basically act as a **'bio-shield'**. But to marine debris, habitat loss, aquaculture expansion, overharvesting, and an increase of pollution load Mangrove ecosystem is in danger.

The coral reef is an underwater ecosystem of colonies of hundreds to thousands of tiny individual corals that protect coastlines from the damaging effects of wave action and tropical storms. provide habitats and shelter for many marine organisms and are the source of nitrogen and other essential nutrients for marine food chains. Anthropogenic activities, Warmer water temperatures, and higher ocean acidity cause coral bleaching

Participants are expected to come up with innovative technical solutions to protect the Blue carbon ecosystem.





MARINE POLLUTION MONITORING

Monitoring the state of the ocean is necessary to characterize and understand coastal and ocean dynamics and vulnerabilities at different temporal and spatial scales and to measure the impact of global and local conditions and human activities. Participants are invited to come up with emerging Marine Monitoring Technologies to enable More Effective Management of Marine Protected Areas(MPA). The technology leverages machine learning and harnesses near-real-time, open-source, dynamic, and interactive data to evaluate ocean conditions, marine biology, and human activity to better management and monitor the ocean.

ENDANGERED AQUATIC SPECIES

Marine mammals consume plastic and become entangled in it. The habitat of the critically endangered Hawaiian monk seals has been found to contain a significant amount of plastic waste. According to the United Nations, at least 800 species worldwide are affected by marine debris, and as much as 80 percent of that litter is plastic; to tackle this problem, participants are encouraged to come up with innovative technological solutions to promote aquaculture or the farming of aquatic animals and plant species, disease prevention, reproduction, growth, development, and nutrition of cultured species are appropriate research topics. For example, the use of remote sensing technologies for automated marine mammal detection.

ABSTRACT FORMAT

i. Title

ii. Abstract

1. Objectives
2. Beneficiaries (For whom)
3. Value of results (Usage)

iii. Background



iv. Statement of Problem

1. Succinct definition of problem addressed (follows from material in the background section)

v. Research

1. Present methods of tackling the problem
2. Proposed Solution
3. Alternate solutions/approaches
4. Novelty of Approach: How is/will your solution be better than the existing products that address the same problem?

vi. Technical Report

1. Description of concepts, theories and/or approach involved in the proposed solution
2. Technical aspect of the proposed solution
3. Detailed technical specifications and pictorial representations (block diagrams/ flow chart)
4. Description of the flow of operations demonstrating key features and functionality
5. Performance estimate of the solution
6. Experimentation/Verification done to establish the workability of the above
7. A link to the video of the **working model/ prototype**

vii. Results

1. Actual findings, the significant output of tests and analysis (Must be readable)
2. Include problems encountered, credibility of results, and accuracy estimates
3. Pros and cons of your solution
4. Utility of results

viii. A link of the Google Drive Folder, which contains Pictures and Videos of the working model/ prototype.

ix. Application

1. Your idea as a solution to the problem



2. Additional applications
3. Benefits to the users

x. Future prospects, research in it and further development (in brief)

xi. Any other details : (Patent/Business plan etc.)

ELIGIBILITY

1. Individuals or teams from the following categories are allowed:
 - a. Students/research scholars of the authorized institutions (students have to show their Valid College ID)
 - b. Early stage startups or up to 3 years old college pass-outs.
2. A team is allowed to have a maximum 4 members.
3. If the participating team feels that their idea requires more participants in their team, they can forward their request, with suitable reasons, to chinmaya@techfest.org with the subject "Ocean Revival: Team number increase request."

EVALUATION

- 1. Creativity and Novelty:** How novel is the idea? How different is it from the current solutions available? The innovation must be ingenious and novel in its area of application and should have a high potential for leaving an impact on the society.
- 2. Originality:** The innovation should not, by any means, include copied or stolen work. Such applications will be disqualified immediately.
- 3. Performance**
- 4. Cost/Market Value and Acceptance**
- 5. Durability and Usability:** Durability of the prototype/method proposed.



6. Implementation ability: Is the solution implementable as described? Is it repeatable? Is the solution feasible for diverse and changing conditions?

7. Scalability: Is the solution scalable to a higher level, how easy is it to scale up and what are the factors affecting it?

8. Potential of Impact: How does it benefit the society? The scale of the problem that it solves, the intensity of the solution and the number of people catered from the solution directly and indirectly.

9. Design: Has the design been taken into consideration? How optimized is the product?

10. Ergonomics (if the team decides to make a well-designed product)

In case of any discrepancies, the decision of the Organizers or Judges will be final and binding on all.

SHORTLISTING

Top 20 teams will be selected and would get the chance to present their model/idea in the Final Round at Techfest, IIT Bombay.

Participants will get a slot for presenting their model/idea to the Judges based on which they will be evaluated. Top teams would get an opportunity to display their projects in the Ideate exhibition during Techfest, IIT Bombay. These teams will be selected by a panel of judges.

GENERAL RULES

1. Every team has to register online on our website for the competition. A Team ID will be allocated to the team on registration which shall be used for future references.

2. A team can register at any point of time before <Reg deadline> and submit the final abstract and video (as mentioned in the structure).

3. The decision of the organizers or judges shall be treated as final and binding on all. Techfest has all the rights to verify the identity and accuracy of the details provided by the participants.

4. No responsibility will be held by Techfest, IIT Bombay for any late, lost or misdirected entries.
5. The idea presented by the teams should be original (not protected by means of patent/copyright/technical publication by anyone else).
6. Note that at any point of time, the latest information will be that which is on the website. However, registered participants will be informed through mail about any changes on the website.
7. All modes of official communication will be through the Techfest e-mail.

REGISTRATION AND SUBMISSION

The Participants have to register on the official Techfest Website and fill all the necessary details. www.techfest.org ->Competitions-> Ideates ->Ocean Revival -> Explore More -> Register -> Fill all your details - > Now you must create/Join a team

ABSTRACT SUBMISSION

Teams are required to submit one report to oceanrevival@techfest.org. This report should contain the idea they are looking forward to work on.

PROJECT REPORT SUBMISSION:

The project report should be mailed to with the subject 'Ideate: "Ocean Revival" Project Report: (for e.g. Ideate: "Ocean Revival" Project Report: ID). The report must be submitted in PDF format only mailed to oceanrevival@techfest.org

CERTIFICATE POLICY:

Only those teams that are shortlisted for the finals and also give a final presentation about their work during Techfest 2022-23 would be awarded an e-Certificate of Participation. The top 5 entries from this event would be provided with a Certificate of Excellence.



PRIZES:

The prize money will be awarded to top 3 winners via NEFT and will be processed within 30 working days after receiving the prize money from sponsors.

Winners have to mail the following information (immediately after the announcement of results) to abhishek@techfest.org

FORMAT OF MAIL :

Subject: Ocean Revival <Team ID> - <Your Position> (example-Ocean Revival, OV12345,3rd Position)

Body of mail:

1. Account Holder's Name
2. Account Number
3. Bank name and Branch name.
4. IFSC Code



TIMELINE

First Project Report Submission	30th September 2022	Submission of First Draft Report
Last Date of Registration	2nd November 2022	Participants need to register before this date
Final Project Report Submission	2nd November 2022	Submission of final project report along with video prototype has to be submitted before this date
Declaration of Result	9th November 2022	Declaration of shortlisted teams to work for final project reports
Improvisation Stage	10th November to 10th December 2022	Shortlisted participants are to improve upon their model and prepare a presentation for the final round.
Final presentation & video submission	10th December 2022	Participants have to submit the final video of the prototype and presentation to be displayed during the festival before this date
Presentation Stage	Mid December 2022	Final presentation along with a demonstration of the working prototype
Exhibition	Mid December 2022	Techfest would give an opportunity to teams selected by judges to exhibit their projects