

OCEAN DIGEST



Quarterly Newsletter of the Ocean Society of India

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From the Editors' Desk

As we welcome the second issue of Ocean Digest for 2025, we find ourselves at a pivotal time of year. The months of April through June mark the warming of the Indian Ocean, a process that sets the stage for the onset of the Southwest Monsoon. This seasonal rhythm is more than a meteorological event—a reminder of the ocean's profound influence on climate, agriculture, and livelihoods across our region. For millions, the monsoon is life-giving rain; for scientists, it is a fascinating interplay of heat, currents, and atmosphere.

This issue reflects the dynamism of our ocean community. We begin with the announcement of the newly elected Governing Council members of the Ocean Society of India for the 2025–2026 tenure. Their leadership will guide us through the next phase of outreach, research, and collaboration, ensuring that our society continues to thrive as a hub for ocean awareness and scientific exchange.

Among the scientific highlights, we feature a study that explores the variability of phytoplankton productivity in the Sri Lankan Dome. This open-ocean upwelling system, driven by monsoon winds and currents, experiences year-to-year swings in chlorophyll concentration. The article explains how changes in wind stress, thermocline depth, and lateral advection shape the biological productivity of this region, offering insights into the delicate balance between physics and biology in the northern Indian Ocean.

Complementing this, a student contribution examines how Indian Ocean circulation patterns exert far-reaching influence on African rainfall. By tracing the pathways of ocean currents and their coupling with atmospheric systems, the piece highlights the interconnectedness of distant geographies—reminding us that the Indian Ocean is not only a regional engine but also a global climate driver.

Innovation also finds its place in this issue. We spotlight a pioneering development in maritime technology: a navigation buoy powered by ocean waves. This advancement signals a shift toward sustainable solutions, where the energy of the sea itself is harnessed to support safer and greener marine operations.

Closer to shore, the Ocean Society of India continues its commitment to stewardship through a beach cleaning program. These efforts, though modest in scale, embody the spirit of collective responsibility. Every plastic bottle removed, every stretch of sand restored, is a step toward healthier coasts and a more conscious society.

Beyond these features, readers will find updates on webinars, outreach activities, and opportunities to engage with the ocean science community. Each initiative underscores our mission: to connect, inform, and inspire.

As editors, we believe that ocean awareness must extend beyond laboratories and conferences. It must resonate with students, policymakers, and citizens alike. The warming of the Indian Ocean and the arrival of the monsoon remind us that the sea is not a distant entity—it is a living force that shapes our daily existence. Let us continue to study it, care for it, and celebrate its mysteries together.

Yours faithfully,
The Editorial Team



Cover page: **From Radiance to Ruin**

An embroidery work illustrating the contrasts of two ocean worlds: the upper panel shows corals in full vibrancy, alive with color and marine life; the lower panel depicts their bleached remains under the grip of marine heat waves. When ocean waters grow excessively warm, corals lose their protective pigments, turning ghostly white and lifeless. As the reefs collapse, the biodiversity they once sheltered vanishes too, leaving behind an ecological desert.

The artwork is hand embroidery by Ms. Juby Aleyas Koll (Sarah) on canvas, along with water color, acrylic, beads, and sand from the Indian Ocean. Each coral and fish species is depicted with different hand embroidery stitches. Picture courtesy: Dr. Roxy Mathew Koll.

Elections to Ocean Society of India Governing Council for 2025-26

Election to the Governing Council (GC) of Ocean Society of India (OSI) for the 2025-2026 term was conducted through the e-voting system. The Governing Council nominated Dr. Hamza Varidoken as the Returning Officer for this purpose. The Returning Officer conducted the elections during the period November 2024 – January 2025. The election results were declared on 20th January 2025. The positions of President, Vice Presidents (2), General Secretary, and the Treasurer got filled without any contest. Voting was conducted successfully for the posts of two Joint Secretaries and eight Council Members. The newly elected Governing Council is as given below.

Name of Post	Elected member	Life Membership
President	Dr. N.P. Kurian	LM-090
Vice Presidents	Prof. K.V. Jayachandran, Dr. Jayakumar Seelam	LM-104 LM-089
General Secretary	Dr. Mani Murali R.	LM-282
Jt. Secretary	Dr. Smitha Balraj, Dr. Jossia Joseph	LM-192 LM-166
Treasurer	Dr. Anas Abdul Aziz	LM-395
Council Members	Prof. Prasad K. Bhaskaran Dr. A. D. Rao Dr. C. Gnanaseelan Dr. Baba M. Dr. Siby Kurian Mr. Eluri Pattabhi Rama Rao Dr. Atmanand Dr. Vishnu K. V.	LM-088 LM-055 LM-196 LM-096 LM-285 LM-238 LM-110 LM-469

ANNOUNCEMENT

Participate in the OSI proposed town hall meeting



WOSC
World Ocean Science Congress
2026
 23 - 26 February 2026
 at CSIR-National Institute of Oceanography, Dona Paula, Goa, India

Topic: Coastal issues: Regulations and violations

This meeting will bring the experts, scientists, administrators, NGOs, bureaucrats, and stake holders to discuss the coastal issues such as coastal erosion, sea water intrusion, coastal tourism, problems in infrastructure development, etc. The existing regulations and even after that, the current violations at various parts of the Indian coast will be discussed by the panel members. It is also planned to bring the coastal district collectors and listen to their practical issues in implementing the coastal developmental activities. Overall, this meeting should bridge the various sectors of people who are working for the sustainable development of coasts.

<https://www.wosc.in>

What Drives Chlorophyll-a Year-to-Year Swings in the Sri Lankan Dome? *



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Anant Parekh¹



C. Gnanaseelan¹

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Chlorophyll-a (chl-a) is a key indicator of phytoplankton biomass, forming the base of the marine food web and driving primary productivity. It regulates carbon fixation through photosynthesis, influencing the global carbon cycle and nutrient dynamics. During the southwest monsoon, the Sri Lankan Dome (SLD, Figure 1a) forms near the southwestern tip of Sri Lanka (Vinayachandran et al., 2004; Thushara et al., 2019). Driven by cyclonic wind stress curl and the southwest monsoon current, this open-ocean upwelling system lifts cool, nutrient-rich waters toward the surface, fueling a seasonal phytoplankton burst. The study investigated the drivers of interannual variability and quantitatively assessed the impact of wind forcing and ocean currents on biological productivity in the SLD region.

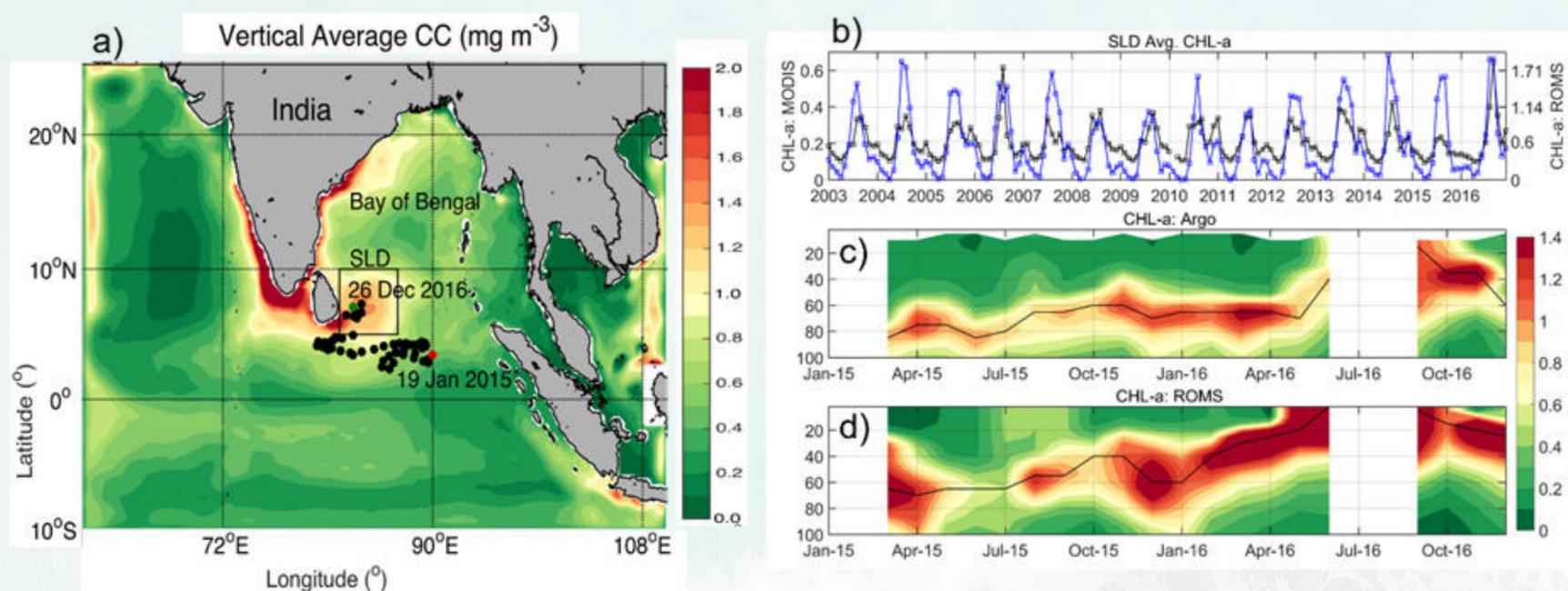


Figure 1: (a) Model domain showing the SLD region (rectangle) and mean chl-a (mg m^{-3}) averaged over the upper 60 m during JJAS. Bio-Argo float locations (WMO 2902156) are marked by black dots; red and green dots indicate the start (19 Jan 2015) and end (26 Dec 2016) of observations. (b) Time series of area-averaged surface chl-a over the SLD region from the model (blue) and MODIS (black) during 2003–2016. (c–d) A comparison of model-simulated and Argo-observed chl-a profiles along the float trajectory shows that the black contour denotes the DCM

A Regional Ocean Modeling System (ROMS) coupled with a Nutrient–Phytoplankton–Zooplankton–Detritus (NPZD) ecosystem module has been configured from 2003 to 2016 for analyzing the physical drivers of the chl-a changes in this region. Model results were validated with MODIS-Aqua satellite chl-a data and Bio-Argo float profiles. The model successfully reproduces the observed variability of surface chl-a features with a correlation coefficient of 0.78, although it overestimates their amplitude. During the southwest monsoon, surface chl-a over the SLD region increases markedly (Figure 1b). Beneath the surface, a pronounced deep chl-a maximum (DCM) develops between 10 m and 80 m, with chl-a ranging from 0.8 to 1.4 mg m^{-3} , in good agreement with Argo observations (Figures 1c–1d).

Strong negative correlations between surface chl-a and thermocline depth (correlation coefficient = -0.83) and deep chl-a maximum (correlation coefficient = -0.82) further indicate that a shallower thermocline supports higher surface chl-a. Beyond local winds, lateral advection—the inflow of waters from the Arabian Sea—also plays a key role. The SMC carries chl-a and nutrient-rich waters eastward into the Bay of Bengal. Zonal transport across 80° E correlates (~ 0.79 model, 0.69 satellite) with SLD chl-a. Thus, strong SMC intrusion invigorates the SLD even when local upwelling is moderate. The variability of chl-a concentration over the SLD region is primarily governed by the combined effects of wind-induced upwelling, thermocline variability, and advection by the Summer Monsoon Current (SMC), all of which are closely linked to the wind stress curl over the region.

A composite analysis was carried out by averaging years with anomalously high and low surface chl-a concentrations, identified from long-term satellite records following the criteria described in Pramanik et al. (2019). During high-chl-a (HC) composites, a distinct chl-a maximum band ($> 1.8 \text{ mg m}^{-3}$) appears within a shallower thermocline ($< 40 \text{ m}$), reflecting strong upwelling and a shoaled DCM. In contrast, low-chl-a (LC) composites show weaker upwelling, deeper thermocline ($> 40 \text{ m}$), and reduced chl-a ($0.8\text{--}1.4 \text{ mg m}^{-3}$). The DCM deepens, indicating limited nutrient availability in the euphotic zone. Sea surface height anomalies (SSHA) confirm this pattern; negative anomalies during HC years indicate enhanced upwelling driven by westward-propagating Rossby waves, whereas positive anomalies during LC years correspond to downwelling and a deeper thermocline. Vertically averaged chl-a and current maps show more substantial advection of nutrient-rich water by the SMC and a broader chl-a spread across the southwestern Bay of Bengal during HC years, while LC years display confinement of chl-a within the SLD. Wind-stress curl and Ekman pumping velocity (EPV) further support the distinction—positive curl and higher EPV ($\sim 2 \times 10^{-7} \text{ N m}^{-3}$) during HC years drive stronger upwelling. Quantitatively, chl-a increases by $\sim 15\%$ ($\approx 1 \sigma$) in HC events and decreases by $\sim 25\%$ ($\approx 1.5 \sigma$) in LC events, with corresponding shallowing and deepening of the thermocline by nearly 28%. Overall, the composite analysis establishes enhanced biological productivity during HC events arises from stronger local upwelling, shallower thermocline, and intensified advection by the SMC. The study reveals that the productivity of the SLD region emerges from a delicate interplay between monsoon wind forcing and cross-basin connectivity. These findings strengthen our understanding of how climate variability modulates marine ecosystems in the Indian Ocean — a key step toward predicting future change.

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* Highlight of the paper

The Ocean's Invisible Hand: How Indian Ocean Meridional Circulation Shape African Rainfall

Student Article

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The Indian Ocean, a vast expanse of blue, holds a hidden force that shapes weather patterns across continents. Beneath its surface, a complex circulation system drives multi-year cycles that influence African rainfall, offering new hope for climate prediction in a vulnerable region. A recent research by Pai et al., (2023), from the Indian Institute of Tropical Meteorology, Pune, has uncovered how the Shallow Meridional Overturning Circulation (SMOC) operates on 5-7 year cycles, creating predictable patterns that could transform our understanding of long-term climate variability and rainfall forecasting in Southern Africa.

Oceans cover over 70% of Earth's surface, absorbing, storing, and releasing vast amounts of heat. Unlike land, ocean water retains heat for extended periods. Ocean currents act as a global circulatory system, moving warm water from the tropics toward the poles and cold water back toward the equator. In the Indian Ocean, the SMOC operates within the upper 500 meters, driven by seasonal monsoon winds and the ocean's unique geography (Schott et al., 2002; Tomczak and Godfrey, 2003). During winter, trade winds push surface water south, where it sinks around 30°S, travels north at depth, and rises again in the tropics, a giant wheel of circulation beneath the surface. SMOC's variability follows a distinct 5-7 year cycle, alternating between strong and weak phases. This "intra-decadal variability" persists longer than typical yearly fluctuations, driven by the Southern Annular Mode (SAM), an atmospheric pattern of alternating high and low pressure around Antarctica. When SAM is positive, westerly winds shift toward the pole, strengthening easterly trade winds that drive SMOC. This intensifies circulation, moving warm surface water southward. When SAM turns negative, the process weakens, slowing SMOC. This creates a see-saw pattern of strong and weak circulation tied to SAM's rhythm (Pai et al., 2022).

Heat Storage and Climate Impact

One of the most important aspects of SMOC's influence on climate lies in its ability to store and redistribute heat over multi-year periods (Chirakova and Webster, 2006). When SMOC strengthens, it transports warm surface water from the tropical Indian Ocean southward toward the subtropics. This process transports and redistributes heat from the tropical regions and deposits it in the subtropical Indian Ocean, where much of it is eventually subducted below the surface. When SMOC weakens, this process reverses, Less warm water is transported southward. The result is a delayed response where ocean temperatures reflect not just current atmospheric conditions, but the integrated history of circulation changes over several years. This thermal memory creates what scientists call "ocean heat content" variations – changes in the total amount of heat stored in the upper ocean layers (Meng et al., 2020). Research shows that during strong SMOC periods, ocean heat content decreases in the western Indian Ocean north and east of Madagascar, while it increases in the eastern Indian Ocean. The pattern reverses during weak SMOC periods, creating a see-saw of heat storage that persists for years.

These heat content changes have profound implications for sea surface temperatures, which directly influence atmospheric convection and rainfall patterns. Areas where heat content decreases tend to develop cooler sea surface temperatures, reducing evaporation and atmospheric moisture. Conversely, regions where heat content increases warm the surface, enhancing evaporation and creating conditions favorable for increased rainfall.

Connection to Southern African Rainfall

SMOC-driven temperature changes influence atmospheric patterns over thousands of kilometers. During strong SMOC periods (Fig 1a), cooling in the southwestern Indian Ocean reduces evaporation, forming high-pressure systems that divert moisture away from Southern Africa. This suppresses rainfall during the critical austral summer (December-February).

In weak SMOC periods (Fig 1b), warmer sea surfaces increase evaporation and convection, forming low-pressure systems that draw moisture toward Africa, boosting rainfall. This moisture transport, driven by pressure gradients and wind patterns, is critical for Southern Africa's climate, particularly in rainfed agricultural regions. Over a century of climate data shows a strong correlation (0.6-0.7) between SMOC strength and Southern African rainfall, explaining roughly 40% of year-to-year variability. Causal analysis confirms SMOC changes lead atmospheric shifts by about one year, offering predictive potential. The connection has strengthened since 1940, with the strongest impacts in east-central Africa southern Tanzania, northern Mozambique, Malawi, eastern Zambia, and southeastern Democratic Republic of Congo. Rainfall variations are significant: strong SMOC periods can reduce rainfall by 20-30%, while weak periods increase it by similar amounts (Pai et al., 2023). These shifts impact agriculture, water resources, and food security in vulnerable regions.

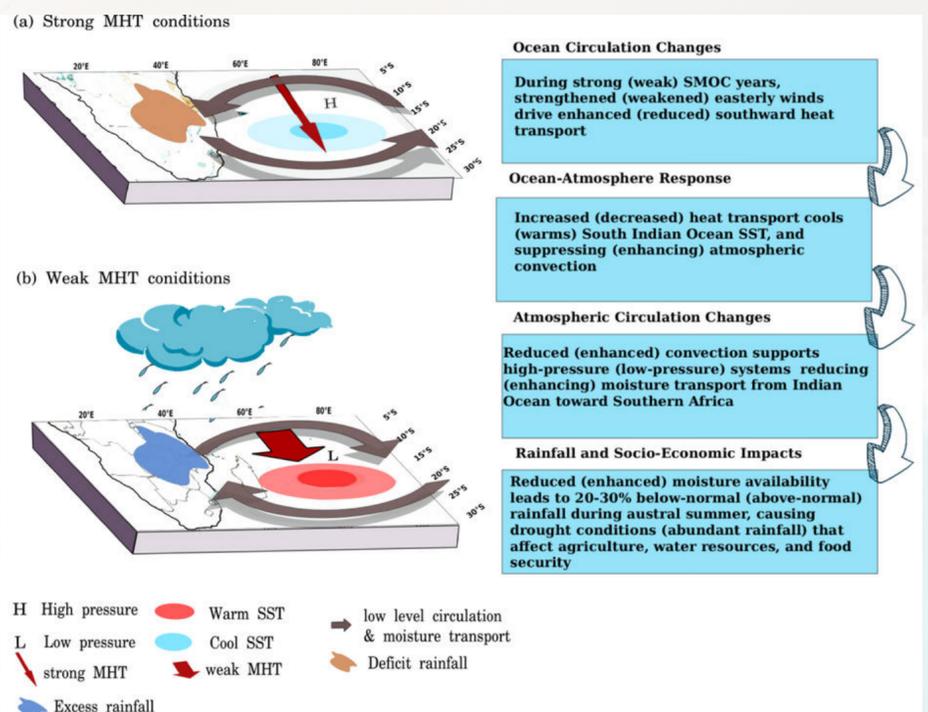


Figure 1: Mechanism linking Indian Ocean circulation to Southern African rainfall. Contrasting conditions during strong (a) and weak (b) meridional heat transport phases, with complete causal chain from ocean changes to rainfall impacts (right panel).

Conclusion

The discovery of SMOC's influence on African rainfall reveals the intricate connections within Earth's climate system. The Indian Ocean's warm waters, its currents, and the rains nourishing African crops form a single system governed by predictable physical principles. As scientists deepen their understanding, these insights promise to enhance climate prediction, supporting resilience in one of the world's most climate-vulnerable regions. By harnessing the ocean's invisible hand, we can better prepare for the challenges of a changing climate.

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From Research to Resonance: Wave-Powered Navigation Buoy Ushers in a New Era of Green Maritime Technology



Shri. Varun Patel- Director, Nexteng Enviro



T.S. Rangarajan- Proprietor, RRSN Solutions

Preamble

India's maritime innovation sails into new waters with the successful transfer of a wave-powered navigation buoy—an emblem of sustainable technology and indigenous excellence. Under the Make in India initiative, the National Institute of Ocean Technology (NIOT), in collaboration with the National Research Development Corporation (NRDC), has transformed research into a resilient product that now guides ships and gathers data in the Bay of Bengal.

Technology Transfer and Deployment

The journey began with a formal Tripartite licensing agreement signed on 23rd May 2023 at the India Habitat Centre, New Delhi, between NRDC, NIOT, and M/s Nexteng Enviro Private Limited, Ahmedabad (Fig. 1).



Fig. 1 Signing of the TOT between BNRDC, M/s. Nexteng Enviro and NIOT



Fig. 2. Dignitaries during the handing over ceremony at Kamarajar Port Trust, NIOT, Chennai. Shri. V. K. Saraswat, Prof. Balaji, Director of NIOT, Dr. Purnima Jaliwal of NIOT with her team, Mr. Varun Patel and Mr. T. S. Rangarajan.



Fig. 3 International Symposium on Advancements in Marine Renewable Energy, March 17-18, 2025, NIOT, Chennai.

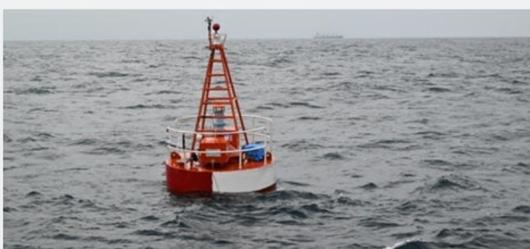


Fig. 4. Buoy deployed at a Site



Fig. 5. Buoy towed to the location by Kamarajar Port tug

The Wave Powered Navigation Buoy (WPNB), developed by NIOT under the Ministry of Earth Sciences, Govt. of India, is based on the Oscillating Water Column (OWC) principle. It comprises a floating metallic body, turbine, generator, and battery charging system. Designed to withstand cyclonic seas, the buoy is IALA-compliant and moored using a single-point system. The ceremonial handover of the buoy to Capt. Desikamani of Kamarajar Port Trust was graced by dignitaries including Dr. V. K. Saraswat (NITI Aayog), Prof. Balaji (Director, NIOT), and Dr. Purnima Jaliwal and her team (Fig. 2). This event marked the transition from prototype to deployment-ready technology.

This milestone was celebrated during the International Symposium on Advancements in Marine Renewable Energy, held at NIOT, Chennai, on 17–18 March 2025 (Fig. 3).

The buoy was later deployed at a site off the East Coast of India, near Kamarajar Port, at a depth of 25 meters (Fig. 4). It was towed into position by a port tug (Fig. 5), anchored with a 7-ton sinker weight, and equipped with radar reflectors and navigational lights for safe vessel guidance.

Beyond navigation, the WPNB also serves as a scientific sentinel. It hosts meteorological sensors measuring wind speed and direction, atmospheric pressure, and temperature. A built-in data logger transmits hourly readings to port authorities via GPRS/GSM, enabling real-time monitoring and decision-making.

A Message for the Future

This initiative exemplifies how government research institutions can empower MSMEs through mentorship and technology transfer—fuelling the vision of Atma Nirbhar Bharat. Unlike solar and wind systems, which face intermittency, wave energy offers a perpetual rhythm of power, echoing nature's constancy.

The WPNB is more than a buoy- it is a beacon of possibility. It invites us to imagine a future where green energy flows seamlessly from ocean to infrastructure, where innovation is not just engineered but nurtured through collaboration.

For inquiries and collaborations, reach out to:

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We also offer bespoke solutions for water quality monitoring and floating/subsea applications.

Committed Beach Cleaning Programme of Ocean Society of India to Say ‘No to Plastic, Plastic Pollution and Save Oceans’ – A Well Accepted Conservation Programme by A Professional Body to Protect Oceans for Future

Prof. K. V. Jayachandran
 Vice-President, OSI, National Co-ordinator for Beach Cleaning programme & Honorary Professor, Dept. of Aquatic Biology and Fisheries, University of Kerala, Thiruvananthapuram 695581
jayachandranclre@gmail.com



Ocean Society of India (OSI) has adopted a slogan “SAY NO TO PLASTIC, PLASTIC POLLUTION AND SAVE OCEANS” and is being ritually followed in the related programmes since 2019. The theme for World Oceans Day 2025, as designated by the United Nations, is "WONDER: SUSTAINING WHAT SUSTAINS US". UN emphasises that this theme highlights the awe and inspiration that oceans evoke and emphasizes the need to protect them for their vital role in sustaining life on Earth

Oceans cover over 70% of the planet, are the lungs of the planet and provide more than 50% of oxygen for the planet for the biota to survive. The teeming abundance of biota in oceans plays a key role to our economy with an estimated 40 million people being employed by ocean based industries by 2030. About 90% of big fish populations are getting depleted; 50% coral reefs destroyed. Overfishing is another major problem. Apart from the above mentioned benefits a number of medicines are derived from ocean bio-resource on an industrial basis (Jayachandran et al., 2024 -DOI:10.1007/978-3-031-71674-4_6). This comes true only if our oceans are well conserved.

Oceans are highly polluted environments on earth. Plastic is a major source of pollution. Plastics make up a significant portion of marine litter. The estimates suggest that at least 14 million metric tonnes of plastic enters the oceans every year. Plastic waste, ranging from micro-plastics to large debris, continues to accumulate in marine environments, posing a severe threat to our ecosystems (www.unep.org). The Division for Ocean Affairs and the Law of the Sea of the Office of Legal Affairs of the United Nations, in partnership with the non-profit organization Oceanic Global, hosted to celebrate this year's annual program of World Oceans Day with the said theme.

Plastic can either be ‘synthetic’ or ‘bio-based’. Synthetic plastics are derived from crude oil, natural gas or coal. Bio-based plastics come from renewable products such as carbohydrates, starch, vegetable fats and oils, bacteria and other biological substances. The vast majority of plastic in use today is synthetic because of the ease of manufacturing methods involved in the processing of crude oil. However, the growing demand for limited oil-reserves is driving a need for newer plastics from renewable resources such as waste biomass or animal-waste products from the industry. An independent report commissioned by the Basel, Rotterdam and Stockholm Conventions and published in April 2023 found that up to 13,000 chemicals are possibly used in plastics as monomers, additives, processing aids and National Institute of Advanced Studies. Out of these, 3,200 are verified to be chemicals of potential concern, but the figure could be bigger considering that hazard data is missing for 6,000 chemicals. Moreover, only 1% of chemicals of concern used in plastics are regulated under Multilateral Environmental Agreements, such as the Stockholm Convention, the Minamata Convention, and the Montreal Protocol. These represent gross health and human rights threats which could be prevented with the adoption of safety storage and disposal procedures of toxic substances (ref. <https://www.genevaenvironmentnetwork.org/resources/updates/plastic-production-and-industry/>).

Plastics in Oceans: Following figure clearly indicates the tendency of accumulation of plastic in oceans during the past, present and in future (by 2040) and is alarming. This Fig. 1 warrants for urgent intervention from all corners.

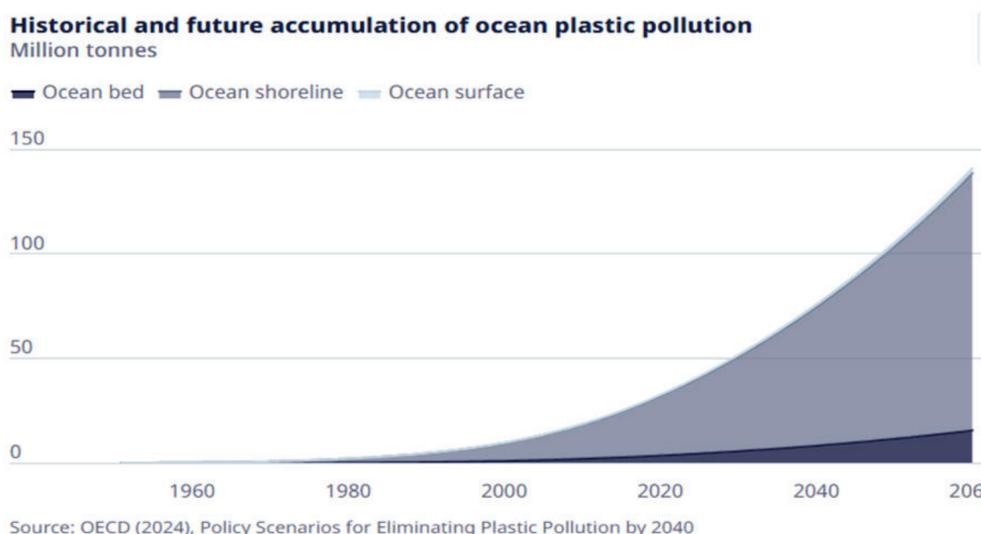


Fig. 1. Data on plastic accumulation in oceans in the past, present and future

Ocean Society of India’s committed beach cleaning programmes: OSI has been committed in the beach cleaning programme and co-ordinated under the leadership of Prof. K. V. Jayachandran. The programmes conducted so far are: local programme at Mararikkulam Beach, Alappuzha District, Kerala on World Oceans Day 2019 (WOD 2019) on 08.06.2019; state level programme in all maritime Districts of Kerala on WOD 2022 on 08.06.2022; National level programme in maritime states of India and selected Union Territories on WOD 2023 on 08.06.2023; International coastal Clean Up Day 2023 (ICCD 2023) on 16.09.2023; WOD 2024 on 08.06.2024; ICCD 2024 on 17.09.2024; WOD 2025 on 08.06.2025.

OSI’s beach cleaning programmes started in 2019. The first programme was conducted at Mararikkulam Beach. Seventy five school students and OSI volunteers participated and cleaned nearly 1 km beach on 8th June, 2019. Fig. 2 exemplifies this event



Fig. 2 – Beach cleaning programme conducted at Mararikkulam Beach on 8th June, 2019 (co-ordinated by Prof. K. V. Jayachandran and guided by OSI volunteers and teachers)

WOD 2025 was conducted on 8th June, 2025 at 21 locations in the country from Gujarat to West Bengal. Wastes from 23 beaches were collected and safely disposed off. Twenty five prestigious institutions in the country were involved in the activity. Beaches covered are: Gujarat - Asmavati Beach, Porbandar; Surat Beach; Diu – Gomtimata Beach; Maharashtra – Murud Beach; Mumbai Beach, Vengurla Beach; Goa- Carenzalem Beach; Karnataka – Tonka Beach; Kerala – Edavanakkad Beach; Arattupuzha Beach; Thumba Beach; Kovalam Beach; Tamil Nadu – Broken Bridge- Basant Nagar Beach; Tuticorin Beach; Puducherry – Kovalam Beach; Andhra Pradesh – RK Beach, Visakhapatnam; NTR Beach, Kakinada; Odisha – Paradeep Beach; Siali Beach; West Bengal – Talsari Beach; Digha Beach.

The beach cleaning activities were co-ordinated by OSI chapter conveners, namely, Dr. Aditi Deshpande, Pune Chapter; Dr. Divya David, Goa Chapter; Dr. Priyaja, Cochin Chapter; Dr. Thirumurugan, Chennai Chapter and Dr. Mihir Kumar Dash, Kharagpur Chapter.

Total length of beaches covered was approximately 26 km. Around 1500 volunteers participated in the programme. A total waste collected was 5165 kg. The waste were disposed off safely.

Students, academicians, fishermen, NGOs, officials from forces, elected representatives, members of Harithakarma sena, local people, differently abled and so on from the age of 8 to 75 yrs participated in this programme (Fig. 3).



Fig. 3. Volunteers from different segments participated in the beach cleaning programme. The committed work of OSI and the result generated from time to time may be thoroughly discussed and the outcome may be brought to notice of everybody for the management of plastic by adopting the principle of Reduce, Reuse, Recycle and Reorient.

Ocean Society of India WOD Webinar, June 7, 2025
Hosted by OSI Pune chapter

Topic: Our Ocean's Health Crisis - Charting a Course from Diagnosis to Cure

Speaker: Dr. Helen Phillips
Professor of Physical Oceanography, IIMAS, Univ. of Tasmania, Australia



The Ocean Society of India Pune chapter was honoured to host the OSI World Ocean Day webinar by Dr. Helen Phillips from the University of Tasmania. Dr. Helen Phillips is a Professor of Physical Oceanography at the Institute for Marine and Antarctic Studies (University of Tasmania). She leads the Centre for Oceans, Ice and Climate within IMAS and is a Chief Investigator in the Australian Centre for Excellence in Antarctic Science, the Australian Antarctic Program Partnership and the Australian National Environmental Science Program Climate Systems Hub. Helen's research focuses on the ocean's currents and the small scale ocean processes that help the ocean absorb and distribute heat and other properties. She combines observations from research vessels, robot profiling floats and satellites with ocean computer models to investigate these processes in the Indian and Southern Ocean. Helen leads a vibrant team of students and postdoctoral researchers, and collaborates with researchers around the world, to answer urgent questions on the ocean's role in the climate system.

The webinar was held online on Saturday, 7th June, 2025 and was live streamed on YouTube. Around 20 members and students joined the meeting and over 25 viewers joined the livestream. This year's World Ocean Day theme was 'Wonder- Sustaining what sustains us'. The title of the talk "Our ocean's health crisis - Charting a course from diagnosis to cure" covered the theme in a lucid and engaging manner focussing on the importance of oceans in modulating climate and the methods of observing the oceans. She also focussed on the current state of ocean health and the importance of tackling this in order to protect the marine environment and effectively, the life on our planet. The talk was followed by multiple questions from students and scientists alike. The talk is available on the OSI Pune Chapter youtube channel through the link - <https://youtube.com/live/HcVRhgiN74A?feature=share>

Ocean Society of India WOD Webinar, June 9-10, 2025
Hosted by OSI Delhi chapter

Speakers:

Prof. Priyanka Puri, Miranda House, University of Delhi

Dr. Rashmi Sharma, Space Application Center, Ahmedabad

Dr. R. Venkatesan, Anna University

Prof. A. D. Rao, Emeritus Professor, IIT Delhi

Dr. Imranali M. Monion, National Center for Medium Range Weather Forecasting, Noida

Mr. Suraj, National Center for Medium Range Weather Forecasting, NOIDA

The Ocean Society of India (OSI), Delhi-NCR Chapter, successfully organized a two-day event to commemorate World Oceans Day 2025 on 9 and 10 June 2025. Conducted online via Microsoft Teams, the program aimed to enhance ocean literacy, share the latest advancements in ocean sciences, and discuss pressing coastal and marine challenges. The sessions brought together eminent experts, researchers, and ocean enthusiasts from across the country, creating an engaging platform for scientific exchange and public awareness.

The first day of the celebration commenced at 2:00 pm with an introduction and welcome address by **Prof. Samiran Mandal**, followed by a welcome message from the Chairman of the OSI Delhi-NCR Chapter. The General Secretary of OSI then shared his remarks, setting the platform for the scientific deliberations. The first talk of the day, delivered by **Prof. Priyanka Puri** from Miranda House, University of Delhi, focused on *Ocean Literacy*, emphasizing the importance of understanding ocean processes, their role in the Earth system, and the human-ocean connection. The second lecture was presented by **Dr. Rashmi Sharma**, Deputy Director at the Space Application Centre, ISRO, who discussed *Recent Developments in Space-based Technologies for Addressing Coastal Challenges*. She highlighted how satellite observations contribute to coastal monitoring, disaster preparedness, and resource management. The third talk, by **Dr. R. Venkatesan**, Professor of Practice at Anna University and Retired Senior Scientist from NIOT Chennai, explored *Modern Technologies and Observation Platforms Transforming Ocean Sciences*, showcasing innovations in autonomous observation systems and their role in advancing oceanographic research. The day concluded with the screening of a short ocean-themed video, after which the proceedings were adjourned at 5:00 pm.

The second day began at 2:30 pm and shifted focus toward more specialized topics in oceanography and modelling. **Prof. A.D. Rao**, Emeritus Professor at IIT Delhi, opened the session with a presentation on *Cyclone-Induced Coastal Inundation*, explaining the mechanisms of coastal flooding during cyclonic events and discussing mitigation strategies. This was followed by **Dr. Imranali M. Momin**, Scientist-E at the National Centre for Medium Range Weather Forecasting (NCMRWF), who delivered a talk on *Ocean Modelling and Data Assimilation for Coupled Model*, providing insights into coupled ocean-atmosphere systems and their importance for accurate weather and climate predictions. The final talk of the event was presented by **Mr. Suraj**, Project Scientist at NCMRWF, who shared his personal experiences from the EKAMSAT Research Cruise, highlighting the practical aspects of field data collection and its significance in validating and improving model-based studies.

The event concluded with a vote of thanks at 4:40 pm, marking the end of a highly engaging and informative two-day celebration. Nearly 100 participants joined on both days. Overall, the World Oceans Day 2025 program by the OSI Delhi-NCR Chapter proved to be a successful platform for exchanging knowledge, fostering ocean awareness, and inspiring collaborative efforts toward sustainable marine resource management. The diversity of topics and expertise presented underscored the critical role of interdisciplinary research and technological innovation in addressing the challenges faced by the world's oceans.

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