



STILL MAKING WAVES

ZMT celebrates its 35th anniversary in 2026

ON EXPEDITION

World-spanning collaborations in tropical marine research have been at the core of ZMT's mission from the very beginning. Rather than operating independently, ZMT has spent the last 35 years working hand-in-hand with local partner institutions in many tropical countries.

Remarkable projects have been conducted – such as the German-Brazilian programme, “Mangrove Dynamics and Management” (MADAM), that helped create the basis for building the new institute in the 1990s. Over time, ever closer research ties and, increasingly, cooperation in training young researchers spawned a global research network of specialised scientific expertise. Today, this network supports strong international ZMT partnerships on an even playing field which continue to thrive. ZMT researchers are thus seminaly involved in co-developing local research projects and sharing knowledge, particularly on sustainable coastal zone management.

“Thirty-five years – this long road also denotes healthy growth from what was then the founding idea, to establish ‘marine tropical ecology’ in Bremen, to what is now inter- and transdisciplinary research on tropical coastal ecosystems,” says ZMT Director Raimund Bleischwitz. “Today, ZMT employs multiple future-looking methods in ocean research involving various branches of the natural sciences, marine social sciences and regionally relevant earth system modelling.” Under these conditions and thanks to collaborative research, the institute can find excellent, relevant, effective answers to the major challenges of the 21st century – whether on the topics of sustainability, marine litter, ecosystem services, or environmental and coastal protection.

Embarking on the future together

This year, ZMT celebrated the institute's birthday together with some 200 international guests from academia, the political sphere, business and society. “We are closely connected with the marine tropics and, today and in the future, we want to find common ways of protecting the climate and the oceans using new models of prosperity,” Bleischwitz emphasises. The road continues, seeking answers to issues such as the blue economy: How do jointly gained research results find their way to policymakers and local communities as they seek appropriate management strategies for the sustainable use of tropical coastal ecosystems? The integration of tropical coastal ecosystems in global climate models is also future-oriented topic which will be addressed by a strategic expansion of ZMT's portfolio as the new research focus TropECS strengthens ZMT's integrated modelling capacities. [>MORE](#)

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PLASTIC WASTE IN THE OCEAN

Biodegradable plastics - part of the solution

Plastic pollution in the world's oceans is one of the biggest challenges facing the global community. Whilst the United Nations agreed to cooperate on protecting the oceans as part of the UN High Seas Treaty their agreement does not extend to the seas within national territorial and economic zones. It contains several provisions that are relevant to avoiding, reducing and controlling plastic pollution but it does not replace the UN Plastics Treaty which has not yet been agreed by member states. Because plastic pollution starts on land.

Of the approximately 400 million metric tonnes of plastic produced worldwide in 2022 alone, three to five percent landed in the environment and eventually in the oceans. And there is no

end in sight to the flood of plastic. "Plastic littering is thus unavoidably continuing to increase," says Raimund Bleischwitz, expert on the circular economy and ZMT's director. "Apart from the millions of metric tonnes that are already in the oceans, soon, huge amounts of plastic will be washed into the sea by polluted rivers." If nothing is done, by 2050, there could be more plastic in the oceans than fish.

Degradable instead of eternal plastic

More than 100 countries are determined to pursue the ambitious goal of solving the problem by cooperation. "One of the main demands is that the reduction of plastic production should be binding because that's the

only way of reducing the production of plastic waste," says Bleischwitz. "Apart from which, certain problematic substances like softening agents should no longer be produced at all."

What would happen if plastic really could dissolve in the sea without any residues? So far, 'degradable' is just window-dressing. When plastic waste degrades it still leaves behind polymers in the ocean for hundreds of years. Will a 'new' kind of plastic help? A comprehensive analysis of existing strategies to deal with the problem, conducted

"Plastic waste in the ocean is a ubiquitous topic at ZMT. In our projects in the tropics, we see coasts and seas that are full of waste, and we experience the impact on eco-systems, tourism and local populations. The latter are badly affected but can't cope with the flood of plastic."

(Rebecca Lahl, environmental scientist at ZMT)

at ZMT, also investigated a new generation of biodegradable plastics. "In our opinion, continuing the development of the materials and chemicals required for producing plastics is an additional core strategy,"

emphasises the environmental scientist, Rebecca Lahl.

Safe and Sustainable by Design (SSbD) is the name of the fundamental concept recommended by the European Commission in 2022 that is designed to trigger the relevant innovations. Plastic products based on natural polymers have been around the 1990s, but these materials are not ideal. "We need to have a complete rethink when designing products, especially if they end up in the sea. This is true of food and cosmetic packaging, building materials, cigarettes and even fishing nets," Lahl comments. "We have failed to drive the development of biodegradable plastics that are completely sustainable." But the tide is turning: interest in genuine bioplastics is growing.

Rebecca Lahl heads ZMT's Programme Area 5 "Societal Impact" as part of a co-leadership tandem. Together with ZMT director Raimund Bleischwitz she published a study on the third generation of degradable plastics in the journal *Sustainable Chemistry and Pharmacy* [≥MORE](#)



JOINING FORCES FOR PRESSING PROBLEMS

German and Colombian scientists at the research institutes ZMT and INCIMAR are cementing a long-term partnership for marine science. A conversation with Sonia Bejarano and Fernando Zapata.

Why are you joining forces for a new Colombian-German knowledge platform for tropical marine biodiversity and climate change (COLDEMAR)?

SONIA BEJARANO: We see COLDEMAR as a Global North-South alliance emerging in turbulent times. It allows INCIMAR and ZMT scientists to work together on pressing challenges such as biodiversity loss, climate change, and sustainable development, while both institutions become a home away from home for one another.

FERNANDO ZAPATA: Colombia borders both the Caribbean Sea and Pacific Ocean. Marine ecosystems in both regions support numerous livelihoods yet are full of contrasts. Caribbean coasts are more biodiverse – with coral reefs, mangroves and other habitats, the Pacific counterparts are less species-rich in many groups, but very productive. Understanding how differently these ecosystems function and respond to climate change is a fundamental goal of INCIMAR. Although we can investigate local climate impacts, we cannot solve the climate crisis locally. COLDEMAR bridges the research opportunities available here in Colombia and the scientific expertise residing in the Global North and shared by our partners in Bremen.

SONIA BEJARANO: Located far from the tropics, ZMT relies on temporary field trips which often capture a snapshot of how these complex systems work. Tropical partners, who have direct access to the ecosystems, often lack the opportunities European scientists have of gaining new competences internationally and discussing their knowledge in global contexts. With COLDEMAR, we want to build a long-term bridge to complement both sides as we work towards common scientific and education goals.

What does that mean in practice?

SONIA BEJARANO: COLDEMAR allows ZMT and INCIMAR to co-develop scientific projects, proposals, and schools for early-career scientists. Over the past two years we identified research teams and common interests, ran a Mathematical Modelling school in the forest, and started a project to investigate the impacts of the Super El Niño on the Pacific coast of Colombia. We are funded for the next four years, but during this time, we have the mission to consolidate a partnership that persists long after that.

FERNANDO ZAPATA: Together, we decide on our research priorities, identify study sites in the Pacific and Caribbean, and develop strategies to support early-career scientists. We are also exploring how best to engage local communities in our work to ensure they benefit from it. We will extend the laboratory capacities of the Universidad del Valle to study climate change and biodiversity and will actively share our activities and findings in Spanish, English, and German.

Where do you ultimately want to get to?

SONIA BEJARANO: COLDEMAR should become a self-sustaining science and education hub that evolves dynamically to respond to pressing local and global challenges affecting coastal Colombia.

FERNANDO ZAPATA: We want local decision-makers to recognize that we cannot solve local coastal problems on our own; we require cooperation beyond the local level. We aim to provide global decision makers with the scientific evidence they need to take meaningful action on climate change.

Sonia Bejarano leads COLDEMAR at ZMT, Fernando Zapata at the Institute of Marine Sciences and Limnology (INCIMAR) at Universidad del Valle. The COLDEMAR development phase is funded from 2025 to 2030 by the German Federal Ministry of Research, Technology and Space (BMFTR). [>MORE](#)



SEASTRONG – adapting to climate change

How can mangrove forests, seagrass meadows and coral reefs survive the ocean warming caused by climate change? The international research project SEASTRONG does not just combine ecological and societal issues. Funded by the European Union, the project focuses on investigating ecosystems jointly: How do mangrove forests, seagrass meadows and coral reefs actually support each other? What opportunities are there for us to study, manage and restore these areas together in order to effectively preserve their functionality and resilience? The project is coordinated by the University of Bremen and ZMT in tandem; its findings will inform practical approaches to nature conservation, restoration and coastal management. [>MORE](#)

BEACONSplus – strengthening coastal communities

Nine countries bordering on the Atlantic are searching for ways of adapting to climate change – both for and with their coastal communities. To do so, they are banking on science and innovation: “Building Resilience in Atlantic Communities through Innovation and Science” (BEACONSplus) is the name of the research and innovation project being funded under the EU’s Horizon Europe programme. Fifteen partner organisations from all nine countries are taking part. Scheduled to last more than three and a half years, the network will not only integrate a raft of scientific perspectives, one core element will be direct communication with coastal communities to identify both global and region-specific challenges and work closely together on adaptation solutions. ZMT is coordinating this EU project. [>MORE](#)

SKETCH – humans and nature

In which coastal regions do people live in close harmony with nature, successfully maintaining ecological functions as well as the cultural values and time-tested governance systems that have evolved from this relationship? What is the secret of their success? Five key locations have been identified in the new project “Social-Ecological Keystone Places for Transformative Change in Safeguarding Coastal Biodiversity” (SKETCH) in which a participatory approach will be employed to gain insights into developing better context-specific nature conservation strategies. ZMT will play a scientific and coordinating role. [>MORE](#)

LL-SUSTAIN – food and sustainability

Due to climate change and intensive agriculture, biodiversity is rapidly declining. The consequences are complex but clearly show that securing food for the world population is becoming far from certain. What can be done to address this fundamental challenge? The Leibniz Lab “Systemic Sustainability” is searching for answers, pooling scientific and societal knowledge to drive the development and implementation of systemic solutions. As an institute in the Leibniz Association, ZMT shares knowledge on marine nutrition and the sustainable use of marine resources – research findings that are generated, amongst others, in the collaborative project “food4future.” Coordinated by Sarah Zwicker, ZMT’s focus concepts for the sustainable indoor cultivation of alternative marine food sources, such as macroalgae and jellyfish. [>MORE](#); [>MORE](#)



Award for ZMT postdoc

Whilst working on her doctorate, Dr Sara Nazari conducted research on hydrogeology at ZMT and the Institute of Geosciences at Kiel University. Her investigations focused on groundwater as the world’s largest hidden freshwater resource for drinking water, agriculture and ecosystems. How has the availability of groundwater changed over time? How do human activities and climate change influence these developments? For her outstanding work on these issues, the DFG awarded her the 2026 Bernd Rendel Prize. [>MORE](#)

