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Book review:
MIRRORS OF THE SEA: WHEN SCIENCE AND ART MEET. 30 YEARS OF THE UNESCO INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION IN SLOVENIA (ZRCALA MORJA: KO SE SREČATA ZNANOST IN UMETNOST. 30 LET DELOVANJA MEDVLADNE OCEANOGRAFSKE KOMISIJE UNESCO V SLOVENIJI)

Authors: Gašper Hrastelj, Patricija Mozetič, Iztok Škerlič, Mitja Bricelj, Dejan Mehmedovič, Alenka Malej & Valentina Turk
Editor: Glorjana Veber
Publishing and production: Polzela: Iriu; Koper: KUD AAC Zrakogled, 2024
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157 pp.

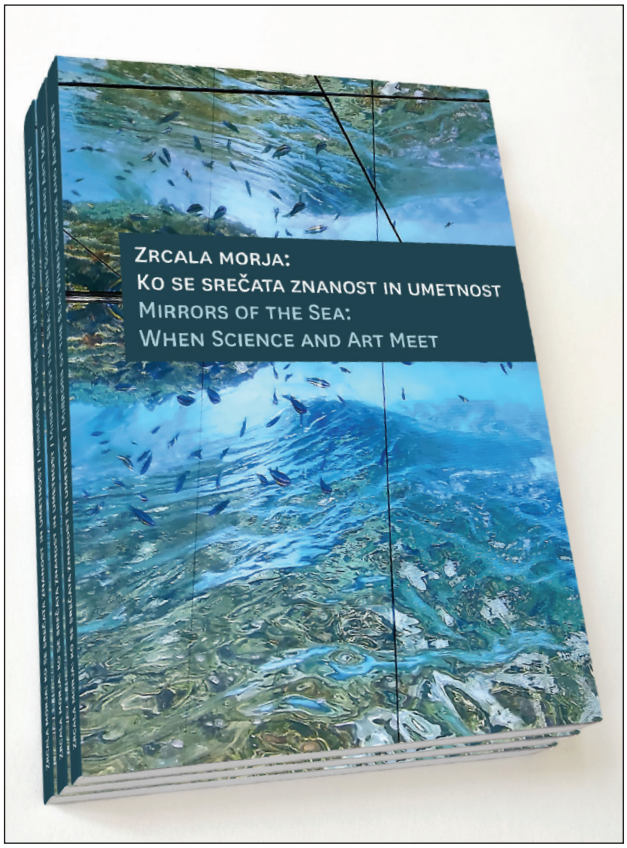
An intriguing new book, *Mirrors of the Sea: When Science and Art Meet* (edited by Glorjana Veber), was published in 2024 by Iriu d.o.o. in Polzela, and KUD Zrakogled, Koper, Slovenia. This 157-page multi-authored and bilingual (written in Slovenian and English) paperback accounts for the 30-year efforts of the Slovenian National Committee of the Intergovernmental Oceanographic Commission of UNESCO (NC/IOC/UNESCO) since Slovenia joined IOC/UNESCO in 1994. The book reflects on the progress made in marine ecosystem research and public education about the marine environment. Its goal is to underscore the importance of a healthy ocean ecosystem for a sustainable Earth and humanity.

The Intergovernmental Oceanographic Commission (IOC) is the sole United Nations (UN) body specializing in ocean science and services. It promotes international cooperation and facilitates and coordinates marine research to improve the management of the oceans, coasts, and marine resources. With 150 Member States, the IOC coordinates programs such as capacity development, ocean observations, tsunami warning systems, and ocean literacy. Currently, the IOC leads the UN Decade of Ocean Science for Sustainable Development 2021-2030, known as the "Ocean Decade."

Oceans, which cover 71% of the Earth's surface, evoke a sense of vastness of infinity. They provide many services to humanity, helping to mitigate climate change, produce oxygen, provide food, and more. Nowadays, however, they are no longer infinite, as the expansion of human activity has increased carbon dioxide emissions, biodiversity loss, and other global environmental issues that harm marine ecosystems. These changes are especially evident in the Northern Adriatic Sea, a semi-enclosed body of water that includes Slovenia's zone. The sea, surrounded by highly populated shores (total population: 25 million), receives significant river discharge (90,000 km^3 annually), historically contributing to eutrophication. This process has led to harmful events, such as phytoplankton blooms (red tides), sea-bottom deoxygenation, jellyfish blooms, and mucilage formation. Slovenian marine scientists have been working to understand these phenomena and propose solutions. NC/IOC has supported these efforts through research and public outreach, often integrating art to deepen understanding of marine ecosystems.

The book's introductory chapter, *Art and Science as Related Activities*, explores the relationship between these disciplines. Since ancient Greece, this connection has been recognized, as Aristotle noted in *Physics*: "Generally art, in some cases, completes what nature cannot bring to a finish and, in others, imitates nature." Both art and science share a common goal: to discover the unknown and create something meaningful for humanity. While scientists convey facts, artists evoke emotions and empathy, making complex ideas more accessible to the public.

The first event of such an interdisciplinary approach, *Colors of the Bay*, was organized in 1998, the UN International Year of the Ocean, by scientists from the Marine Biological Station of the National Institute of Biology (MBS/NIB) and artists. The theme of "colors" symbolized their respective methods: marine scientists analyze the colors of the sea to assess the water quality and ecosystem health, while artists use colors to create evocative imagery. The event featured scientific posters explaining marine food webs, from single-celled



phytoplankton to carnivorous fish, and underwater photography showcasing hidden worlds of the sea. Artists contributed vivid illustrations of marine life, such as algae, protozoa, jellyfish, mollusks, crustaceans, and fish, symbolizing healthy marine ecosystems and imaginative depictions of polluted seas.

In the subsequent events, more artists collaborated through texts (entitled *Thieves of the Sea, Mirrors of Stars*, highlighting the sea's fragility and vitality), dance performances (*Is the Sea Still Breathing?*, addressing hypoxia and anoxia), and multimedia art (*Aurelia 1+Hz*, exploring the mystery of jellyfish; *AquA(I) formings*, examining the human impact on the ocean; *LINIJA + 1233M – 1233M*, depicting plankton vertical migration and ocean acoustics; *Echinoidea Future – Adriatic Sensing*, focusing on water quality challenges). Children also participated as young artists in several competitions. Additional exhibitions included themes such as *Natural Heritage of the Sečovlje Saltpans* and *About the Sea and Salt*, featuring the Sečovlje Saltpans, and *The Slovenian Sea – Photographs of the Underwater World*, *Life on Pillars*, *Jellyfish Around Us*, displaying the diverse underwater world of the Gulf of Trieste. These events combined science and art to engage the public and convey vital messages about the ocean's beauty, secrets, complexity, and fragility.

As a biological oceanographer, I contributed to Slovenian marine science through a bilateral project between Hiroshima University, Japan, and MBS/NIB focusing on jellyfish blooms, a shared problem in both the Inland Sea of Japan and the Northern Adriatic Sea. During this time, I also acted as an ambassador of peace, helping publish a Slovenian translation of "*My Hiroshima*" a picture book written in Japanese by hibakusha Junko Morimoto. I had an opportunity to attend an A-bombed tree (hibakujumoku) planting ceremony at the Ljubljana Botanical Garden. The second generation of hibakujumoku, symbolizing world peace and resilience, is firmly rooted in Slovenian soil.

From this book, it is clear that the NC/IOC and MBS/NIB have adopted a unique, interdisciplinary approach to marine education and outreach, fostering a comprehensive understanding of how oceans and the Earth are changing. I applaud the Slovenian people's peace-loving spirit and commitment to sustainability. The year 2024 marks not only the 30th anniversary of NC/IOC's activities but also a milestone for world peace, as the Nobel Peace Prize was awarded to the Japan Confederation of A- and H-Bomb Sufferers Organizations (Nihon Hidankyo). May this year inspire continued efforts for global harmony and a sustainable future.

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