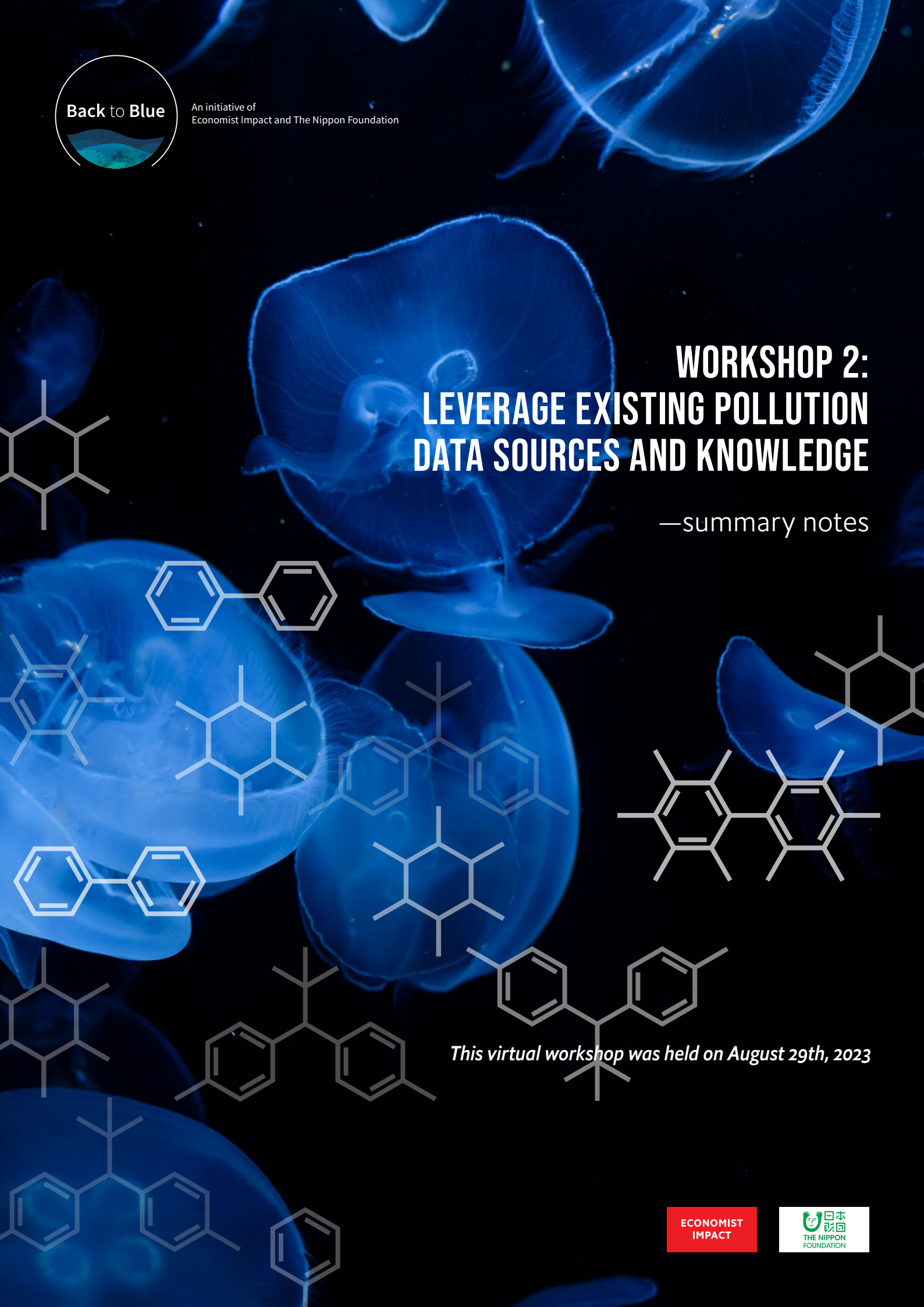

Back to Blue

An initiative of
Economist Impact and The Nippon Foundation

WORKSHOP 2: LEVERAGE EXISTING POLLUTION DATA SOURCES AND KNOWLEDGE

—summary notes

This virtual workshop was held on August 29th, 2023

ECONOMIST IMPACT

THE NIPPON FOUNDATION

Workshop 2:

Back to Blue calls on a broad group of stakeholders to co-design a roadmap to close the marine pollution data gap. Please *visit our website* to learn more.

This workshop, which is the second of five, sought to:

- Identify and leverage existing knowledge about pollution on land, in freshwater, and in the atmosphere, to provide insights into the state of pollution in the ocean
- Identify how the ocean can be better integrated into global systems for monitoring pollution
- Provide concrete recommendations to feed into the draft roadmap.

This summary report does not attempt to represent all the views shared during the workshop; rather, it is a brief synthesis. The purpose of this report is to inform the first draft of the roadmap. We welcome further comments on this summary and the roadmap.

Attendees:

- Andrew Johnson, Environmental Research Scientist, UK Centre for Ecology and Hydrology
- Anne-Sofie Bäckar, Executive Director, ChemSec - International Chemical Secretariat
- Christopher Corbin, Senior Coordination Officer, UNEP
- Emma Ransome, Lecturer, Faculty of Natural Sciences, Department of Life Sciences, Imperial College London
- Guy Woodward, Deputy Head of Department, Faculty of Natural Sciences, Department of Life Sciences, Imperial College London
- Kazuhiro Yagasaki, Senior Project Coordinator, Global Ocean Environment Division, Ocean Affairs Department, The Nippon Foundation
- Kenneth Leung, Professor of Environmental Toxicology and Chemistry, City University of Hong Kong (CityU)
- Leon Barron, Reader in Analytical & Environmental Sciences, Faculty of Medicine, School of Public Health, Imperial College
- Louis Demargne, Data & Knowledge Management Officer, Intergovernmental Oceanographic Commission of UNESCO
- Rosemary Rayfuse, Emerita Scientia Professor of International Law, University New South Wales
- Stewart Sarkozy-Banoczy, Acting Executive Director and Steering Committee Chair, Ocean Sewage Alliance
- Vicky Honda, manager, Oceans Affairs Division, The Nippon Foundation
- Zhanyun Wang, Senior Scientist, ETH Zurich

Moderators:

- Charles Goddard, executive director, Back to Blue
- Elsie Sunderland, professor of environmental science and engineering, Harvard University

Connecting ocean pollution to global systems

Understanding the intricate connection between ocean health and pollution from freshwater, terrestrial, and atmospheric sources will be critical to building a comprehensive picture of marine pollution. This workshop delved into this interconnectedness, acknowledging that shared knowledge—including about the impact of pollution on ecosystems—is often underutilised. Recognising that marine pollution primarily emanates from terrestrial systems and that chemical pollution is typically a result of human activities, participants agreed that a holistic analysis of the hydrological system would help us better understand the impact of pollution on the ocean.

1. Evaluating biological indicators and the impacts on ecosystems and economies

- It is essential to measure the impact of pollution on marine ecosystems, wildlife and human health. The effect of pollution on marine organisms should be a central concern for the roadmap.
- Participants warned not to conflate pollutant detection and risk. Are chemicals guilty until proven innocent?

Recommendation 1:

The focus in closing the marine pollution data gap should be on the *impact* of marine pollution rather than simply on pollution itself.

- Nevertheless, scientists still don't fully understand the ecological impacts of many pollutants, with many observed ecological issues impossible to pin on specific chemicals.
- Therefore, it will be critical to strike a careful balance—prioritising pollutants that we know harm the ocean while not losing sight of the importance of monitoring a broader range of pollutants whose impacts are not yet fully understood.

Recommendation 2:

The vital focus on the impact of pollution on the marine environment must not be at the exclusion of broad-based monitoring of pollutants, as the impacts of these are often still unclear.

- The roadmap should prioritise pollution impacts that are most relevant to research and policymakers. One way to do this is to focus on specific biological indicators.
- High trophic organisms (species high in the food chain) have the most direct impact on human health. Understanding the impact of pollution on these organisms will make it easier to translate the ecological impact of marine pollution to consumers and policymakers.
- Microbial communities are another useful biological indicator. They are relatively easier to research and create datasets on and are valid biological indicators as they are first to respond to pollutant stressors.

Recommendation 3:

A focus should be on measuring the impact of pollution on recognisable biological indicators.

- Integrating marine chemical pollution into existing environmental issues will provide an entry point for policymakers and other decision-makers.
- An integrated assessment of the cycle of biodiversity, climate and pollution would be a powerful tool for decision-making.
- Discussing climate, plastic and chemical issues together is critical. Chemicals and plastics are both fossil fuel-based and a more straightforward discussion of how these interact would help decision-makers understand the biological impacts of pollution and increase attention to the problem.

Recommendation 4:

Capitalise on the current global interest in biodiversity and climate. Attach marine pollution to these ongoing discussions to spark meaningful conversations to fight marine pollution.

2. Integrating data across disciplines

- Pollution data must be openly accessible.
- Within environmental science, there is a lack of integration between disciplines and between the study of air, soil, freshwater and marine pollution.
- Government-held data cannot be accessed by many countries. This is impeding progress.
- Data and observations demonstrate the adverse ecological effects of chemicals and other pollutants on migratory river species. Ocean scientists can leverage this existing knowledge to better understand the marine ecosystem.
- Integrating data and knowledge about ocean pollution and other types of pollution will further scientific understanding of the effects of chemicals on marine organisms and also foster more integrated and holistic solutions.
- Sampling and monitoring are crucial in areas at high risk of pollution from freshwater or other sources. Coastal regions often become sinks to industry legacy chemicals.
- It is important to focus on emerging chemicals of concern but we must not lose sight of traditional chemical pollutants and their cumulative impacts on coastal environments and ocean ecosystems, which often remains unclear.

Recommendation 5:

Efforts to close the marine pollution data gap should not just focus on *marine* pollution. Data on other types of pollution can help inform our knowledge about the impact (or likely impact) of pollutants on ocean ecosystems.

Recommendation 6:

Marine pollution data must be openly accessible to ensure scientific disciples, including chemistry, biology, and the environmental sciences, can work cooperatively. Integrated data is required to underpin integrated policy solutions.

3. The importance of storytelling and data visualisation

- Narrative storytelling, such as policy and environmental success stories, would serve as influential tools to sway policymakers by showcasing the positive outcomes that effective policies can accomplish.
- A widespread understanding of chemical pollution's impacts will lead to positive global transformations. This heightened awareness will motivate consumers and policymakers to actively address ocean pollution's impacts.
- Stories about legacy chemicals will be an essential tool to demonstrate the positive environmental effect that policy interventions can have.
- Storytelling about marine pollution must be integrated into existing issues of public concern, such as plastic, nature and climate.

Recommendation 7:

Visualise existing knowledge and data to tell a story. Integrate storytelling efforts with other environmental issues, such as plastic and nature.

- As well as the effect on marine ecosystems and human health, policymakers are paying increased attention to the economic impacts of marine pollution.
- In small island developing states (SIDS), chemical pollution has been associated with detrimental impacts on tourism.
- It will be essential to map these impacts to engage policymakers and the private sector.

Recommendation 8:

Pollution's economic and tourism impacts should be effectively communicated to policymakers.

Next steps:

- Please share your comments with the Back to Blue team, either in this document or by email to jessicabrown@economist.com
- Please feel free to share this document with other colleagues who may be interested; we welcome their comments and feedback
- We will keep you updated with information about our upcoming publications workshops and other opportunities to contribute to the roadmap's development.

Additional resources

- Please visit our ***stakeholder resource centre*** for further information about Back to Blue's initiative to develop a roadmap to close the marine pollution data gap and about our series of virtual stakeholder workshops.
- ***The Invisible Wave: Getting to zero chemical pollution in the ocean***, Back to Blue (2022)
- ***The Zero-pollution ocean: A call to close the evidence gap***, Back to Blue (2023)

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