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Thirteen ocean solutions for climate change

Over a dozen international researchers from the Ocean Solutions Initiative¹—including scientists from the CNRS, IDDRI,² and Sorbonne University—have evaluated the potential of thirteen ocean-based measures to counter climate change. Their findings are published in *Frontiers in Marine Science*. They hope their analysis will inform decision-makers gathering in Katowice, Poland, for the COP24 conference in early December.

The ocean regulates global warming. But it does so at the cost of far-reaching changes that affect its physical and chemical processes, marine ecosystems, and the benefits it offers humankind. In their article, the Ocean Solutions Initiative researchers present an unprecedented, comprehensive review of thirteen ocean-based measures—some local, others global—to lessen and adapt to the impact of climate change. These measures were selected on the basis of the frequency with which they are addressed in the scientific literature.

They may be grouped under four different headings according to the strategies adopted:

- reduction of causes of climate change—for example by developing renewable marine energy sources or restoring and conserving marine plant life to capture and store carbon
- preservation of ecosystems—by creating marine protected areas, reducing pollution, and prohibiting the overexploitation of resources
- protection of ocean from solar radiation—by altering cloud or ocean reflectivity
- direct manipulation of the biological and ecological adaptability of species—by their relocation, for example

The researchers, in their analysis, contrast these solutions in terms of respective risks and benefits. For example, renewable marine energy sources offer many advantages, and they are not very difficult to implement. On the other hand, measures based on the control of solar radiation are very controversial among members of the scientific community because of the many technological unknowns and the risks these pose.

In summary, the Ocean Solutions Initiative team demonstrates that the various solutions described are not equally realistic, effective, or even appropriate, but they do constitute concrete actions that merit study by

(1) *The Ocean Solutions Initiative is concerned with the future of the ocean. It is coordinated by the CNRS, IDDRI, and Sorbonne University, and it receives support from the Prince Albert II of Monaco Foundation, the Veolia Foundation, the IAEA Ocean Acidification International Coordination Centre, the French Global Environment Facility (FFEM), and the Monegasque Association on Ocean Acidification.*

(2) *IDDRI = Institut du Développement Durable et des Relations Internationales (Institute for Sustainable Development and International Relations)*



IDDRI

government and society in unison. However, the researchers stress that many of the global measures still lack sufficient scientific support. The international community should therefore exercise caution in considering them.

Video about the Ocean Solutions Initiative: <http://bit.ly/2Q8ipcn>

More on the Ocean Solutions Initiative: <http://bit.ly/2xJ3EV6>

Bibliography

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Contacts

CNRS researcher | Jean-Pierre Gattuso | T (+33) (0)4 93 76 38 59 / (+33) (0)6 95 92 68 80 | gattuso@obs-vlf.fr

IDDRI researcher | Alexandre Magnan | T (+33) (0)1 44 96 43 90 / (+33) (0)6 68 60 75 39 | alexandre.magnan@iddri.org

CNRS press officer | Julie Desriac | T (+33) (0)1 44 96 43 90 | julie.desriac@cnrs.fr