

Climate Change, Human Health and The Ocean

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National Academy of Medicine
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#NAMmtg

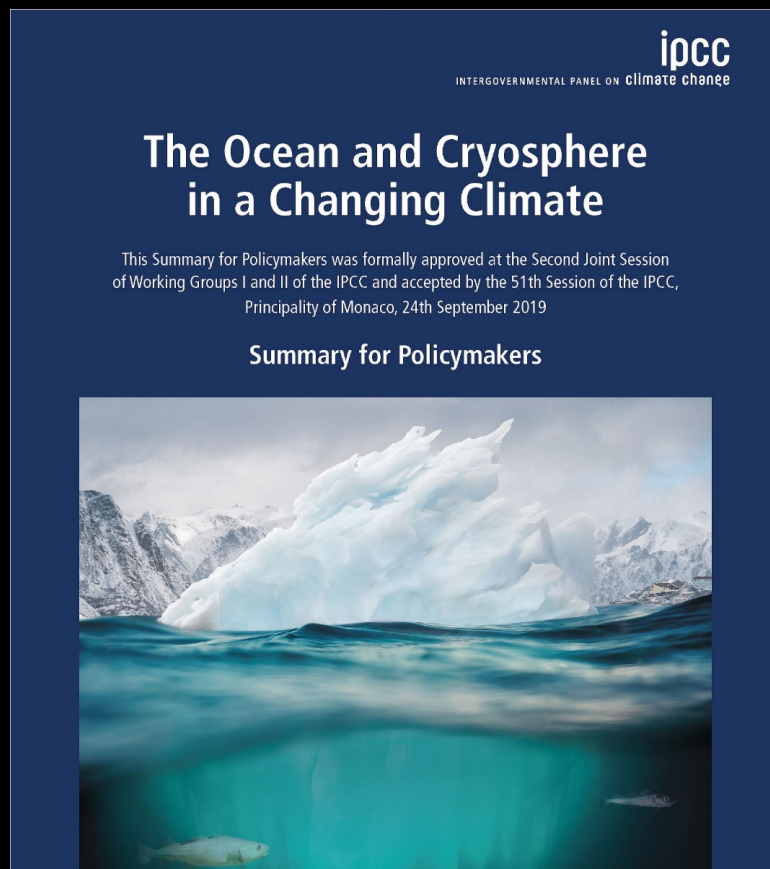
Image: Bob Berwyn



Key Points

1. There is a powerful link between the ocean, climate change, and human health.
2. Options exist to reduce greenhouse gas emissions much faster than is happening now.
3. If more people understood the health benefits of addressing climate change, we could do so much more effectively.

2019 - IPCC Special Report on the Ocean and Cryosphere



- Key role of the ocean in the climate system
- Dramatic impacts of climate change on the ocean

As a result of Climate Change, the Ocean is now



Deoxygenation

Increased temperature

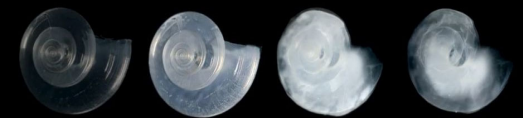


Warmer
& with Heat Waves
Oxygen-depleted
Higher
More Acidic
Less resilient
Less predictable



Sea level rise

Ocean acidification



U.S. 2020 Billion-Dollar Weather and Climate Disasters

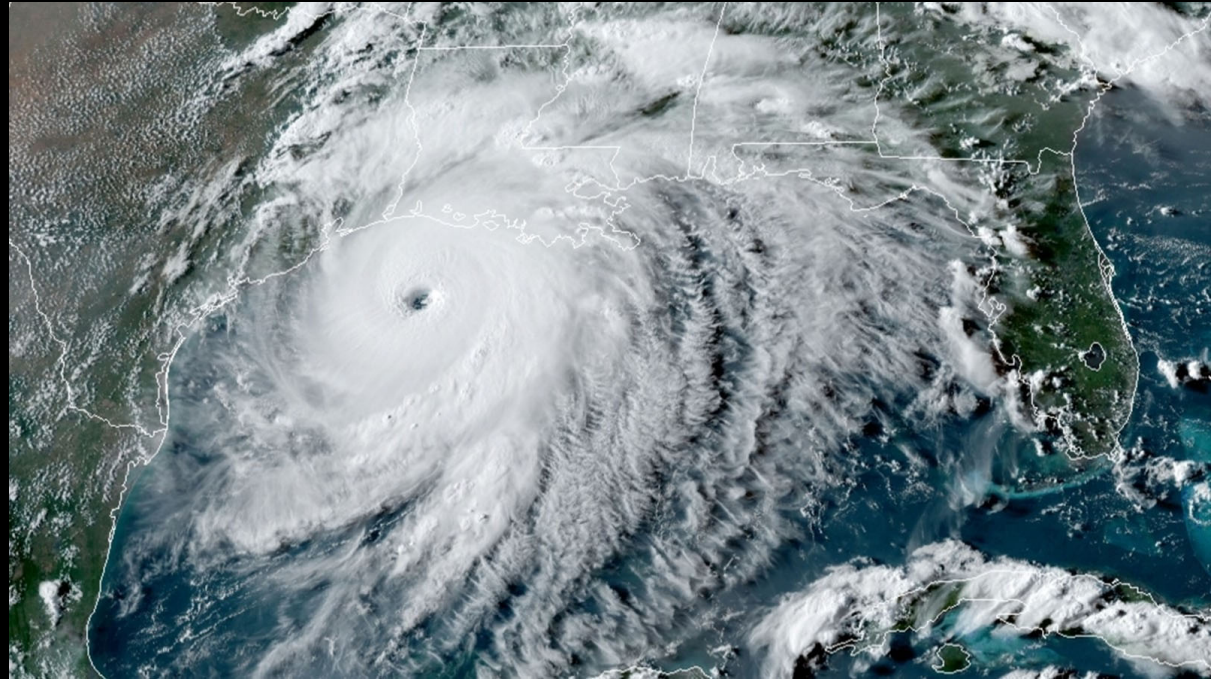


This map denotes the approximate location for each of the 16 separate billion-dollar weather and climate disasters that impacted the United States from January–September 2020.

Climate Change enhances the power and destructive impact of hurricanes

As a result of climate change, hurricanes today

1. Are more intense:
more Category 4 & 5 storms
2. Move more slowly:
more devastating impact over land
3. Hold more water:
greater flooding



Hurricane Laura



Deadly implications of storm surge & coastal flooding

- 13 inches of sea level rise since 1920
- Fivefold increase in high-tide flooding along the Atlantic and Gulf Coasts since 2000
- Storm surge was responsible for about half of the 2,544 deaths in the US due to tropical cyclones between 1963 and 2012

NOAA State of US High Tide and Flooding 2019

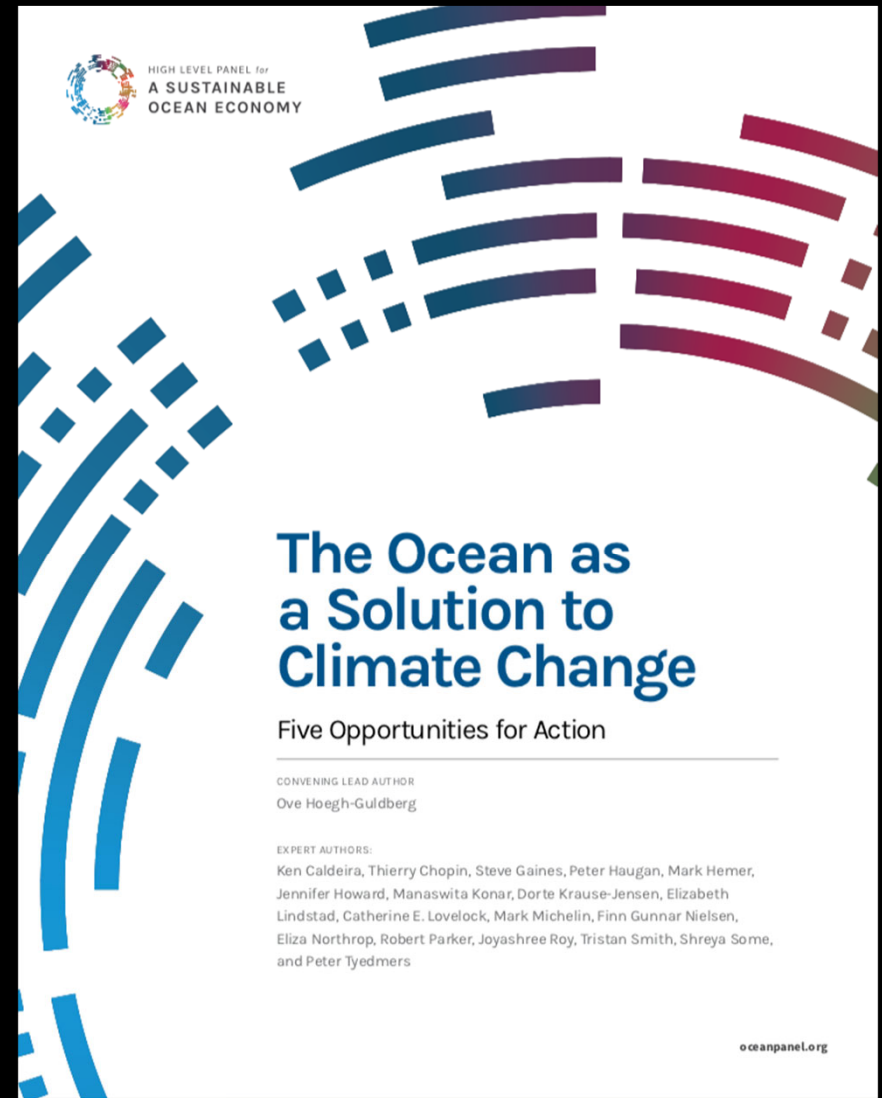
Image: Tom Copeland

BUT:

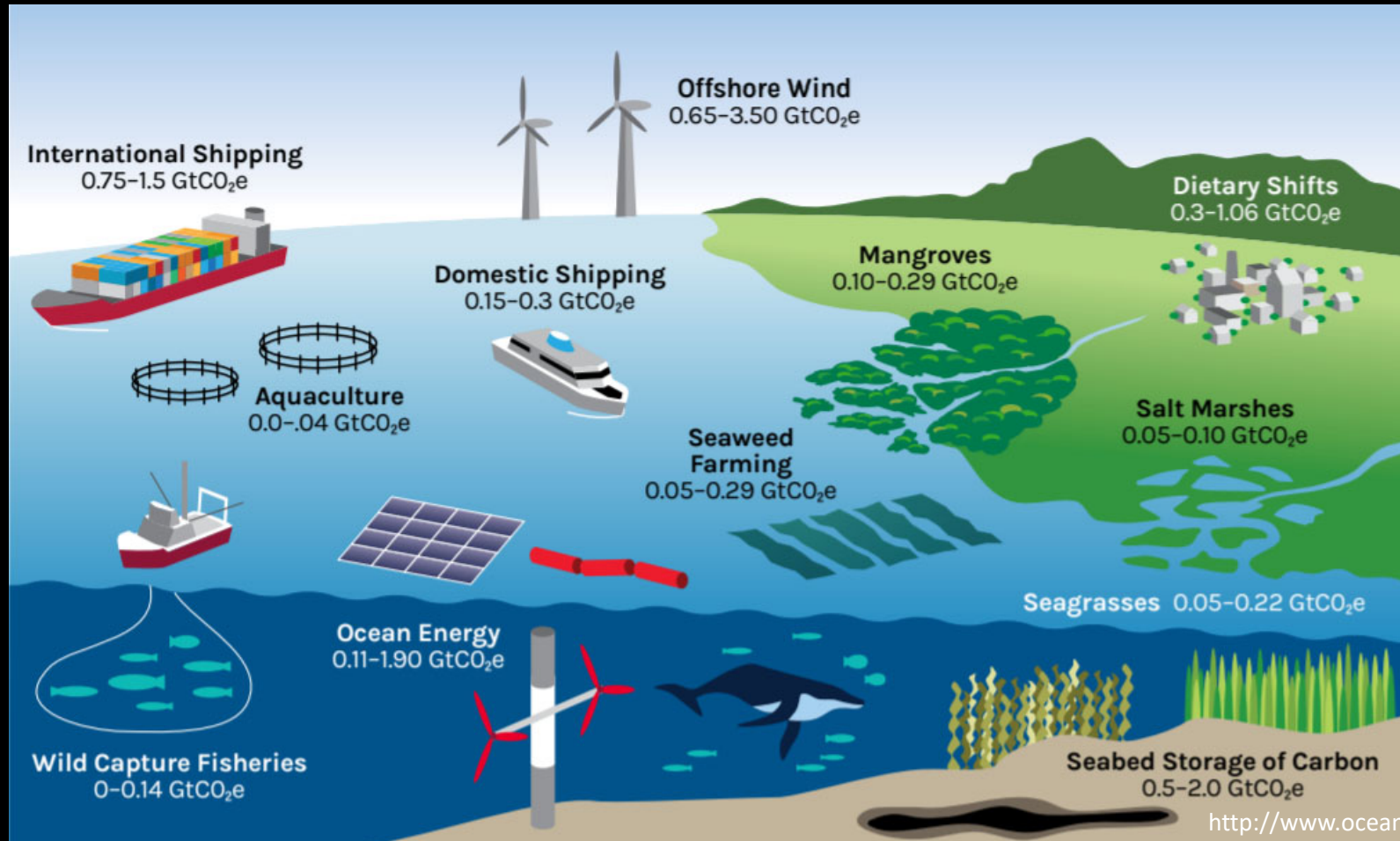
The ocean is not only a
victim of climate
change,

it is also a powerful
source of **MITIGATION
OPTIONS**

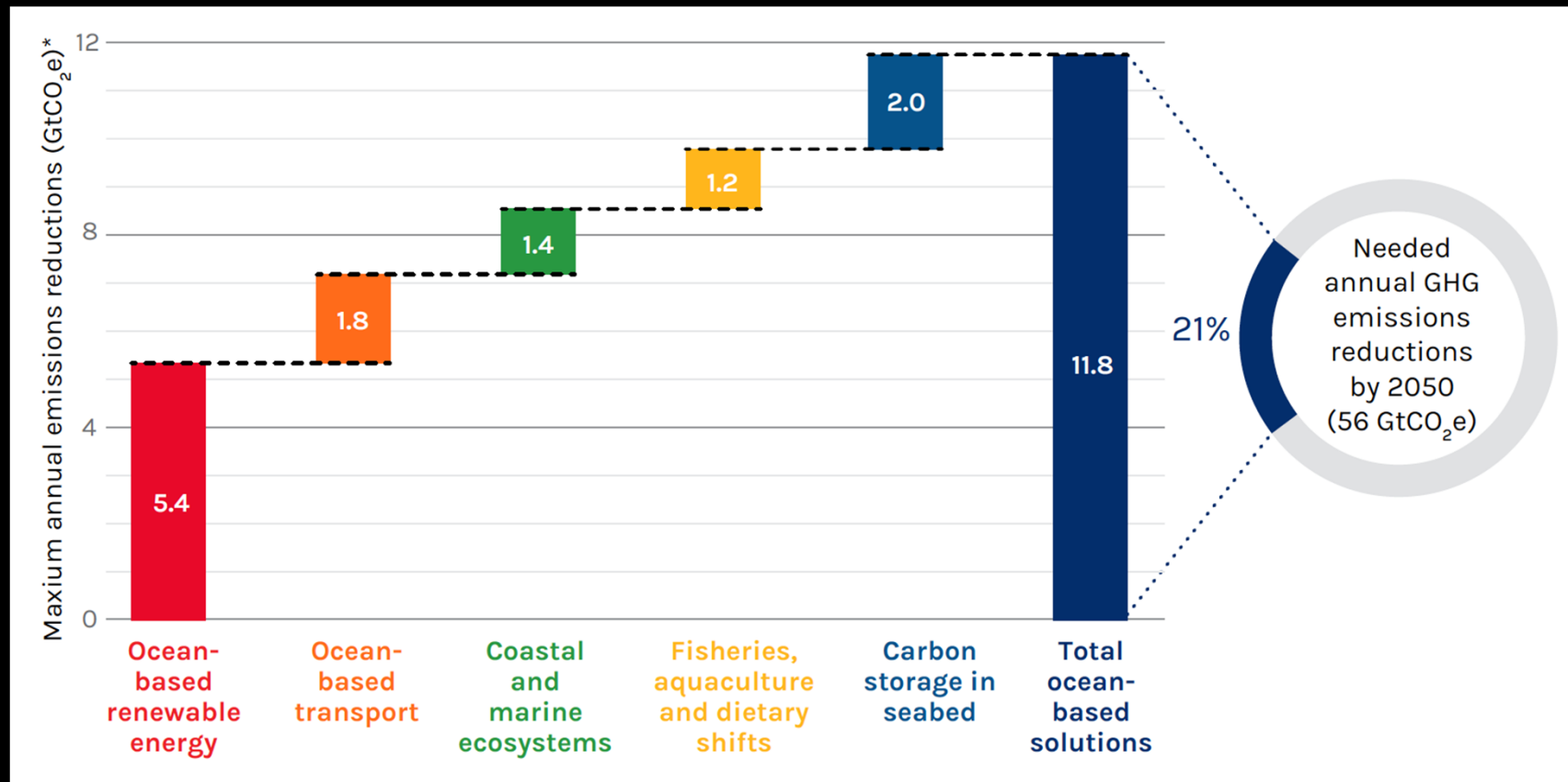
www.oceanpanel.org/climate



New, powerful tools in the climate mitigation tool box: Ocean-based mitigation options



The Ocean is a Major Part of the Climate Solution: as much as 1/5 of emission reductions needed



(GtCO₂e) = gigatonnes of carbon dioxide equivalents

<http://www.oceanpanel.org/climate>



1. The potential for ocean-based activities is significant.
2. They provide hope we can achieve the 1.5 target by 2050
3. They reflect a pivot from the ocean as a victim to the ocean as a source of solutions

New Understanding of Climate Change

1. Impacts of climate change on the ocean affect human health.
2. Most people do not think of climate change as an ocean issue or a health issue, but it is both.
3. The ocean offers powerful new options to reduce greenhouse gas emissions.

Image: Bob Berwyn



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Thank you!
Questions?



Image: NOAA

Thank You

OSU Ocean Science Innovation Team



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