What does the IPCC WGII report say on oceans?

Greenpeace briefing
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“Numerous observations over the last decades in all ocean basins show global-scale changes including large-scale distribution shifts of species (very high confidence) and altered ecosystem composition (high confidence) on multi-decadal time scales, tracking climate trends.”

“The progressive redistribution of species and the reduction in marine biodiversity in sensitive regions and habitats puts the sustained provision of fisheries productivity and other ecosystem services at risk, which will increase due to warming by 1°C or more by 2100 compared to the present, with limited adaptive capacity of human societies (high confidence).”

“Climate change adds to the threats of over fishing and other non-climatic stressors, thus complicating marine management regimes (high confidence).”

– IPCC WG2 Technical Summary

IPCC WGII key findings on oceans

• Oceans create half the oxygen we use to breathe, and one-fifth of the animal protein consumed by more than 1.5 billion people. Oceans regulate global climate and recycle nutrients. Oceans are home to species and ecosystems valued in tourism and for recreation, and their rich biodiversity offers resources for innovative medicine. Coral reefs and mangroves protect the coastlines from tsunamis and storms, and about 90% of the goods the world uses are shipped across the oceans. All these activities are affected by climate change.

• Climate change alters physical, chemical, and biological features of the ocean. It adds to the threats of overfishing, pollution, eutrophication and other non-climate threats.

• As ocean waters warm, many marine species are moving towards the poles into cooler waters. The shift in distribution (see image TS.8) will lead to an increase in species richness in mid-latitudes and a drop in low latitudes (tropics) – consequently leading to a shift in fishing patterns and a threat to food security.

• In addition to problems related to warming and sea-level rise, burning of fossil fuels makes oceans more acidic. The current rate of ocean acidification is unprecedented within the last 65 million years, if not the last 300 million years, posing risks to ecosystems, especially polar and reef ecosystems, and to fisheries and livelihoods. Risks cannot yet be quantitatively assessed, but mass extinctions in Earth history occurred during much slower rates of ocean acidification.

• Environmental problems, such as warming and ocean acidification, all happening at the same time, can lead to interactive, complex, and amplified impacts for species and human societies.

• Some transboundary impacts of climate changes, such as changes in sea ice and the migration of fish stocks, have the potential to increase rivalry among states.

What do the findings mean in practice?

• Ocean ecosystems are being put under enormous stress by climate change and ocean acidification, and we cannot consider these in isolation of other stressors such as overfishing. This demands that we develop a new, holistic approach to ocean management and protection that has protection of the whole marine ecosystem at its heart.
• The changes that are happening, such as movements of fish stocks, highlight the need for massively improved oceans governance, including a new UN agreement to protect the marine life of the high seas.

• Ocean sanctuaries (also known as marine reserves) are the most powerful tool we have at our disposal to increase the resilience of ocean ecosystems.

• Countries must fulfil their commitments to establish a global network of ocean sanctuaries, and work to ensure that fishing outside of these sanctuaries is conducted sustainably.

• As shown in the findings of the IPCC report, some of the most pronounced impacts of climate change and ocean acidification are in the polar oceans. As the sea ice recedes in the Arctic Ocean, industrial-scale fishing vessels are venturing further north than ever before. We need to stop this advance before it is too late, and put in place a holistic management regime that includes the establishment of a sanctuary in the international waters surrounding the North Pole.

![Figure TS.8(A): Climate change risks for fisheries. For 2°C increase from preindustrial levels using SRES A1B (≈RCP6.0), projected global redistribution of maximum catch potential of 1,000 species of exploited fishes and invertebrates, comparing the 10-year averages 2001-2010 and 2051-2060, without analysis of potential impacts of overfishing. Source: IPCC WG2 AR5 Technical Summary.]

What Greenpeace says about oceans and climate change

We all depend on the ocean in one way or another but all too often the state of our oceans is out of sight, out of mind. The IPCC report brings into stark focus how increased levels of greenhouse gases are leading to significant changes in water temperatures and are altering the chemistry of our ocean by making it more acidic, with potentially grave consequences for dependent communities from the Arctic to the tropics.

There is an urgent need not only for massive cuts in emissions, but also for countries to establish ocean sanctuaries, both in their own waters and in international waters, to increase the resilience of ocean ecosystems and give marine life the best chance to withstand and adapt to these impacts. Only if we work expeditiously to give the ocean greater protection can we ensure future food security and ensure that the ocean continues to provide the many functions that we rely on but tend to take for granted.

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