The WWF RACER project: Incorporating change into Arctic conservation planning

The Arctic Challenge

First and worst. The Arctic is affected by global climate change more than most other places on the planet. Over the last 50 years the Arctic has warmed at almost twice the rate of the global average. Arctic places and species are already affected by the change in climate which is quickly becoming the dominant threat to the viability of arctic ecosystems.

More change coming. The current pledges made under the Copenhagen Accord mean that by the end of this century, the Arctic will likely be seven degrees warmer than it was fifty years ago.

The impacts of change. The changing climate will have vast impacts on land, coast, and sea. In many places across the Arctic habitats will be transformed: sea ice will be increasingly absent in summer; previously frozen soils will increasingly thaw. These transformations will affect the functioning of arctic ecosystems. Arctic species will be exposed to fundamentally changed conditions; some will shift their range, and some may adapt, while some may find there's nowhere left to go.

The human face. The Arctic is a unique habitat for a wide range of species specialized to cope with and make use of marginal conditions. In the same way, human cultures have evolved to specialize in Arctic survival. As the species mix changes, and as other climate-driven effects take hold, the viability of cultural traditions and traditional economies is also threatened.

The conservation challenge. The predominant 'stationary' approach to conservation needs to be expanded. A dynamic approach is needed that will predict how well ecosystems are likely to cope with change, and where habitats will exist in the future. For example, model projections of arctic sea ice point to an area along the high-arctic coasts of northernmost Canada and Greenland as the only place in the Arctic that would still have pack-ice present in 30 years, that could serve as a refuge for ice-dependent species such as some seal species and the polar bear.

More than the climate is changing. With the vanishing sea ice comes increased commercial interest in previously inaccessible areas of the Arctic. Increasing economic development pressures may foreclose conservation options unless informed action is taken swiftly.

Beyond the Arctic. What happens in the Arctic doesn't stay there. The region's ecological links to the rest of the world – whether it is via oceans, migratory species, or climate systems – will bring global change to homes, livelihoods and ecosystems.

WWF's Approach

Embracing change. Given the magnitude of the forecast changes, conservation can only be successful if it embraces that change. We have a unique chance now to help set the course for arctic conservation that works in the 21st century and prevents the loss of lots of the unique species and ecosystems of the Arctic. Conservation options informed by the direction and magnitude of future changes have to be identified now

in order to give arctic ecosystems and species a chance to endure and to keep important places safe from the additional pressures caused by increasing development.

Working with ecosystems and people. WWF has adopted a conservation and management concept that:

- understands change as a fundamental feature of living systems and works with it, rather than against it
- targets the critical components and processes that keep arctic systems functional under rapid change
- considers people a part of the ecosystem, and considers their values related to biodiversity and ecosystem processes
- assesses the vulnerability of those essential values conveyed by functioning arctic ecosystems in light of forecast climate change, and identifies those values that will remain resilient to change and where they are
- seeks to strengthen resilience through ecosystem-based management

The RACER method

WWF RACER, a Rapid Assessment of Circumpolar Ecosystem Resilience. Covering all the above is a big task and will take a number of years to carry out to the necessary detail. However, because of the rapidly increasing commercial interest in the Arctic, WWF realizes the need to make progress fast and is carrying out a Rapid Assessment of Circumpolar Ecosystem Resilience (RACER). The assessment analysis is based on a two-step approach, where in the first step we identify and map those areas and features that are significant for ecosystem resilience based on diversity and productivity. The second step then looks at the forecasted climate impacts for those places and their likely ability to function in future arctic climate change conditions until the year 2100.

Mapping the future. So far, we have piloted the method in four ecoregions in the Russian and Canadian Arctic. The test has been successful in identifying areas of climate change resilience, in improving the method, and in engaging top level scientists and regional experts in this novel thinking. From these analyses, we will be able to produce a map that identifies areas resilient to climate change. The map will better inform spatial planning and decision-making in the region.

Vetted by experts. WWF's team has designed and refined the method identifying places of future importance for arctic conservation together with an international advisory group of arctic conservation and climate experts representing both Indigenous and scientific knowledge. In a workshop in October 2010, experts vetted the RACER assessment method of arctic places, stressed its importance, and recommended swift completion and use of the project's products. Throughout the project, experts and scientists have contributed to the refinement of the method, turning it into a cutting edge scientific analysis.

Changing conservation practice. WWF will use the results of RACER to inform arctic conservation practices along two concrete lines. First we will contribute the RACER method to the Arctic Council's proposed work on a resilience report and an Arctic change assessment. Second, we plan to use concrete resilience assessments from selected ecoregions to inform national or regional planning and management processes.

To the finish line. WWF is now in the final stretch of completing the project and communicating results to create changes in conservation practice. We are working with our expert advisors, with map creators and a science writer to document the project's results, and will launch it officially at the Arctic Council's Senior Arctic Officials meeting in November 2011.

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