

## About the CROW Program

The Canadian Ranger Ocean Watch (CROW) program is a unique collaboration between Department of National Defense (DND), Fisheries and Oceans Canada (DFO), the Vancouver Aquarium and other partners established in 2011, to measure and monitor environmental changes of concern and provide early warnings of ecosystem shifts in Canada's Arctic. The Rangers are military reservists from Canada's most northern Inuit communities and are trained by DFO scientists to collect oceanographic data while out on patrols. The information will be used by scientists and local communities to better understand important ocean and climate factors in the Canadian Arctic, for outreach and education, policy and governance.

### Quotes from Eric Solomon, Vancouver Aquarium's Director of Arctic Programs:

- "Until CROW was established, there was no sustainable means of monitoring these parameters. That's what makes this program so valuable—and that's what makes the Last First team's contribution so valuable. In February, CROW trained four Inuit communities to use the equipment and will be getting even more data, but every time that CTD is put in the water, we obtain a brand-new bit of information that didn't exist before."
- "We know the Arctic is changing and we are in a race to understand even just the basics of what's there now, let alone how it's changing. The data that the Mainstream Last First team will be collecting will help to provide some of the first measures of oceanographic factors in the area they'll be rowing. These measures can be repeated over time by the Canadian Rangers, forming a picture of what is, what's changing, and what might be in store down the road."
- "CROW is just one project seeking to understand the changing Arctic. There are some things we can say about those changes based on all the combined work:

Regardless of the exact year that we see ice-free summers, the Arctic has ALREADY changed and those changes are already having impacts across the North and around the world. We cannot stop these changes in the near future, but we can slow them and decrease our continued impact by significantly reducing the amount of CO2 we're pumping into the atmosphere."

### Here are some **interesting facts and examples of change**:

- Temperatures in the Arctic are increasing at twice the global rate
- Permafrost temperatures hit a record high in 2012
- Sea ice has been declining by about 12% per decade
- There was 50% less sea ice at the end of the summer of 2012 than was the average from 1979-2000
- The volume of sea ice (includes estimates of thickness) is down 39%
- The decline in sea ice has been faster than all of the most aggressive estimates for sea ice decline
- In 1980, the estimated amount of sea ice that was over five years old was 57%; today it's 7%.

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