

**SUBMISSION TO THE**  
**NUNAVUT WILDLIFE MANAGEMENT BOARD**  
**March 2015**

**FOR**

**Information: X**

**Decision:**

**Issue:** 2013 High Arctic Cetacean Survey – Bowhead Whale Abundance (Eastern Canada – West Greenland Population)

**Background:**

Fisheries and Oceans Canada (DFO), with participation of Nunavut Inuit organizations and Inuit survey observers, conducted an aerial survey of High Arctic cetaceans in August 2013. The overlapping summer distributions of narwhal and bowhead whales made it possible to expand the 2013 survey area to include the entire summer range of the Eastern Canada – West Greenland (EC-WG) bowhead population. This is the first aerial survey to attempt coverage of the entire summer range of EC-WG bowhead whales in a single year. All of the major aggregation areas of this population were surveyed, except for Foxe Basin and Repulse Bay (Fig. 1).

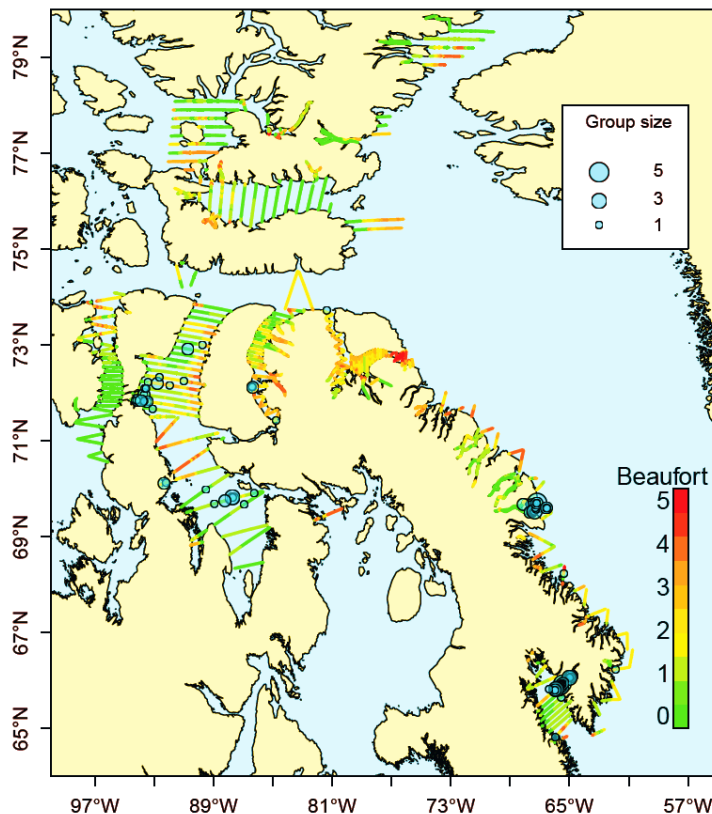


Figure 1. Map of 2013 aerial survey effort (lines) and bowhead sightings (blue circles). Color of lines corresponds to the Beaufort Sea State encountered on that day.

The 2013 aerial survey results provided an updated estimate of EC-WG bowhead population abundance, from which levels of Potential Biological Removal (PBR) and sustainable removal were calculated. The PBR calculation used a recovery factor ( $F_R$ ) of 0.5 because only a few surveys have been conducted and none were able to completely survey the bowhead summer range, and because the population size prior to commercial whaling is uncertain. The EC-WG Bowhead population can sustain a maximum human-induced mortality (e.g. harvest, struck and loss, net entanglements, ship collisions, etc.) of 52 bowhead whales/year.

Table 1. Population abundance estimate, Potential Biological Removal (PBR) calculation and allowable human-induced mortality for the EC-WG Bowhead whale population, from aerial surveys conducted in 2013.

Survey Area (km <sup>2</sup> )	Surface estimate	Corrected Abundance Estimate (95% C.L.)	Nmin	PBR ( $F_R = 0.5$ )
178,855	1,432	6,457 (3,722 – 11,200)	5,193	52

The range of the EC-WG Bowhead Whale population crosses both territorial and international boundaries. These transboundary issues must be considered in the sustainable management of the population. Within Canada, management of the EC-WG bowhead population is a joint responsibility between DFO and Inuit in Nunavut and Nunavik.

The updated population abundance estimate for EC-WG bowhead whales is based only on the visual component of the aerial survey. This estimate accounts for both perception bias (caused by observers missing bowheads present at the surface) and for availability bias (when diving bowheads are not visible near the surface).

Final approval of the 2013 aerial survey results by DFO Management is expected by April 2015, after which a DFO Science Advice Report will be published by the Canadian Science Advisory Secretariat (CSAS) and forwarded to the NWMB.

### **Recommendations:**

The NWMB review the updated abundance estimate and associated TALC recommendations for the EC-WG Bowhead whale population.

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**Date:** Feb. 11, 2015