

## NWMB Research Trust Fund Interim Report 2010-2011

1. **Project Number:** 3-10-16
2. **Project Title:** Aerial survey of the Admiralty Inlet narwhal stock
3. **Summary:** We successfully surveyed the Admiralty Inlet narwhal stock in August 2010. These survey results will now be used to estimate the numbers visible at the surface. That number will be corrected for availability bias using narwhal dive data to estimate the total size of the stock.
4. **Introduction:** Visual aerial surveys of narwhals were conducted in summers of 2002-2004 throughout the range of narwhals in Nunavut. In 2003-2004, survey estimates for the Admiralty Inlet narwhal population suffered from bias induced by the extreme aggregation in narwhal distribution in Admiralty Inlet, i.e.: few narwhals were seen on transect, but large herds were seen in between transects and were not accurately countable by visual means. Weather conditions were also a problem in both years, and parts of the Inlet could not be surveyed adequately. To provide advice on Total Allowable Harvest, a new survey was required to estimate the population more accurately and precisely. This study was designed to provide such an estimate.
5. **Project Objectives:** The project objectives were: 1) index the numbers of narwhals in the study area, 2) compare that number with previous survey indices, and 3) using dive-corrections from the tagging project, the project will also estimate its present total population size.
6. **Materials and Methods:** We used a combination of stratified line transect sampling and aerial photography of herds. Standard line transect and statistical analyses are used to analyse these results and obtain a new surface population estimate and a current total population estimate for this stock.
7. **Results:** Two surveys of Admiralty Inlet were flown in August 2010. In the first survey, the southern portion could not be completed because of plane mechanical problems but it was completed successfully in the second survey. In both cases, weather conditions were very good and there were a lot of sightings on transects.
8. **Discussion:** The results are being analysed but narwhals were found in significant numbers in all parts of the main body of Admiralty Inlet but were not seen in any of the fiords to the east side.
9. **Management Implications:** The survey numbers will be used to compare with previous surveys and to estimate the sustainability of the present hunt.

**10. Reporting to Communities/Resource Users:** Final results will be reported to the local HTO, QWB, and NWMB as they become available.