

# Harbor porpoise (*Phocoena phocoena*) sightings from shipboard surveys in the Chukchi Sea during summer and fall, 2008-2014

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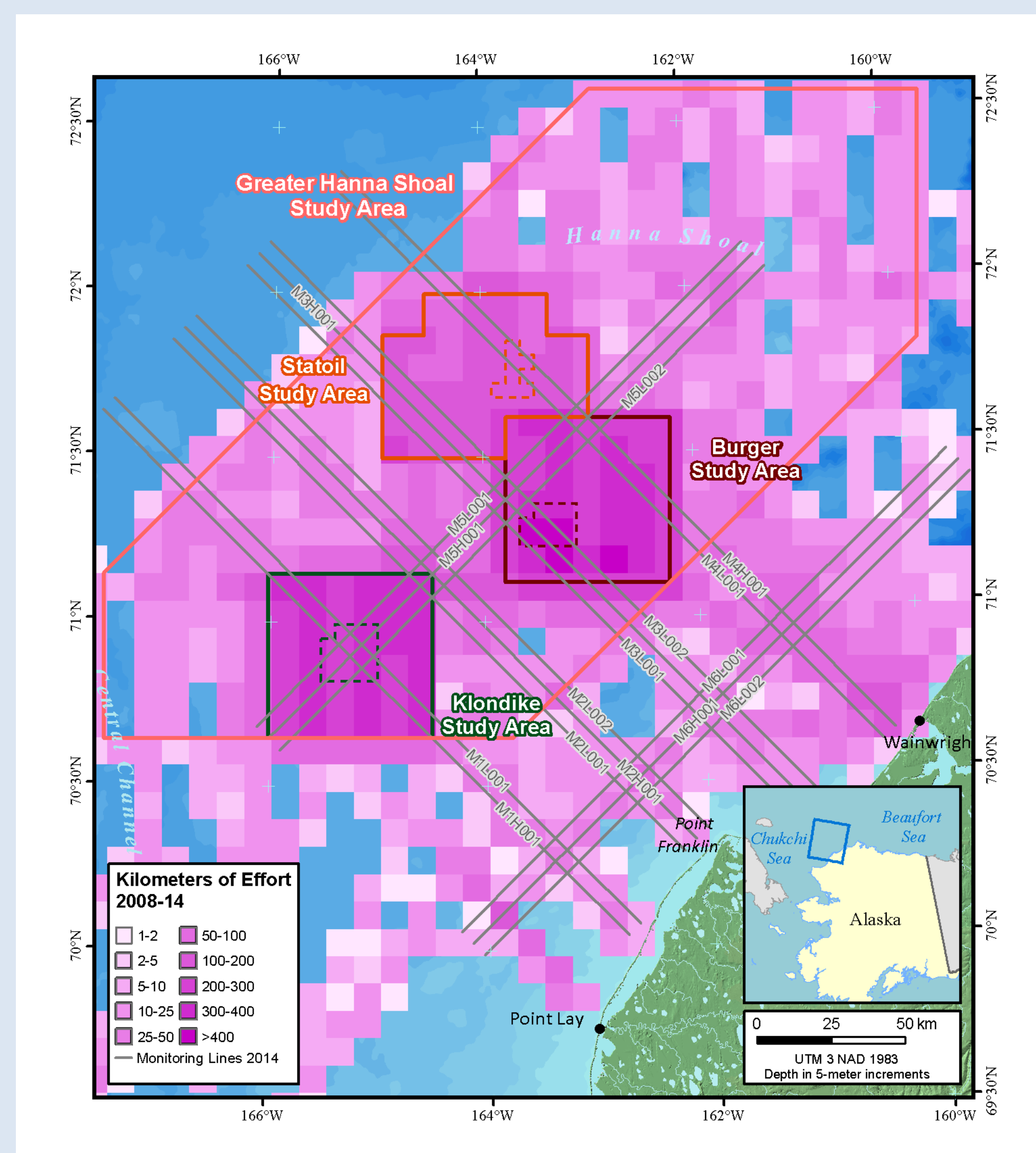
## INTRODUCTION

While harbor porpoises (*Phocoena phocoena*) are known to inhabit coastal and inland waters throughout subarctic regions of Alaska, few studies have documented harbor porpoise presence north of the Bering Strait. Here we present harbor porpoise sightings in the Chukchi Sea from seven years of shipboard marine mammal surveys as part of the Chukchi Sea Environmental Studies Program (CESP).

CESP was a multi-year ecological study that involved multiple scientific disciplines. The overall objective of CESP was to provide ConocoPhillips Company, Shell Exploration & Production Company, and Statoil USA E&P with baseline information about the Chukchi Sea. The program was managed by Olgoonik-Fairweather LLC, and several organizations collectively conducted the research.

## METHODS

Systematic line-transect surveys for marine mammals were conducted in the northeastern Chukchi Sea. The primary survey locations included three study areas centered over leases of interest to the oil and gas companies and a larger area which encompassed the three study areas (Fig. 1). Marine mammal observations were also recorded opportunistically during transits and during sampling for other scientific disciplines.



**Figure 1.** Sampling effort (km) within 5 x 5 nmi grid cells from 2008-2014 CESP surveys. Includes boundaries of primary study areas. Burger and Klondike were surveyed each year from 2008-2013; Statoil was surveyed from 2010-2013; and Greater Hanna Shoal was surveyed in 2011 and 2012. In 2014, sampling occurred along monitoring lines oriented perpendicular and parallel to the shore (gray lines).

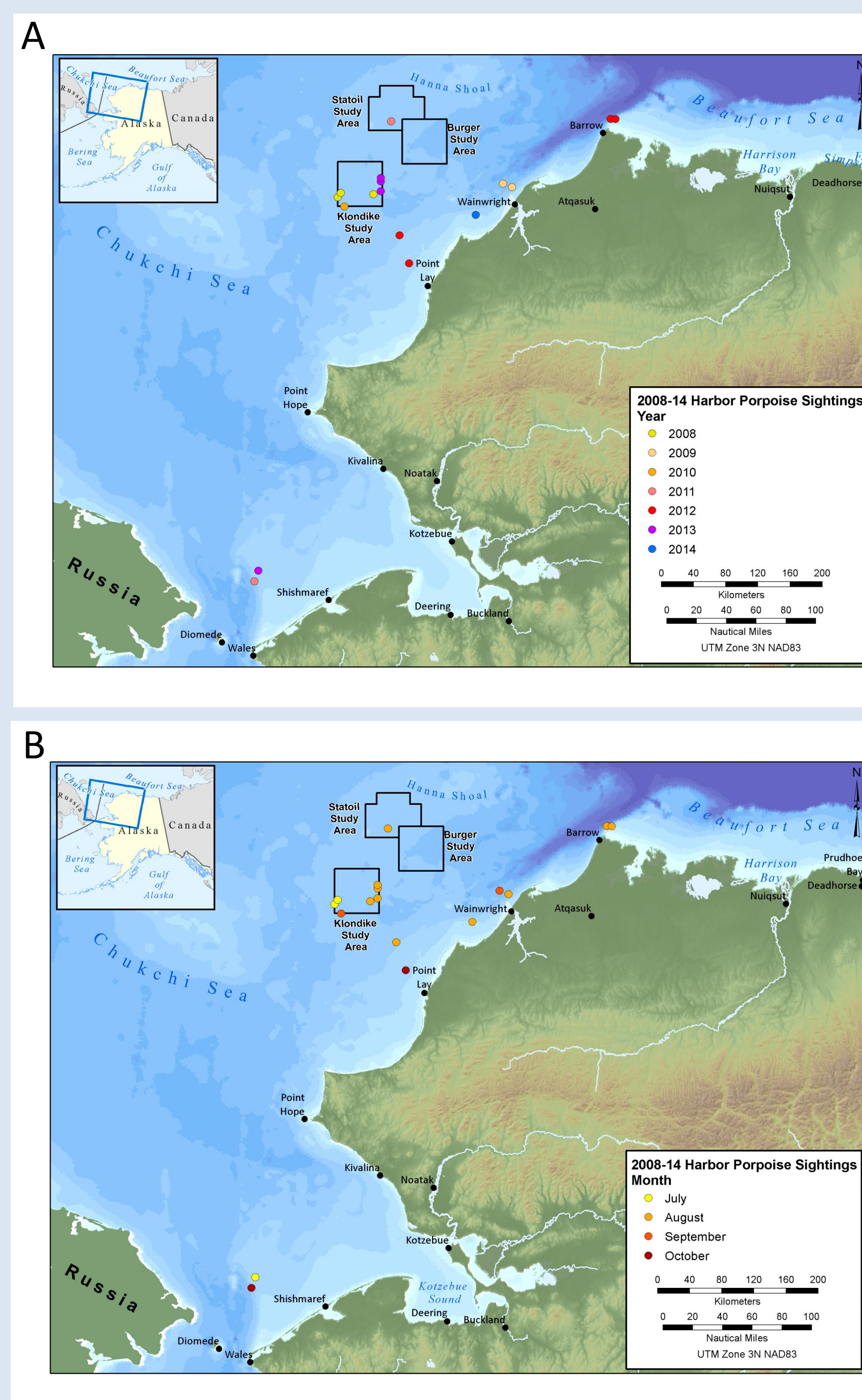
Observers conducted surveys for marine mammals from either the bridge or flying bridge of the research vessel for ~10-14 hours/day (Fig. 2). The observer systematically scanned an area of 180°, centered on the vessel's trackline, while the vessel traveled at speeds ranging from 5-9 knots. Data were also recorded opportunistically during transits and during sampling for other disciplines.



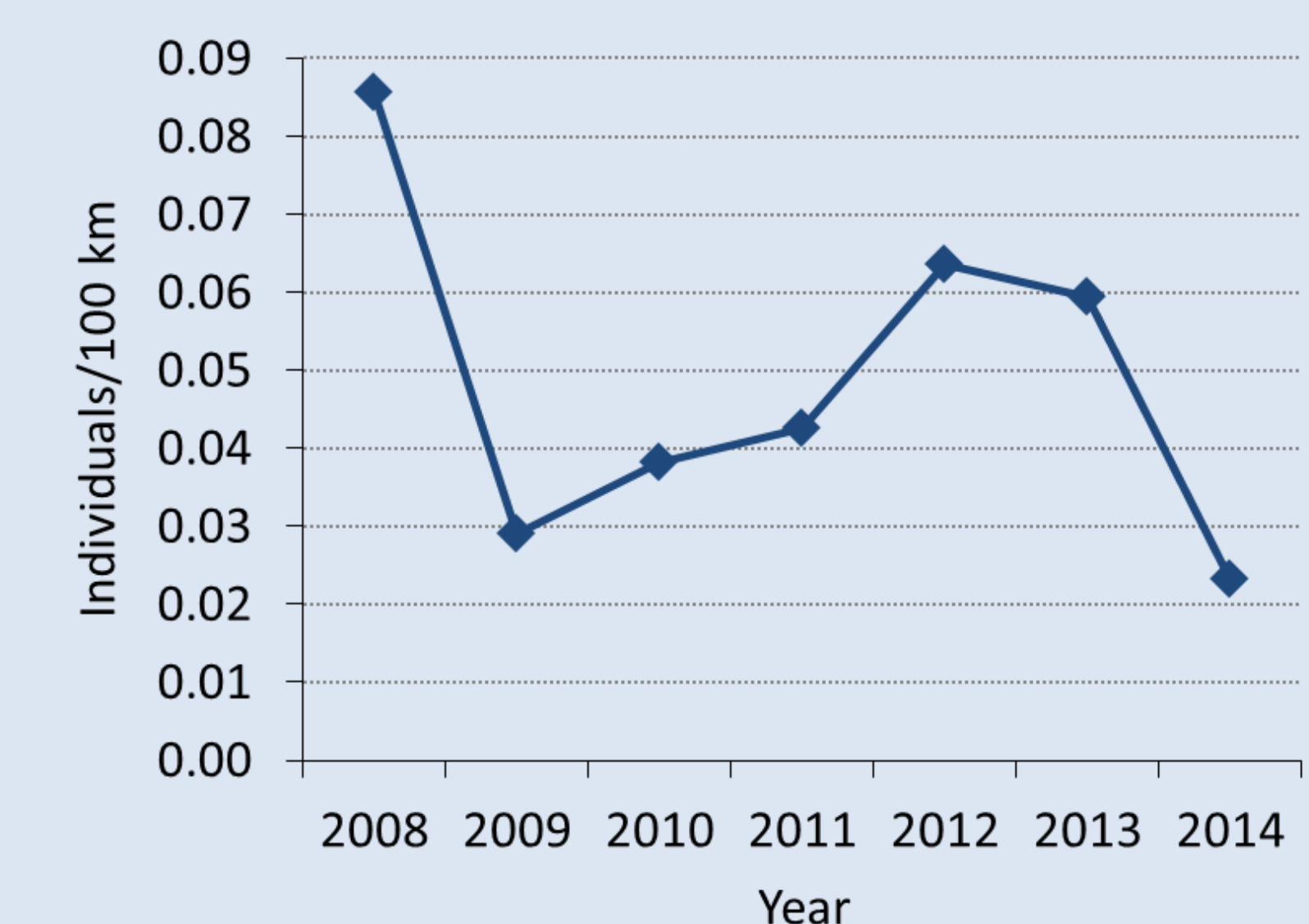
**Figure 2.** The R/V *Westward Wind* was used to conduct surveys each year from 2009-2014 (left). Observer scanning for marine mammals on the flying bridge of the vessel (right).

## HARBOR PORPOISE OBSERVATIONS

- Observed in the Chukchi Sea each year from 2008-2014 (Fig. 3A)
- Seen in July, August, September, and October (Fig. 3B), though timing varied among years
- Recorded both nearshore and offshore, ranging from ~5-160 km (3-86 nmi) from land
- Northernmost sighting recorded at 71°36' N, 164°10' W
- Low sighting numbers, ranging from 1-7 animals per year
- Recorded 27 harbor porpoises in 17 sightings over seven years of surveys
- Annual sighting rates were variable with the highest rates in 2008 and 2012 (Fig. 4)



**Figure 3.** Harbor porpoise (*Phocoena phocoena*) sightings documented in the Chukchi Sea during CESP surveys from 2008-2014. Sightings are depicted by year (A) and month (B).



**Figure 4.** Annual variation of harbor porpoise sighting rates (individuals/100 km) recorded during CESP surveys from 2008-2014.

## HISTORIC AND RECENT RECORDS

Observations of harbor porpoises along the northwestern Alaskan coast have been described as early as the 1930s, with subsequent reports in the 1950s and 1980s [1,2]. More recent harbor porpoise observations in the northeastern Chukchi Sea come from marine mammal data collected during seismic and geohazard surveys [3] as well as other research programs [4]. The observations of harbor porpoises made during this study support the suggestion that harbor porpoises are regular visitors to the Chukchi Sea and that they have continued to use this region in recent years.

## MORE INFORMATION

More detailed information about the Chukchi Sea Environmental Studies Program, including downloadable reports from all disciplines, can be found online at [www.chukchiscience.com](http://www.chukchiscience.com).

## REFERENCES

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