

COMIDA and BWASP Aerial Surveys Conducted by NMML 2009

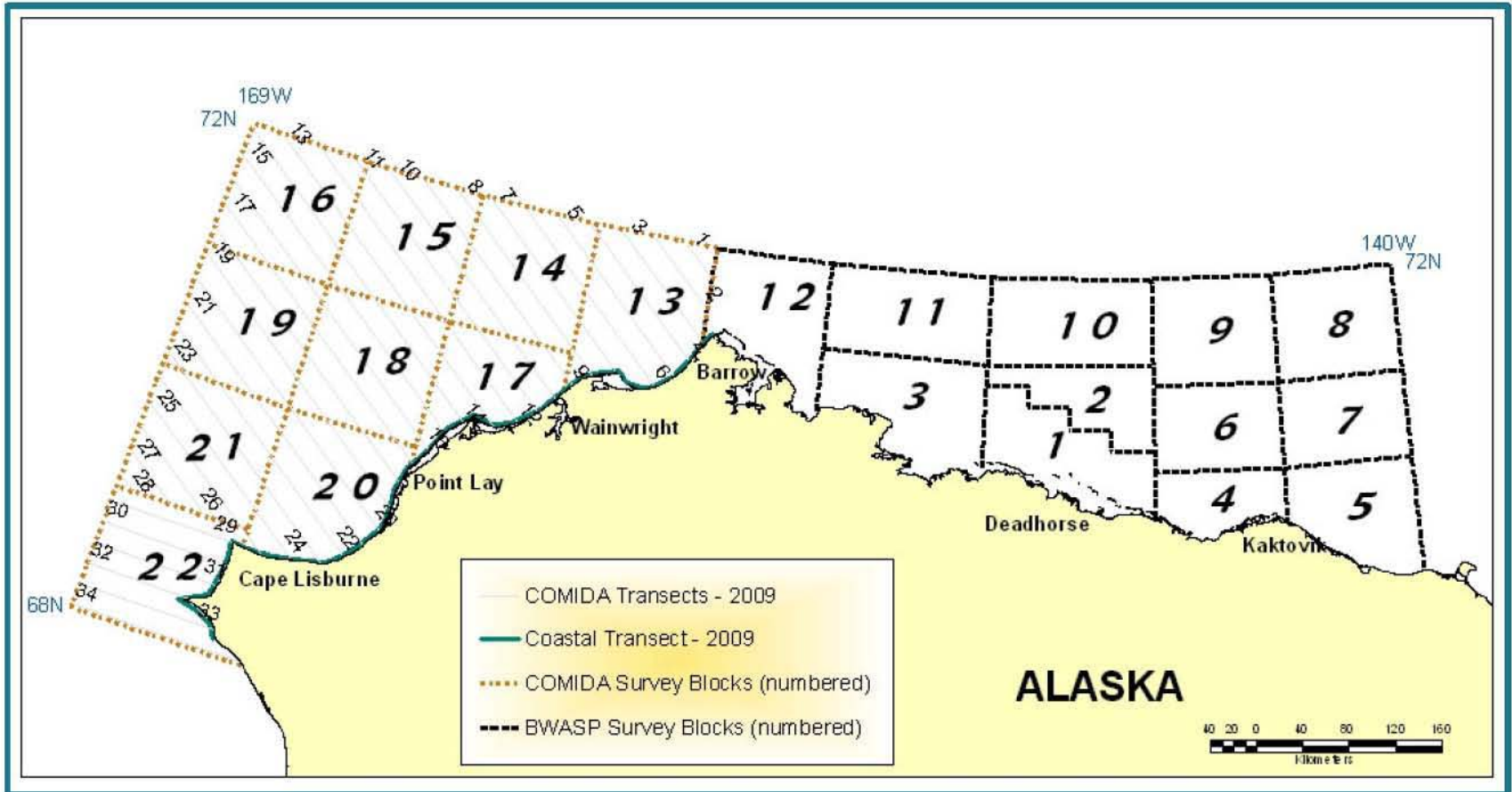
Funded by MMS

Megan Ferguson and Janet Clarke
National Marine Mammal Laboratory

Arctic Open-Water Meeting
24 March 2010



Study Areas



Primary Objectives

- ▶ Monitor bowhead whale migration temporally and spatially
- ▶ Investigate inter-annual variation in bowhead abundance, distribution, habitat and behaviors (e.g., feeding, presence of cow-calf pairs)
- ▶ Collect and communicate information on bowheads and other marine mammal species, including gray whales, belugas, polar bears and pinnipeds

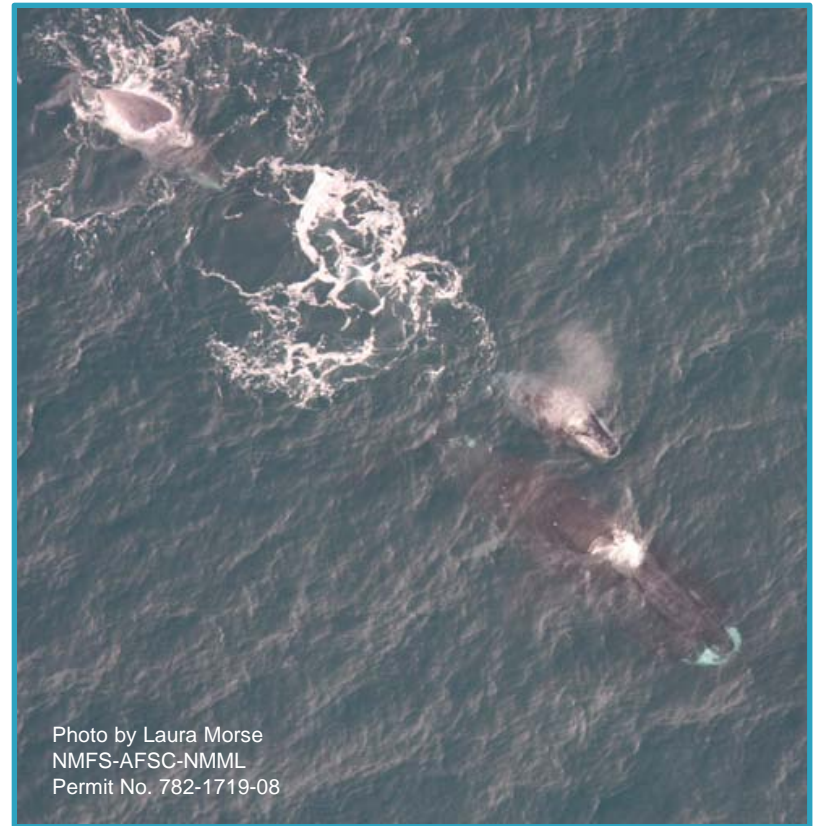


Photo by Laura Morse
NMFS-AFSC-NMML
Permit No. 782-1719-08

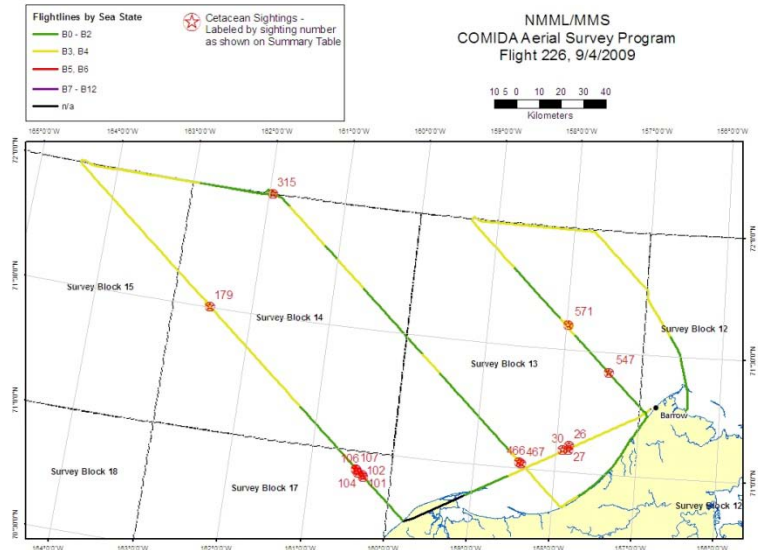
Communication of Information

Daily Flight Summaries posted on NMML and MMS websites to allow for rapid dissemination of information to interested parties.

Bowhead Preliminary Summary, Flight 226 Date: 9/4/2009

| | | |
|---------------------------------------|--|-------------------------------|
| Total bowheads: 1 | Start time: 9/4/2009 9:14:03 AM | End time: 9/4/2009 2:06:46 PM |
| Bowhead sightings: 1 | Transect minutes: 176 | Transect km: 615.6 |
| Bowheads on transect: 1 | Circling minutes: 21 | Circling km: 63.7 |
| Bowhead Cow-calf pairs: 0 | Trans+Circ minutes: 197 | Trans+Circ km: 679.3 |
| Bowhead Cow-calf Pairs on transect: 0 | Search minutes: 87 | Search km: 308.1 |
| Bowhead repeats: 0 | Total minutes: 292 | Total km: 1017.4 |
| Possible repeats: 0 | Deadhead minutes: 8 | Deadhead km: 30 |
| Total gray whales: 14 | Search blocks: 12, 13, 15, 0, 14 | |
| Total belugas: 0 | Transect blocks: 13, 17, 14, 15, 0, 12 | |
| Other whale sightings: 1 | | |
| Total walrus: 70 | | |
| Total bear: 0 | | |

| Event | Lat | Long | Block | Species | Total | Repeat | Calves | Swim direction | Swim Speed | Behavior | On effort |
|-------|-------|---------|-------|------------|-------|--------|--------|----------------|------------|----------|-----------|
| 26 | 71.1 | -157.82 | 13 | gray whale | 1 | . | 0 | -1 | . | . | False |
| 27 | 71.1 | 157.85 | 13 | gray whale | 1 | . | 0 | 181 | . | feed | False |
| 30 | 71.09 | 157.91 | 13 | gray whale | 2 | . | 0 | -1 | . | swim | False |
| 101 | 70.9 | 160.33 | 17 | ε | | | | | | | |
| 102 | 70.91 | 160.35 | 17 | ε | | | | | | | |
| 104 | 70.92 | -160.4 | 17 | ε | | | | | | | |
| 106 | 70.93 | 160.42 | 17 | ε | | | | | | | |
| 107 | 70.93 | 160.43 | 17 | ε | | | | | | | |
| 179 | 71.51 | 162.53 | 14 | ε | | | | | | | |
| 315 | 71.99 | 161.95 | 14 | ε | | | | | | | |
| 571 | 71.6 | 157.99 | 13 | ε | | | | | | | |
| 466 | 71.03 | 158.44 | 13 | ε | | | | | | | |
| 467 | 71.02 | 158.41 | 13 | ε | | | | | | | |
| 547 | 71.42 | 157.41 | 13 | ε | | | | | | | |

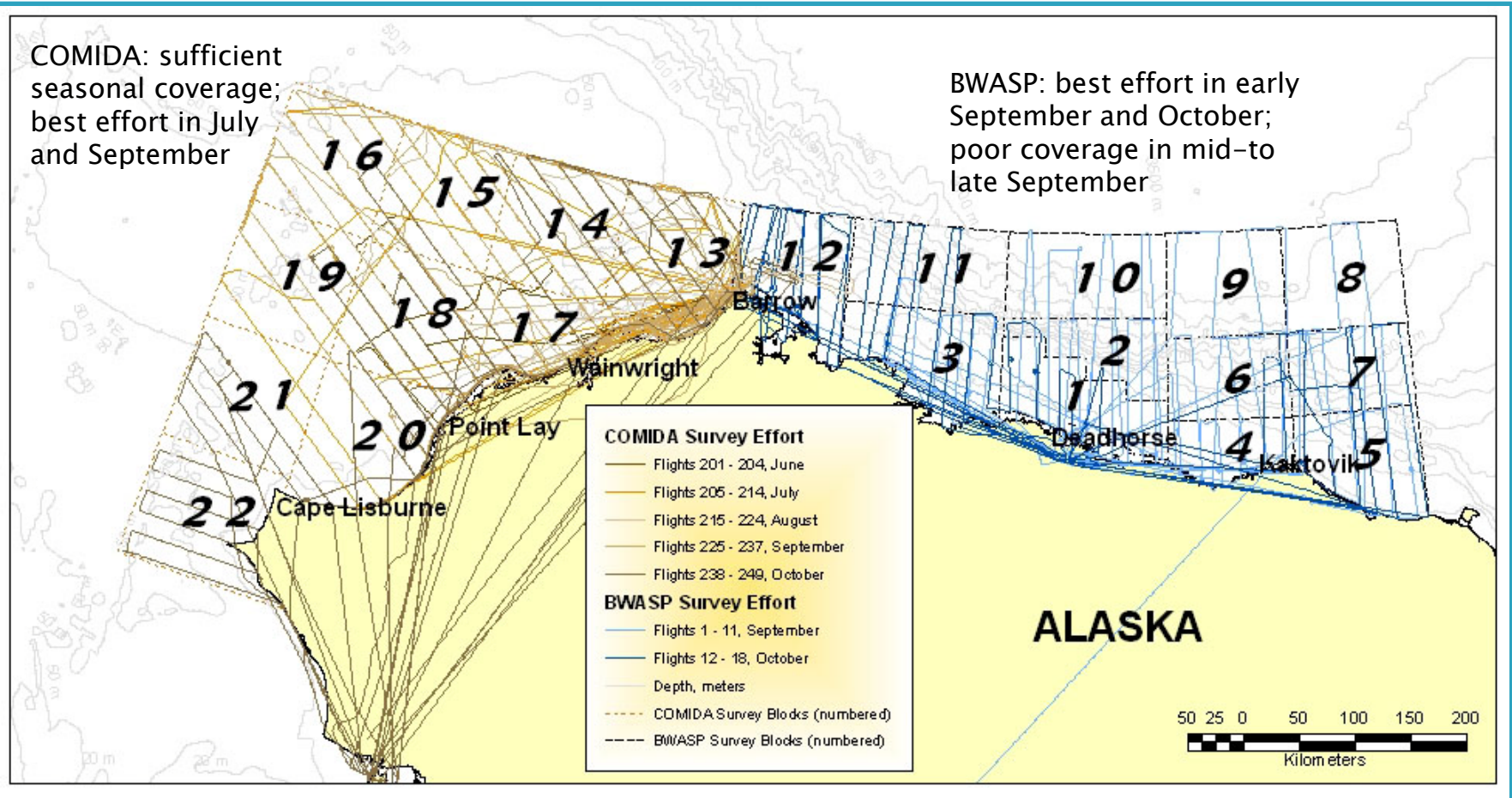


<http://www.afsc.noaa.gov/nmml/cetacean/bwasp/index.php>

2009 Flight Effort

COMIDA: sufficient seasonal coverage; best effort in July and September

BWASP: best effort in early September and October; poor coverage in mid-to late September



2009 Effort

| BWASP | Total Time (hr) | Transect Time (hr) | Surveyable Time (hr) | Deadhead Time (hr) | Total Distance (km) | Transect Distance (km) |
|---------------|------------------------|---------------------------|-----------------------------|---------------------------|----------------------------|-------------------------------|
| 1-15 Sept | 34.0 | 19.6 | 27.6 | 6.4 | 7197 | 3989 |
| 16-30 Sept | 18.4 | 6.6 | 9.7 | 8.7 | 4143 | 1340 |
| 1-18 Oct | 40.6 | 17.0 | 28.8 | 11.8 | 7608 | 3569 |
| Subtotal | 93 | 43.2 | 66.1 | 26.9 | 18,948 | 8,898 |
| COMIDA | | | | | | |
| June | 16.5 | 5.6 | 11.3 | 5.3 | 3,366 | 1,202 |
| July | 53.7 | 24.3 | 44.4 | 9.3 | 11,326 | 5,163 |
| August | 38.0 | 18.0 | 36.0 | 2.0 | 8,006 | 3,753 |
| September | 63.6 | 34.0 | 51.8 | 11.8 | 13,713 | 6,985 |
| October | 68.4 | 21.1 | 31.6 | 36.8 | 15,608 | 4,329 |
| Subtotal | 240.2 | 103.0 | 175.1 | 65.2 | 52,019 | 21,432 |
| Total | 333.2 | 146.2 | 241.2 | 92.1 | 70,967 | 30,330 |

2009 Sightings

Total # of Sightings/Total # of Individuals

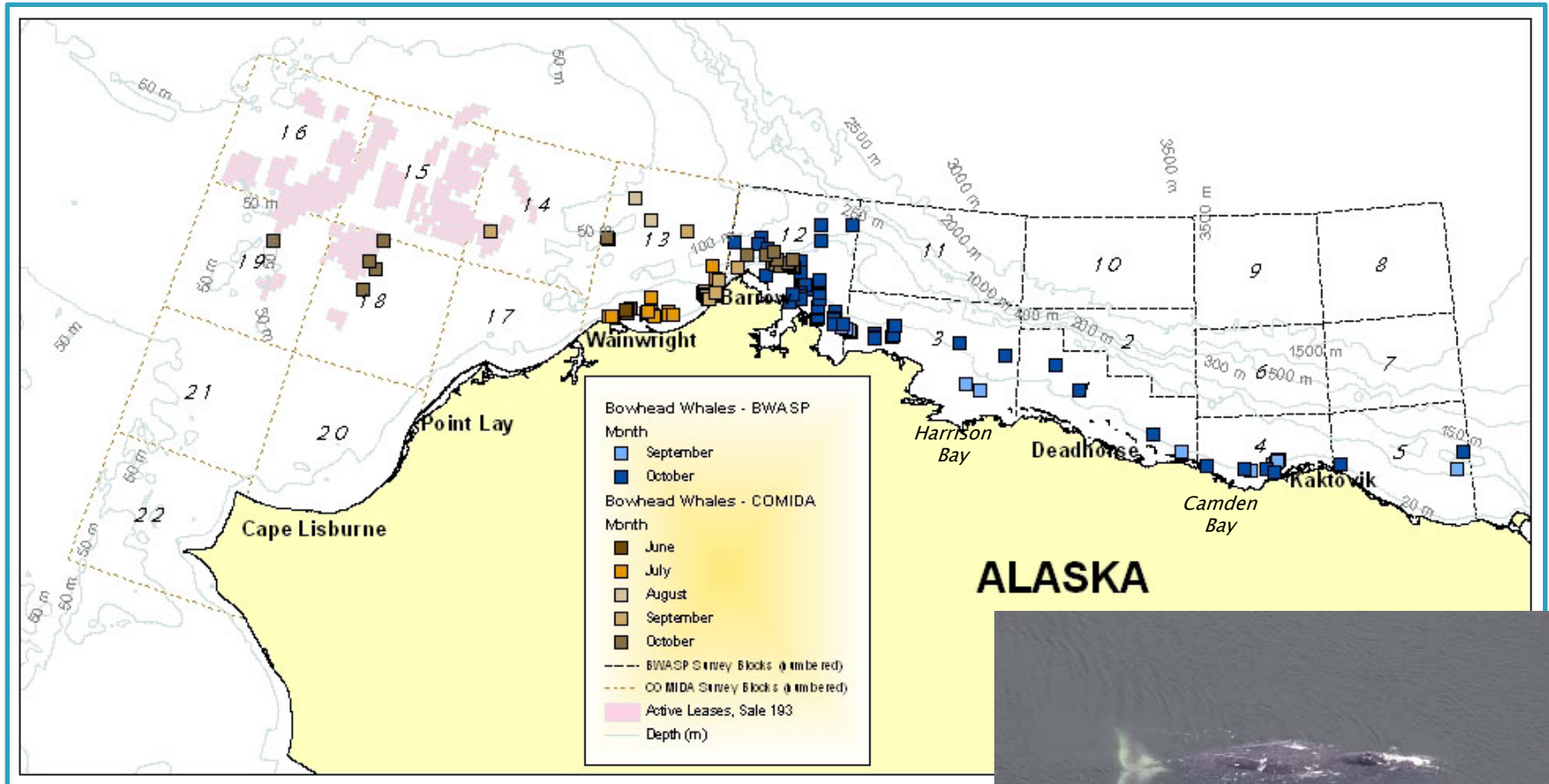
| BWASP | Bowhead Whale | Gray Whale | Humpback Whale | Unid. Whale* | Beluga | Harbor Porpoise | Walrus | Unid. Pinniped** | Bearded Seal | Polar Bear |
|---------------|----------------|----------------|----------------|--------------|---------------|-----------------|-------------------|------------------|---------------|--------------|
| September | 19/30 | 0/0 | 0/0 | 2/2 | 10/28 | 0/0 | 0/0 | 132/576 | 15/18 | 12/21 |
| October | 58/354 | 0/0 | 0/0 | 0/0 | 40/411 | 1/1 | 0/0 | 230/358 | 26/26 | 2/22 |
| Subtotal | 78/384 | 0/0 | 0/0 | 2/2 | 50/439 | 1/1 | 0/0 | 362/934 | 41/44 | 14/43 |
| COMIDA | | | | | | | | | | |
| June | 6/17 | 18/28 | 0/0 | 1/1 | 1/1 | 0/0 | 54/1,390 | 38/48 | 12/12 | 0/0 |
| July | 13/27 | 114/176 | 1/1 | 35/47 | 8/311 | 0/0 | 226/7,817 | 125/166 | 15/15 | 1/1 |
| August | 2/2 | 83/129 | 0/0 | 28/33 | 0/0 | 0/0 | 231/1,913 | 28/40 | 5/5 | 1/1 |
| September | 11/23 | 34/37 | 0/0 | 4/4 | 0/0 | 0/0 | 148/10,860† | 73/159 | 17/19 | 2/2 |
| October | 20/37 | 14/20 | 0/0 | 8/11 | 13/113 | 0/0 | 5/9 | 85/222 | 7/7 | 0/0 |
| Subtotal | 52/106 | 266/390 | 1/1 | 76/96 | 22/425 | 1/1 | 664/21,989† | 349/635 | 56/58 | 4/4 |
| TOTAL | 130/490 | 263/390 | 1/1 | 78/98 | 72/864 | 1/1 | 664/21,989 | 711/1,569 | 97/102 | 18/47 |

* includes any cetacean that could not be identified to species, regardless of size

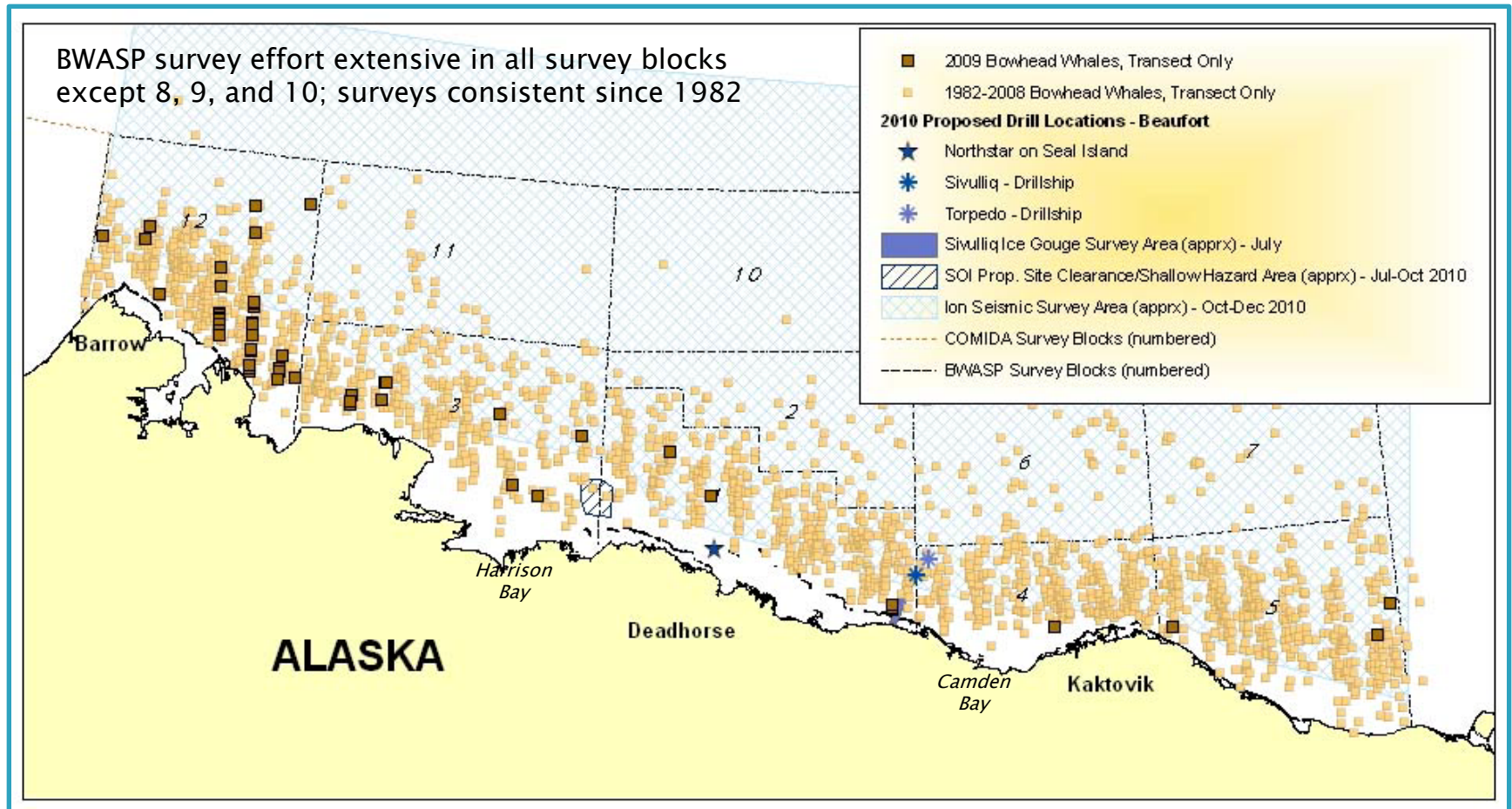
** includes any pinniped that could not be identified to species, regardless of size

† includes two repeat sightings (of 7,500 walrus) at Icy Cape haulout

2009 Bowhead Whale Sightings



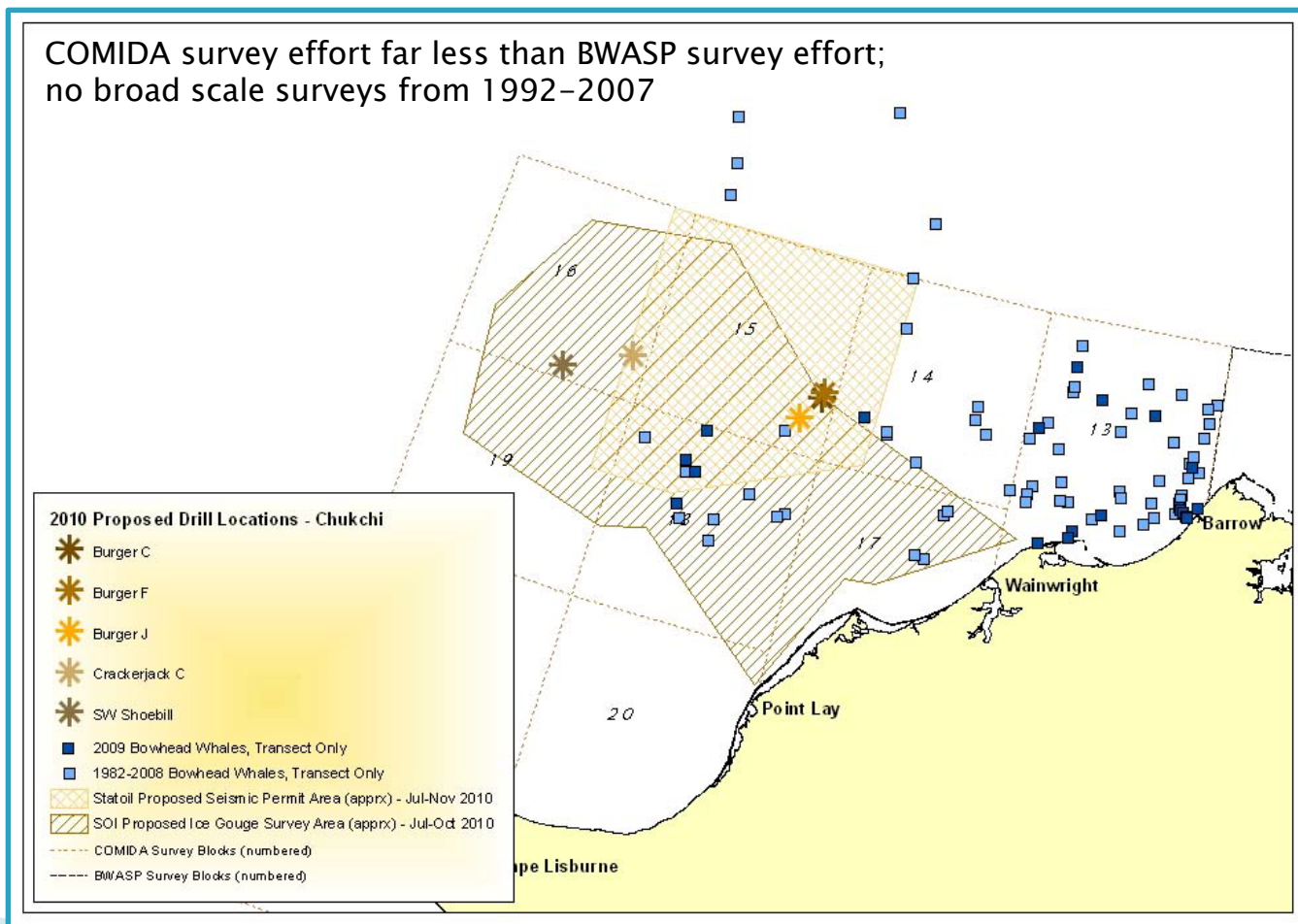
1982–2009 BWASP Bowhead Whale Sightings* In Relation to 2010 Proposed Offshore Activities



* transect only

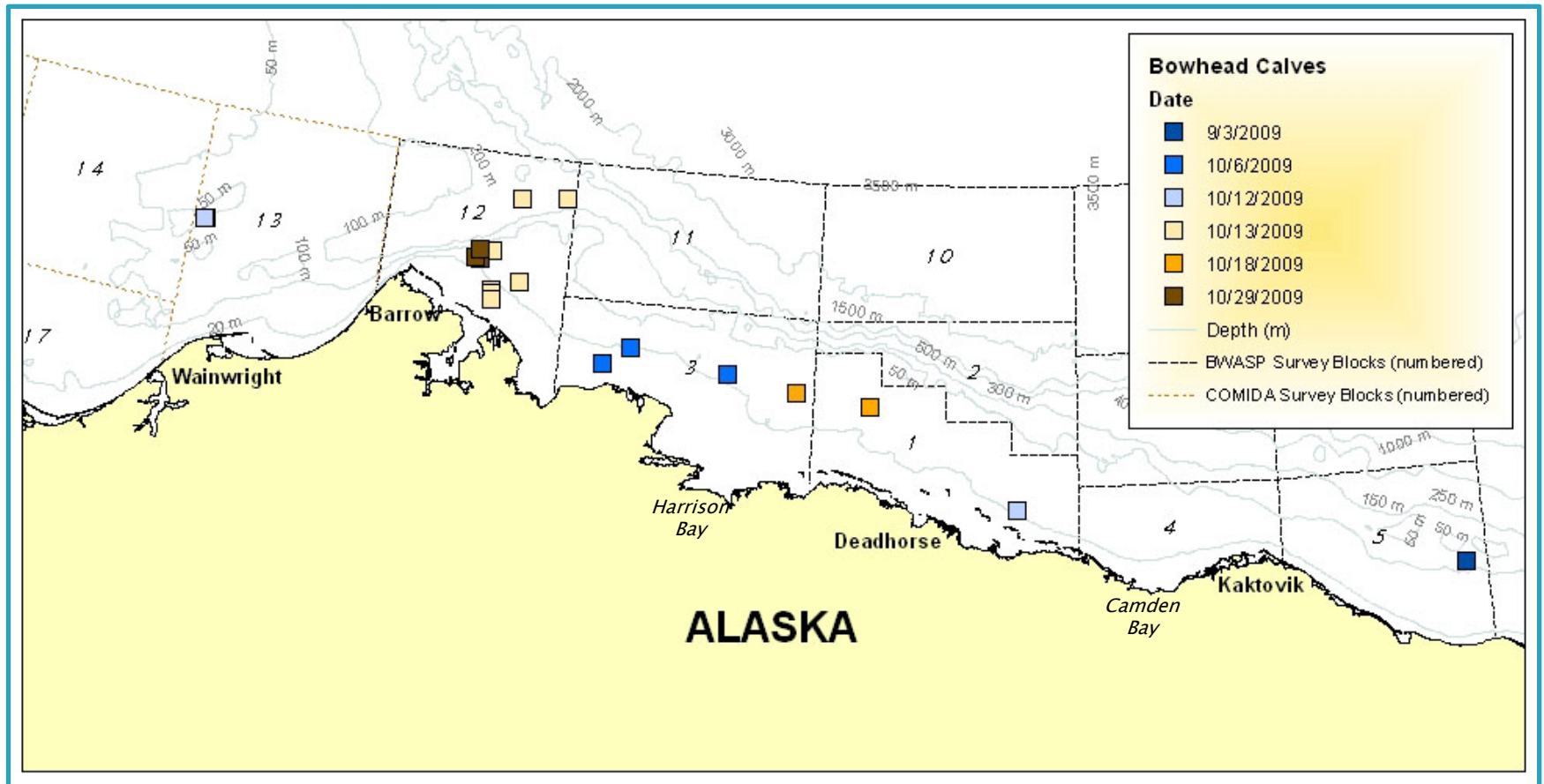
1982–1991, 2008–2009 COMIDA Bowhead Whale Sightings*

In Relation to 2010 Proposed Offshore Activities



* transect only

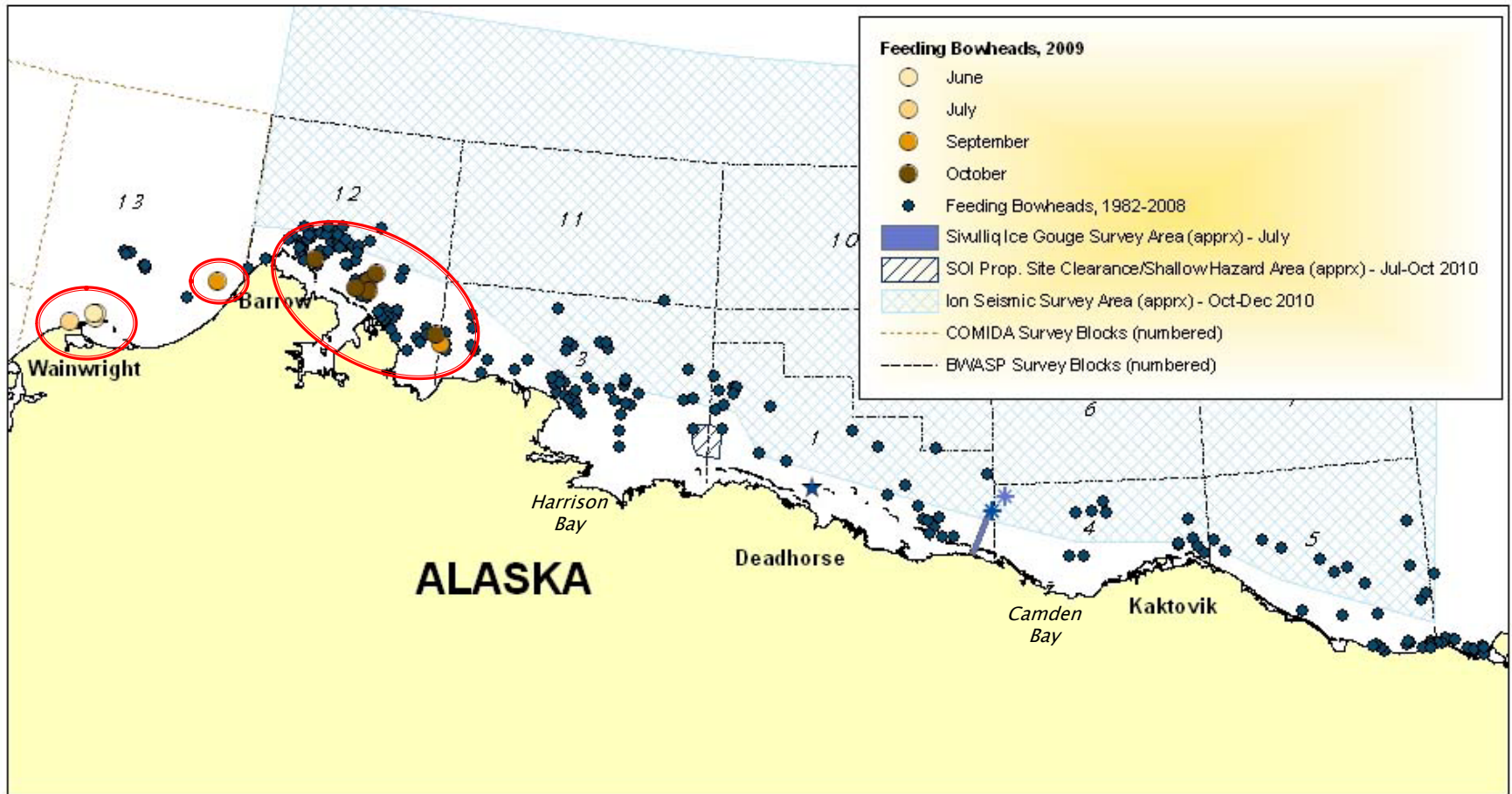
2009 Bowhead Cow-Calf Pairs



19 Calves

1982–2009 Feeding Bowheads

(as recorded)



Feeding Bowhead Whales



Photo by Laura Morse
NOAA-AFSC-NMML
Permit No. 782-1719-09

Milling, no directed movement, birds present



Brenda K. Rone
NOAA-AFSC/NMML
Permit No. 782-1719-09

Mouths open at surface



Photo by Cynthia Christman
NOAA-AFSC-NMML
Permit No. 782-1719-09

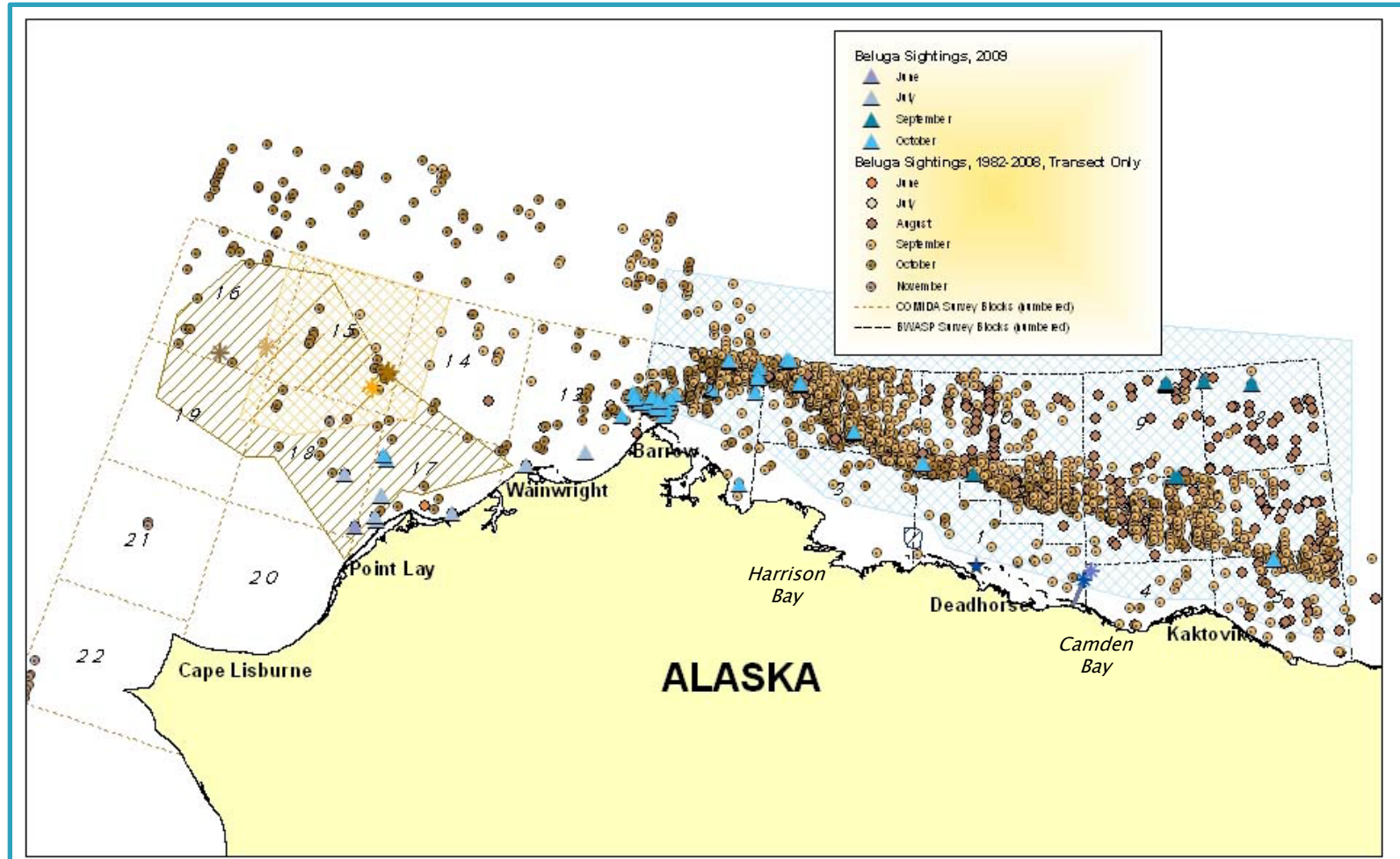
Mud on rostrum



Photo by Gary Friedrichsen
NOAA/NMFS/AFSC/SMML
Permit No. 782-1719-09

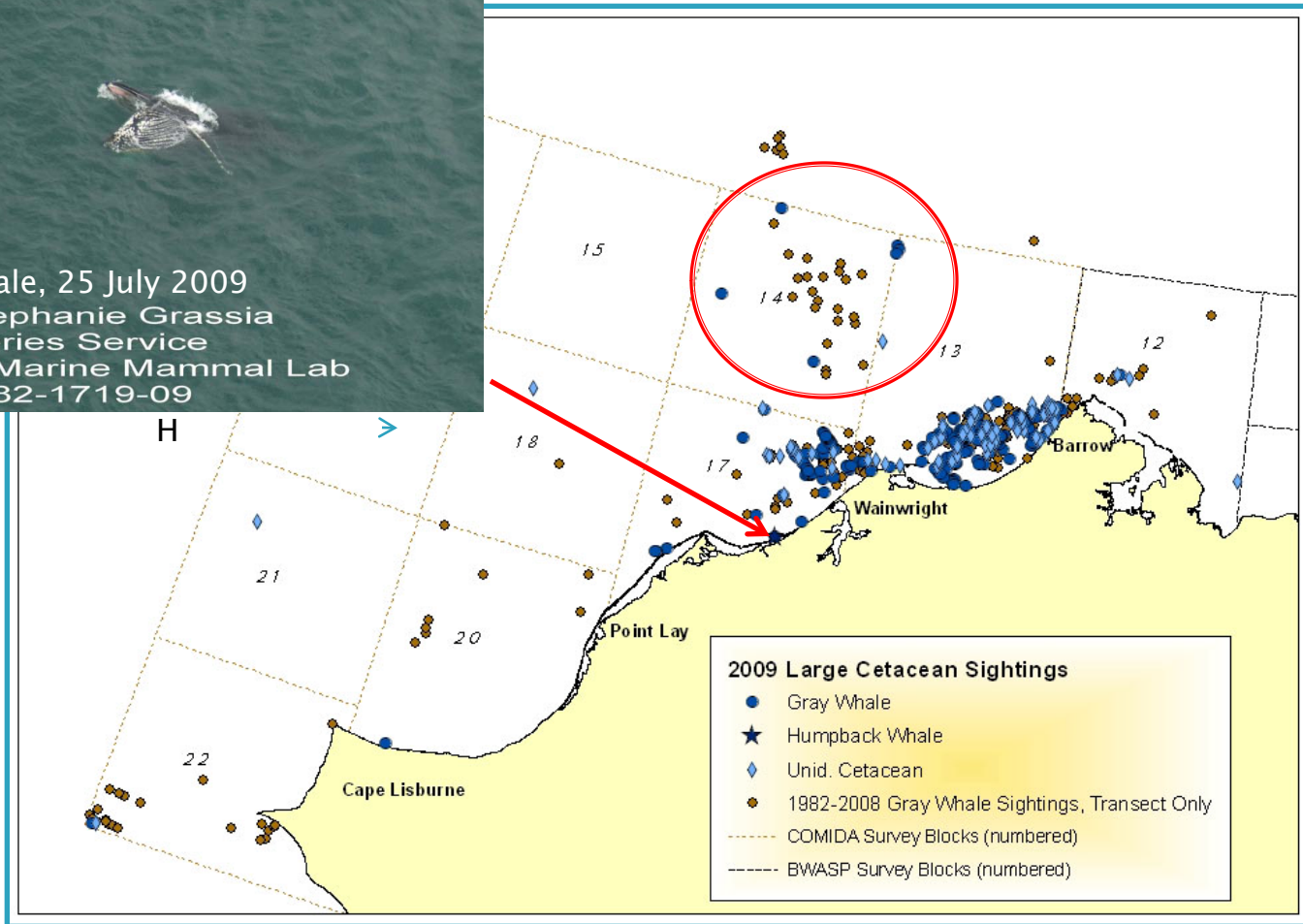
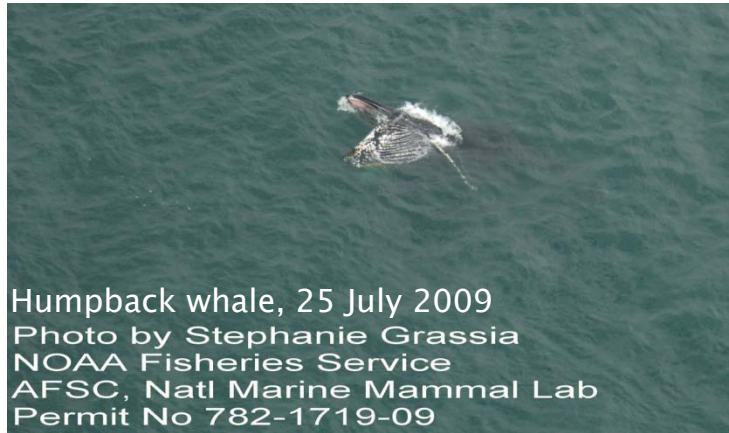
Rostrum above surface; mouth open

1982–2009 Beluga Distribution



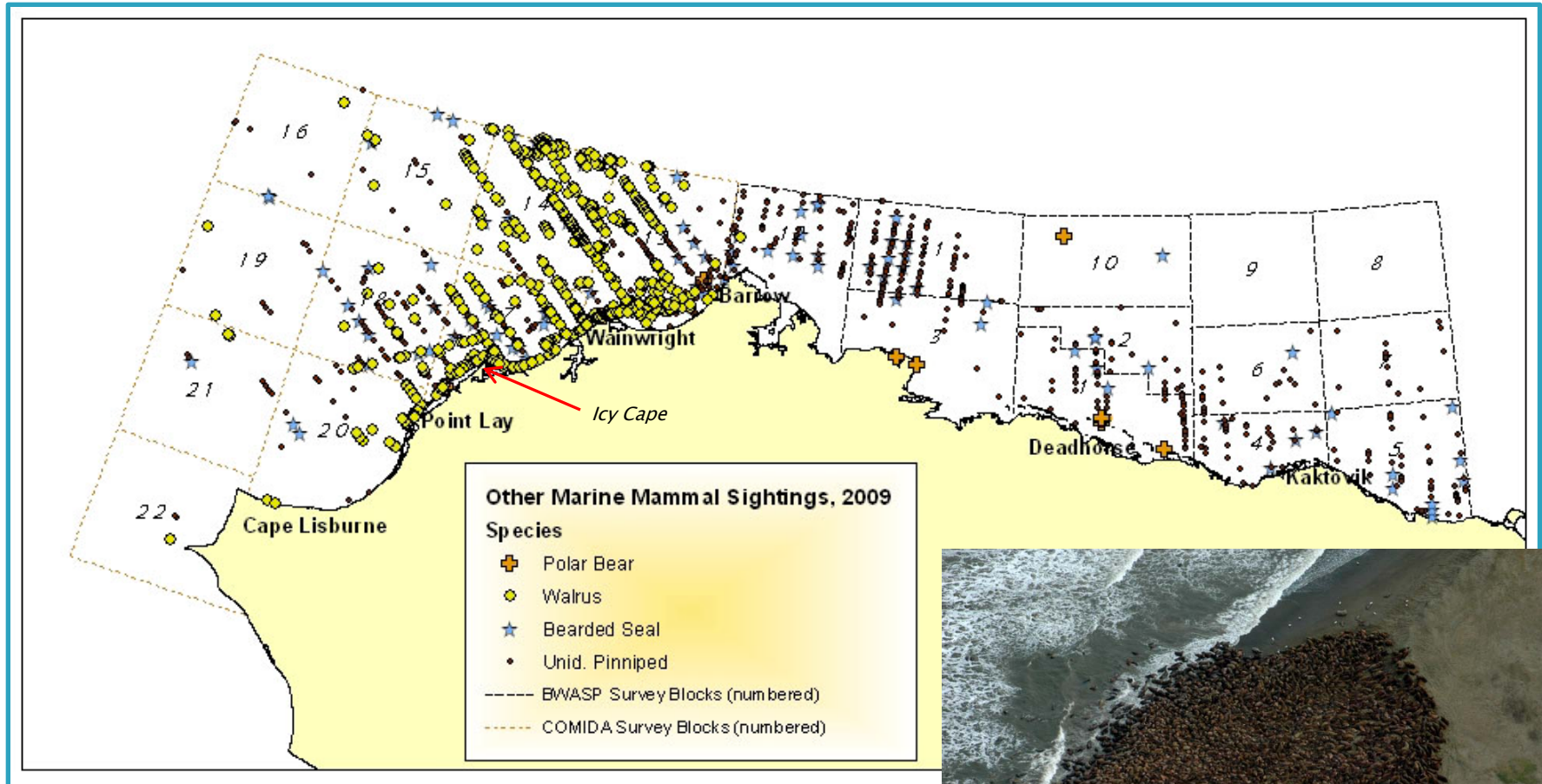
1982–2008 beluga sightings on transect only;
greater survey effort in BWASP area compared to COMIDA area

2009 Gray Whale and Other Large Whale Sightings, with 1982-1991, 2008 Historical Gray Whale Sightings



1982-2008 gray whale sightings on transect only

2009 Other Marine Mammal Sightings



Walrus haulout on Icy Cape, 2-13 September 2009



2010 Plans

- ▶ COMIDA
 - Dates: 1 July to ~22 October
 - Base: Barrow
- ▶ BWASP
 - Dates: 31 August to 20 October
 - Base: Deadhorse

Acknowledgements



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- ▶ NOAA AOC: Nancy Ash, Sean Campbell, Dave Cowan, Chris Daniels, Jon French, Brad Fritzler, Nickie Lambert, Jason Mansour, Mike Merek, Ron Moyer, Ron Pauley, Scott Sandorf
- ▶ Northern Commander: Andy Harcombe, Will Vacendak
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