

SOCIAL ORGANIZATION & DISTRIBUTION PATTERNS OF THE EASTERN BEAUFORT SEA BELUGAS



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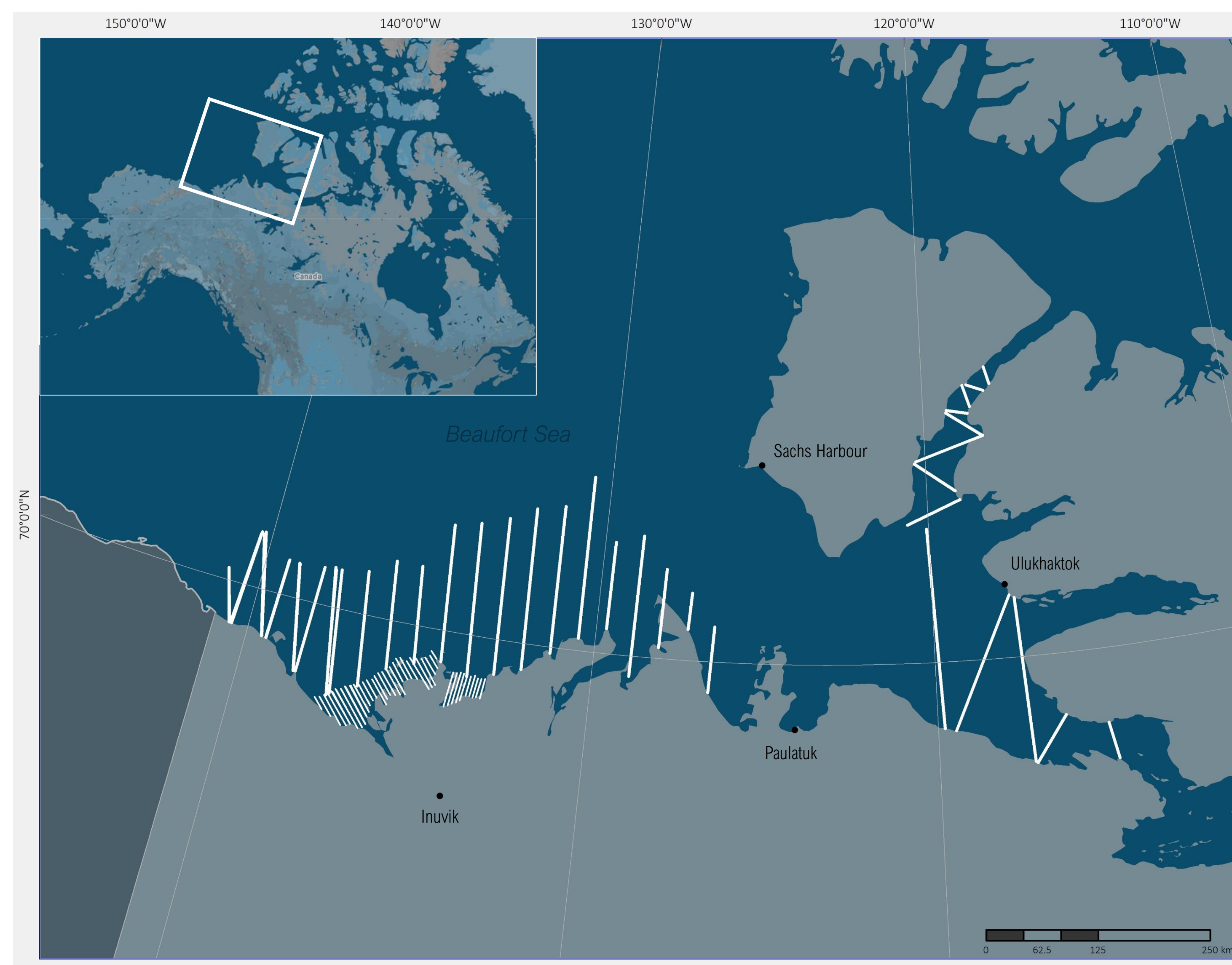
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CONTEXT

- Eastern Beaufort Sea beluga population is one of the largest in Canada¹.
- Belugas (*Delphinapterus leucas*) are social animals with complex relationships. Unlike some other whales (sperm, humpback, killer²⁻⁴), social interactions among belugas is poorly understood.
- Sexual segregation has been observed^{5,6}
 - Inshore: Females and calves in large aggregations
 - Offshore: Adult males in small groups (1-3)
- Wide summer range across the Beaufort Sea up to the Mackenzie Delta and Amundsen Gulf → Lack of studies about social behavior of this population

OBJECTIVE : Describe social organization and distribution patterns of the Eastern Beaufort Sea beluga population using aerial photos and Inuvialuit knowledge.



Transects flown during the 2019 Beaufort Sea beluga survey
July 21 to August 2, 2019

AERIAL SURVEY



OFFSHORE	INSHORE
Beaufort Sea	Shallow Bay
Amundsen Gulf	Mackenzie Bay
Prince of Wales Strait	Kugmallit Bay



67H 52 MIN OF FLIGHT
103 764 km² covered

*total survey time flying, including transit time

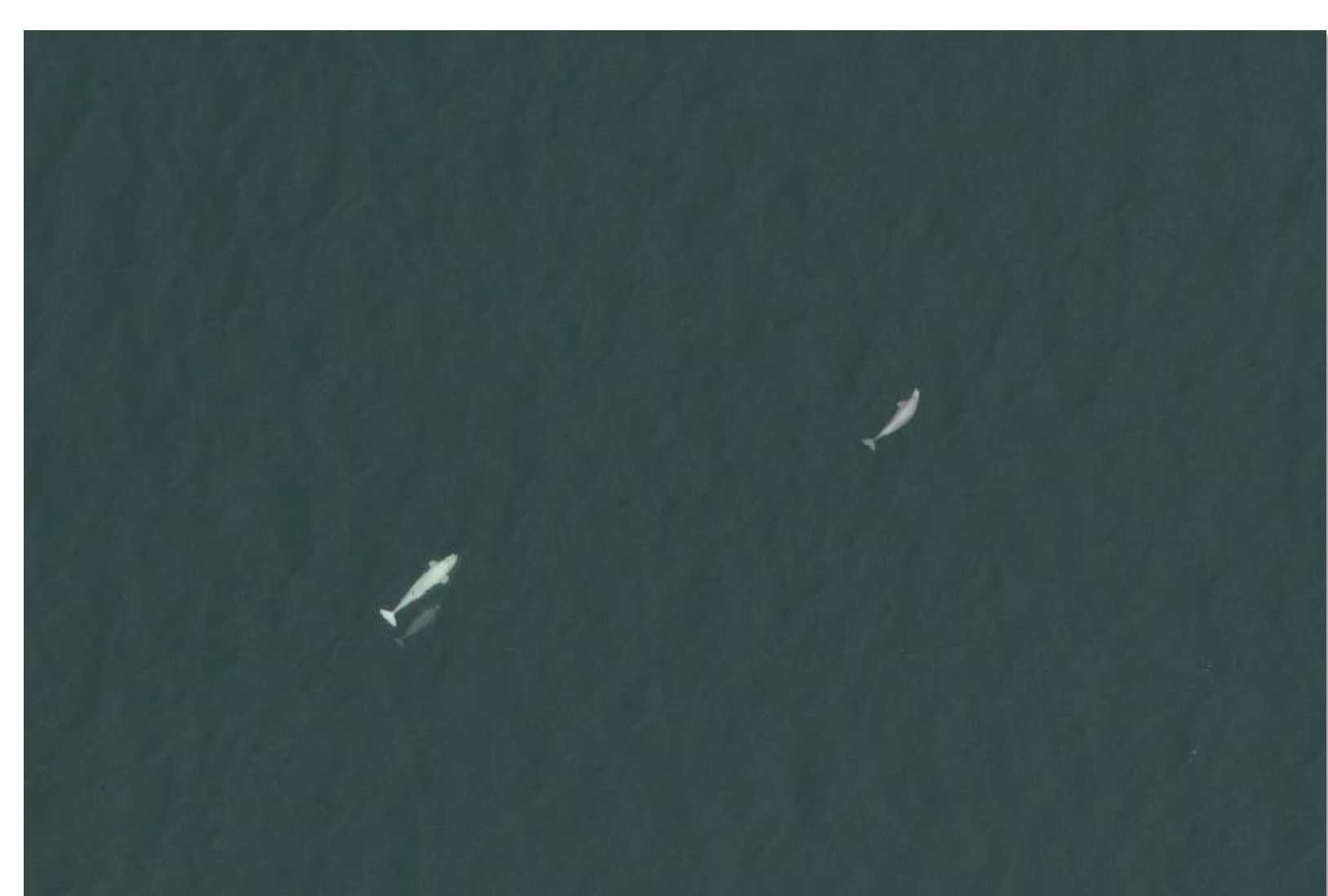
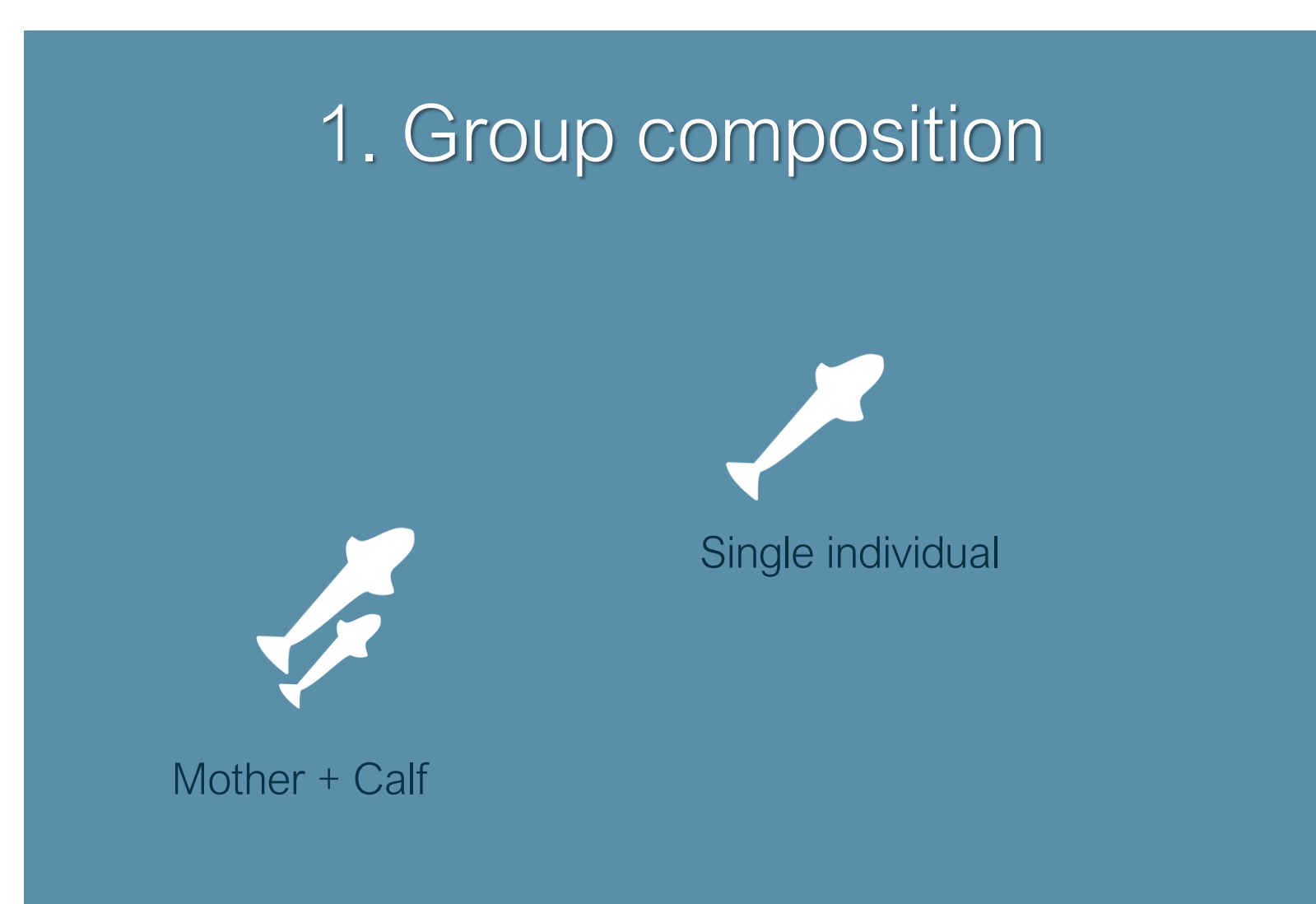
Continuous 3 sec interval on **offshore** (1000 ft.)
7 sec interval on **inshore** (2000 ft.)



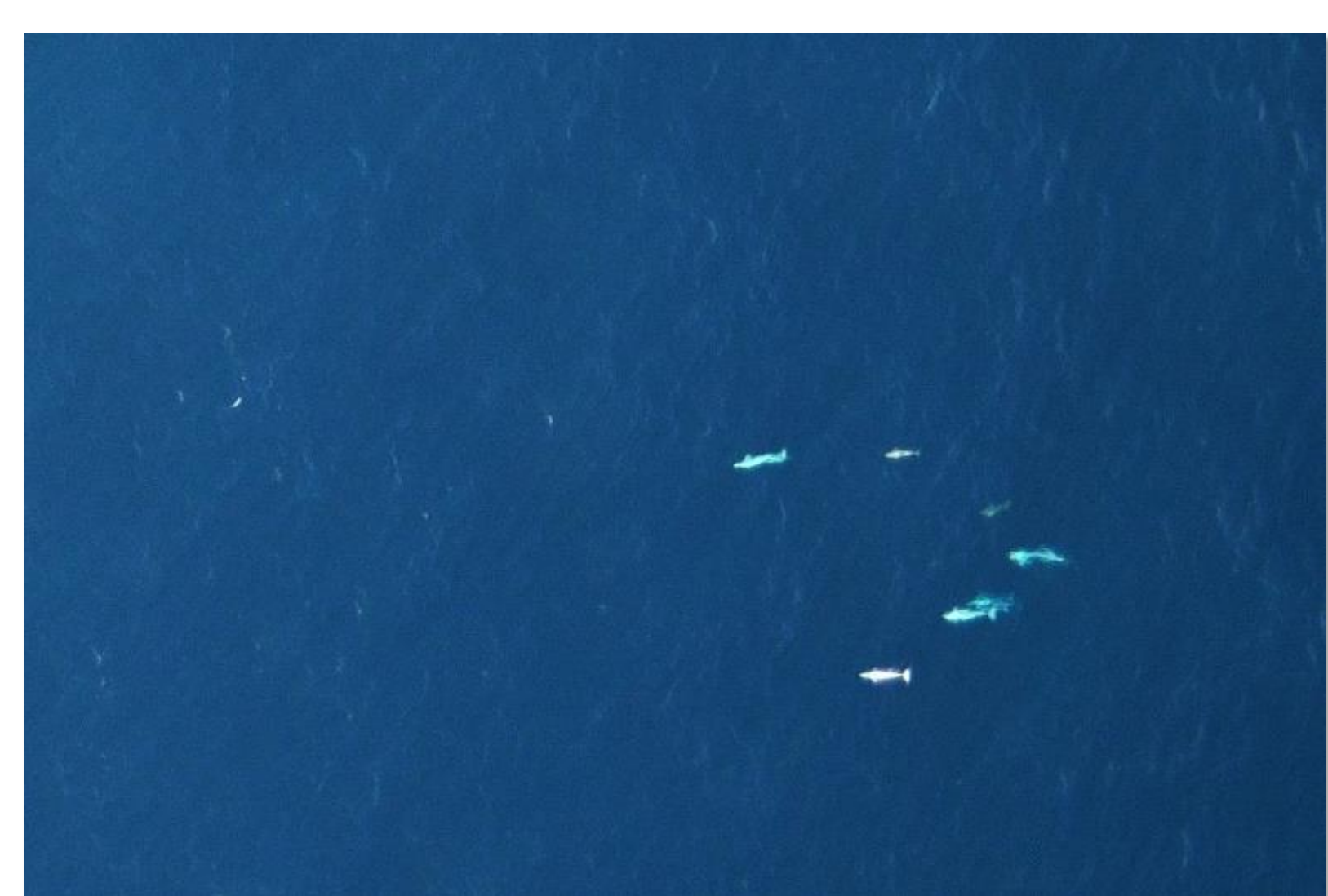
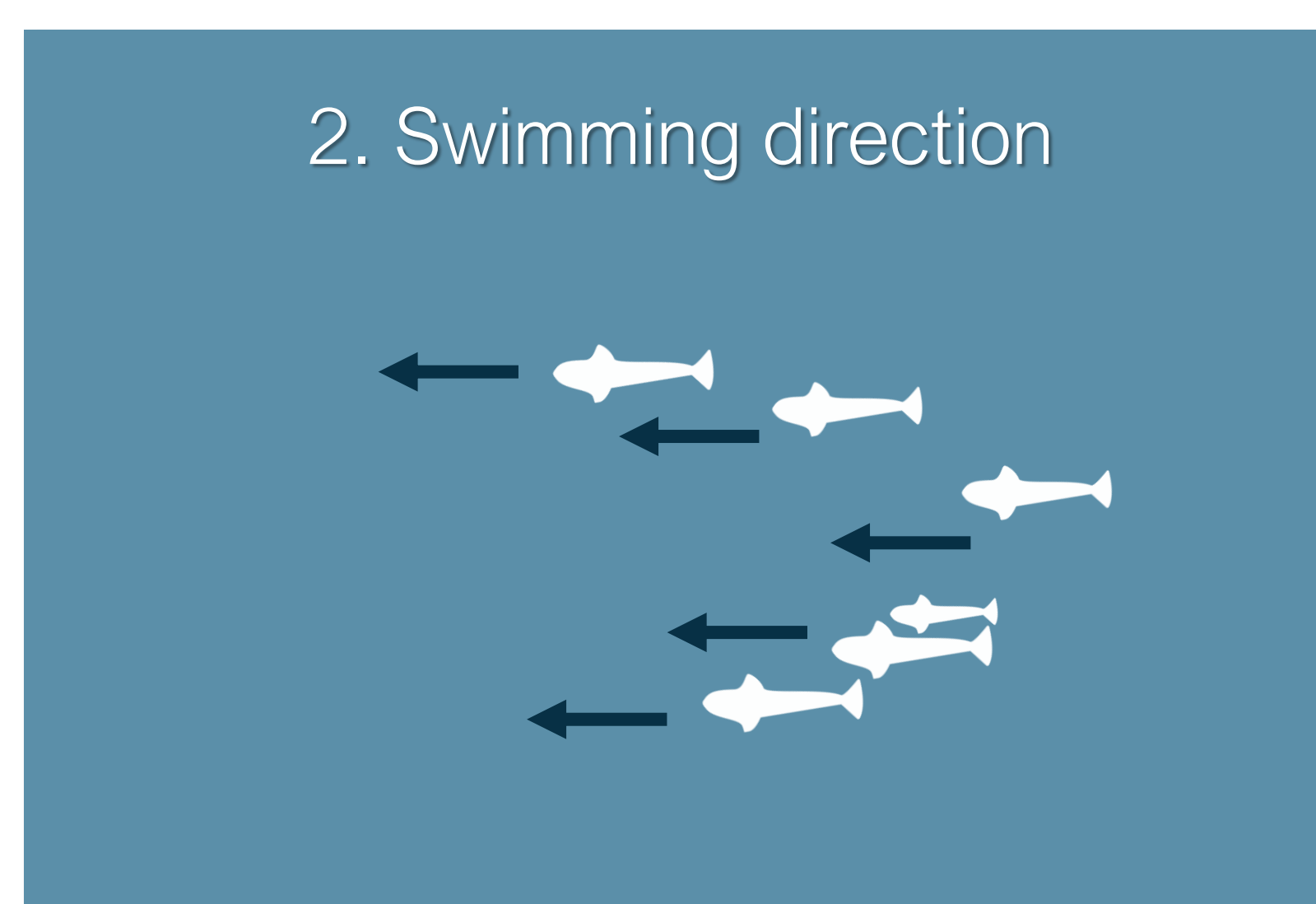
PHOTOS ANALYSIS

1. Georeferencing of beluga's position inshore & offshore
2. Characterization of groups according to the following three parameters:

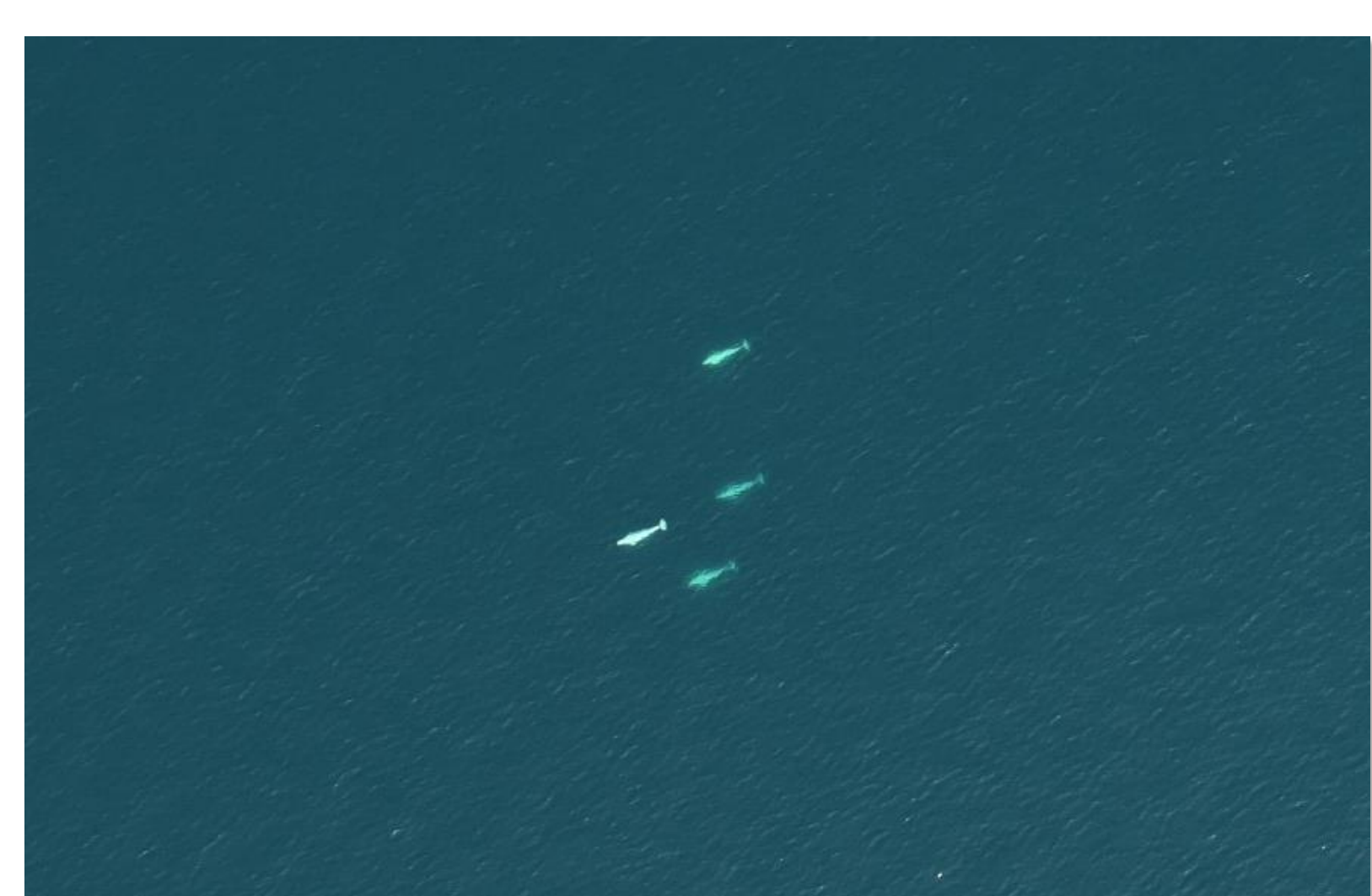
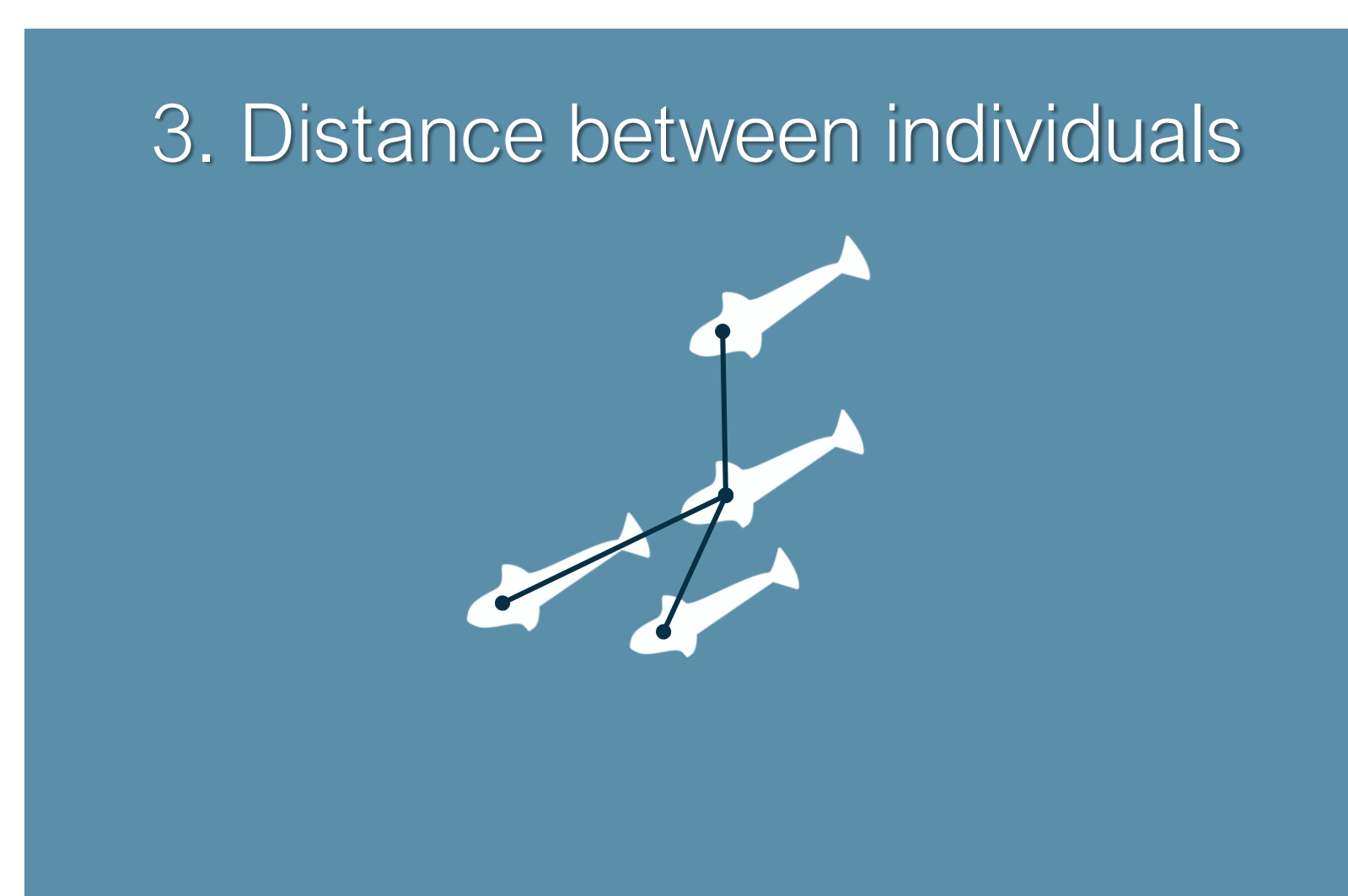
1. Group composition

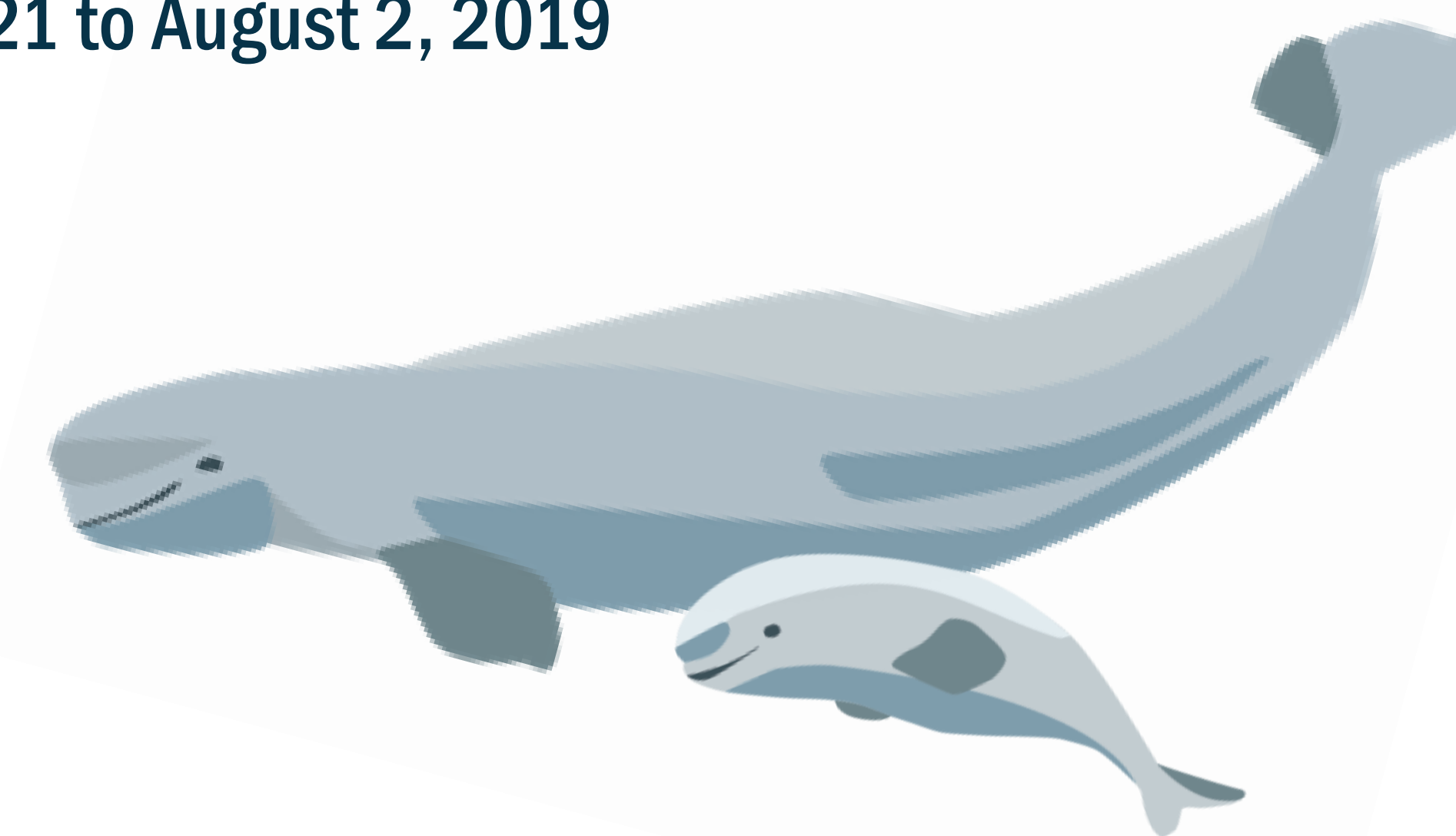



2. Swimming direction

3. Distance between individuals



IK CO-INTERPRETATION

- Inuvialuit have a long history of harvesting belugas for subsistence. The Eastern Beaufort Sea beluga monitoring program, a partnership between Inuvialuit and scientists, have acknowledged in recent years this lack of information about distribution and structure.
- Inuvialuit knowledge (IK) provides essential and complementary knowledge in Arctic studies⁷.
- Since this survey's offshore photos were taken in clear water, the community of Paulatuk has been approached for collaboration, due to its history of hunting in clear water, in contrast to turbid water beluga whaling areas in the Mackenzie estuary.
- Semi-directive interviews and workshops will be used to help to co-produce knowledge on beluga's behavior and social interactions.

OUTCOMES OF THE RESEARCH

1. Improve our understanding of beluga social organization and distribution under environmental changes using both IK and western science
2. Contribute to co-management decision making in the region

ACKNOWLEDGEMENTS & REFERENCES

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