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Polar Hour 2021

An online series of alternating science talks and coffee breaks
For Members and Friends of the Polar Archaeology Network

Where to begin deciphering the walrus slaughter site in Trygghamna, Svalbard?

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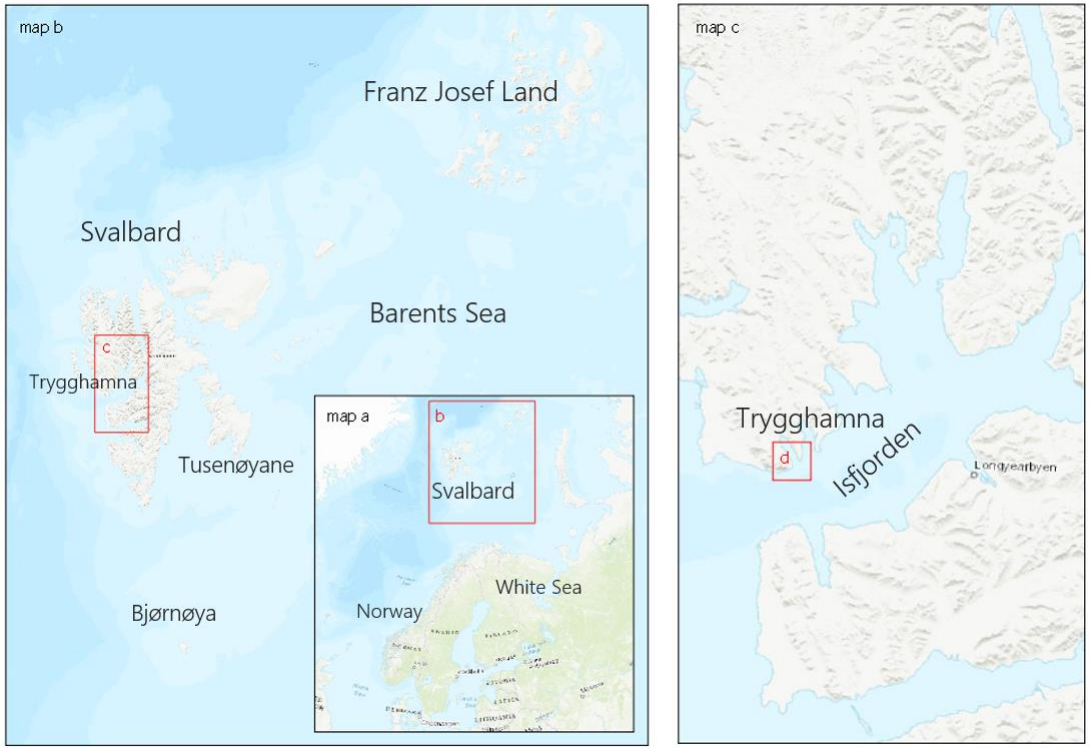
In short…

- Fieldwork in Svalbard in summer of 2019 to understand the (zoo-)archaeological context of a walrus bone scatter.
- What answers can bone scatters such as these give us about the walrus population, dating, and the hunters in Svalbard?
- Methodological question: how can we use drones for this kind of fieldwork?
- What are the implications of this kind of research for historical ecology in Svalbard?

- 1. Whalers (17th -19th century)
- 2. Pomors (18th – 19th century)
- 3. Norwegian hunters (19th – 20th century)

Location of Svalbard. Commons.wikimedia.org



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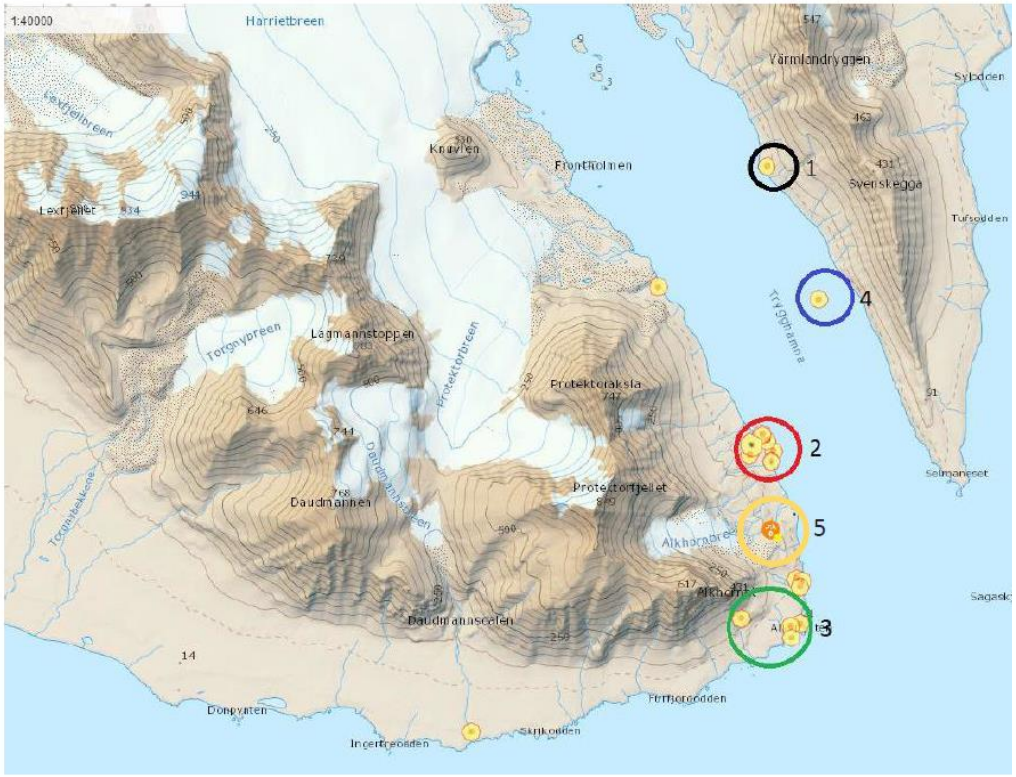
A: Map of the European Arctic, B: Map of Svalbard and surroundings, C: Map of the Isfjorden and Trygghamna, where the site is located. Maps A, B, and C by Rosanne van Bodegom (QGIS).)

Trygghamna – 'Safe haven', known since at least 1613.



Location map of cultural heritage sites (yellow and orange dots), showing four sites of archaeological interest in Trygghamna; 1) the former walrus slaughter site, 2) a cluster of sites comprising blubber ovens, 3) a cluster of sites comprising a probable bear trap and a fox trap, 4) a sunken ship wreck, 5) Pomor huts (18th century) (Askeladden 2019, https://www.riksantikvaren.no/veiledere/askeladden/).

Photo: Fieldwork gear. Photo Rosanne van Bodegom, 2019

Male and female walruses lying on Northbrook Island. Russian Arctic National Park. (https://en.wikipedia.org/wiki/Walrus#/media/File:Лежка_моржей_на острове Нортбрук.jpg)

- Atlantic walrus (*Odobenus rosmarus rosmarus*)
- Last decades only males in the Isfjorden area

Atlantic walrus female and calf. WWF Canada: https://wwf.ca/species/atlantic-walrus/

Male walrus on sea ice. Canadian Wildlife federation https://www.hww.ca/en/wildlife/mammals/atlantic-walrus.html)

Research question

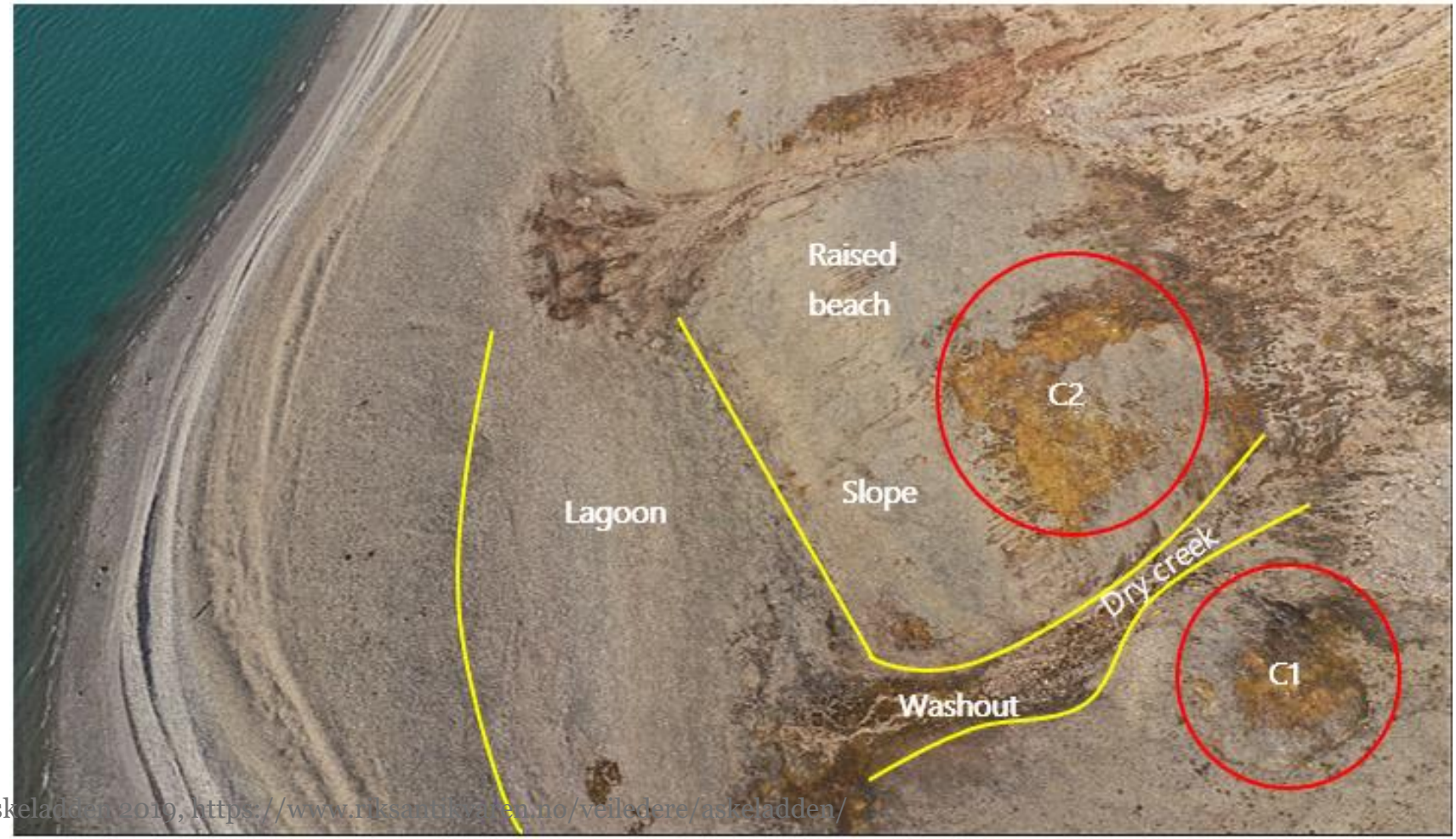
When, and with what hunting and butchering practices, was the Atlantic walrus (*Odobenus rosmarus rosmarus*) slaughter site at Trygghamna formed, and what population structure does the assemblage reflect?

- Date the assemblage
- Age and sex of individuals in the assemblage
- Walrus population dynamics
- Understand the position of the assemblage in the landscape
- Analyse hunting and butchery marks
- Merit of UAV - methods

- Expectation: 30 skulls
- 160 skull fragments amongst hundreds of other walrus bones

Overview of the Trygghamna site in Northwestern direction

› Drone survey



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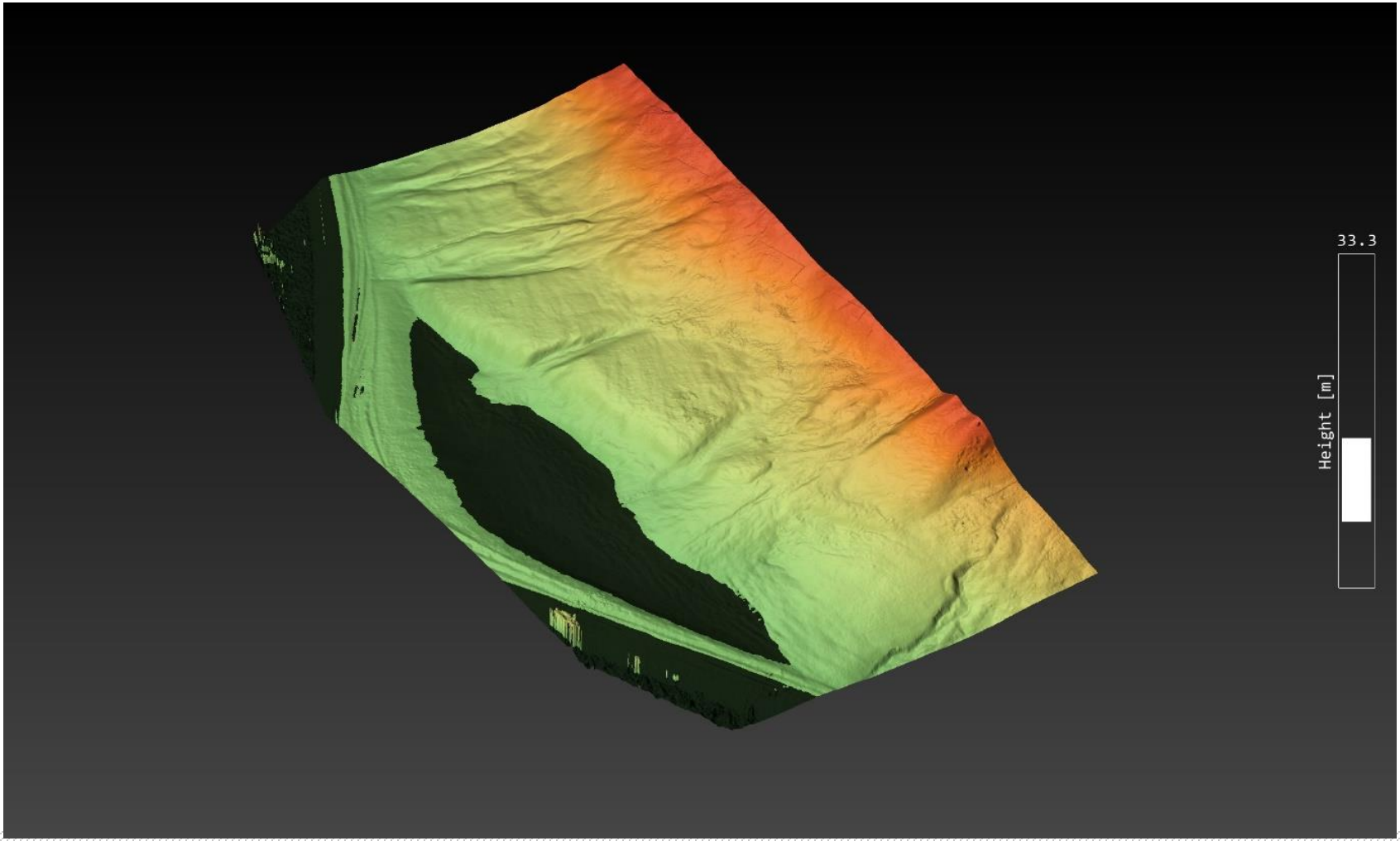

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Taphonomy & hunting and butchery marks

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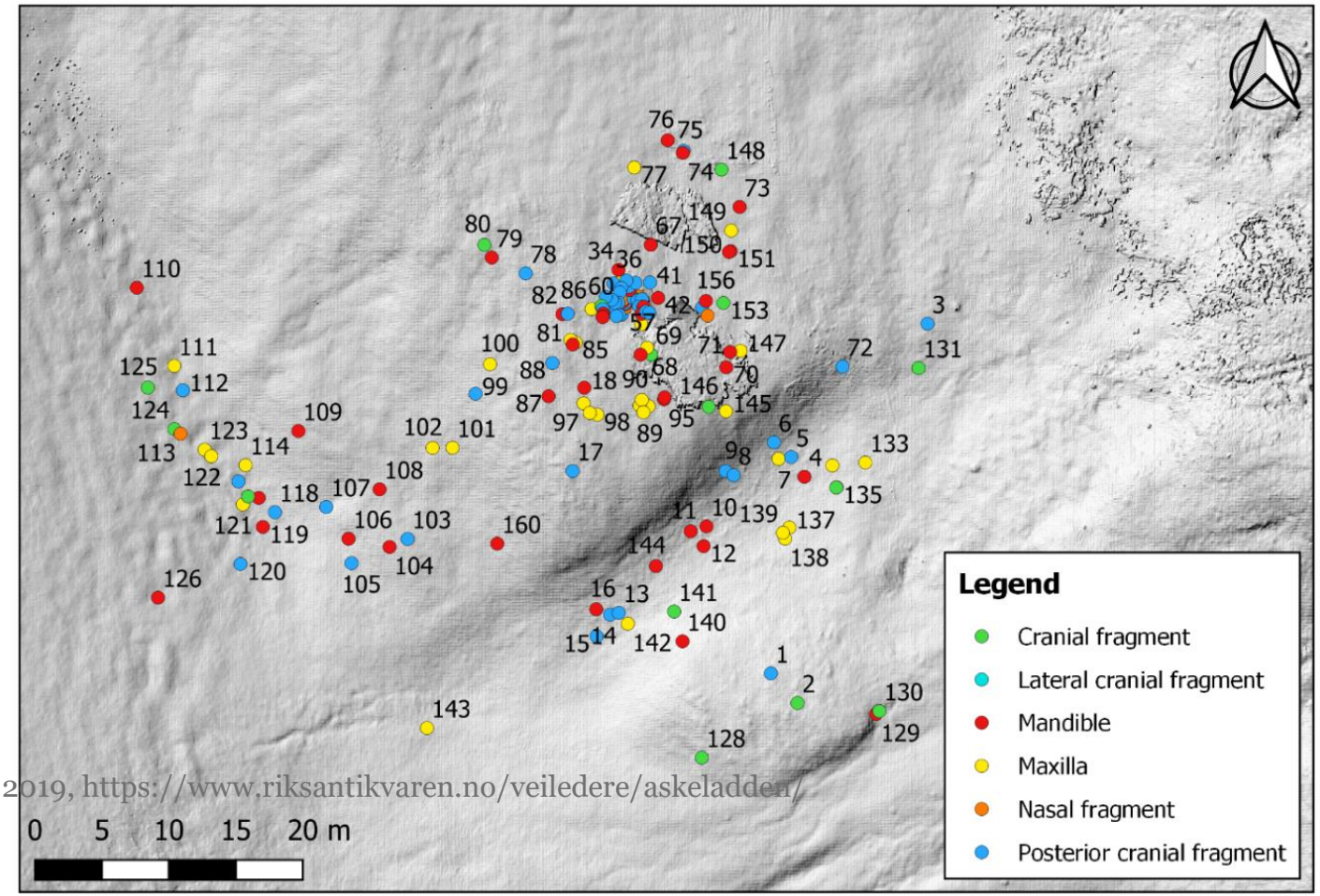
Quantification and characterisation of the assemblage



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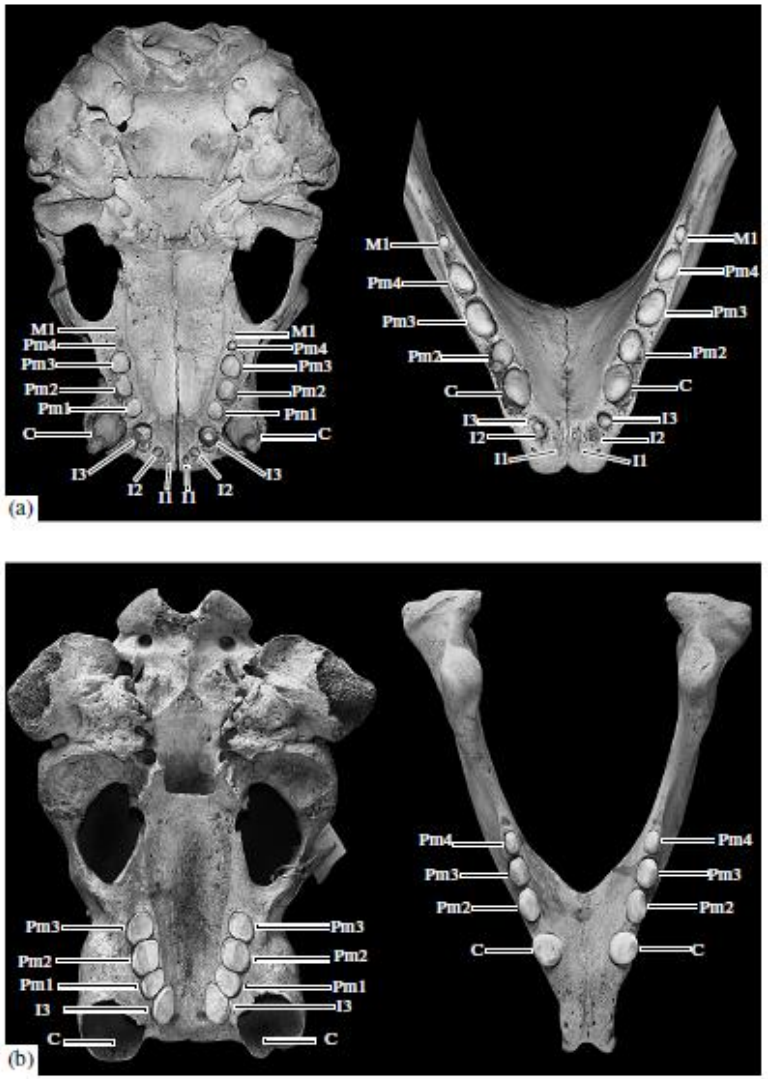
Ontogenic indications

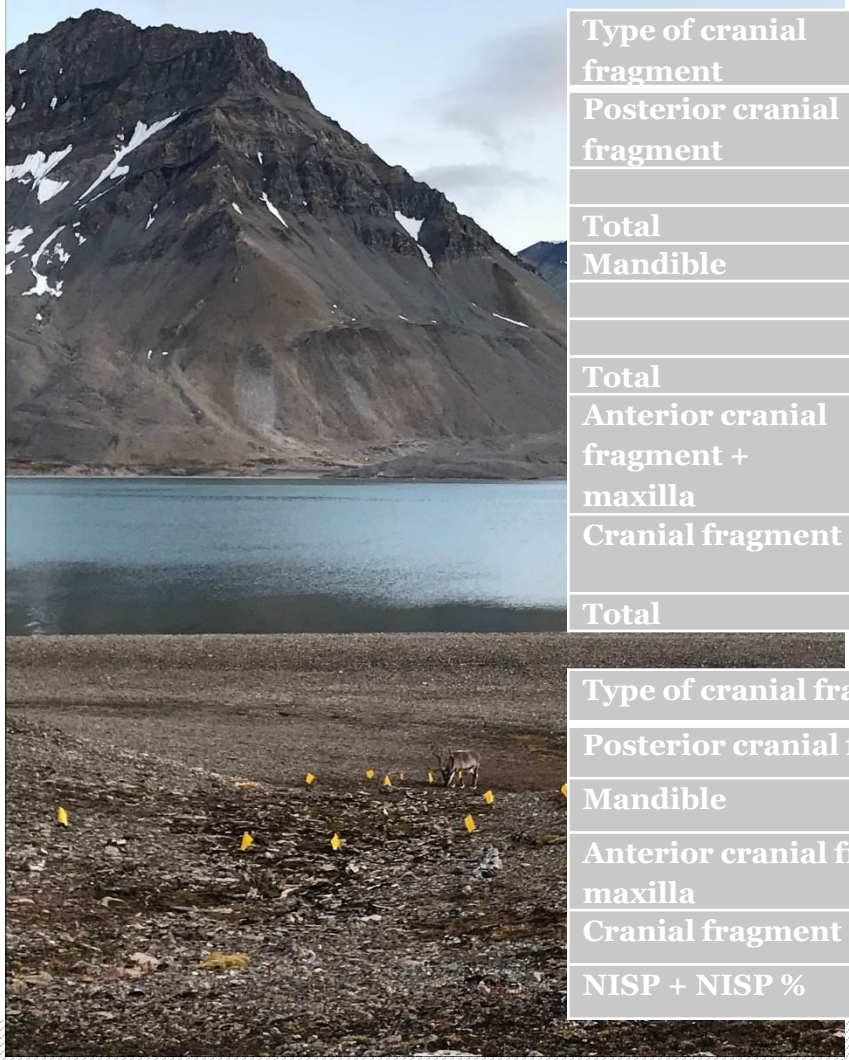
- Dentition
- Mandibular fusion

milk teeth: di 3/3 dc 1/1 dm 4/4 = 32
permanent teeth: I 1/0 C 1/1 M 5/5 = 26

Askeladden 2019, https://www.riksantikvaren.no/veiledere/askeladden/



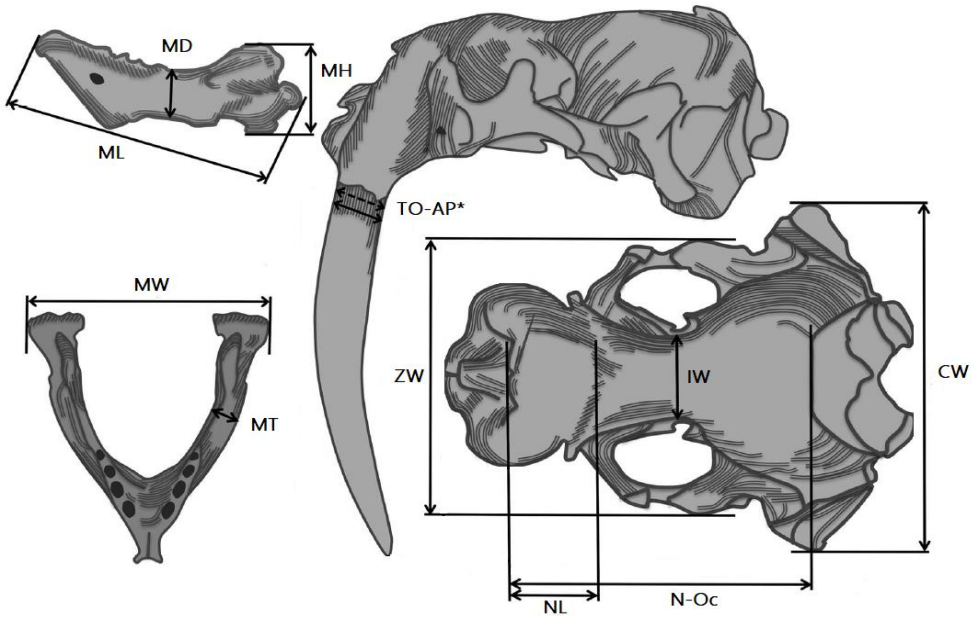
Dentition in Pacific Walrus (*Odobenus rosmarus divergens*) Calves of the Year (Kryukova 2012)



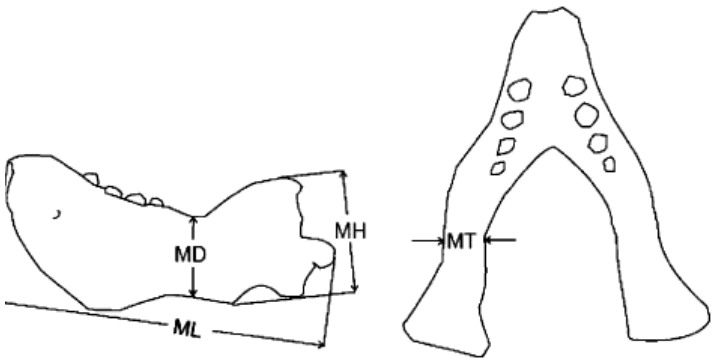
Type of cranial fragment	State of fragmentation	MNE	NISP	NISP %
Posterior cranial fragment	Complete (CW could be measured)	46	46	29.1
	Incomplete	5	8	5.1
Total		**MNI 52**	54	**34.2**
Mandible	Complete	29	29	18.4
	Incomplete ¾ or more	3	3	1.9
	Incomplete ½ or less	11	16	10.1
Total		43	48	**30.4**
Anterior cranial fragment + maxilla	Incomplete	indet	34	21.5
Cranial fragment	Incomplete	indet	22	13.9
Total		-	56	**35.4**

Type of cranial fragment	Juvenile		Adult		Indet.	
Posterior cranial fragment	9		20		25	
Mandible	3		17		28	
Anterior cranial fragment + maxilla	-		13		22	
Cranial fragment	-		-		21	
NISP + NISP %	**12**	**7.6 %**	50	31.6 %	96	60.8 %

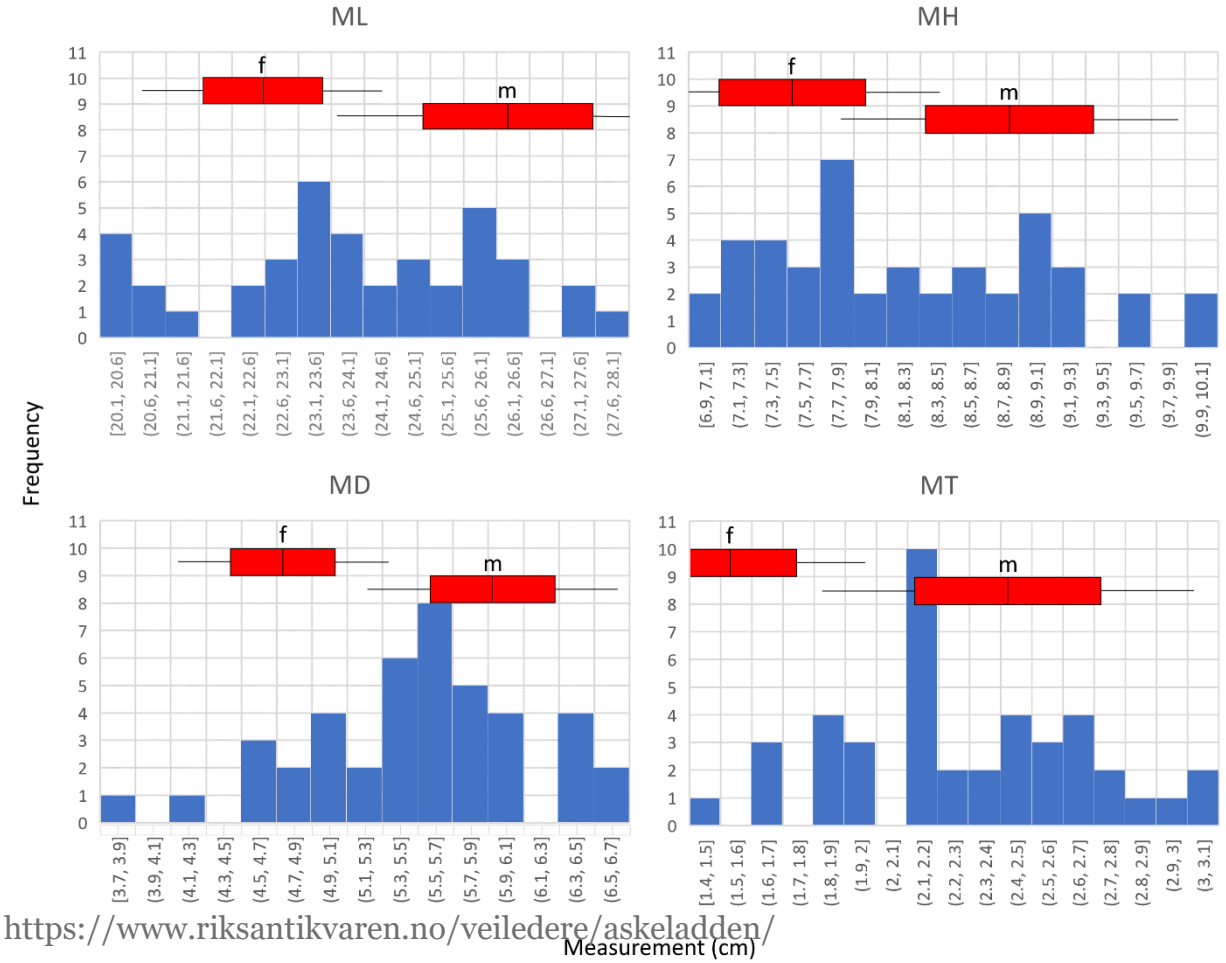
Svalbard reindeer (Rangifer tarandus platyrhynchus) grazing between the surface faunal bone assemblage at Trygghamna, Svalbard
Photo: Frigga Kruse



Assessment of the Extirpated Maritimes Walrus Using Morphological and Ancient DNA Analysis (McLeod et al. 2014)



Historical sex-specific distribution of Atlantic walrus (*Odobenus rosmarus rosmarus*) in Svalbard assessed by mandible measurements (Wiig et al. 2007)



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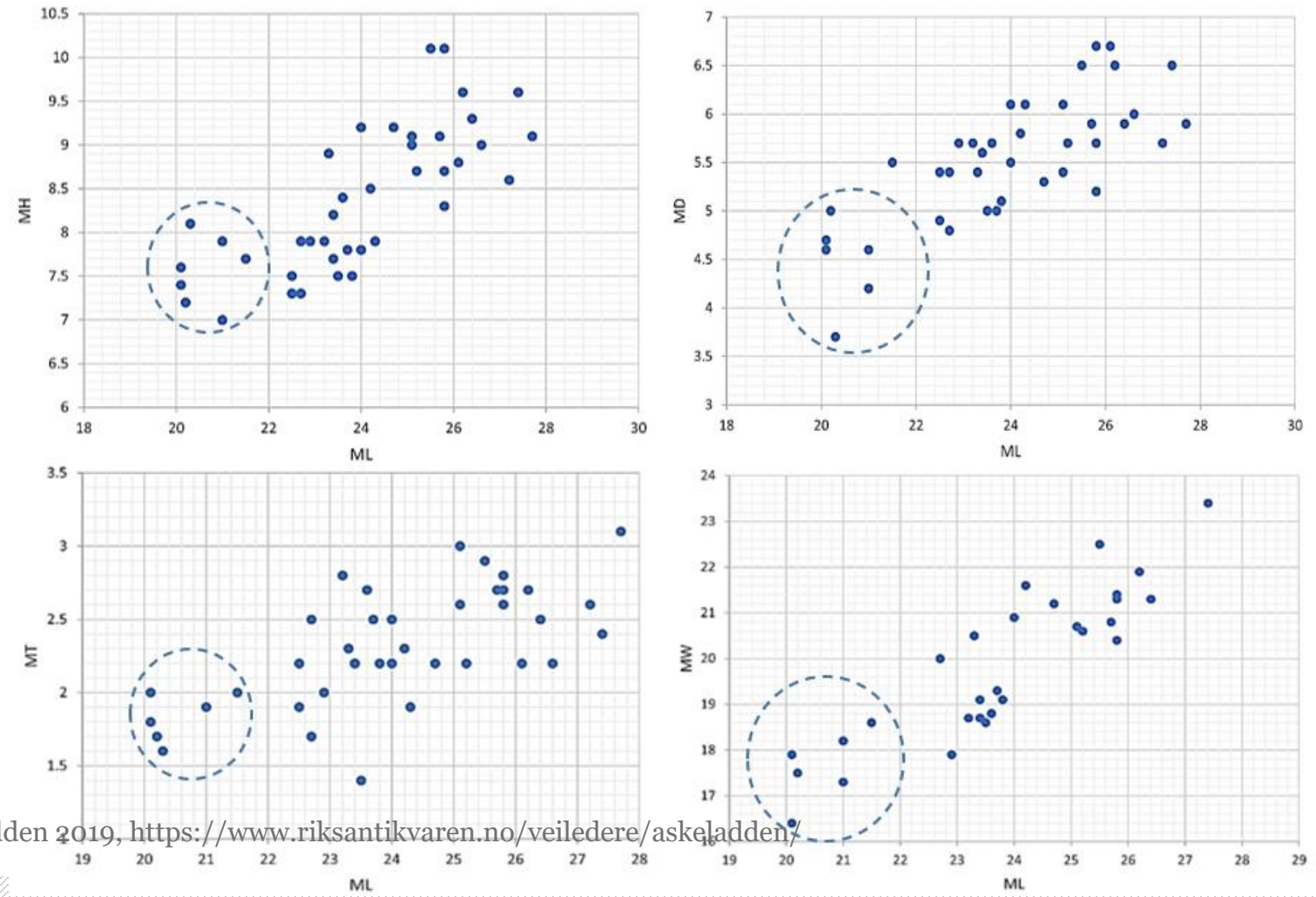

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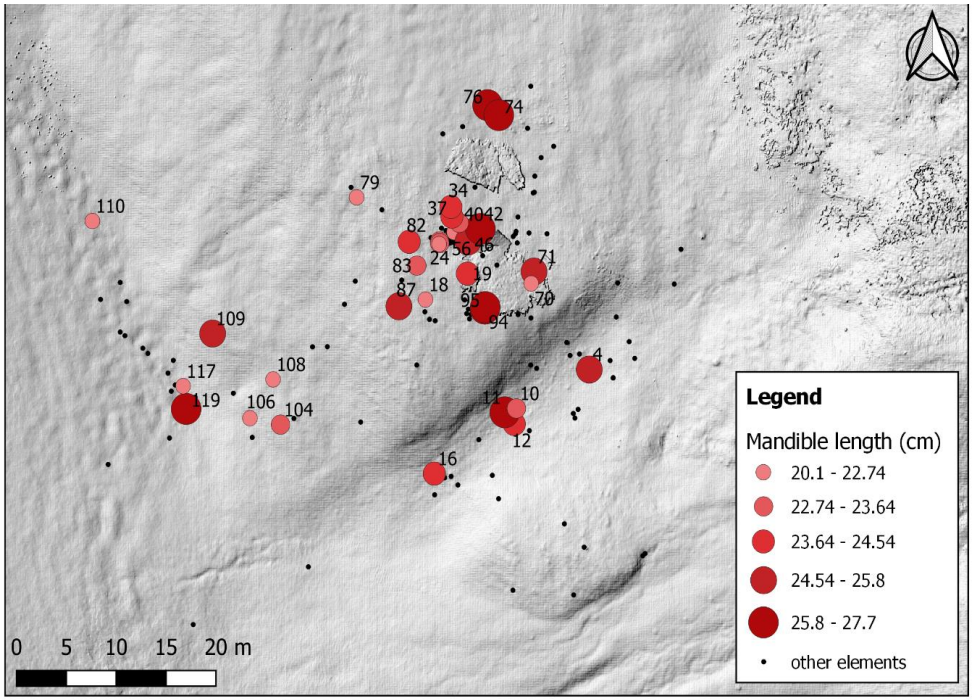

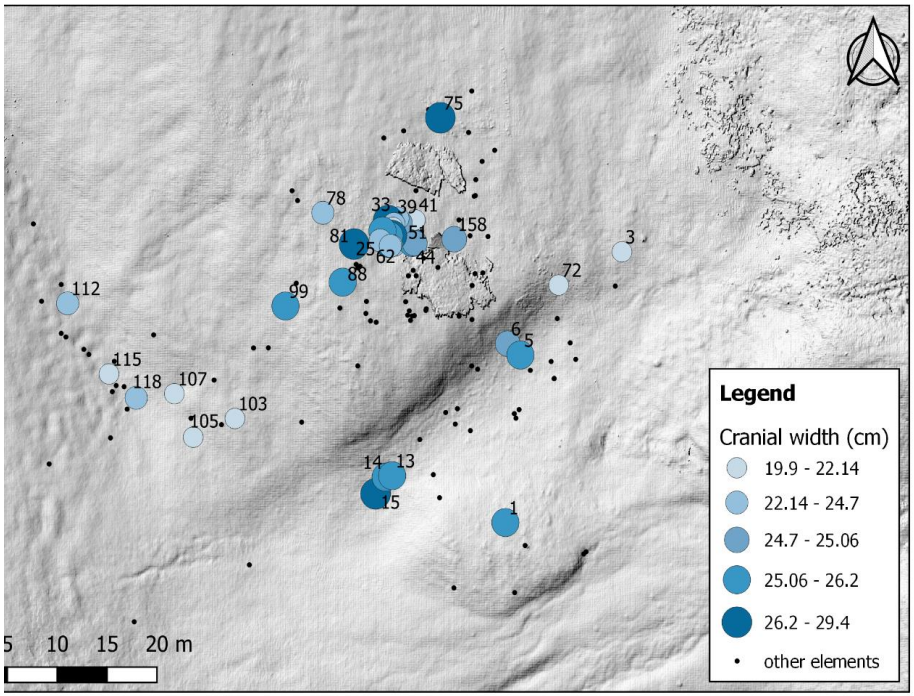

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Non-osseous finds

*"To be briefe, wee had but three Peeces, Master Welden a **Fowling Peece**, my selfe a **Musket**, and another a **Musket**.. (…) When all our Poweder and shot was spent, wee would blow their eyes out with a **little Pease shot**, and then come on the blind side of them, and with our **Carpenters Axe** cleaue their heads*. (Jonas Poole, 1625)

Two lead musket balls, 1 possible shot pellet (likely lead) and 1 unidentified piece of iron, possibly a fragment of a butchering tool.

Askeladden 2019, https://www.riksantikvaren.no/veiledere/askeladden/

Conclusions

The combined UAV and zooarchaeological results suggest that sometime between 1611 and before 1850 European whalers were responsible for killing a herd of male, female and juvenile walruses by musket rifles (and possibly lances) in Trygghamna.

Askeladden 2019, https://www.riksantikvaren.no/veiledere/askeladden/

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Questions? Remarks?

"Polar Bear Says"

References