

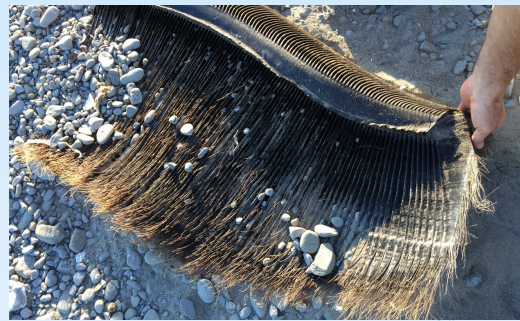
SUCKLING IN CETACEANS

THERE IS A DIVERGENT PATTERN OF SUCKLING/NURSING BEHAVIOUR BETWEEN TOOTHED WHALES AND BALEEN WHALES. THESE TWO PARVORDERS ARE SPLIT APART BASED ON THEIR DENTAL STRUCTURE AS BALEEN WHALES HAVE **BALEEN PLATES**, SHEETS OF BONE THAT SIEVE THE FOOD FROM THE SEAWATER, **INSTEAD OF REGULAR TEETH**. ADDITIONALLY, BALEEN WHALES ARE KNOWN FOR THEIR GREATER SIZE AND LONG MIGRATION PATTERNS.^{[1][2]}



(Wwing, Canva)

vs.



(Paigefalk, Canva)

TOOTHED WHALES

- Whales of parvorder Odontoceti (taxonomy category), characterized by their teeth
- Includes: sperm whales, porpoises, dolphins, belugas and others.
- Longer lactation period by females (1 to 3 years)
- No fasting by females during nursing period
- Lower energy output in milk
 - high in water (60-77%)
 - low in fat (10-30%)
 - low in ash* (0.6-1.1%)
 - low in protein (8-11%)

Ash refers to the inorganic matter leftover after water and organic matter have been removed from the milk.

[2]

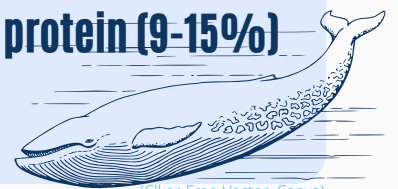


(Color Vectors, Canva)

BALEEN WHALES

- Whales of parvorder Mysticeti (taxonomy category), characterized by their baleen plates instead of teeth
- Includes: blue whales, humpback whales, grey whales, and others.
- Shorter lactation period by females (5 to 7 months)
- Fasting by females during nursing period
- Higher energy output in milk
 - low in water (40-53%)
 - high in fat (30-50%)
 - high in ash* (1.2-2.1%)
 - high in protein (9-15%)

[2]

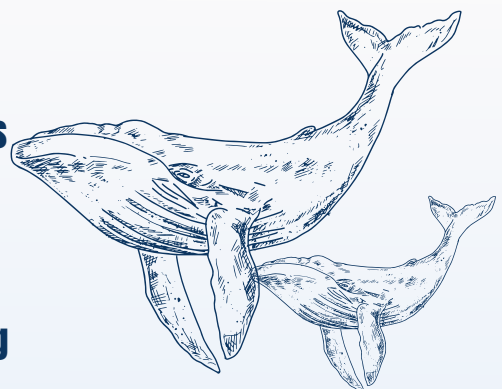


(Clicker-Free-Vector, Canva)

Habitat Use

Mother-calf pairs are vulnerable to predators and males of the same species. To adapt to this risk, these individuals have been seen to use shallow, coastal waters due to the following advantages:

- Distant from large group of adult whales in region
- Less vigilance necessary with less directions to be attacked from
- Turbid water provide visual and acoustic camouflage (whale calls concealed)
- calmer currents to maintain nursing/suckling position



(Sketchify, Canva)

The time spent in these waters is crucial to the survival of the calf and fitness of the female. While at these sites, the energy transfer from mother to calf via milk is intense and necessary to induce the growth of the calf to a sustainable body size. Interruptions to this behaviour can hinder the survival to the calf and decrease the fitness of the female due to loss of her current calf and future calves.^[3]

Conservation

Anthropogenic Risks:

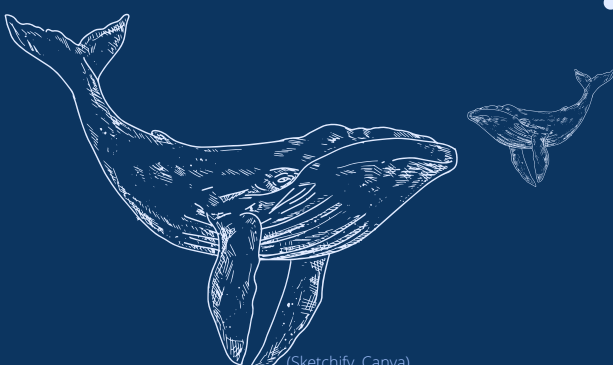
- Collisions with naval ships
- Water pollutions from ships and energy industry
 - passes through whales biological systems
- Acoustic pollutions from machinery and ships
 - interferes with whales call between mother and calf
- Plastic waste pollution
 - adds micro-plastics to biological systems

PLACING PROTECTIVE POLICIES ON HABITATS USED BY MOTHER-CALF PAIRS COULD IMPROVE WHALE CONSERVATION

[3]



(Clicker-Free-Vector, Canva)



(Sketchify, Canva)

REFERENCES

1. Videsen et al., 2017
2. Oftedal, 1997
3. Burnham & Duffus, 2020