

# INSIGHTS FROM NECROPSY EXAMINATIONS OF HARBOUR PORPOISES IN SWEDEN



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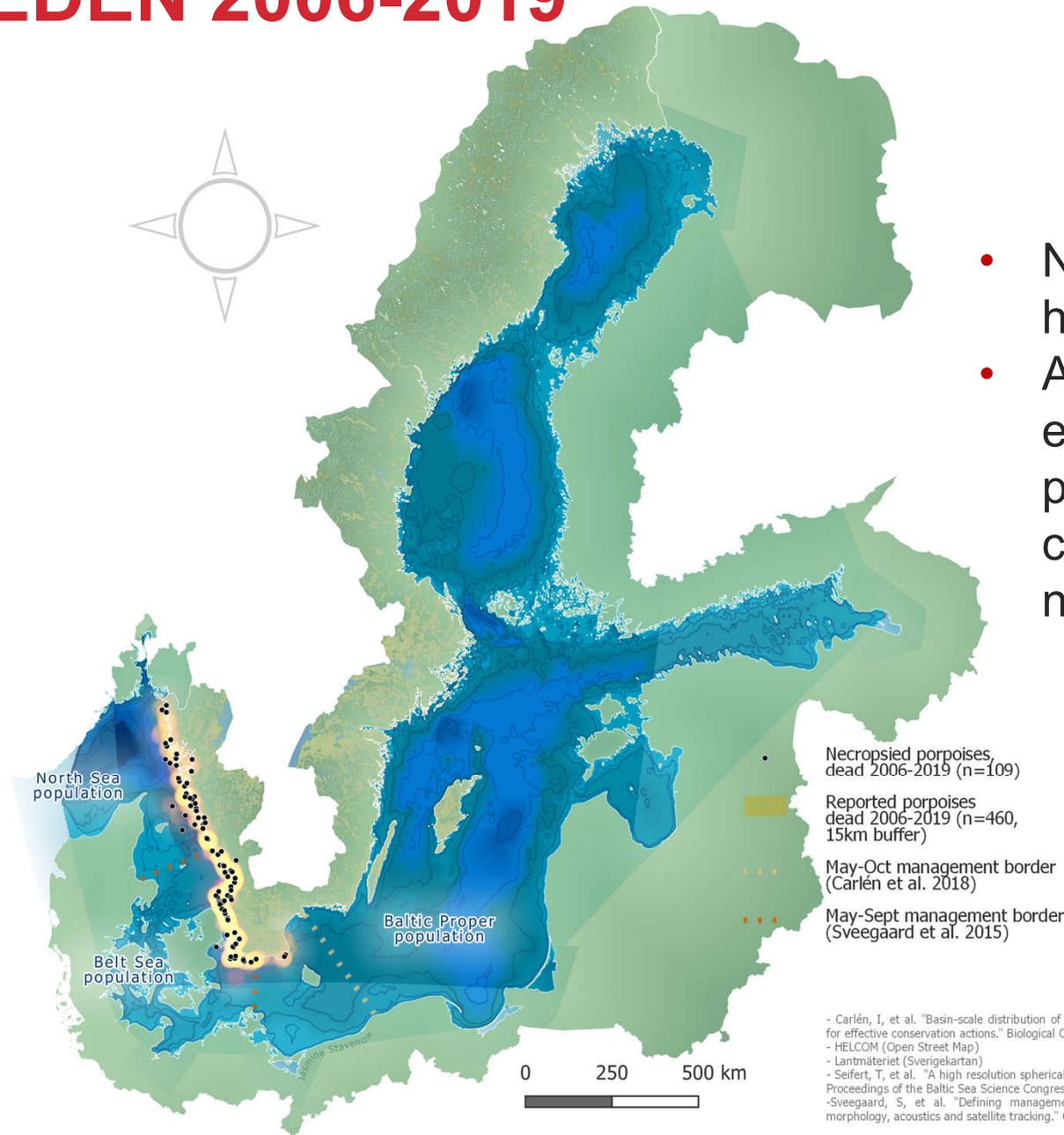
# BACKGROUND



Photo: SVA

- Harbour porpoises serve as excellent sentinels of the marine environment (coastal habitat, top predators, relatively short life span compared with other marine mammals to follow trends)
- Collaboration between SVA and NRM since 2008 to examine health, biology and cause of death of harbour porpoises in Sweden
- All porpoises are examined by a team of at least one biologist and one veterinary pathologist
- Collaboration started slowly with only a handful of animals but has recently gained momentum
- Swedish Agency of Marine and Water Management (SwAM) has provided funding for examination of 15 porpoises/year and to compile our necropsy findings
- We compiled results from 109 porpoises (98 stranded, 11 bycaught) that died from 2006-2019 and provide preliminary results with a focus on causes of death here

# LOCATIONS OF HARBOUR PORPOISES REPORTED DEAD AND THOSE EXAMINED IN SWEDEN 2006-2019



- NRM collects reports of dead harbour porpoises in Sweden
- Animals deemed suitable for examination, including all porpoises from the Baltic coast, are brought in for necropsy examination at SVA

# LOCATION, AGE CLASS AND SEX OF ANIMALS EXAMINED



CETACEAN SPECIMEN RECORD NUMBER \_\_\_\_\_

SPECIES \_\_\_\_\_ FROZEN  NOT FROZEN

FINDING DATE \_\_\_\_\_ SEX \_\_\_\_\_

NECROPSY DATE \_\_\_\_\_ LENGTH \_\_\_\_\_

AGE GROUP \_\_\_\_\_ WEIGHT \_\_\_\_\_

CAUSE OF DEATH \_\_\_\_\_

LOCATION \_\_\_\_\_

TOOTH ERUPTION \_\_\_\_\_ TOOTH WEAR \_\_\_\_\_

BLUBBER THICKNESS mm

I - DOR	II - DOR	III - DOR	IV - DOR
I - LAT	II - LAT	III - LAT	IV - LAT
I - VEN	II - VEN	III - VEN	IV - VEN

MEASUREMENTS STRAIGHT LINE & AXIAL

LEFT SIDE cm

1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	

REPRODUCTIVE TISSUES

GONAD DIMENSIONS L x W x D

	LEFT	RIGHT
UTERINE DIAM.		
TESTIS Wt.		

LACTATING

PREGNANT

FOETUS LENGTH \_\_\_\_\_

FOETUS WEIGHT \_\_\_\_\_

FOETUS SEX \_\_\_\_\_

C.ALBICANTIA \_\_\_\_\_

C.LUTEA \_\_\_\_\_

MAMMARY GLAND COLOUR \_\_\_\_\_

SPERM IN EPIDIDYMUS \_\_\_\_\_

SPERM IN TESTIS \_\_\_\_\_

SPERM IN CERVIX \_\_\_\_\_

YES NO


COMMENTS \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

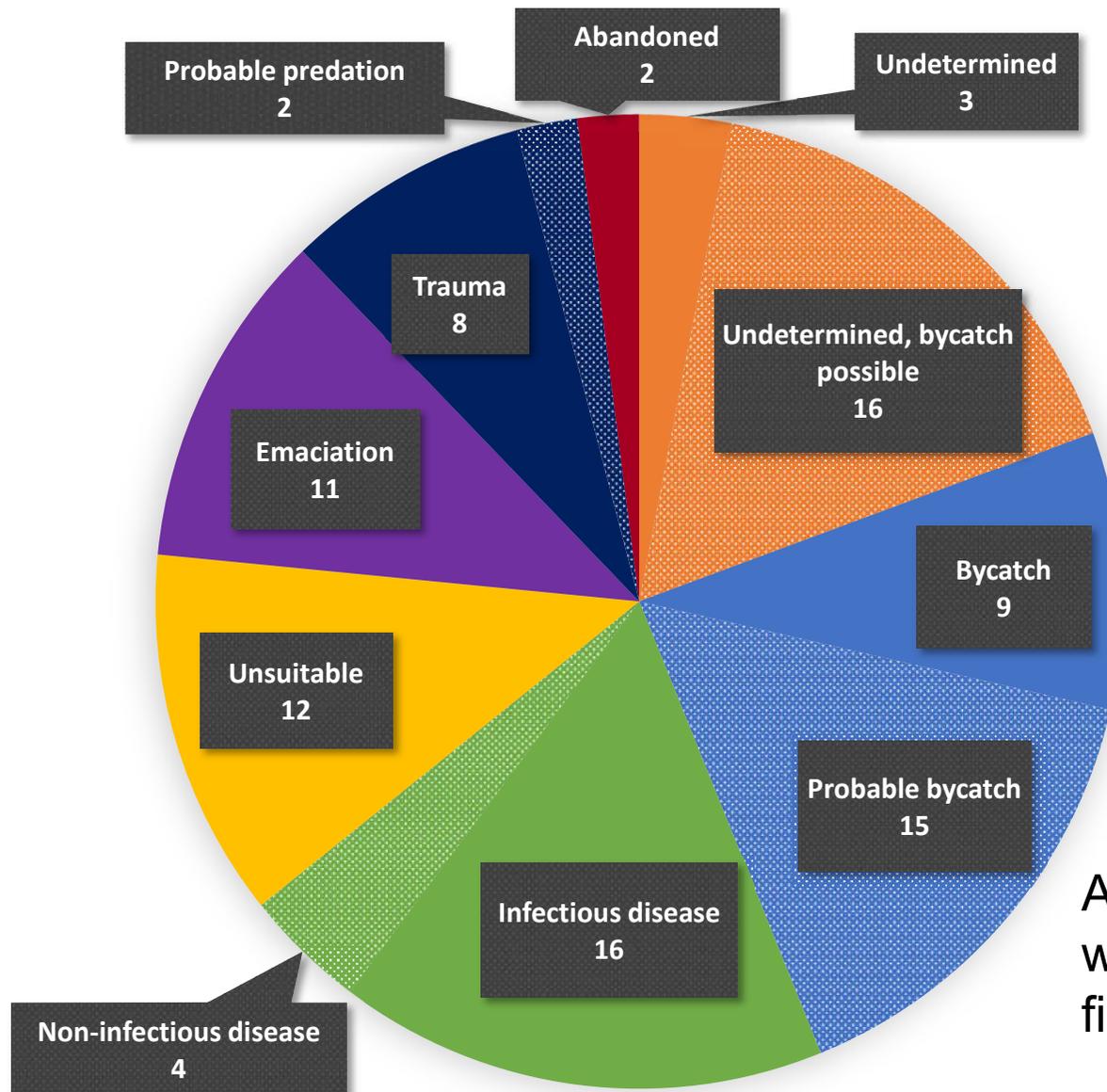
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# LIFE HISTORY AND OTHER ANALYSES

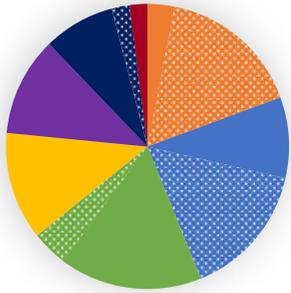
- Samples and data collected for further analysis of morphometrics, reproduction, diet, genetics and nutritional condition
- Aging all porpoises is a priority
- Samples saved in SVA's biobank and NRM's environmental specimen bank for future studies

# CAUSE OF DEATH

## Stranded animals (n= 98)



An additional 11 porpoises were submitted directly by fishermen as bycatch

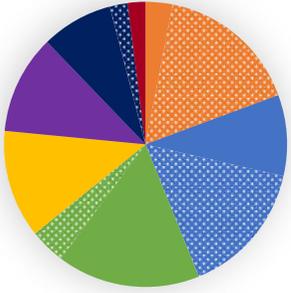


# BYCATCH

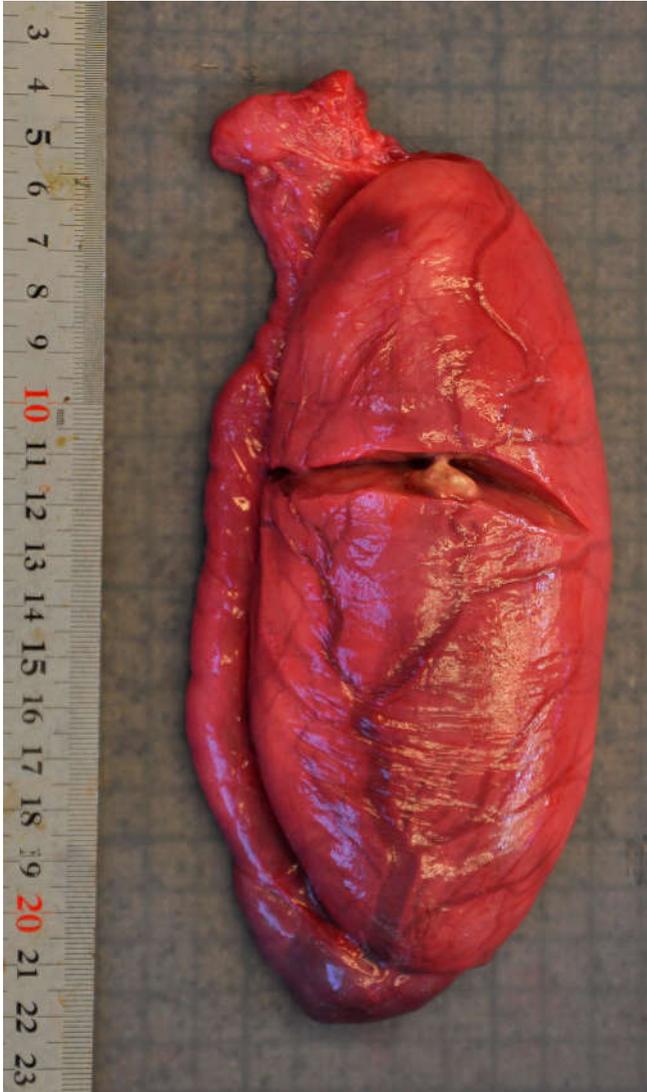


Photo: SVA

- Bycatch: clear line marks
- Probable: no line marks, good nutritional condition, froth in airways, other causes of death ruled out
- 25% of stranded sample (comparable with other geographical regions)
- Possible bycatch not included (likely underestimated bycatch)

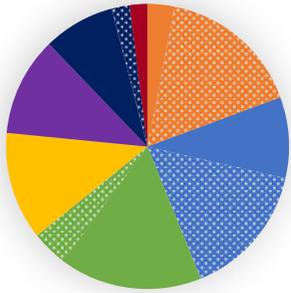


# DISEASE



- Bacterial and parasitic pneumonia most common, one fungal pneumonia
- Although not the cause of death, first documentation of *Brucella* sp. infection in Sweden:
  - infection in the testis of a mature male, reproductive implications?
- No evidence of morbillivirus
- Non-infectious disease: primarily peri-parturient

Photo: SVA



# TRAUMA



Photo: SVA

- Two cases with wounds consistent with predation
  - Characteristic wounds, young porpoise, good nutritional condition
- two additional cases of possible predation
- eDNA from wounds to try and identify predator species and a retrospective study using photographs is planned

# ANIMALS EXAMINED FROM SOUTHERN SWEDEN



- Four of the six porpoises examined from southern Sweden stranded in August and September 2019
- Although they were severely decomposed, the eastern-most calf had lesions consistent with predation

# SUMMARY

- Indication of causes death in Swedish waters
- 1/4 of stranded animals were diagnosed as bycatch/probable bycatch
- Disease is also a common cause of death (20%)
  - How does mortality from infections relate to contaminant levels? Other stressors?
  - Changing patterns of disease often reflects environmental change
- *Brucella* infection may have implications for reproduction
- Predation requires further investigation
- Examination of both stranded and bycaught animals help us to better understand porpoise health and threats they face and examination of more animals are needed for a robust data set to monitor health of porpoises in our waters



Photo: Anna Roos

# ACKNOWLEDGEMENTS



Photo: Anna Roos

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