Habitat and Threats Management Committee

Members, Accomplishments and Next Steps

Annual Task Force Meeting 2023

Co-chairs

Jenell Larsen Tempel- ADF&G

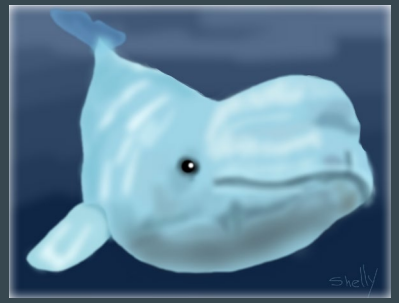
Erika Ammann- NOAA

Served 2020-2022

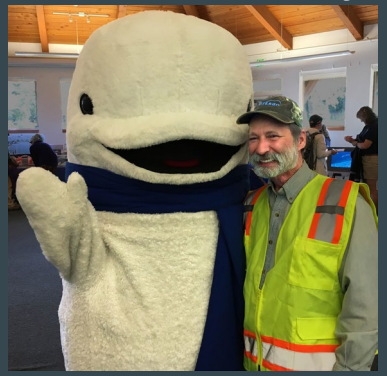
Carley Lowe- new NOAA co-chair in 2023

Vicki Cornish- Marine Mammal Commission

Aaron Poetter-ADF&G



John Plaskett- Anchorage Wastewater Utility



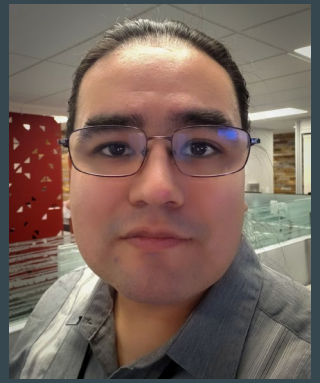
Manolo Castellote- NOAA

Mandy Keogh- NOAA

Amy Peloza- Hilcorp Alaska LLC

Sheyna Wisdom- AOOS

David Kroto- Tyonek Native Corporation



Last time the TF met....

- We developed 3 subcommittees focused on:
  - Restoration
  - Prey
  - Contaminants
- Effort to engage with other committees on **Cook Inlet Beluga Whale Recovery Implementation Task Force**

Accomplishments and Next Steps

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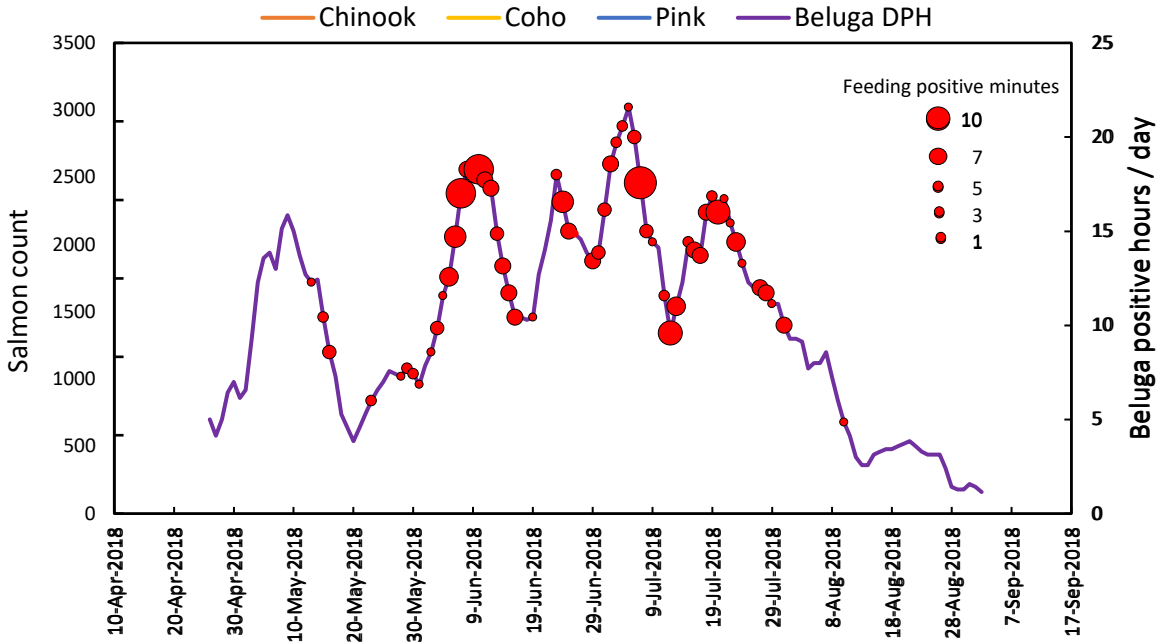
From subcommittees

PREY SUBCOMMITTEE - M. Castellote

Question 1

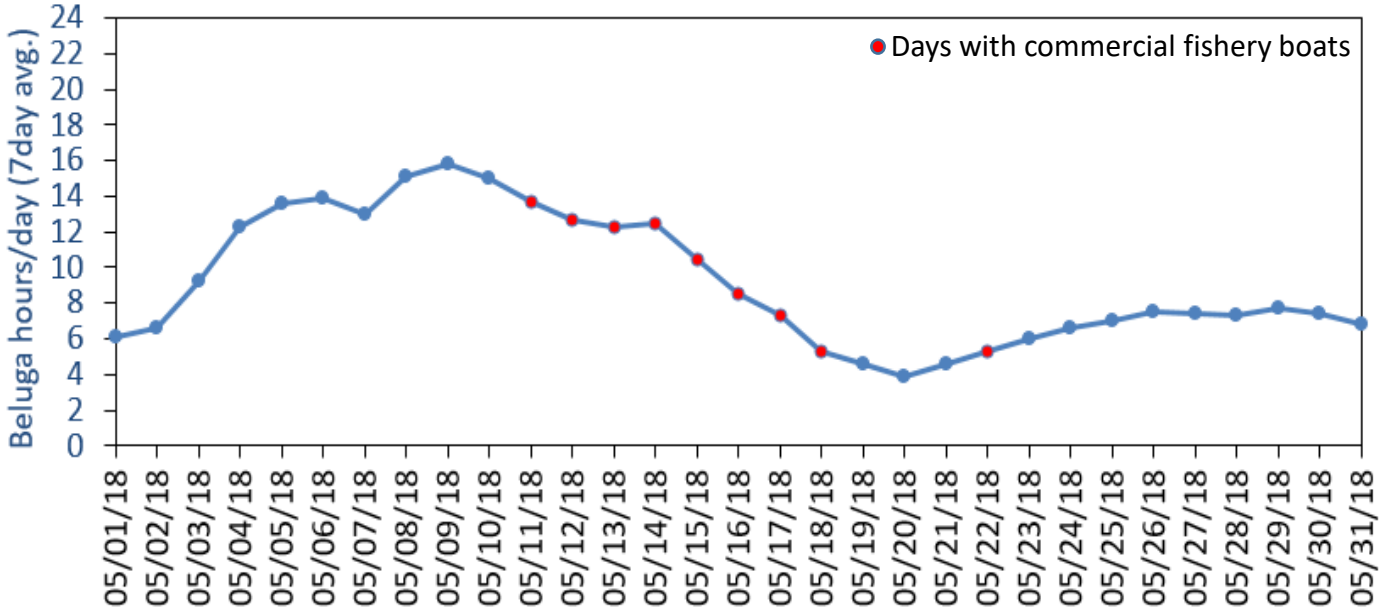
How do salmon runs relate to beluga presence in key river mouths and other concentration areas?



Castellote M, Mooney A, Andrews R, Deruiter S, Lee W-J, Ferguson M, et al. (2021) Beluga whale (*Delphinapterus leucas*) acoustic foraging behavior and applications for long term monitoring. PLoS ONE 16(11): e0260485

Question 2

Do CI belugas use the area of the mouth of the Susitna River as foraging habitat in May and June during CI eulachon fisheries.



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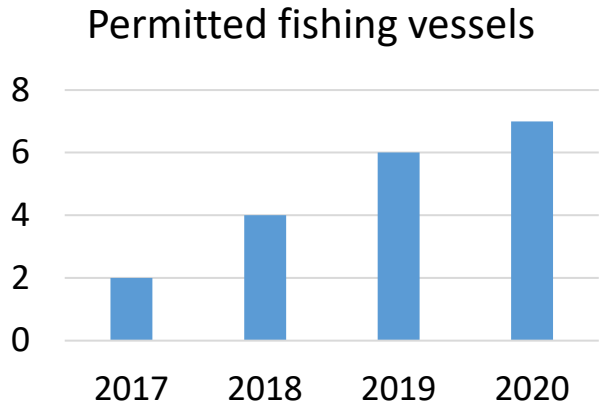
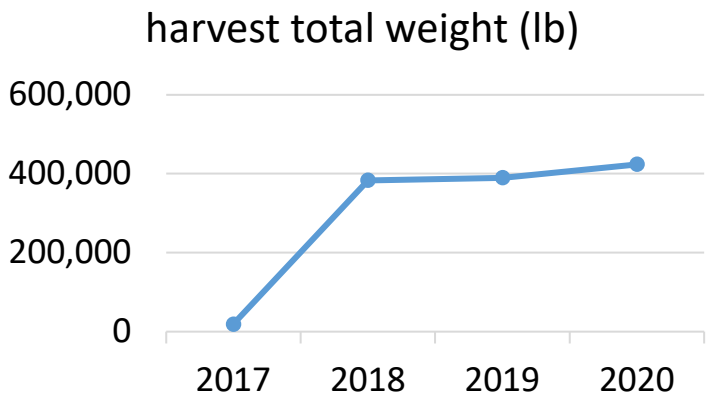


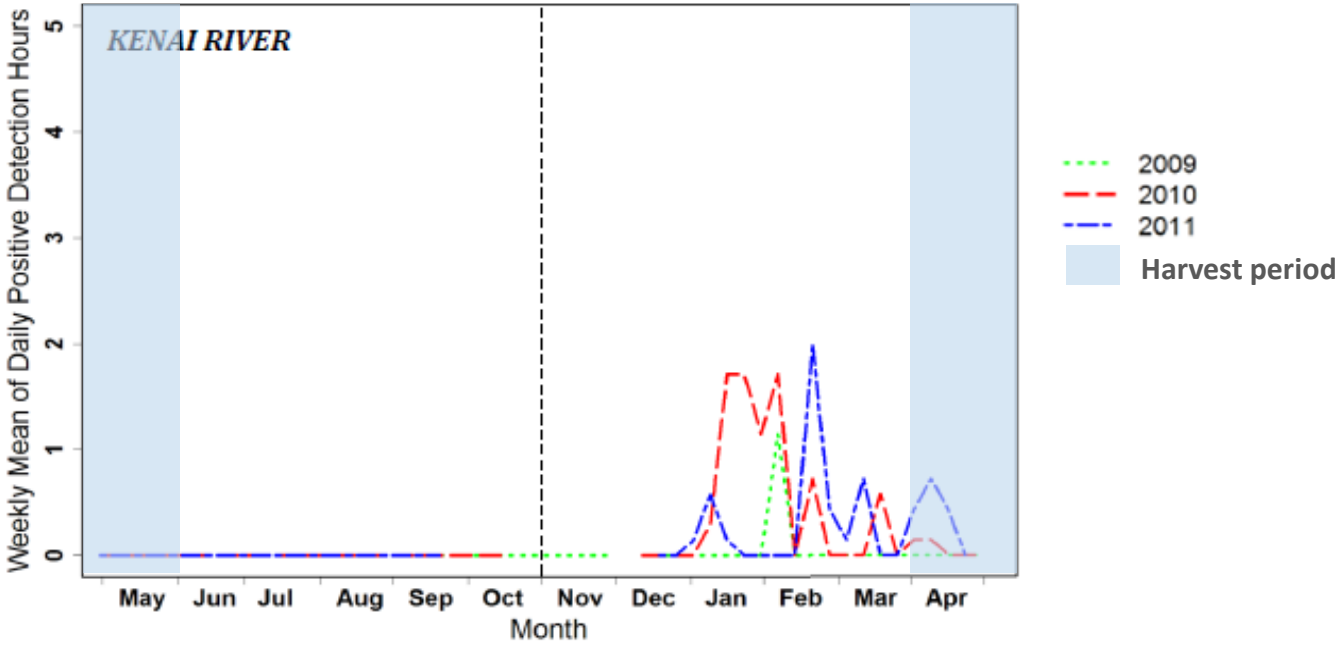


Source: Marston, B., and A. Frothingham. 2022. Upper Cook Inlet commercial fisheries annual management report, 2020 Alaska Department of Fish and Game, Fishery Management Report No. 22-12, Anchorage

Question 3

Do CI belugas use the herring harvest areas of coastal Cook Inlet as foraging habitat in late April - May during CI herring fisheries.

N of herring harvest area



CONTAMINANTS SUBCOMMITTEE- LAST YEAR

Committee members

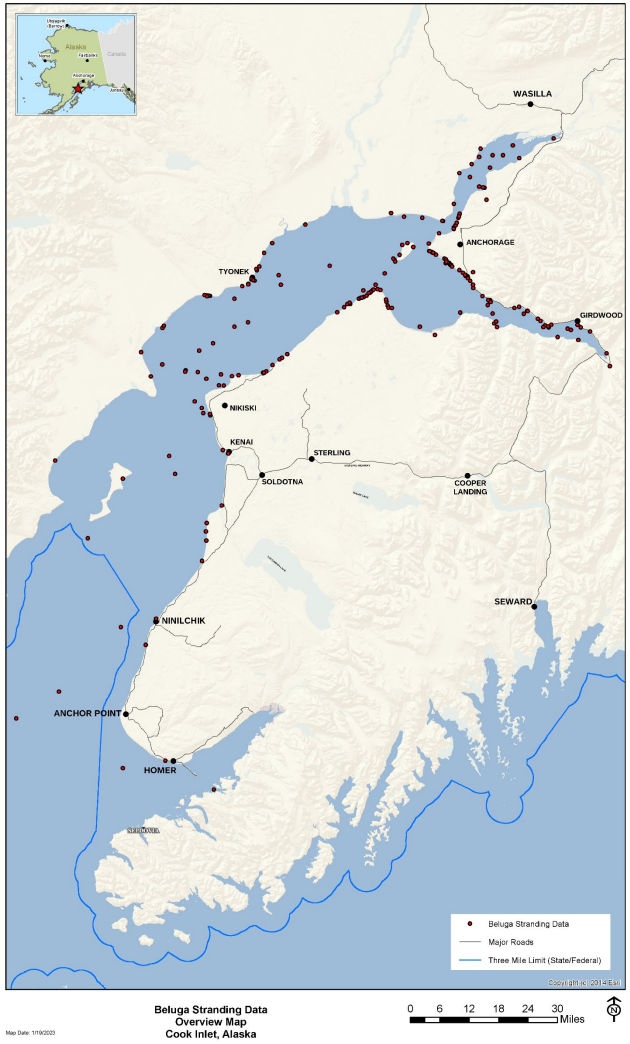
- Jenell Larsen Tempel, ADF&G
- John Plasket, Alaska Wastewater Utility
- Amy Peloza, Hilcorp Alaska

What we did in 2021:

- Acquired data from 2009-present for wastewater contaminants discharged by Hilcorp platforms and AWWU
- Reviewed Industrial Pollutant Discharges and Source Control Strategies reducing pollutants

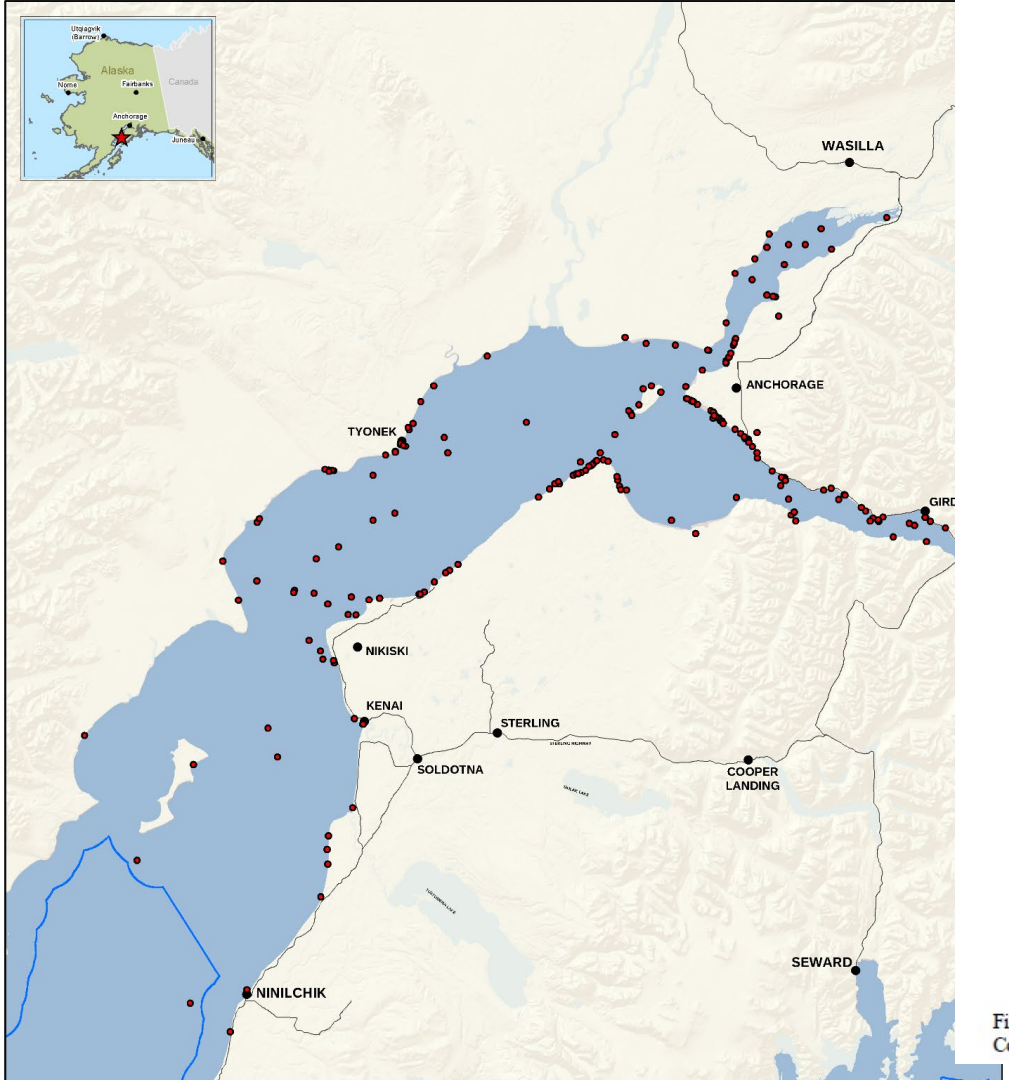
ACCOMPLISHMENTS AND ONGOING WORK FROM 2022

1. Mapped CIB strandings
2. Assessing PFAS as a contaminant of concern
3. Developing a contaminant "short list"



1. Mapping Cook Inlet Beluga Strandings

- Data provided by Mandy Keogh, NOAA Stranding Coordinator
- Map provided by Hilcorp
- Red dots represent stranded CIBs from 2000-2021.
- Includes deceased and live stranded animals.
- May include >1 animal (mass strandings). Dots represent a “stranding event” not just one animal.



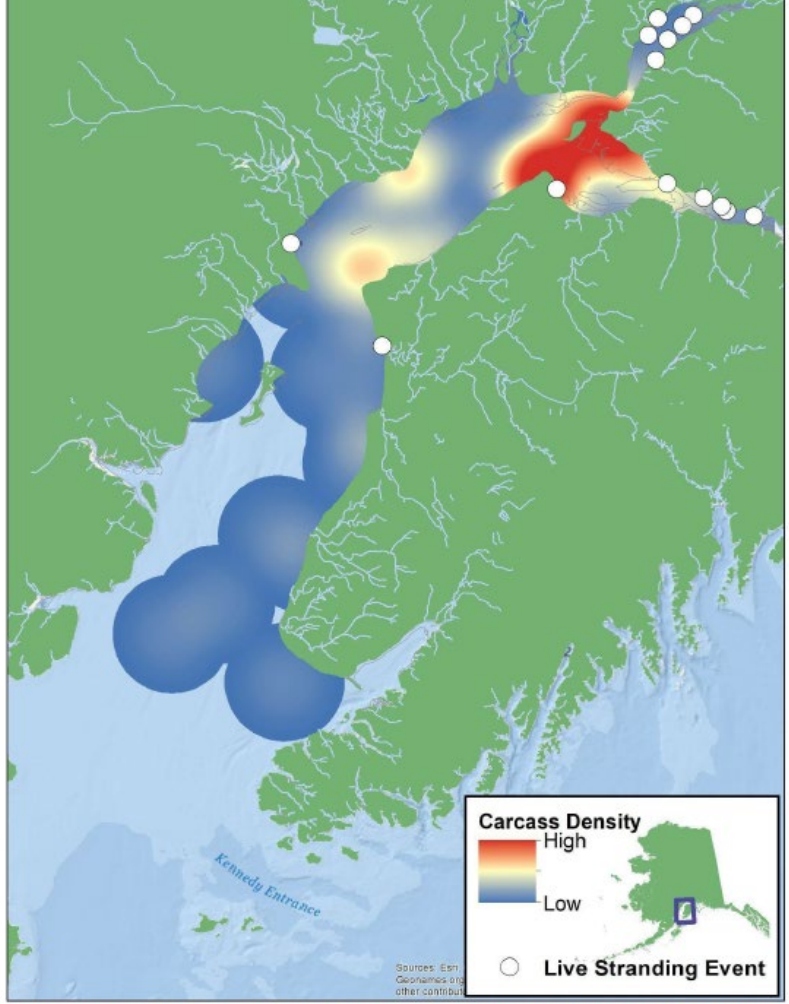
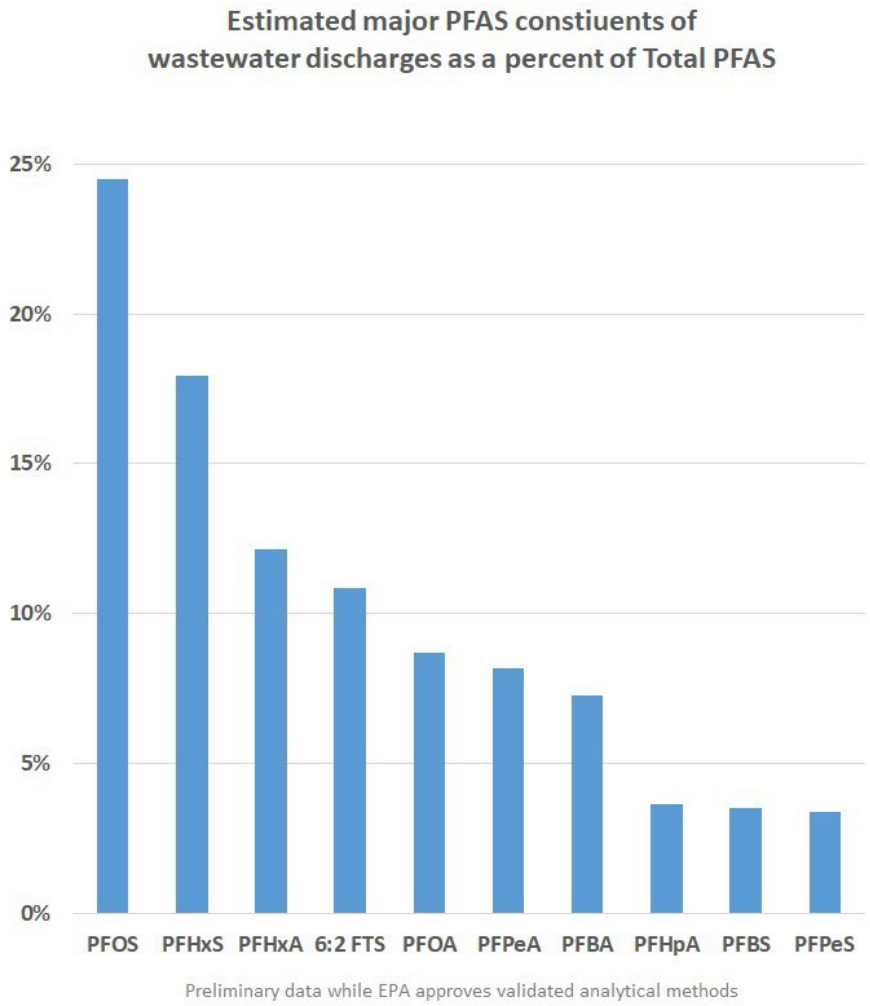


Figure 6. Live stranding event locations (white circles) and kernel density (color coded) of dead stranded Cook Inlet beluga whales reported from 2009 to 2021.



2. Monitoring PFAS

- Perfluoroalkyl or polyfluoroalkyl substances
- 9,000 PFAS compounds, all synthetic
- Termed "forever compounds" very difficult to break down and are bioaccumulative
- Linked to cancer, decreased fertility, thyroid disease, developmental impairment etc.
- Graph provided by AWWU


PRODUCTS THAT CONTAIN PFAS
Pesticides
Stain Resistance Products
Firefighting Foams
Microwave Popcorn Bags
Eye Makeup
Pizza Boxes
Paints, Sealants, and Varnishes
Cleaning Products
Nail Polish
Dental Floss
Non-Stick Cookware
Water Resistant Clothing
Shampoo
Candy Wrappers
Fast Food Packaging/ Wrappers

3. DEVELOPING A CONTAMINANTS OF CONCERN "SHORTLIST"

Where to start?

- 126 priority pollutants assessed in the 2011 AWWU Biological Evaluation (2011) & 9000 PFAS compounds
- What has been done or is underway?
- Literature searches, communication with other researchers and research committee

Goal: *create a list of top 10-12 contaminants that may impact CIBs and need investigation*

Recent publications indicating reduced reproductive capacity

- Longer birth intervals (Himes Boor et al. 2022)

Average birth interval 4.6 yrs vs 2-3

- Later age at first reproduction (McGuire et al. 2020)

13 yrs vs 8 yrs

- Reduced juvenile survival (Himes Boor et al. 2022)
- Higher than expected proportion of calf strandings (NOAA stranding data)
- A few cases of congenital defects in calves (Burek-Huntington et al. 2022)

Table A-2

Summary Statistics and Screening Results for 2000-2009 Effluent Data

Anchorage Water and Wastewater Utility

Dilution at Edge of ZID = 142.9

Analyte	CAS Number	Hazard Quotient at Edge of ZID	Hazard Quotient at End of Pipe
Oil & Grease	NA	--	--
Total Aromatic Hydrocarbons as BETX	NA	--	--
Copper	7440-50-8	***5.4E+00***	***7.7E+02***
Cadmium	7440-43-9	***3.4E+00***	***4.9E+02***
Silver	7440-22-4	***2.7E+00***	***3.9E+02***
Zinc	7440-66-6	***1.1E+00***	***1.5E+02***
Nickel	7440-02-0	5.6E-01	***8.0E+01***
Heptachlor	76-44-8	8.7E-02	***1.2E+01***
4,4'-DDT	50-29-3	4.4E-02	***6.3E+00***
Phenol	108-95-2	1.8E-02	***2.5E+00***
Cyanide	57-12-5	1.4E-02	***2.0E+00***
Endrin ketone	53494-70-5	8.4E-03	***1.2E+00***
Endrin	72-20-8	7.7E-03	***1.1E+00***
Endosulfan II	33213-65-9	5.3E-03	7.5E-01
3&4-Methylphenol (p&m-cresol)	1319-77-3	5.0E-03	7.2E-01
Mercury	7487-94-7	4.9E-03	7.0E-01
Dieldrin	60-57-1	2.9E-03	4.2E-01
Benzyl alcohol	100-51-6	1.3E-03	1.9E-01
Butyl benzyl phthalate	85-68-7	1.1E-03	1.5E-01
Malathion	121-75-5	8.6E-04	1.2E-01

Evaluation of the Effects of Discharge Permit Reauthorization on Endangered Species. February 2011

Some NPDES Regulated constituents being evaluated due to elevated Hazard Quotients (HQ). HQ exceeding 1 indicates a potential for adverse ecological effects (shown in red).

HQ in the table are shown in descending order.

Other potential contaminants for investigation are emerging Pollutants of Concern (POC) and may include:

- PCBs, MeOBDEs
- BPA
- Metformin
- EE2 (ethinyl estradiol)
- PAH

Restoration Subcommittee

- Goal: Identify restoration projects and tools to benefit recovery of Cook Inlet beluga whales

Old Tyonek Creek fish passage improvement project (Tyonek Tribal Conservation District)

Subcommittee members:

Erika Amman, NMFS (co-Chair)

Mandy Keogh, NMFS

Vicki Cornish, MMC

David Kroto, Tyonek

Beluga Whale Recovery Plan: Threats

High Priority

- Catastrophic events
- Cumulative effects of multiple stressors
- Noise

Medium Priority

- Disease agents
- Habitat loss/ degradation
- Reduction in prey
- Unauthorized take

Low Priority

- Pollution
- Predation
- Subsistence hunting

Threat: Reduction in Prey

- Enhancing fish passage
- Removal of invasive species
- Managing overharvest of prey species

Silver (coho) salmon, an important prey species (ADF&G)

Northern Pike with stomach full of juvenile salmon (ADF&G)

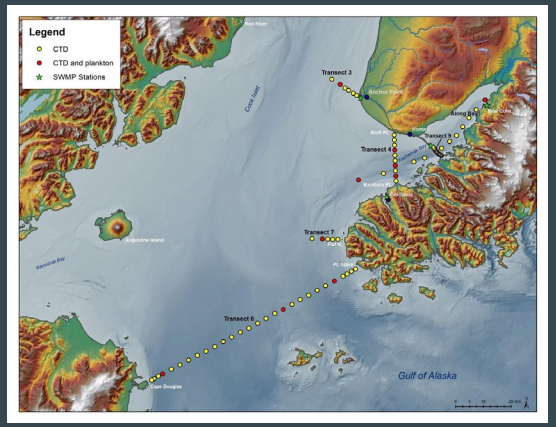
Dense mat of *Elodea* (NPS)

Threat: Habitat Loss or Degradation

- Freshwater habitat restoration
- Nearshore marine habitat restoration
- Conservation easements

Campbell Creek Estuary (Great Land Trust)

Naturally vegetated bank of the Kenai River (ADF&G)



Kachemak Bay/Cook Inlet Alaska Oceanographic Monitoring (AOOS)

For Further Discussion

(Paul Wade/NOAA Fisheries)

- Should the subcommittee continue to compile and expand information on these and other restoration projects?
- Can projects like these be used to update recovery planning efforts?