

Cook Inlet Beluga Diet from Stomach Content Analysis



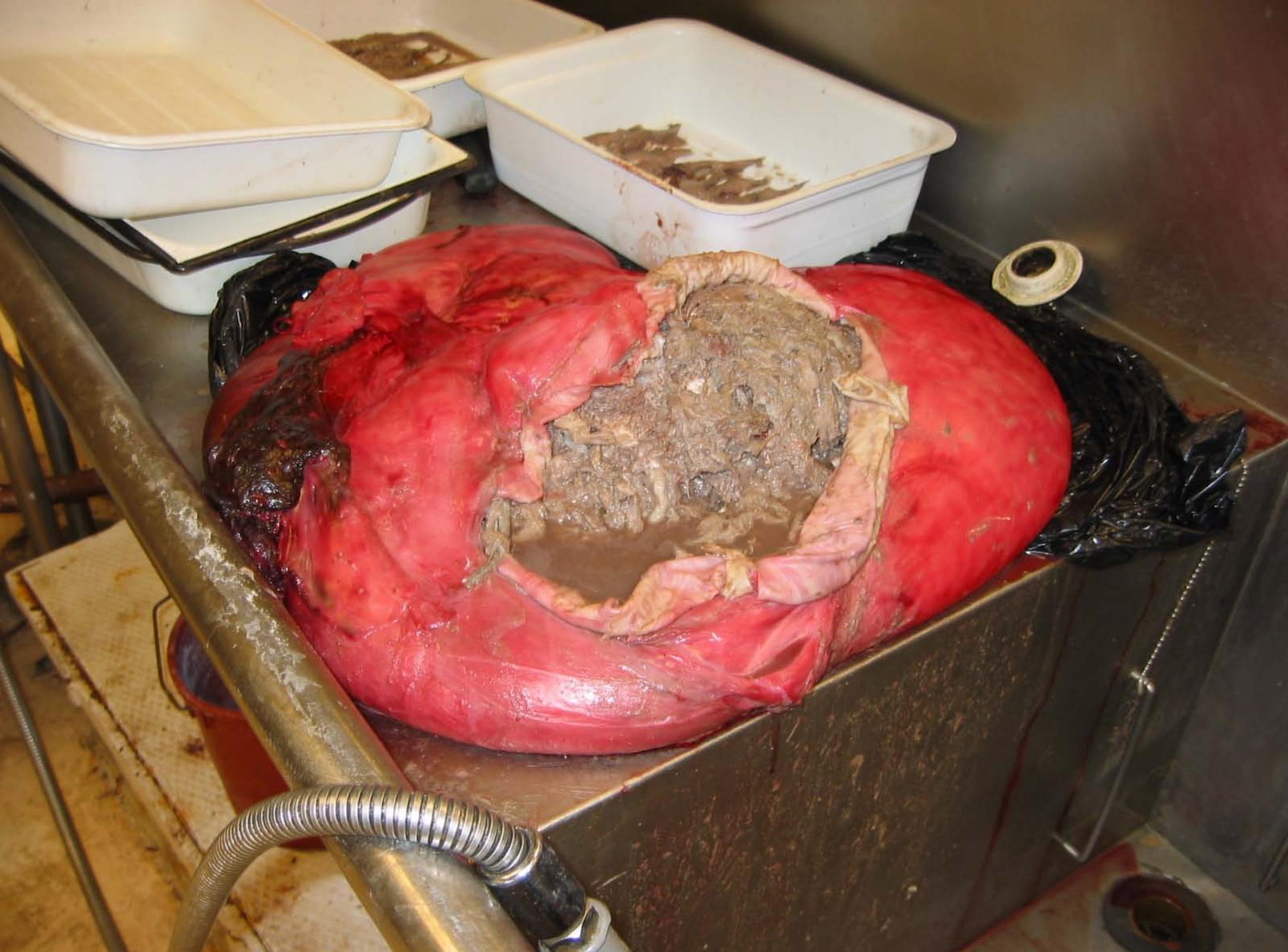
Alaska Department of Fish and Game

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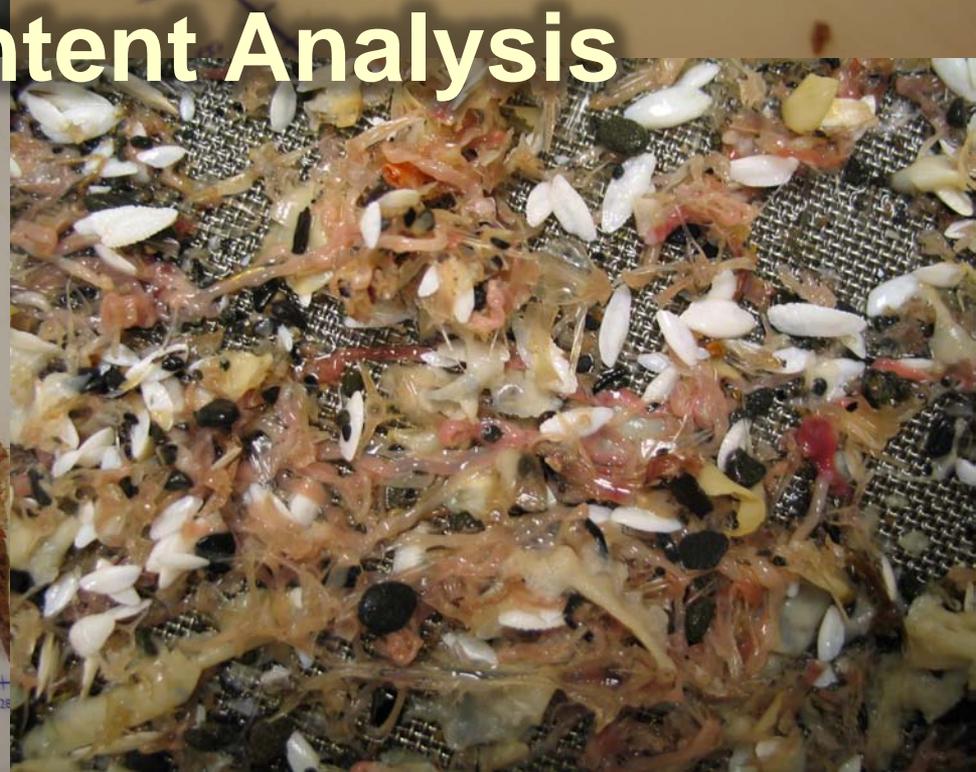








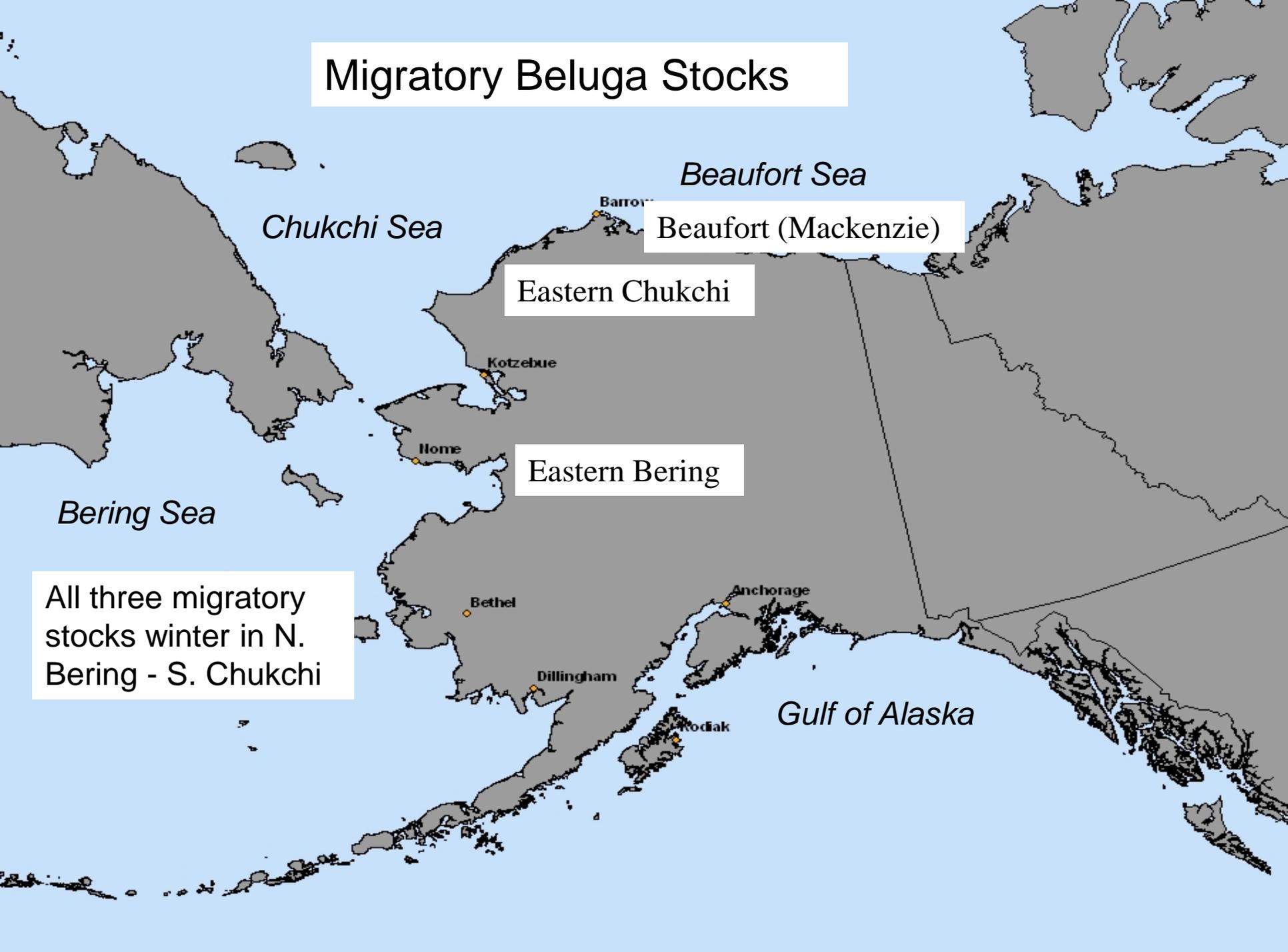
Stomach Content Analysis







Migratory Beluga Stocks



Beaufort Sea

Beaufort (Mackenzie)

Eastern Chukchi

Eastern Bering

All three migratory stocks winter in N. Bering - S. Chukchi

Chukchi Sea

Bering Sea

Gulf of Alaska

Barrow

Kotzebue

Nome

Bethel

Dillingham

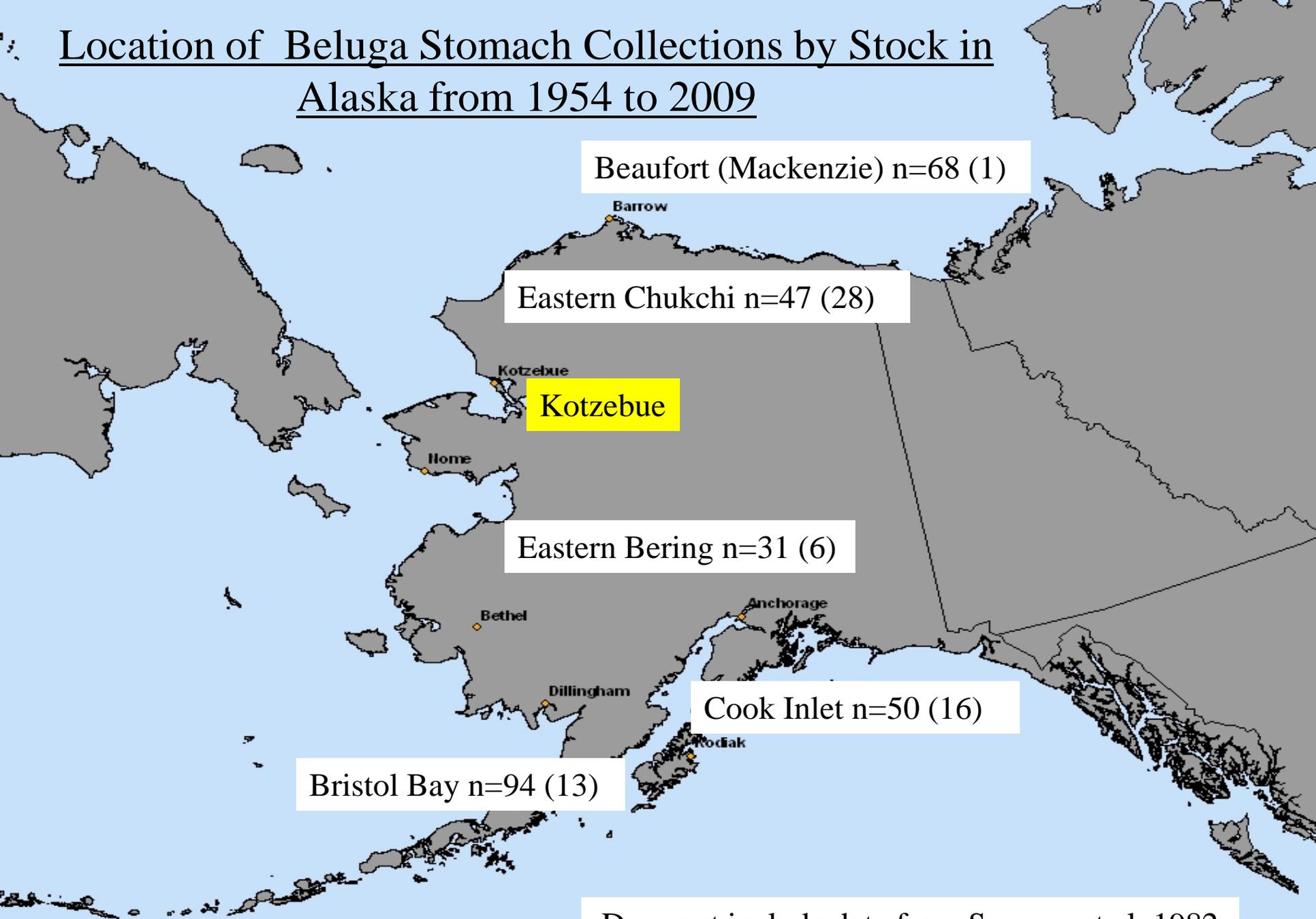
Kodiak

Anchorage

Resident Beluga Stocks



Location of Beluga Stomach Collections by Stock in Alaska from 1954 to 2009



Does not include data from Seaman et al. 1982

Sculpin



Beaufort

Arctic staghorn
Shorthorn

E. Chukchi

None

E. Bering

Arctic staghorn
Shorthorn
Ribbed

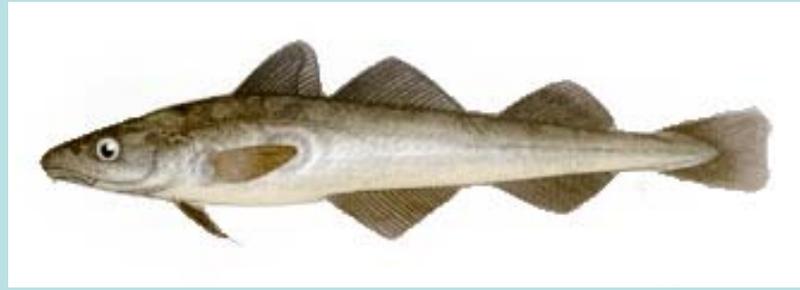
Bristol Bay

Sculpin sp.

Cook Inlet

Pacific staghorn

Cod



Beaufort

Arctic cod

Saffron cod

Walleye pollock

E. Chukchi

Arctic cod

Saffron cod

E. Bering

Arctic cod

Saffron cod

Walleye pollock

Bristol Bay

Saffron cod

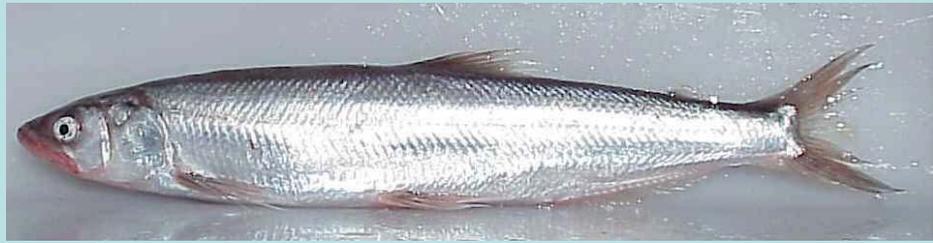
Cook Inlet

Saffron cod

Pacific cod

Walleye pollock

Smelt



Beaufort
Unid. Sp.

E. Chukchi
Rainbow smelt

E. Bering
Rainbow smelt

Bristol Bay
Rainbow smelt

Cook Inlet
Eulachon (= hooligan)



Flounder

Beaufort

None

E. Chukchi

None

E. Bering

Flathead sole

Pacific halibut

Longhead dab

Northern rock sole

Right eye flounder

Bristol Bay

Rock sole sp.

Flounder sp.

Cook Inlet

Yellowfin sole

Starry founder

Salmon



Beaufort

None

E. Chukchi

None

E. Bering

Salmon sp.

Bristol Bay

Chum (dog)

Coho (silver)

Chinook (king)

Sockeye (red)

Pink (humpy)

Cook Inlet

Chum (dog)

Coho (silver)

Chinook (king)

Invertebrates

Beaufort

Polychaetes
Amphipods
Shrimp
Crab
Echiurids
Octopus/squid



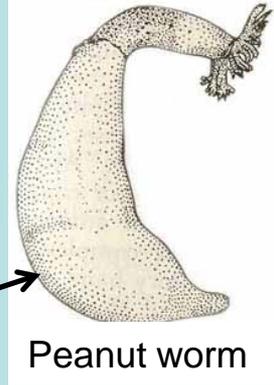
E. Chukchi

Polychaetes
Amphipods
Shrimp
Crab
Echiurids
Octopus/squid
Snails



E. Bering

Polychaetes
Amphipods
Shrimp
Crab
Echiurids
Isopods
Octopus/squid
Snails



Bristol Bay

Shrimp
Crab
Isopods



Cook Inlet

Polychaetes
Amphipods
Shrimp
Crab



Stomach content analyses

Frequency of Occurrence (%FO)

$$\%FO_i = \frac{\# \text{ stomachs with fish species } i}{\# \text{ of stomachs with fish}}$$

- General trends
- Prey species specific

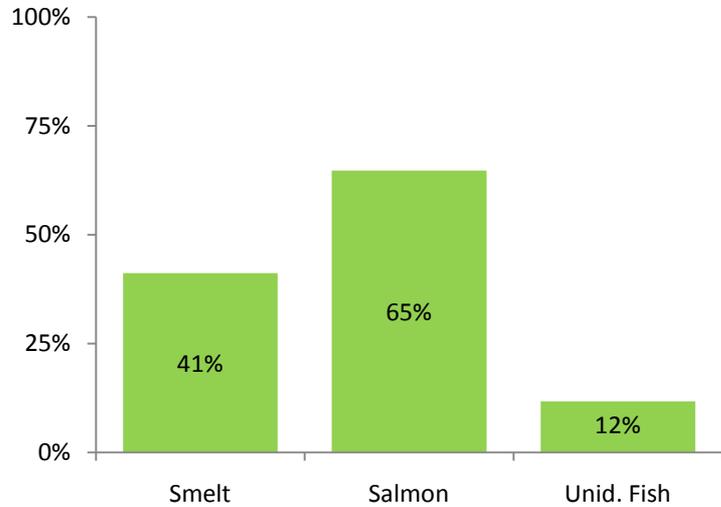
– *Example:*

- 5 belugas 3-coho salmon; 1- Pacific cod; 1-eulachon; 5-sculpin

$$60\% FO_{\text{coho}} = \frac{3 \text{ stomachs with coho}}{5 \text{ stomachs with fish}}$$

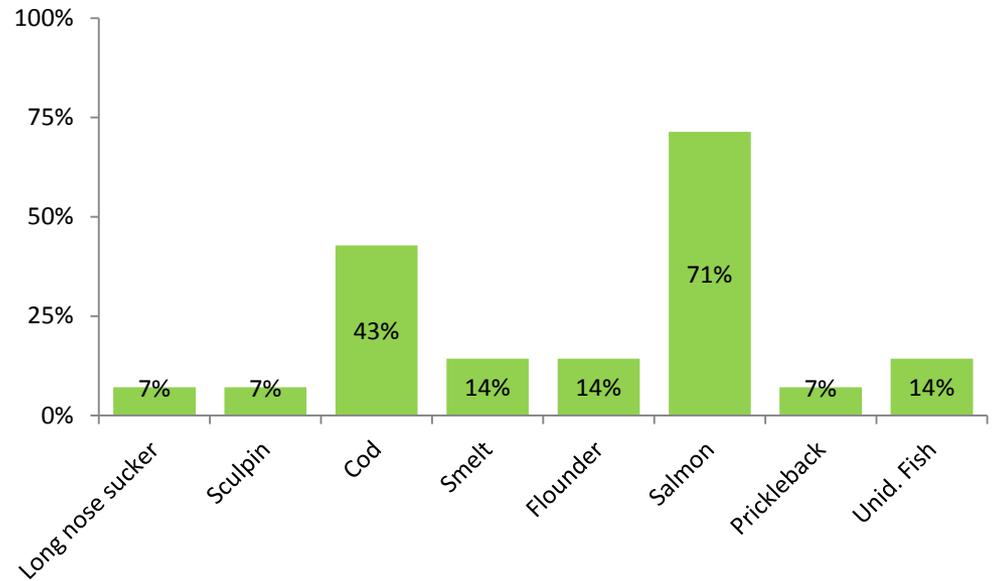
Cook Inlet Beluga Diet – %FO Fish

**1992-2001 Cook Inlet
n = 17 of 24**



Only King salmon were identified to species.

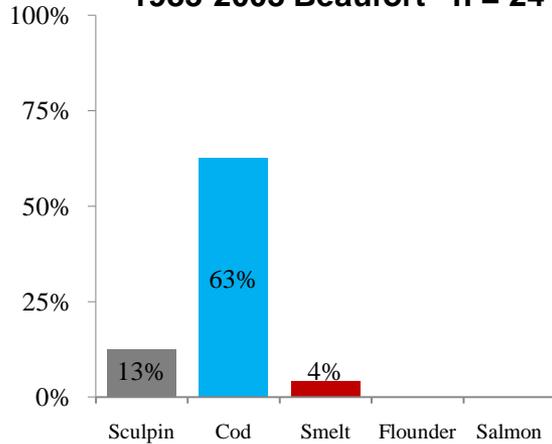
2002-2009 Cook Inlet n = 16 of 34



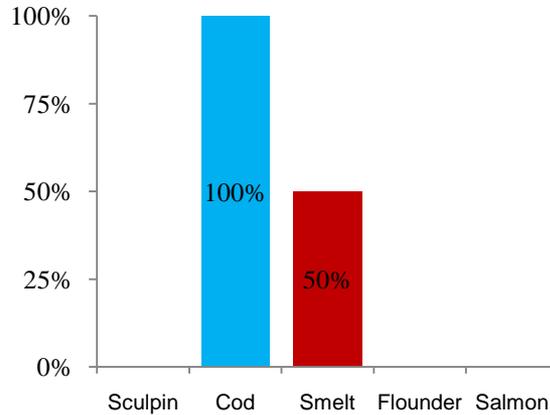
Coho (36%), Chum (21%), King (7%)

Beluga Diet – %FO Fish

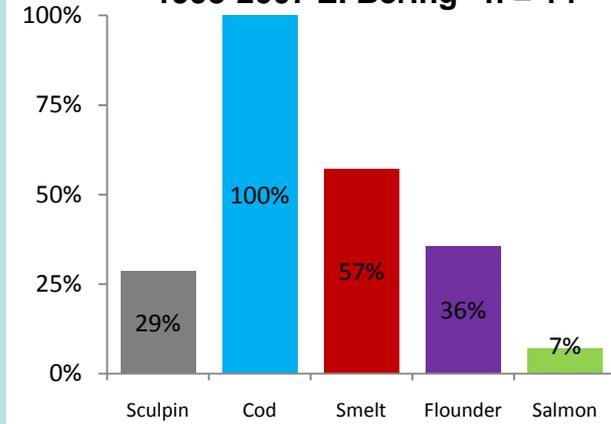
1983-2003 Beaufort n = 24



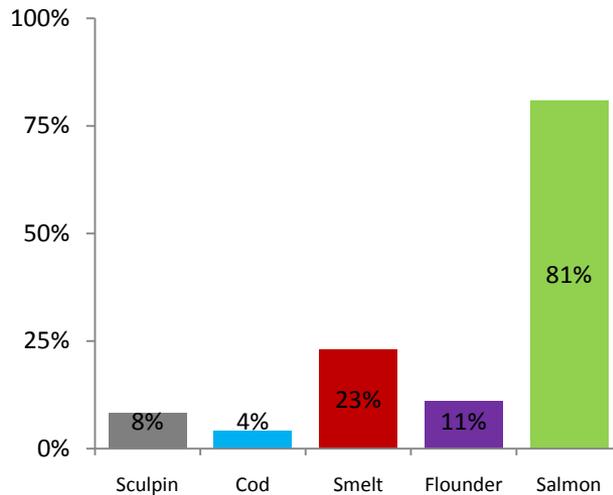
1983-2002 E. Chukchi n = 2



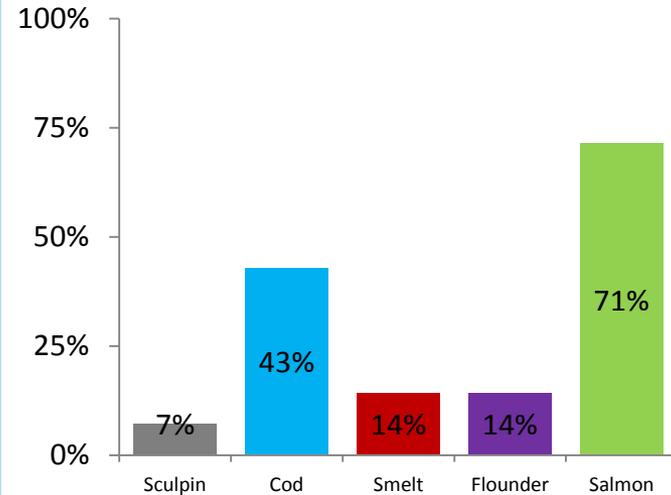
1993-2007 E. Bering n = 14



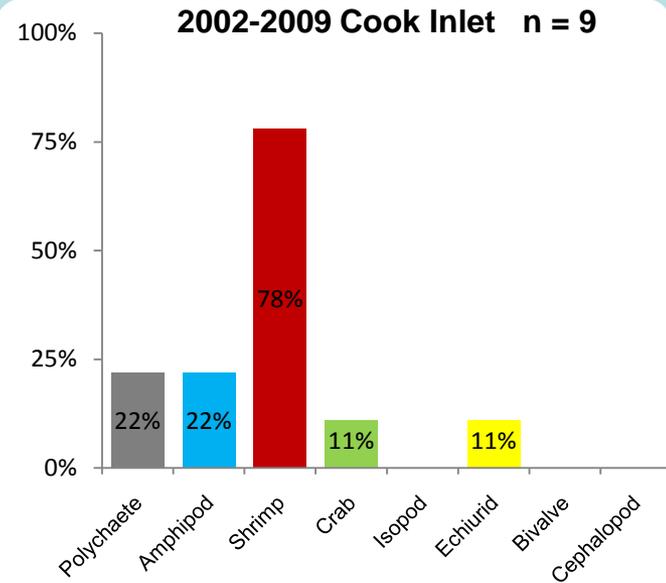
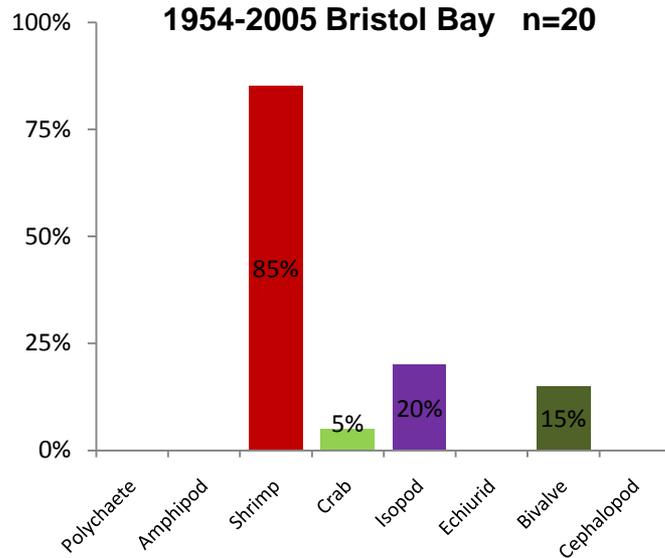
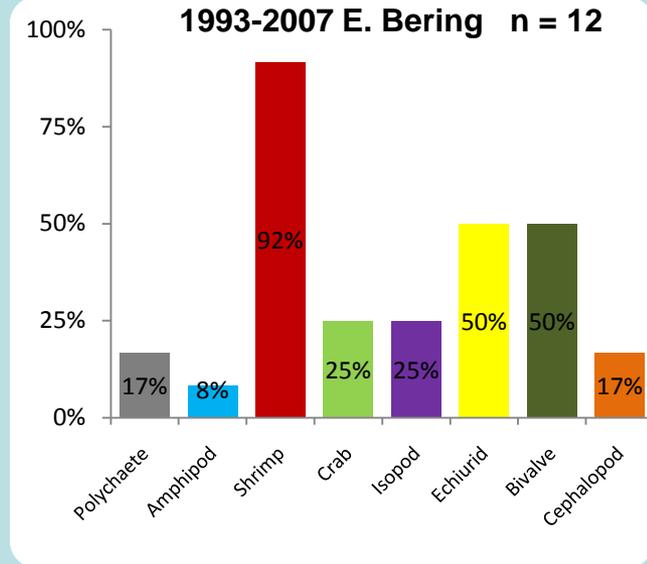
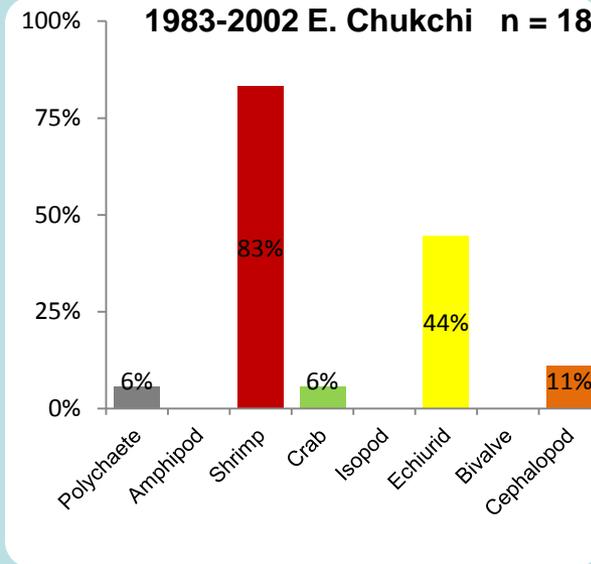
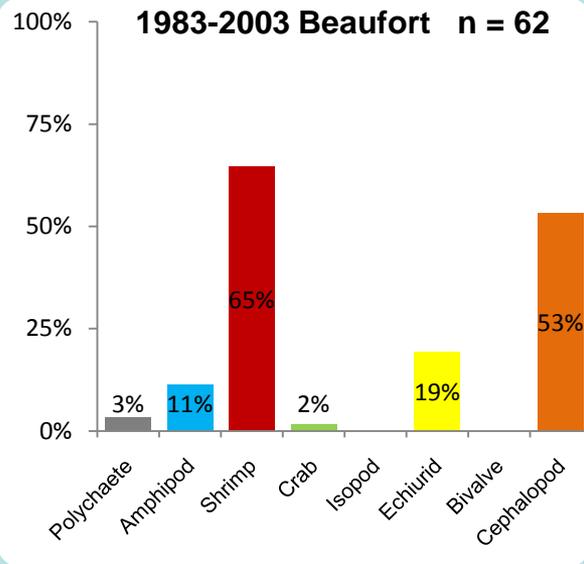
1954-2005 Bristol Bay n = 73



2002-2009 Cook Inlet n = 16



Beluga Diet – %FO Invertebrates



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