

# the transient project



**Jo-Ann Mellish**

University of Alaska Fairbanks  
Alaska SeaLife Center

# objectives

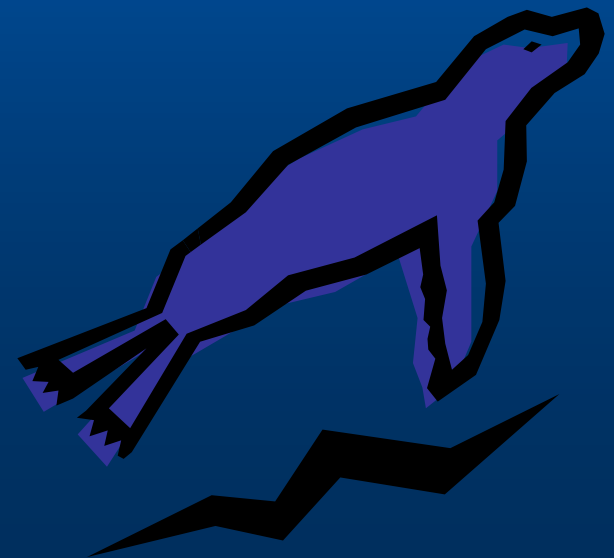
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capture and temporarily hold up to 16 juvenile Steller sea lions per year for short-term research initiatives

- juveniles at highest risk
- limited accessibility
- recapture unlikely

facilitate collaborative research

- maximize information
- minimize disturbance



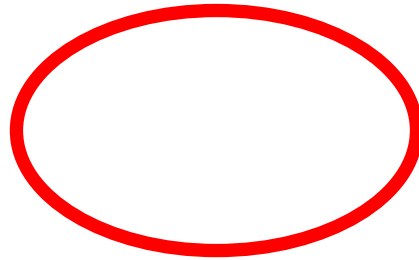
# history

**NOT MAMMAL EATERS**

- ASLC workshop November 2000
- quarantine facility June 2003
- first collection August 2003
- 31 transients (13f, 17m)
- $\leq 4$  per group
- 3 months holding period
- Resurrection Bay/PWS

# Steller south beach

QuickTime™ and a  
TIFF (Uncompressed) decompressor  
are needed to see this picture.



- four pools
- 1,200 gal/min
- 1600 ft<sup>2</sup> haul out area
- food prep, lab, office, shower, mechanical access
- loading/storage dock
- two-way quarantine



# collection





# control subjects

- free-range (n=52)
- blood panels
- body condition
- marked



# post-release monitoring



## objectives

- assess post-release ranging and dive behavior
- compare to free-range juveniles
- compare LHX to non-LHX animals

## results

- same range and haul-out sites
- diving performance not influenced by captivity
- remote camera systems
- visual re-sight/inter-agency

# epidemiology

## objectives

- monitor disease in temporarily
- captive animals
- document normally-occurring pathogens
  - *brucella*, *leptospirosis*, *e coli*

## results

- no exposure
- no acquired resistance to antibiotics
- lung mites, nasal mites, tapeworms





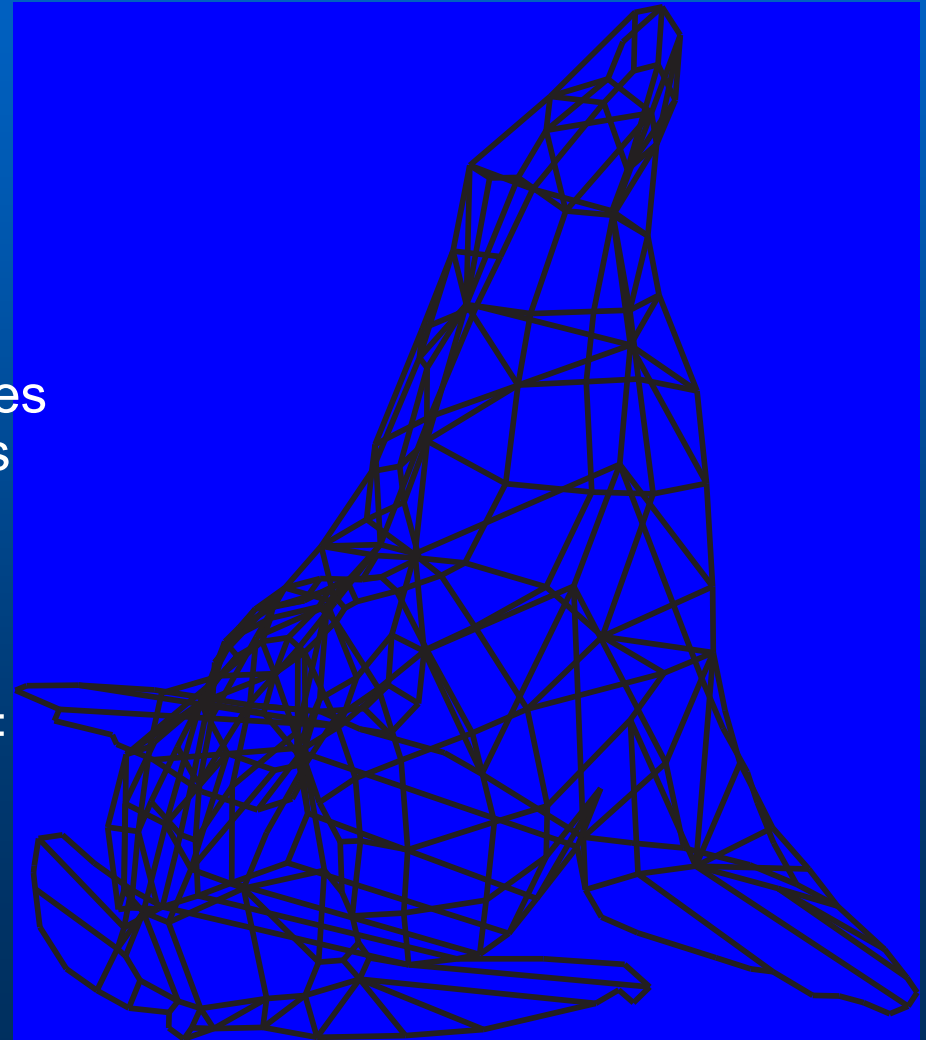
# 3D imaging

## objectives

- utilize digital imaging for 3D wireframe models
- assess suitability for estimating mass and volume
- assess thermal imaging capabilities for detecting general health status

## results

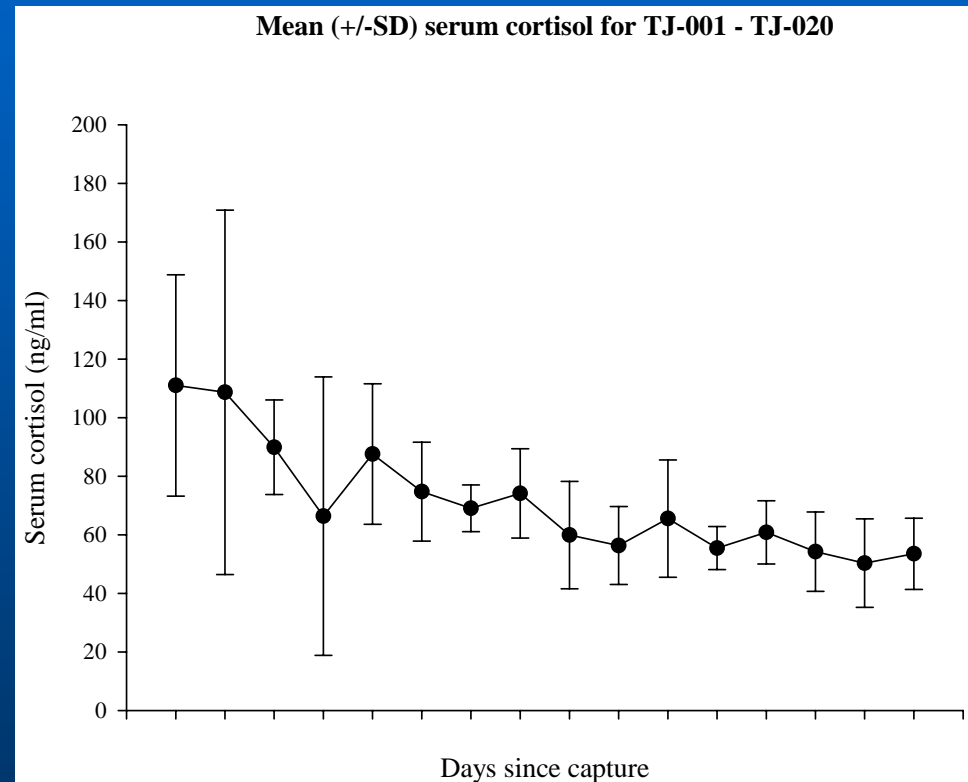
- % error of mass predictions  $5.5 \pm 0.7$  %



# stress response

## objectives

- evaluate response to temporary captivity
- branding
- surgical implantation
- seasonal adrenal function
- ACTH challenge



# fatty acids & stable isotopes

## objectives

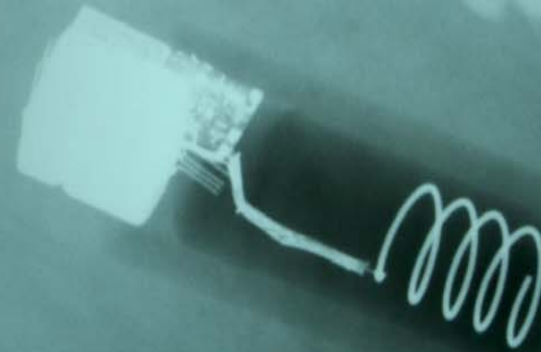
- determine if changes in diet of identified in serum and blubber
- establish timeframe of any shifts
- document shifts in trophic level capture to determine weaning
- changes in isotope signature change in diet

QuickTime™ and a  
TIFF (LZW) decompressor  
are needed to see this picture.



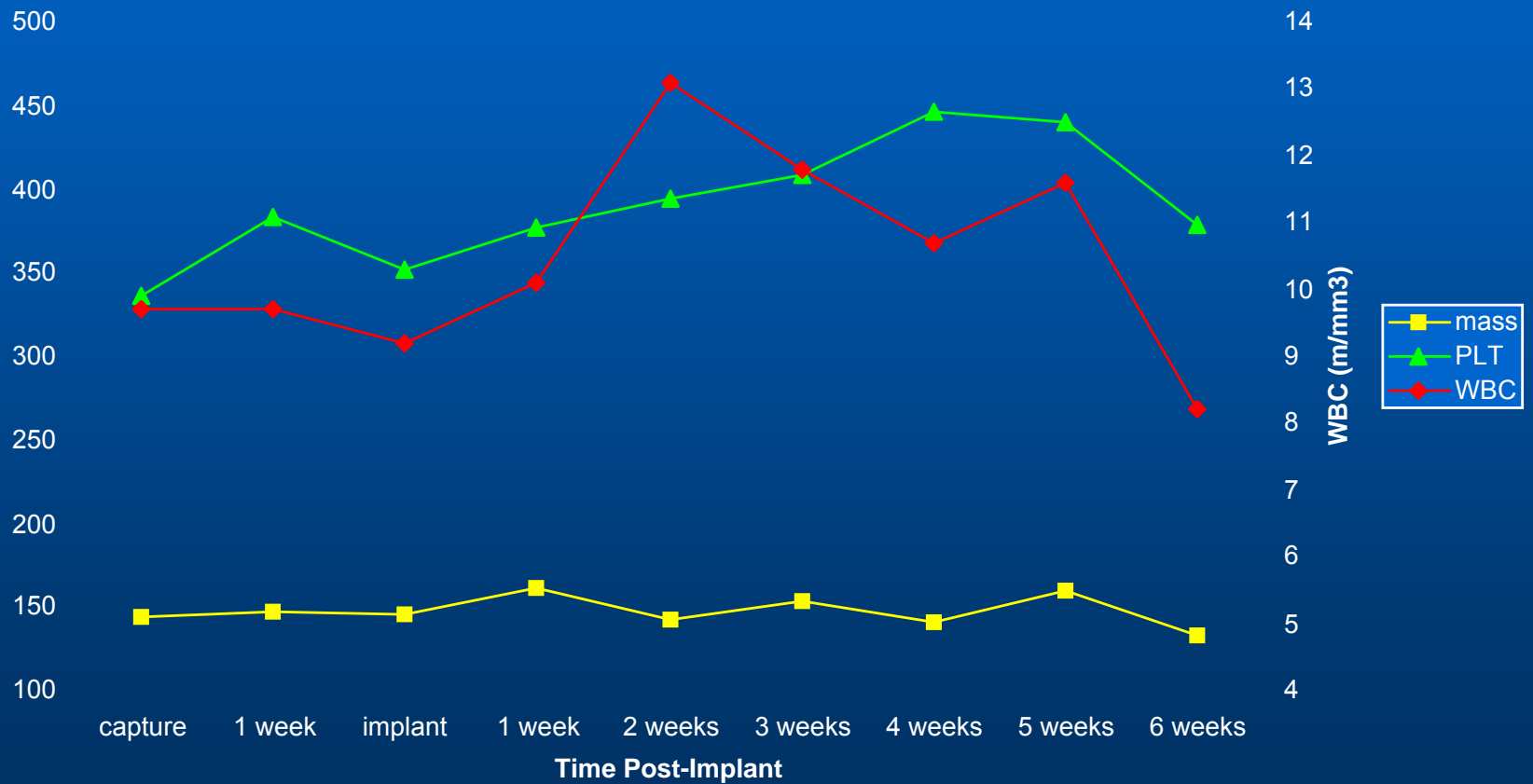
# life history transmitter (LHX)

- **satellite-linked**
  - extrusion
- **five sensors**
  - temperature, internal pressure, cumulative weekly dive effort
- **time and date stamp death**
- **correlate to health at implantation**
- **potential cause of death**
  - sudden or chronic

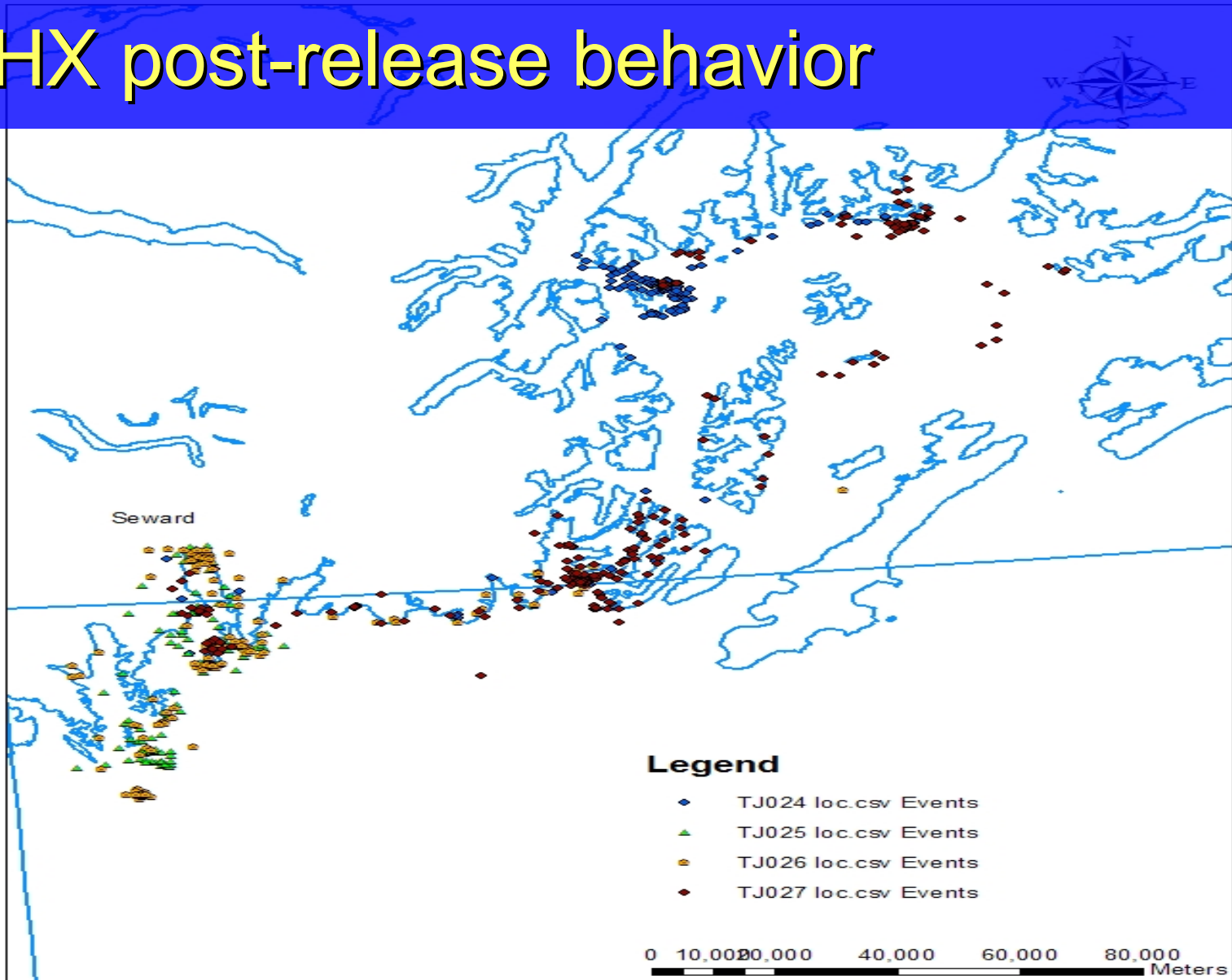


- **Stage 1 - Zalophus**
  - surrogate trials (n = 6)
- **Stage 2 - Transient Juveniles**
  - single implants (n = 2)
  - double implants (n = 4)
  - future transients (n = 16)
- **Stage 3**
  - free-range (n = 60)

# LHX post-op



# LHX post-release behavior





# nutritional studies

## completed

### Pollock study

Calkins et al (ASLC/UAF)

### Vitamin A&E requirements

Mazzaro (Mystic Aquarium)

## ongoing

### Protein turnover

Inlgis & Castellini (UAF)

### GH, IGF-1, IGF-BP

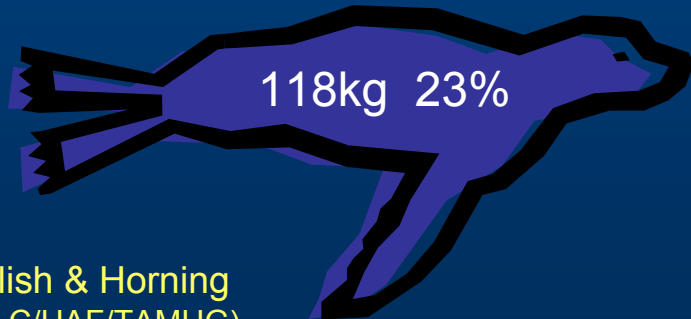
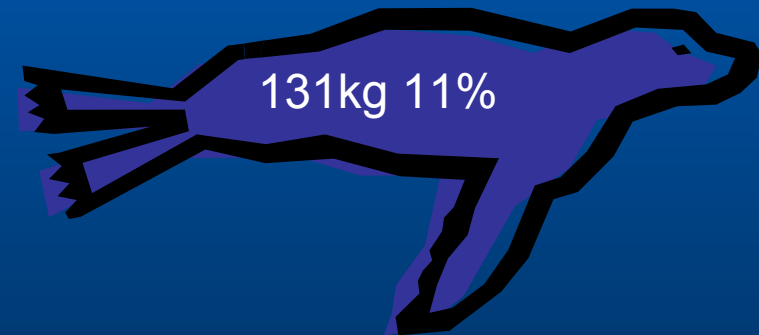
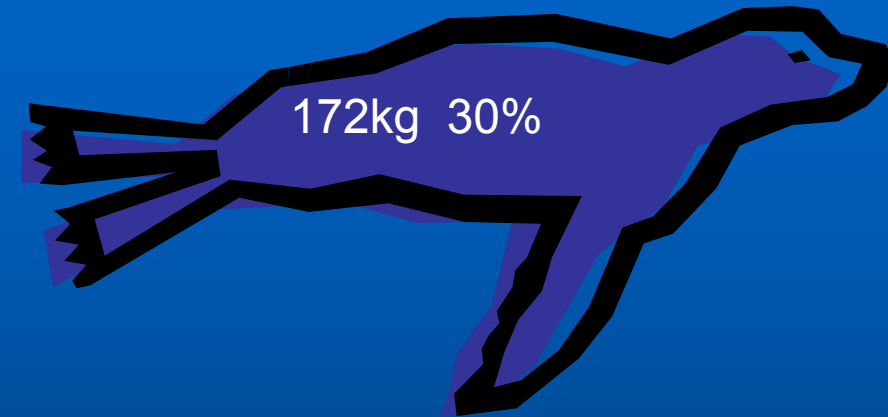
Richmond & Zinn (UConn)

### Diet assimilation

Trumble et al (UM/NMML/ASLC)

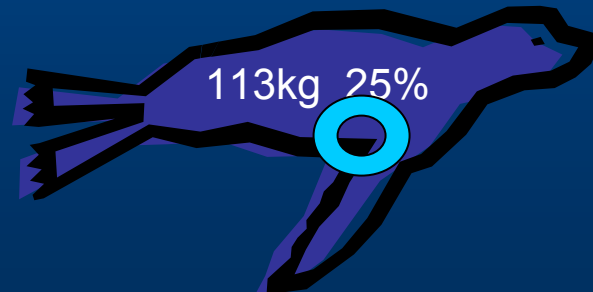
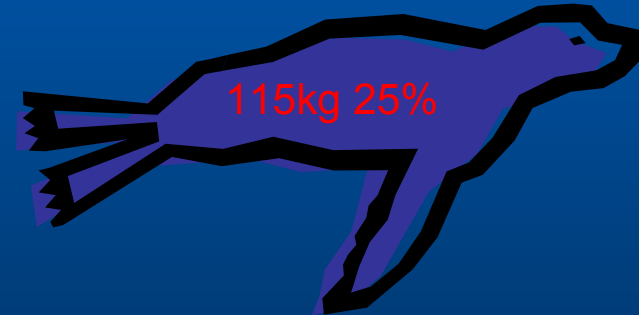
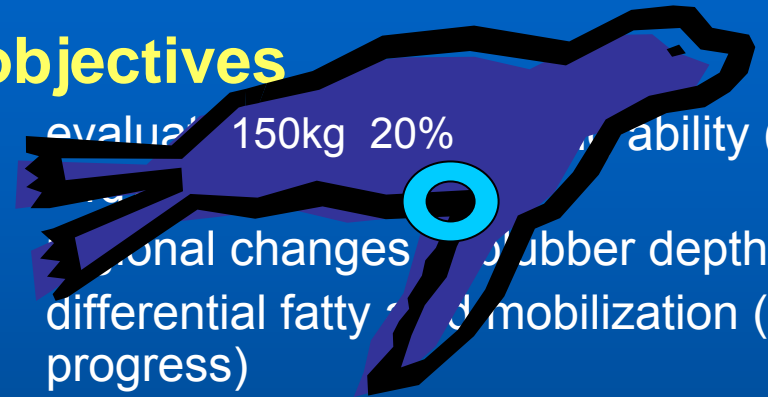


# fasting capacity



## objectives

- evaluate fasting capacity (10-15%)
- seasonal changes in blubber depth
- differential fatty acid mobilization (in progress)



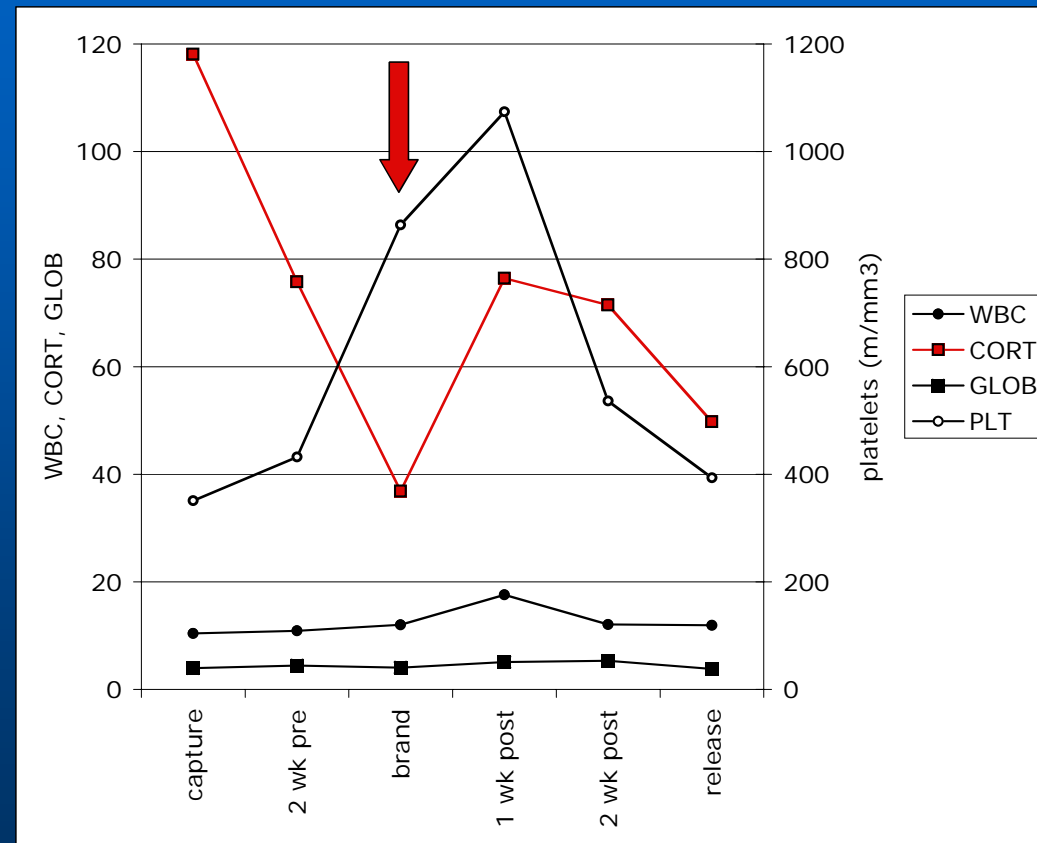
# hot-branding

## objectives

- monitor physiological response
- weekly  $\leq 8$ wks (n = 7)
- WBC, platelets, globulins, haptoglobins
- cortisol

## results

- all parameters returned to pre-brand levels after 2wks
- minor physiological challenge



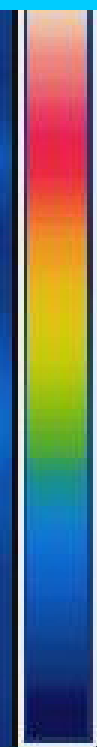
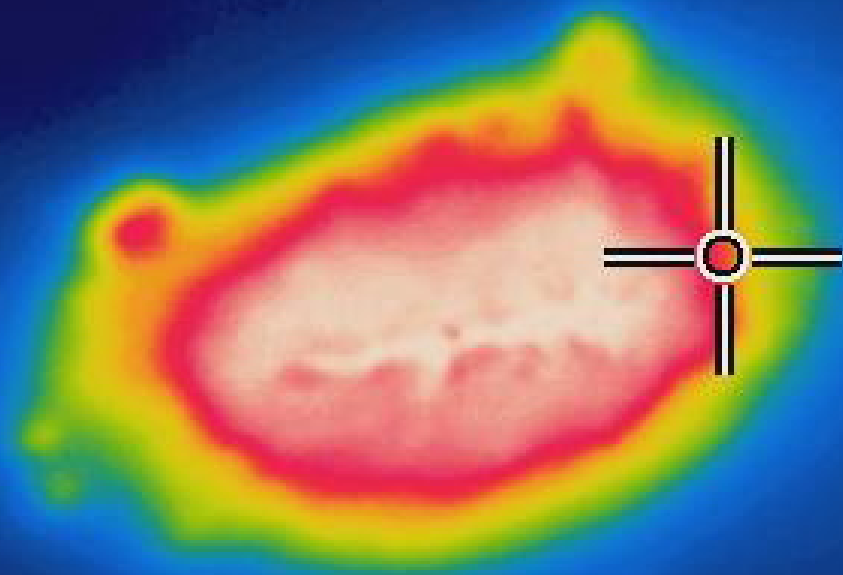




+ 81.7

91

# thermal imaging



53

## objectives

- assess thermal imaging capabilities for detecting general health status
- heat increment of healing

Mellish & Horning  
(ASLC/UAF/TAMUG)

°F

# partners

QuickTime™ and a  
TIFF (LZW) decompressor  
are needed to see this picture.

## research

Alaska Dept of Fish and Game

Colorado State University

Dalhousie University

Mystic Aquarium

National Marine Mammal Lab

Texas A&M University

University of Alaska Fairbanks

University of Connecticut

University of California Davis

University of California Santa Cruz

## logistical support

US Coast Guard

Alaska State Troopers

Alaska Dept of Fish and Game

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QuickTime™ and a  
H.263 decompressor  
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