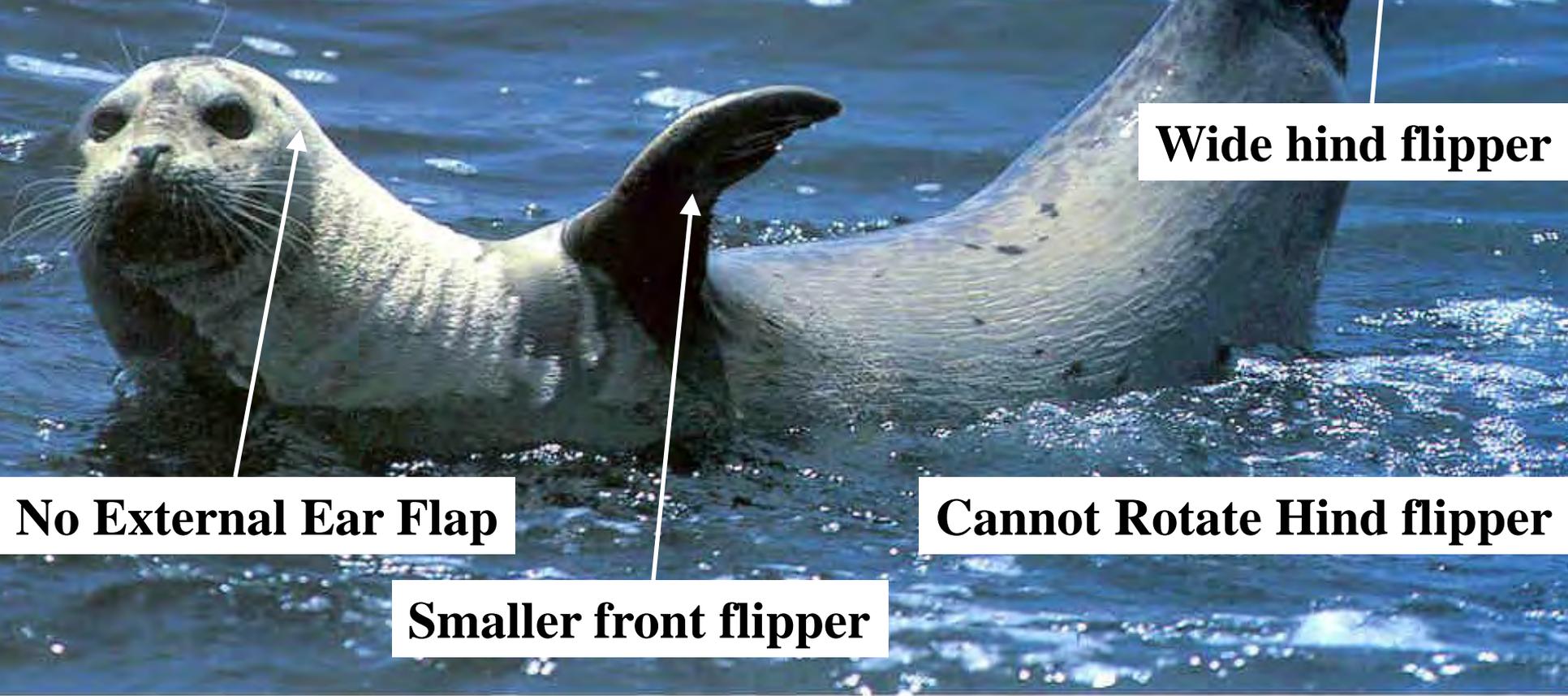


The Natural History of Harbor Seals



- **No sexual dimorphism**
- **Weight 200-250 lbs**
- **Length 4-5 ft**
- **Age - @30 years in captivity**



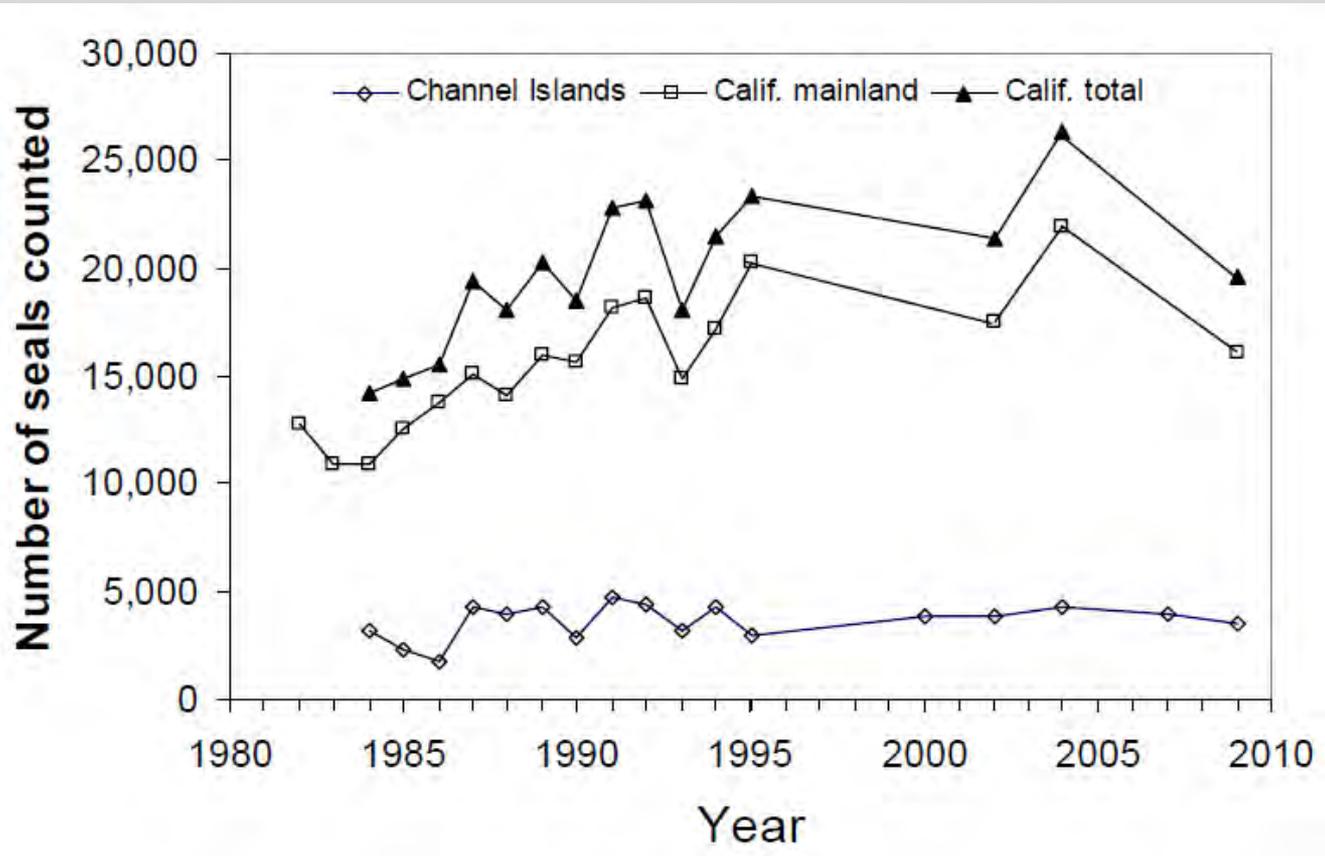
Wide hind flipper

No External Ear Flap

Smaller front flipper

Cannot Rotate Hind flipper

General Population Status and Trends



Population in 2011:

- *Stable*
- *30,196 + in CA*
- *@6,000 at Point Reyes*

Color Phases



© Sophie Webb



© Sophie Webb





Many color phases



Red = Iron Oxide attached to fur



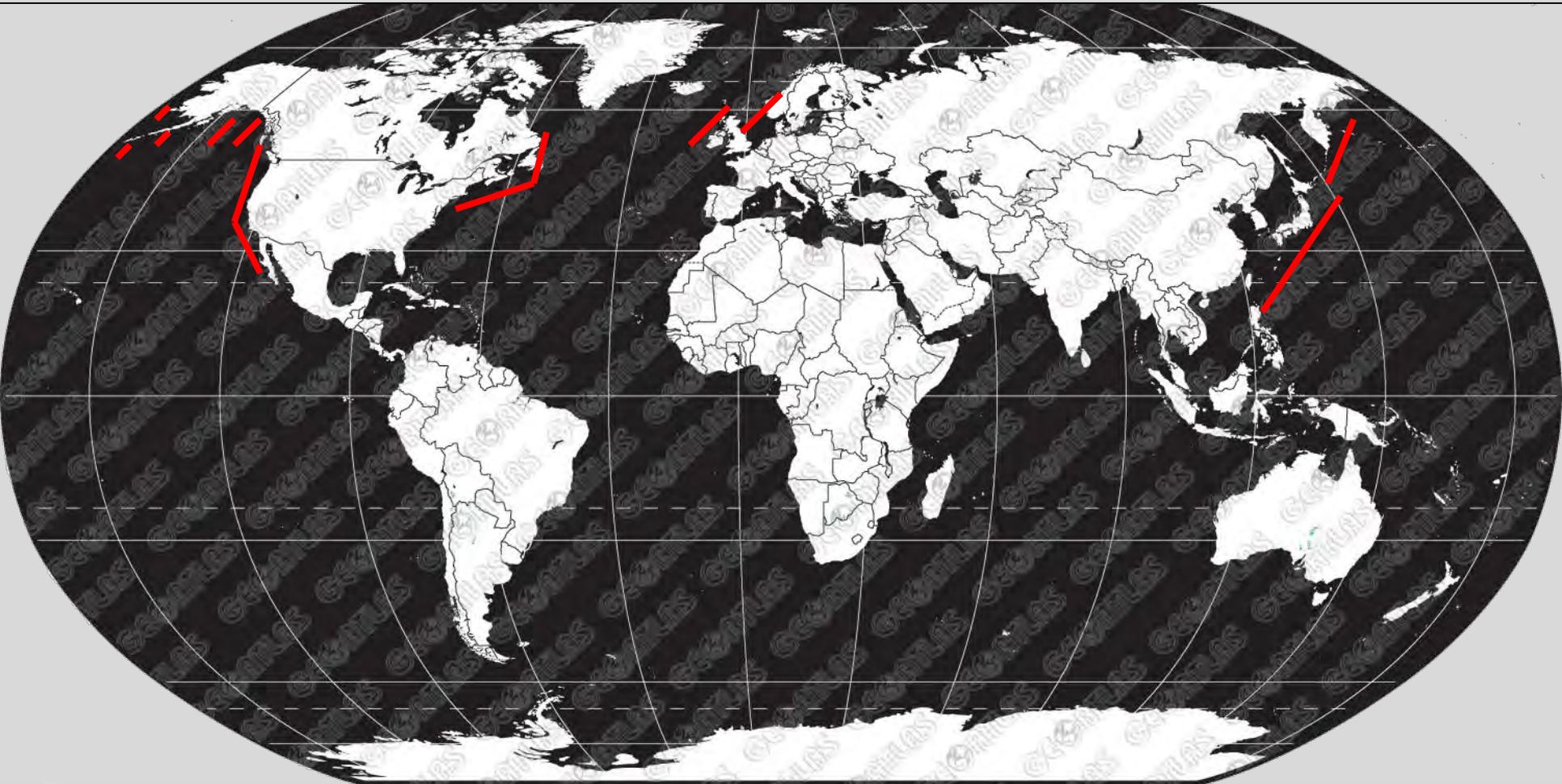
Red Seals



Algae grows on fur of seals



Harbor seal world distribution





Habitat Needs of All Seals

Terrestrial
reproduction
physiological
historical

Marine
food
travel



Marine life



Photo from web

Haul-outs : locations on land where seals gather to rest, give birth, care for pups, molt.

- **Sandy Beaches**



- **Tidal Mud Flats**



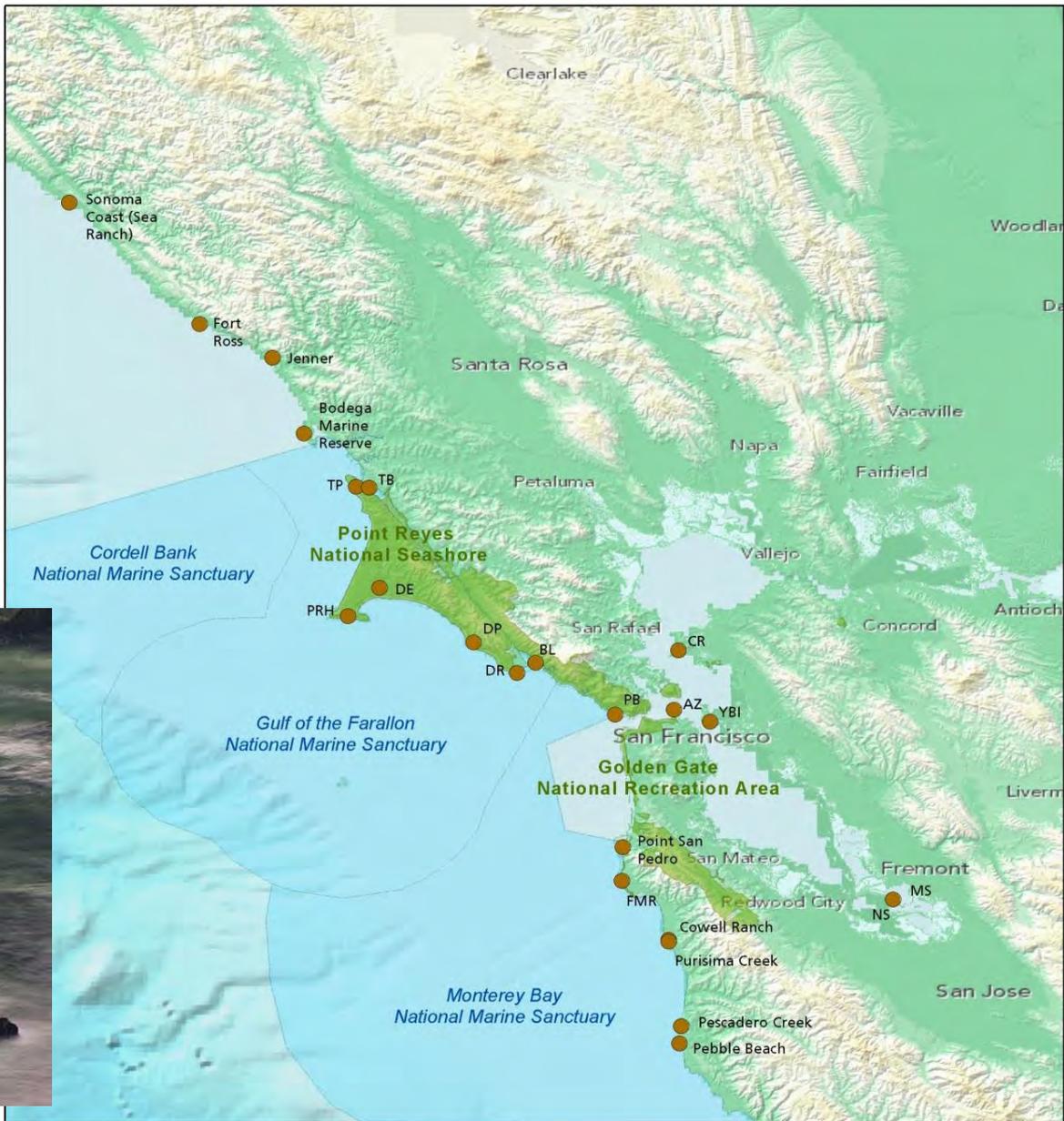
- **Tidal Rocky**



- **Tidal Sandbars**



Harbor Seal Regional Colonies



● Harbor Seal Colonies

■ National Park

■ National Marine Sanctuary

0 10 20 Miles



Data Sources:
Harbor Seal Colonies,
National Park Boundary (NPS)
National Marine Sanctuaries (USGS GAP)
Basemap compiled by ESRI

Haul out site examples













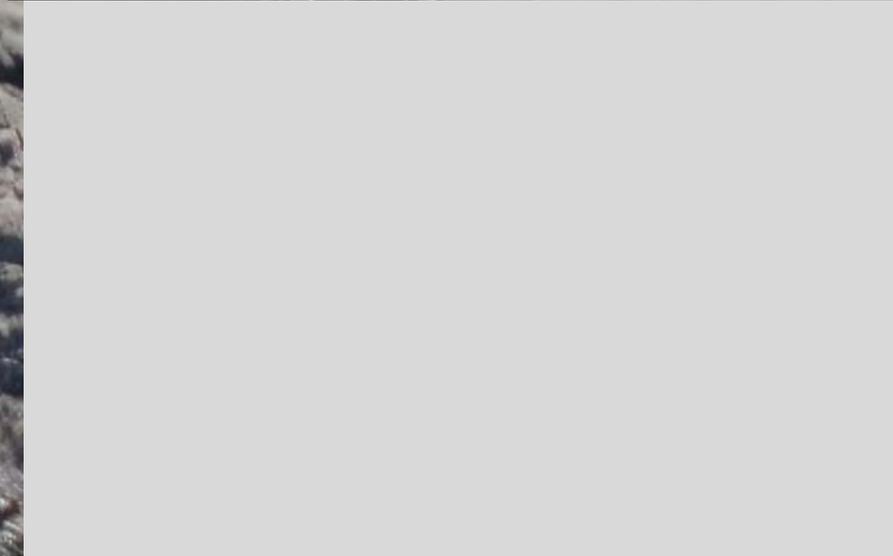
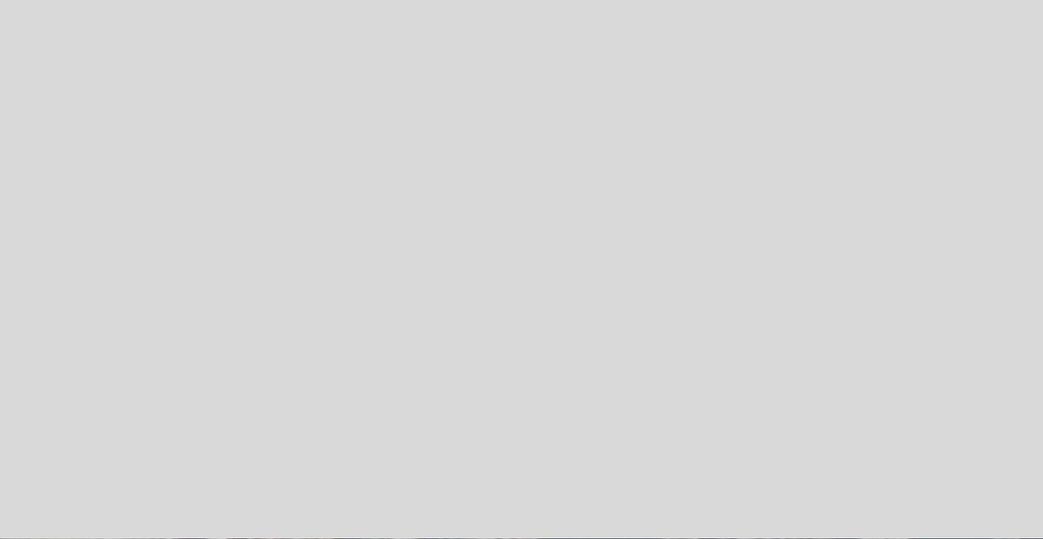


















Man made structures





Daily Pattern

Time of day

Tide

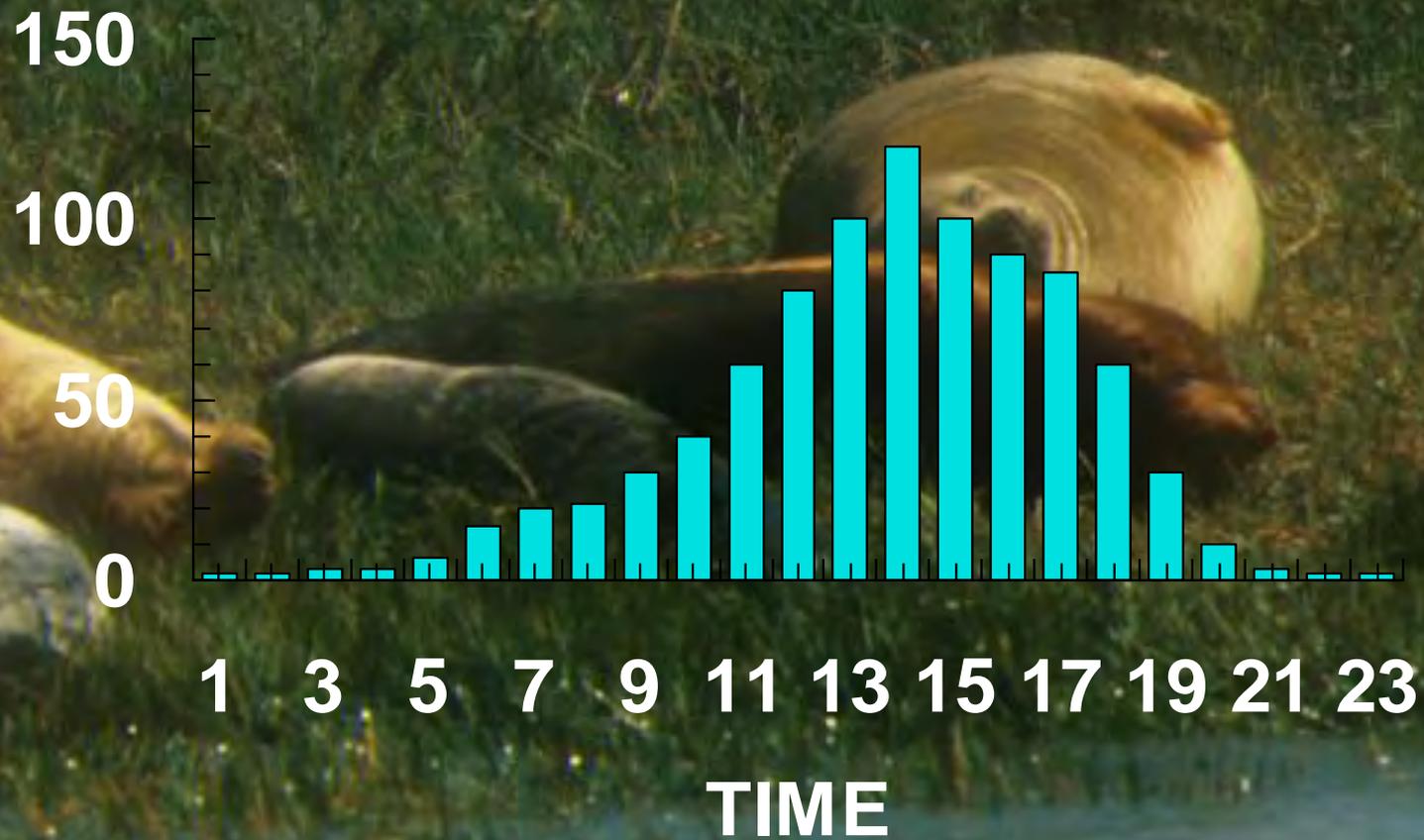
Seasonal Pattern

Breeding (March-June)

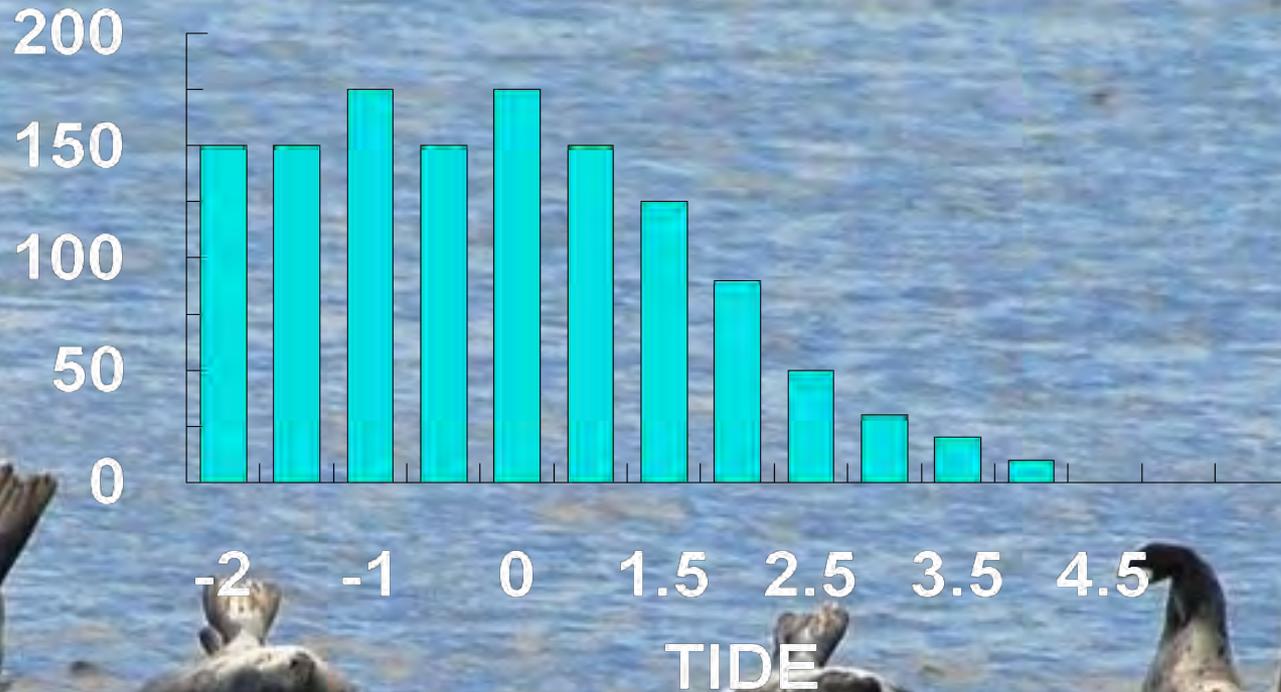
Molt (July-August)

Non-breeding (Sept-Feb)

Daily haul out pattern



Tidal haul out pattern



Meyers Grade Low Tide



Sites used high
and low tide

Meyers Grade High Tide





Seasonal variation in number

Pupping

Mar-Jun

Molt

Jul-Aug

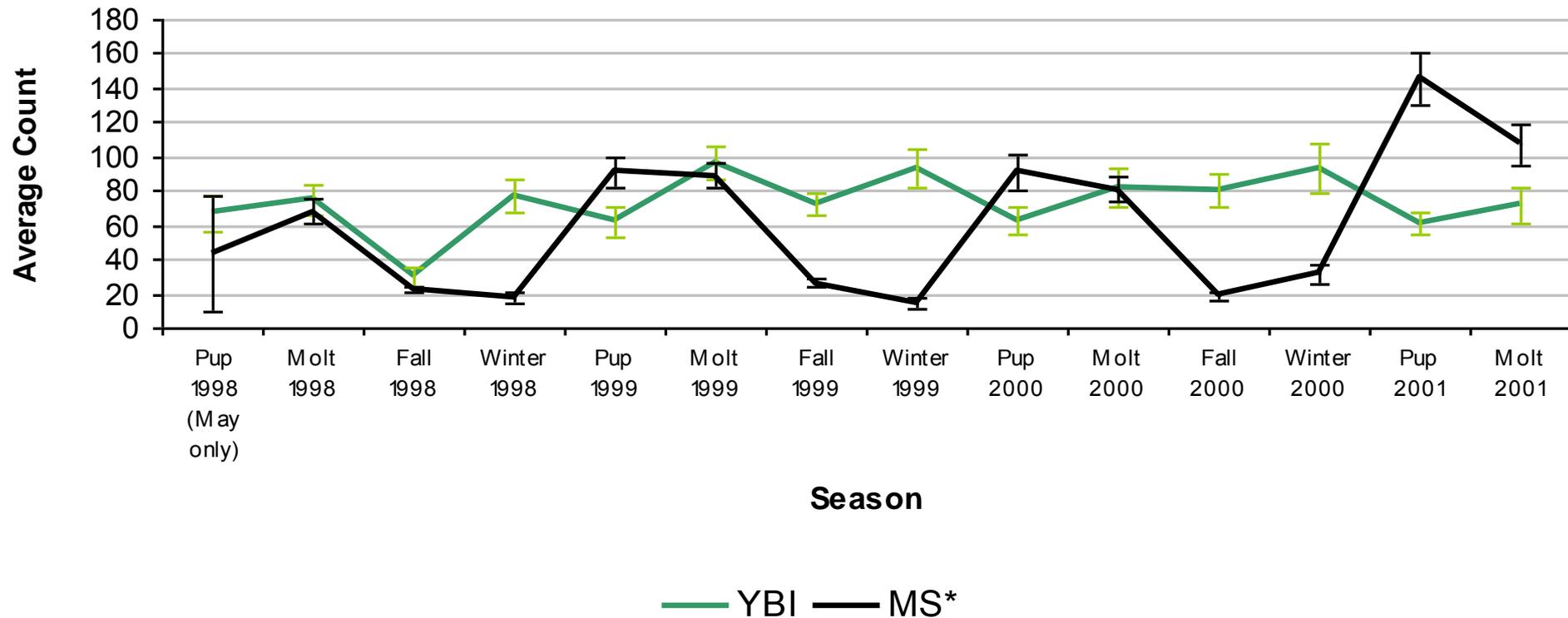
Fall/Winter

Sept-Feb

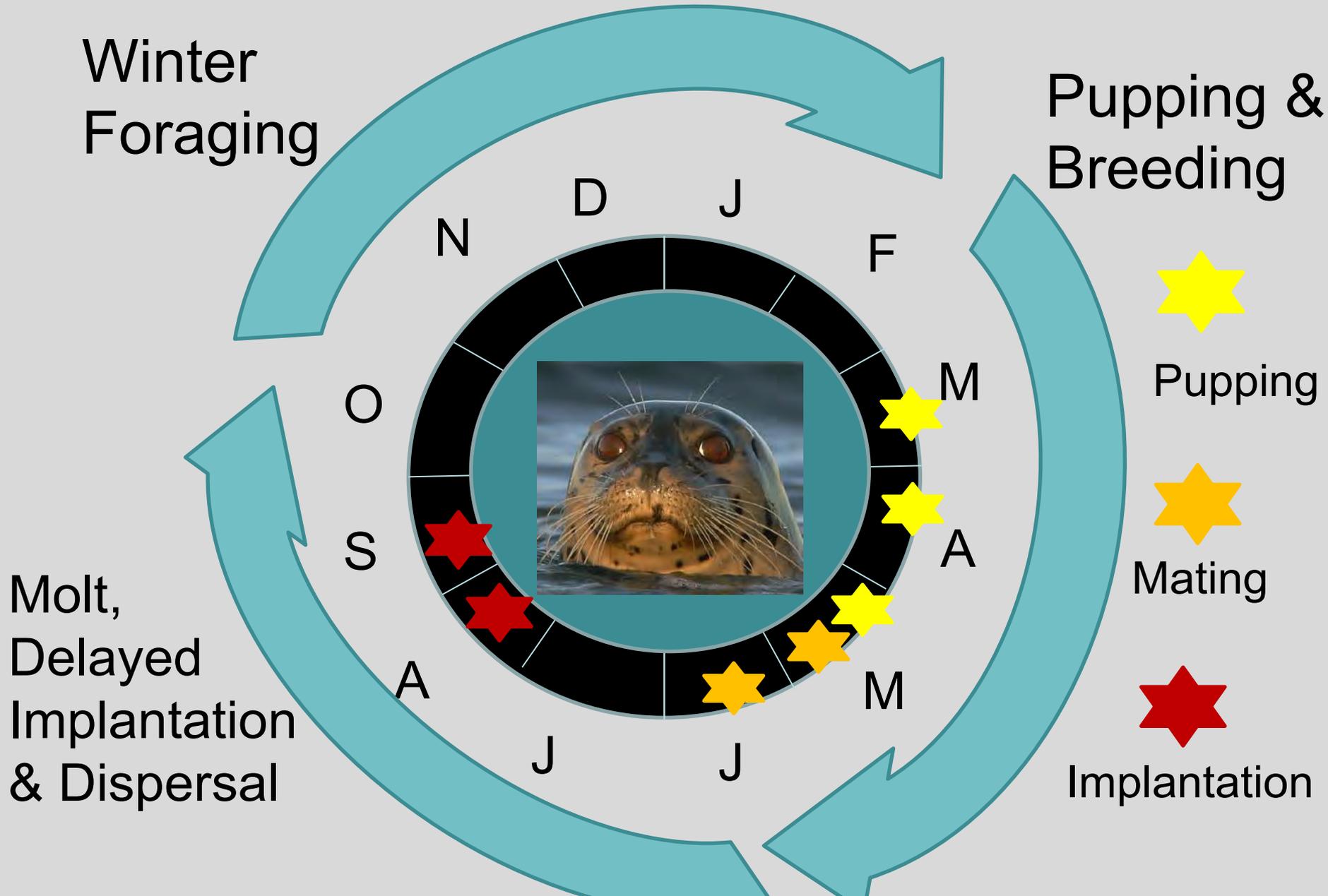




Seasonal and annual variation



Annual cycle



Pupping



- ❖ Females give birth to one pup/year
- ❖ Females wean pups at 30 days
- ❖ Pups swim at birth

Birth sequence



Drakes Estero 2007
Photos by volunteer
Judy Bourke



Birthing



- ❖ Mothers recognize pups by sight, sound and smell



Newborn pups



Lanugo pup



Pup without lanugo

Photos from Sue Van Der Wal



- ❖ Pups weigh 24 lbs at birth
- ❖ Pups weigh 50 lbs at weaning
- ❖ Pups weaned at 30 days

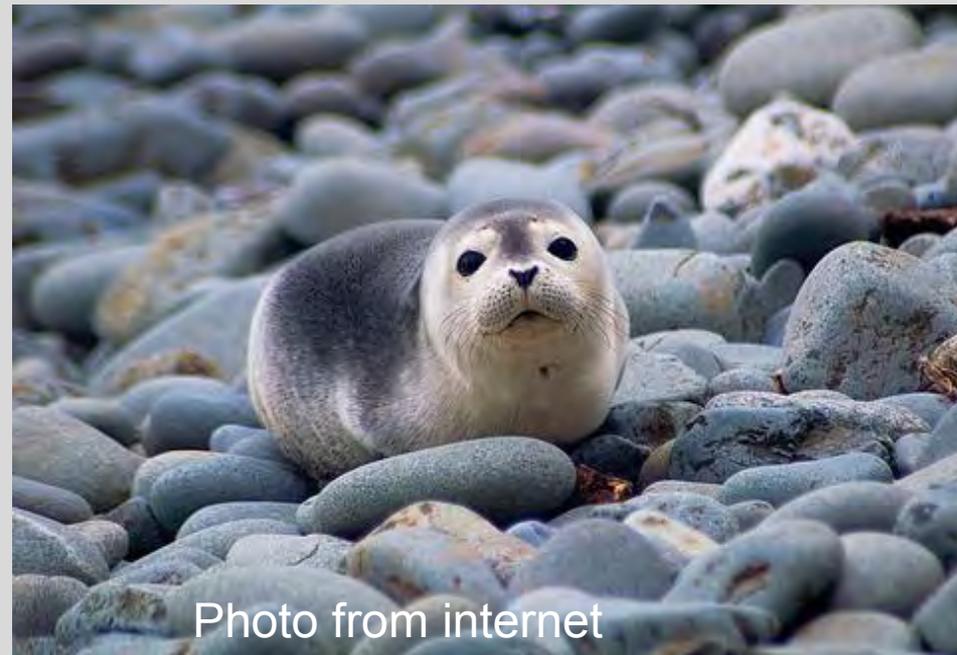


Photo from internet

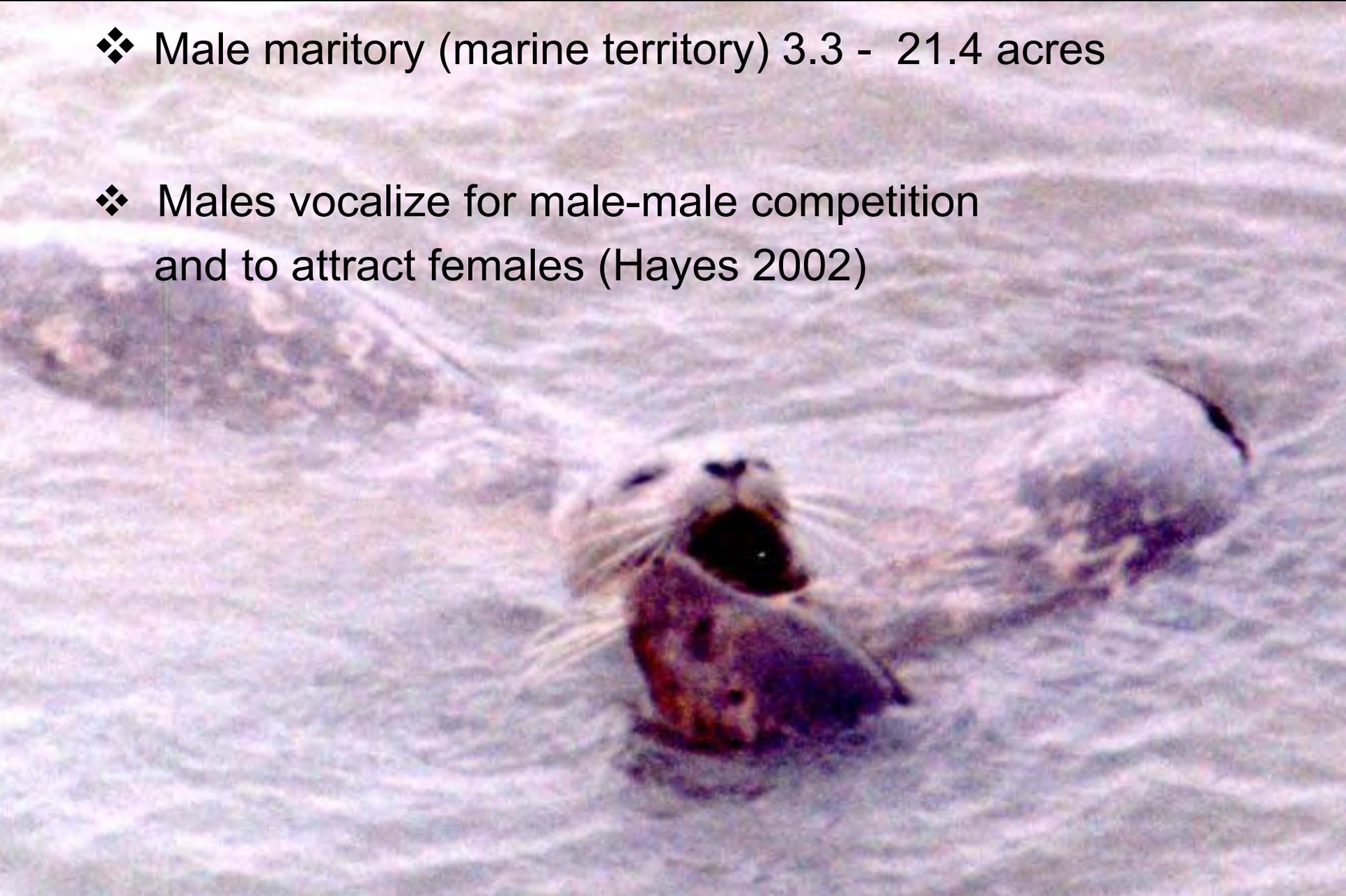
Pups all ages





Mating

- ❖ Male maritory (marine territory) 3.3 - 21.4 acres
- ❖ Males vocalize for male-male competition and to attract females (Hayes 2002)





Aquatic mating



Molt

June-Aug

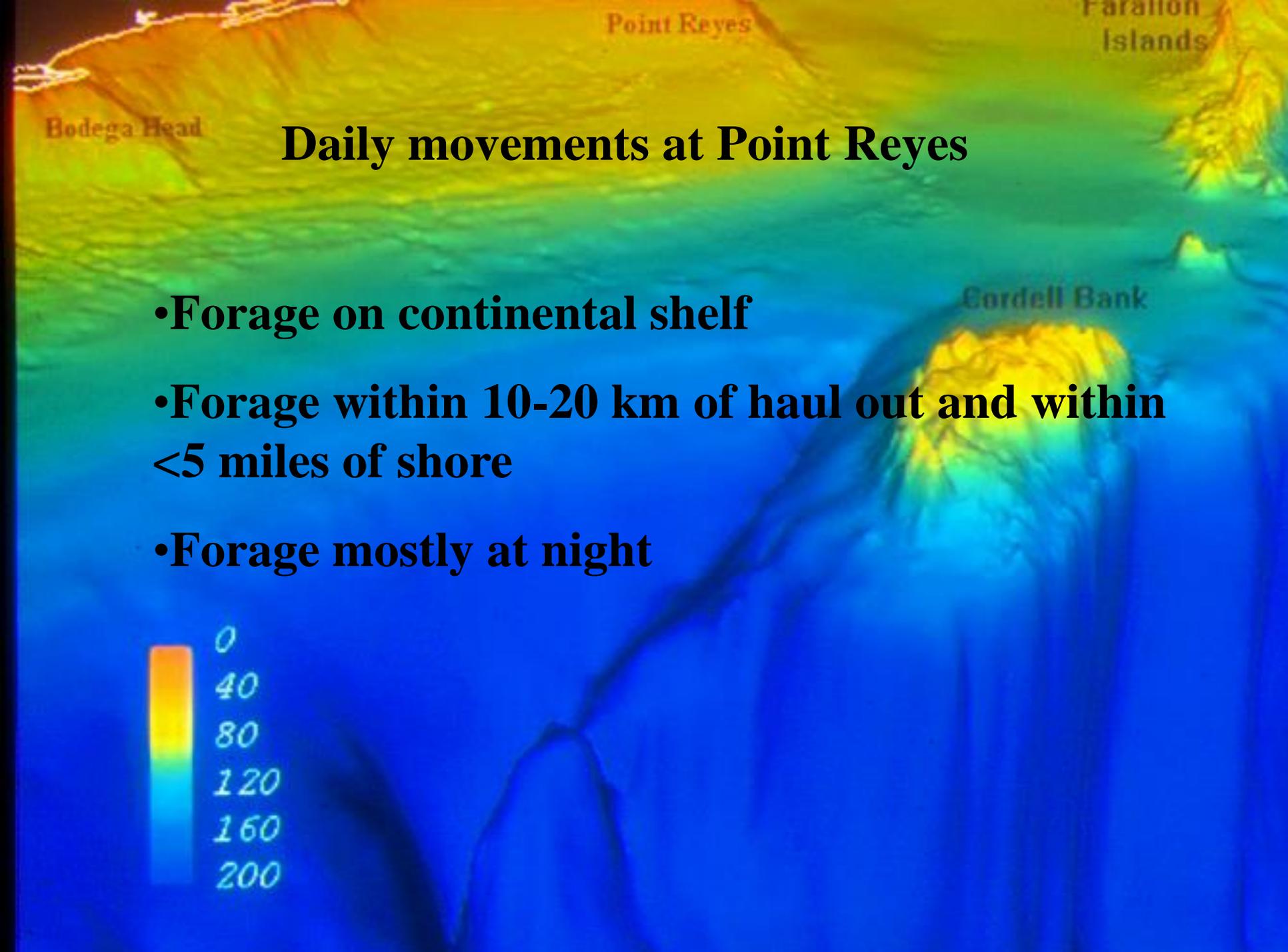


Daily and seasonal movements



Radio, satellite and flipper tags

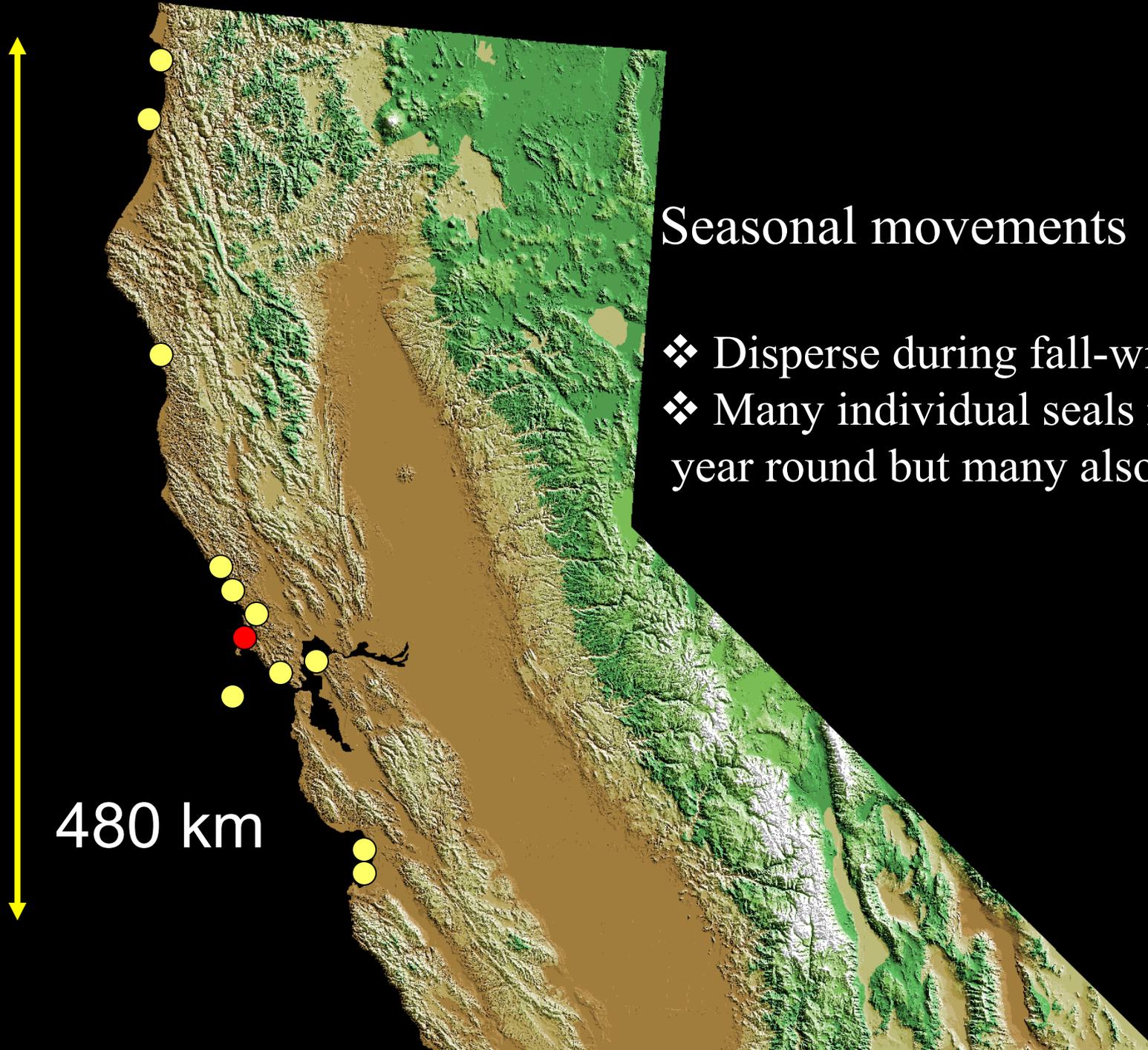




Daily movements at Point Reyes

- Forage on continental shelf
- Forage within 10-20 km of haul out and within <5 miles of shore
- Forage mostly at night





Seasonal movements

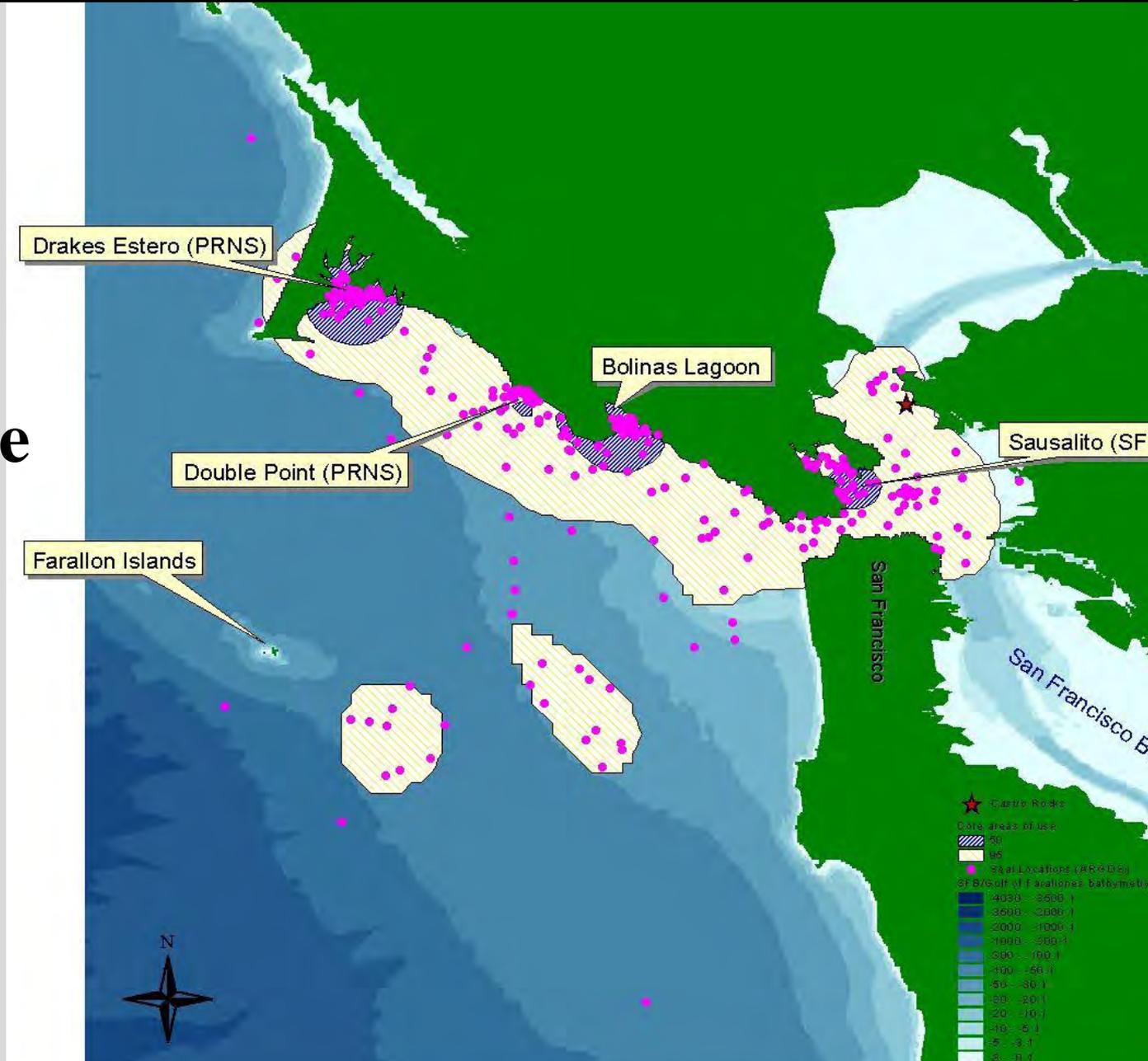
- ❖ Disperse during fall-winter
- ❖ Many individual seals remain year round but many also disperse

480 km

Regional movements



Movements of one satellite tagged seal



Regional movements

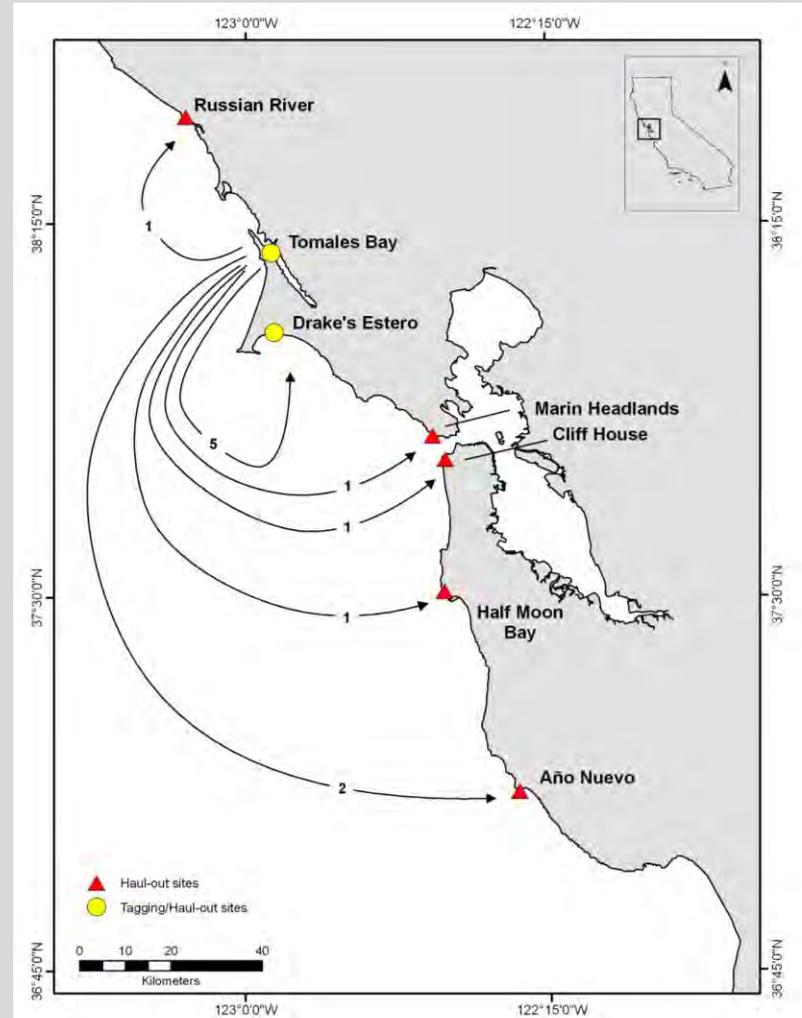
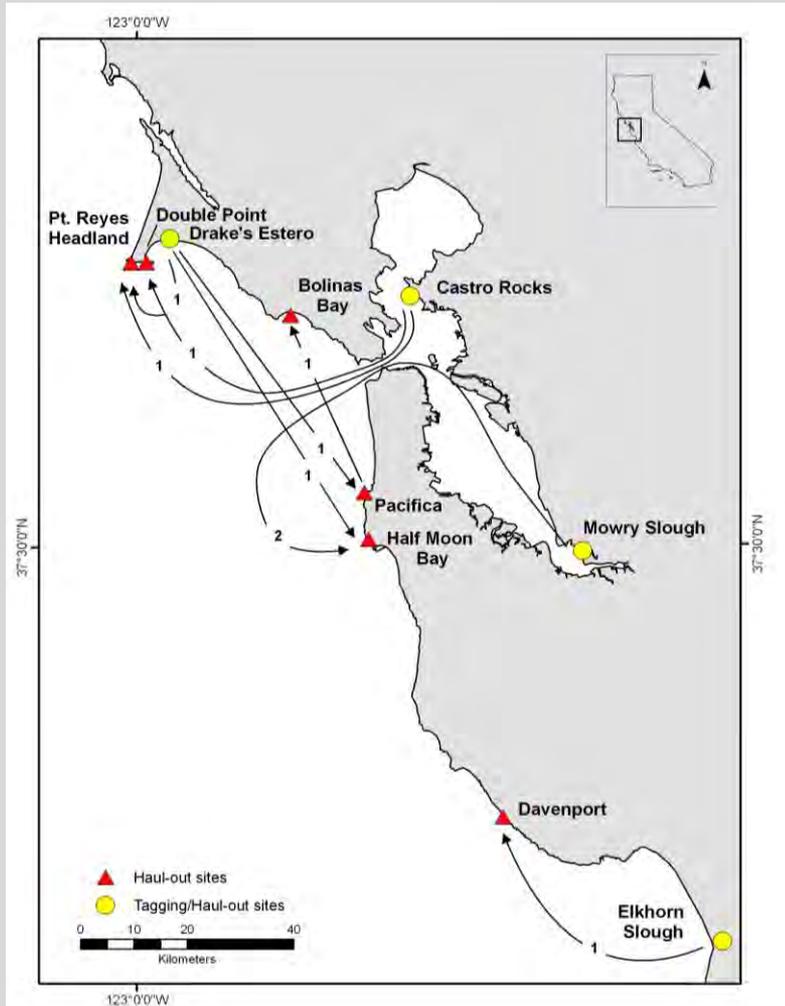


Movements
of another
satellite
tagged seal



Movement between sites (Harvey & Goley 2005)

Between tagged sites
and haul out sites



Food Web

Predator and prey relationships

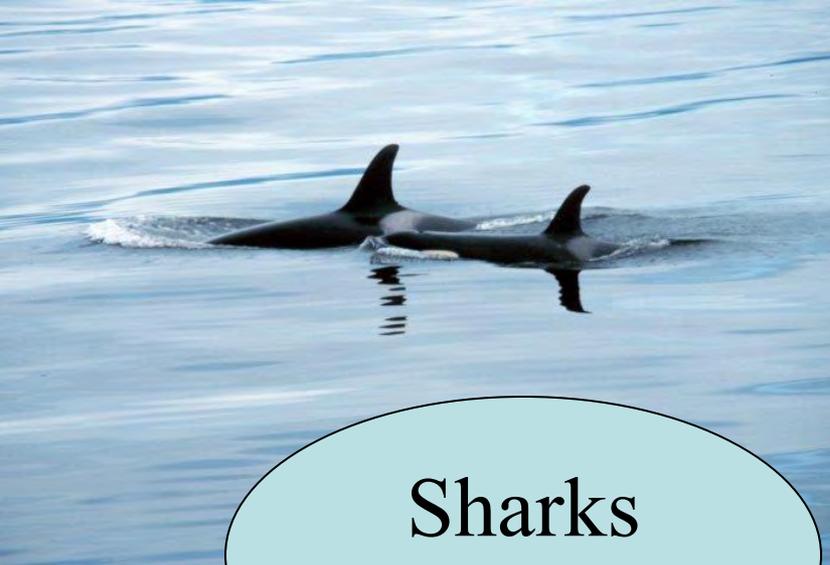
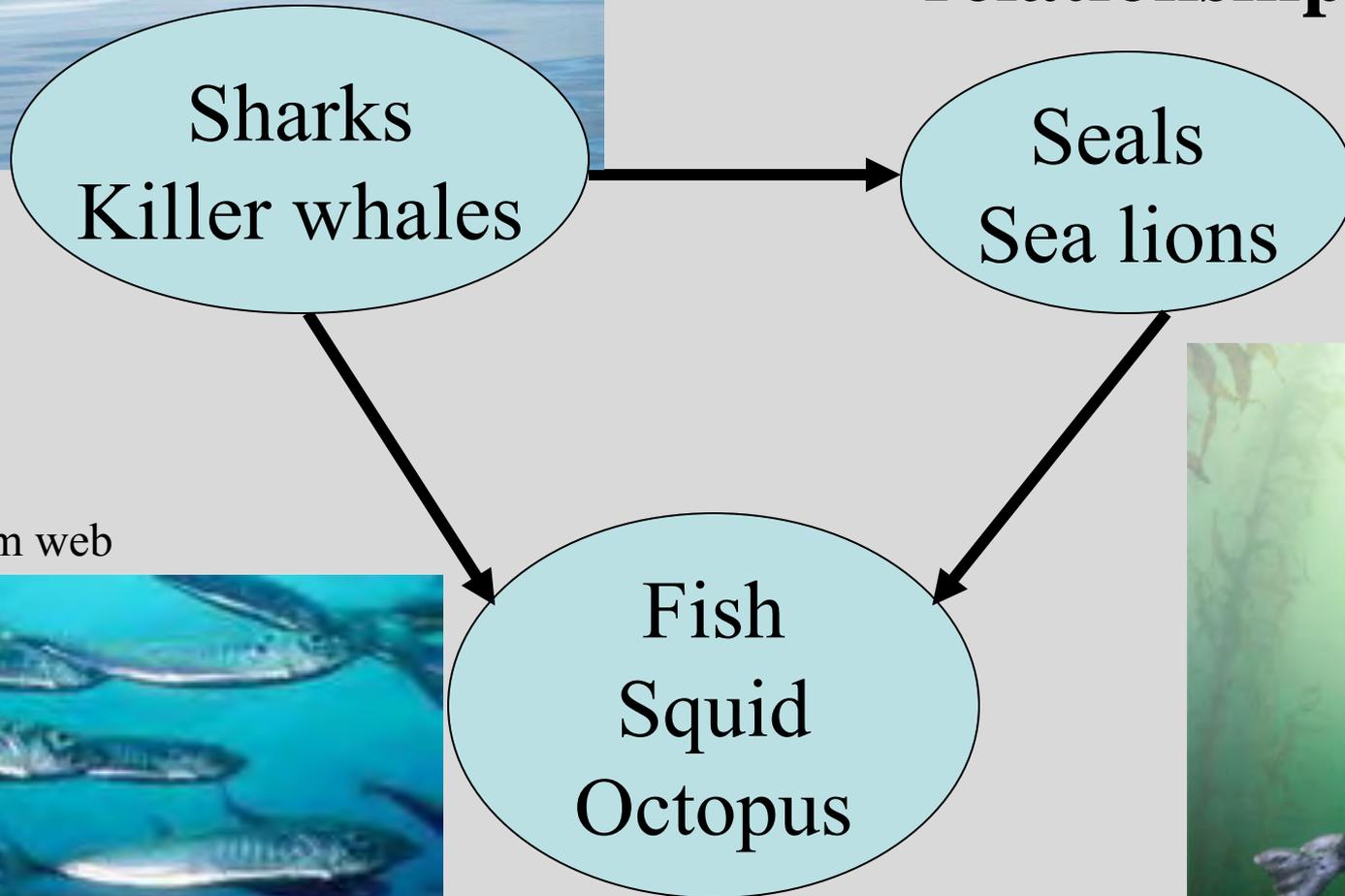


Photo from web



Photo Norbert Wu



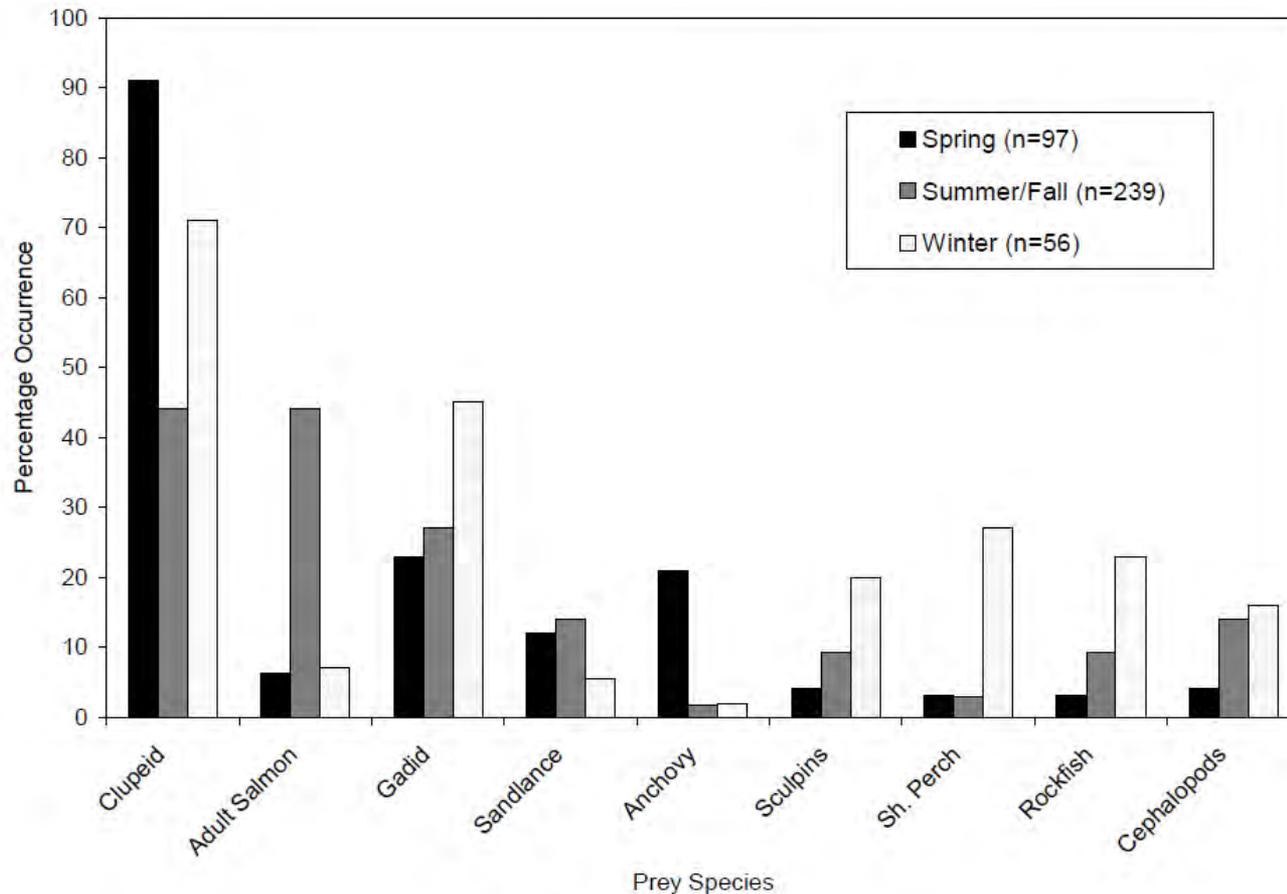
Photos from web

What seals eat



One study in Puget Sound showed diet changed seasonally (Lance and Jeffries 2007)

Figure 4. Frequency of occurrence (expressed as percent) of Clupeids, adult Salmon, Gadids, Pacific sand lance, Northern Anchovy, rockfish and cephalopods in the diet of harbor seals in the San Juan Islands by season, 2006-07



What eats seals



(c) Chuck Davis/Tidal Flats, Ltd.



Photo: Jason Thompson



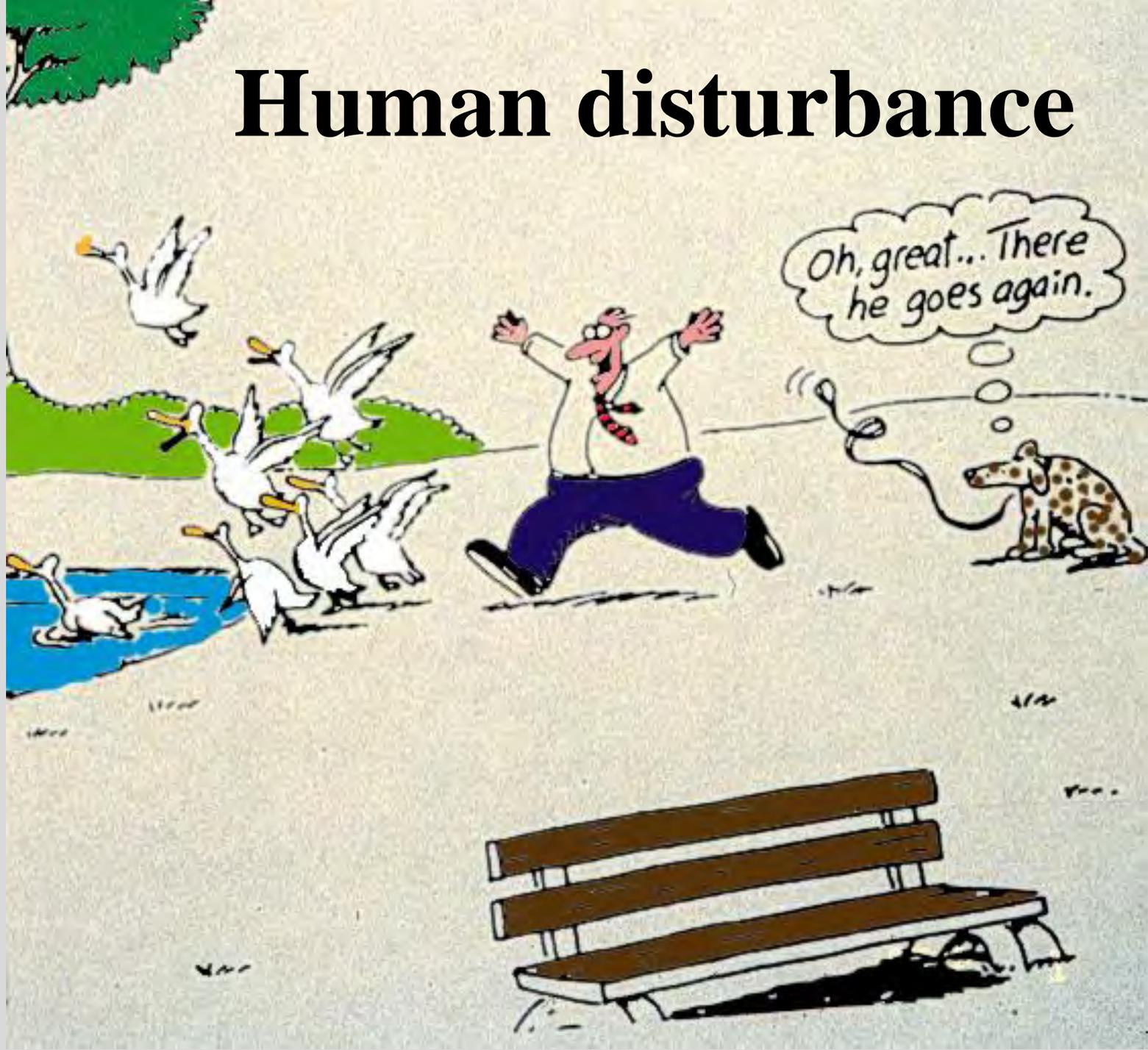
New predator to region



Photos: Jason Thompson



Human disturbance



Disturbance sequence



Head alert

Flush to water

Enter water



Disturbance sequence



Flush to water



Enter water



Disturbance effects



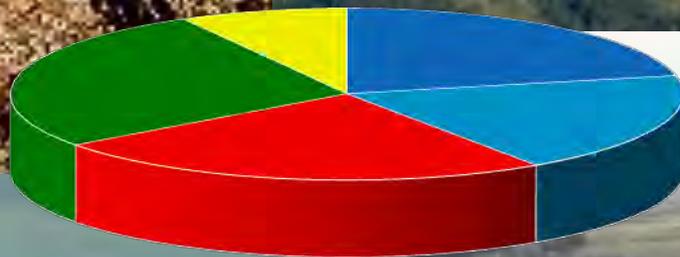
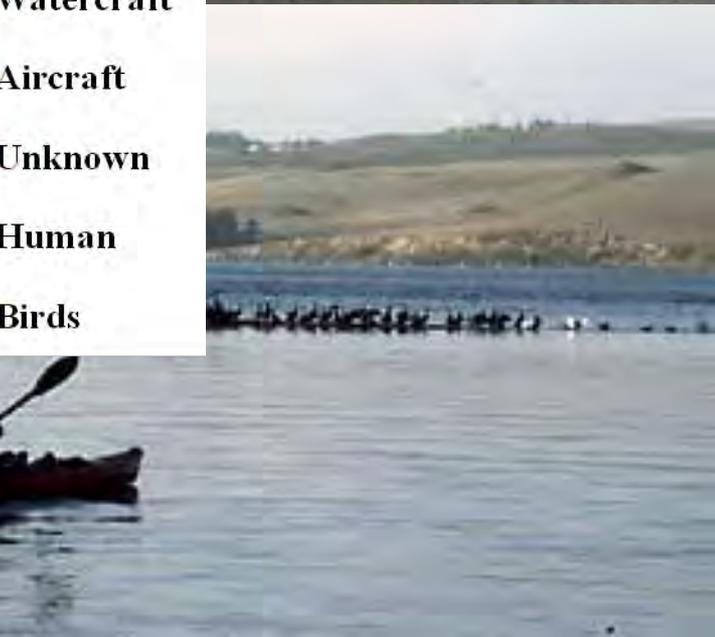
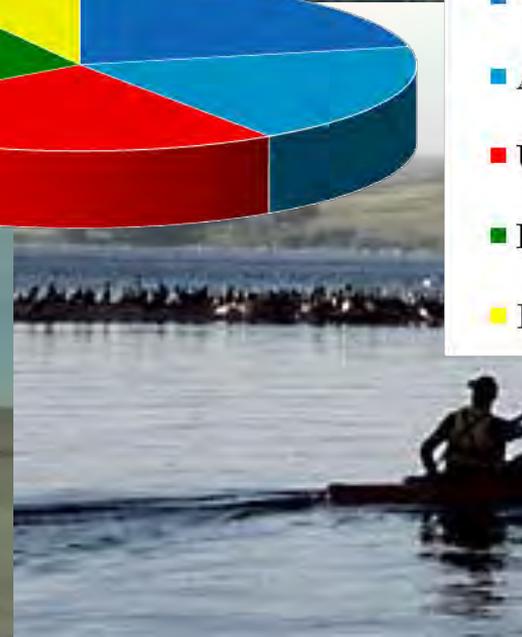
Short-term

- ❖ Disturb resting period
- ❖ Pup separation

Long-term

- ❖ Reduced usage/abandonment
- ❖ Nocturnal haul out
- ❖ Reduced pup production

Disturbance Sources



- Watercraft
- Aircraft
- Unknown
- Human
- Birds

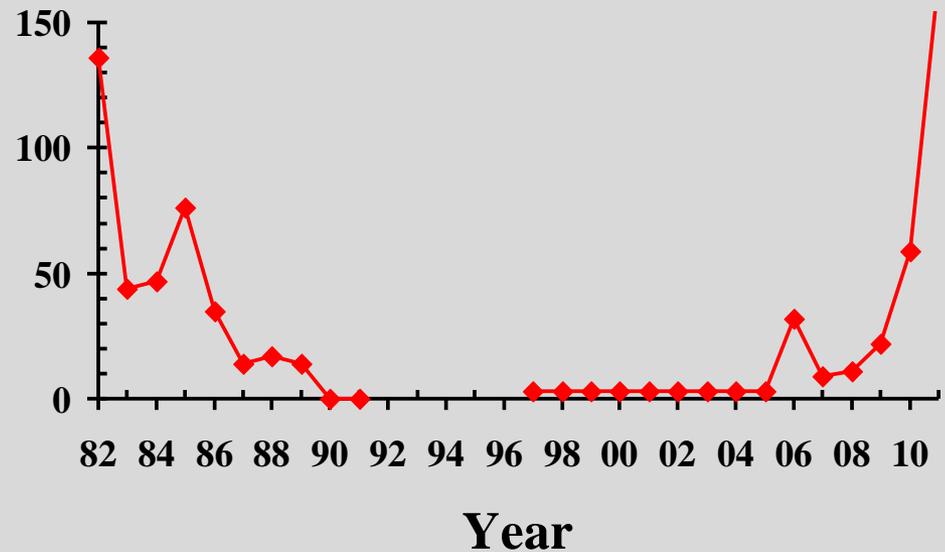
Some seals habituate



Abandonment



**Chronic disturbance can result
in site abandonment
Hog Island on Tomales Bay**



Coming next training day.....

***Long-term Monitoring of
Harbor seals at
Point Reyes***



The end.....



Special protections of colonies during the breeding season

FERAL WEST

By K. LeMieux

MARCH THRU JUNE
THE CALIFORNIA MERMAIDS
HELP GUARD THE VULNERABLE
BABY HARBOR SEALS.

(BE WARNED)

WE WHUP
PUP TOUCHERS.

