

Introduction

Is Elephant Seal #302 Male or Female?

Some species exhibit physical and behavioral differences between the sexes. Use migration track points, measurements, and background information about elephant seal behaviors as clues to solve the mystery of whether Elephant Seal 302 is male or female.



Figure 1a (above). Male elephant seals battling to assert dominance (oceantracks.org)
Figure 1b (right). Male elephant seal (oceantracks.org)

Male vs Female Characteristics of Elephant Seals

Elephant Seals	
Male Characteristics	Female Characteristics
At sea for shorter periods of time per year than females ~250 days per year	At sea for longer periods of time per year before returning to California coast ~300 days per year
Migratory Patterns: Travel longer overall distances; Travel north, normal stay closer to land, show consistent routes in migrations following same areas. They usually travel near Gulf of Alaska near Eastern Aleutian Islands	Migratory Patterns: Travel shorter distances; Females move away from land and head west to the open sea; Females follow more variable routes pursuing prey from place to place in an open ocean and general forage south of the Gulf of Alaska.
Timeline: Usually leave shore between Feb & March to return in July. Leave again between July & August & return in December/January	Timeline: Normally at sea briefly in March. Leave shore between May & June and return December/January
Feeding/Foraging Behavior: Characterized by benthic dives to the sea floor where they feed on bottom dwelling fish, small sharks, and rays along continental coast in Gulf of Alaska and near eastern Aleutian Islands	Feeding/Foraging Behavior: Characterized by benthic dives to the sea floor where they feed on squid in the open ocean in the south of Gulf of Alaska.

Methods

Comparing Patterns

Migratory Patterns

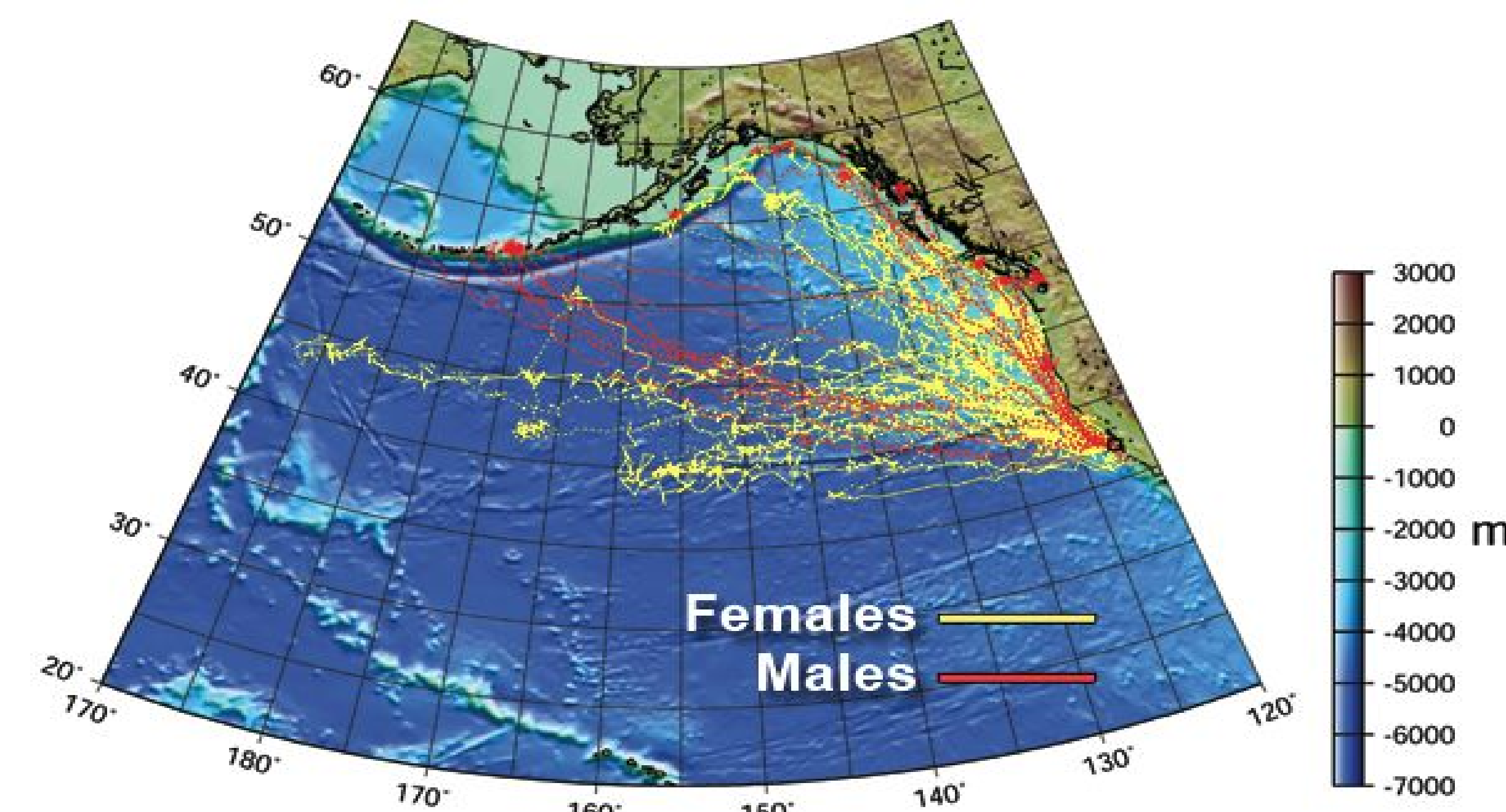


Figure 2. Migration range of males vs. females (Le Boeuf et. al., 2000)

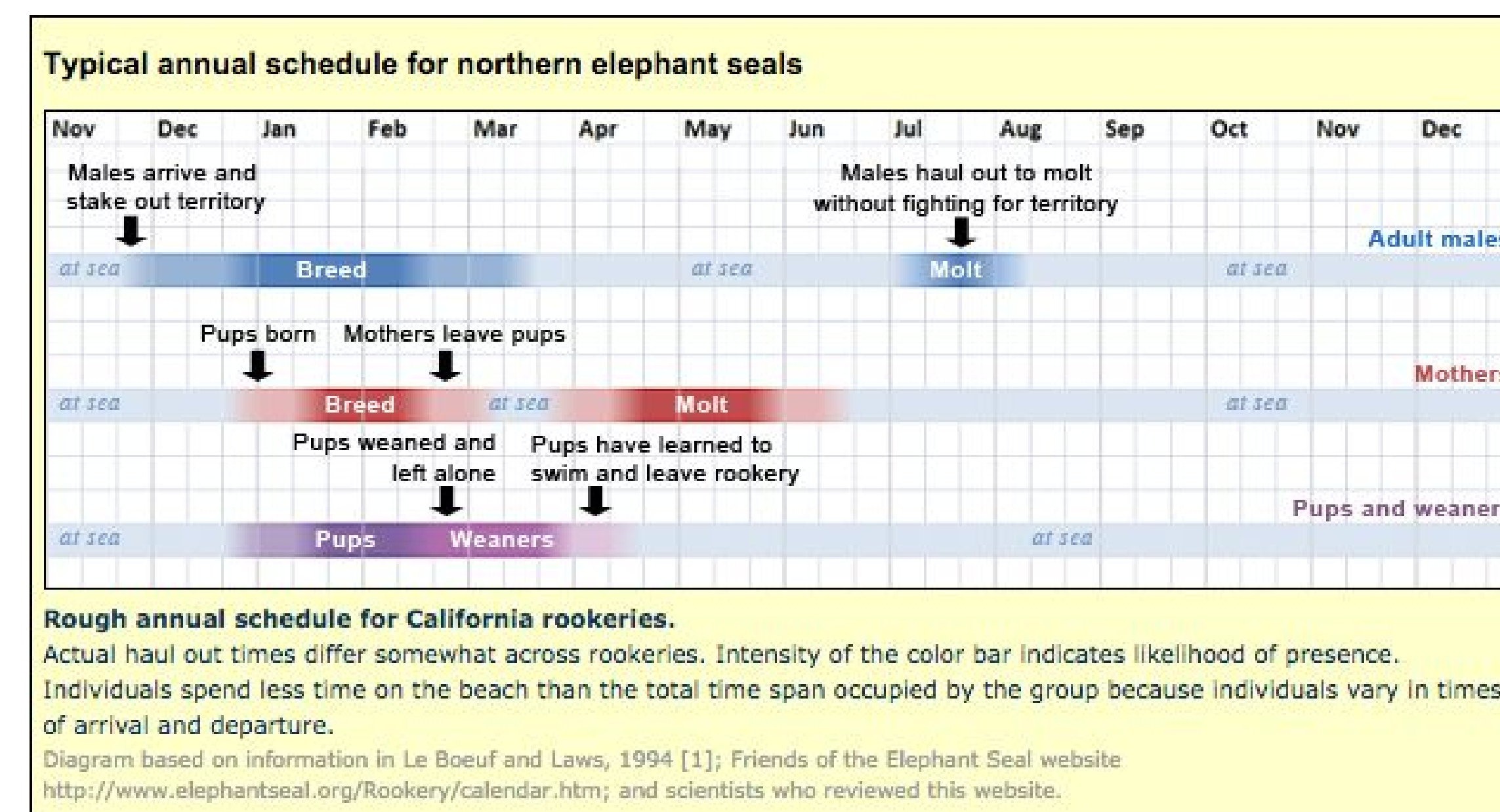


Figure 3. Annual schedule for Northern Elephant Seals (Le Boeuf and Laws, 1994)

Seal Comparison					
Tracking Number	#63	#302	#1266	#528	#46
Number of Days at Sea	115 days at sea	221 days at sea	252 days at sea	222 days at sea	118 days at sea
Distance Travelled	6665.21 km traveled	11496.87 km traveled	12696.03 km traveled	10816.89 km traveled	6793.41 km traveled
Distance of...					
Time of Departure	Left August 18th, returned December 8th	Left June 11th, returned January 18th	Left June 6th, returned February 13th	May 30th to January 7th	March 17th to July 13th
Location of finding prey	Traveled along continental shelf	Traveled out into ocean and then along shelf before returning back via open ocean	Traveled in open ocean	Traveled in open ocean	Traveled along continental shelf

Red - Female Characteristic
Blue - Male Characteristic

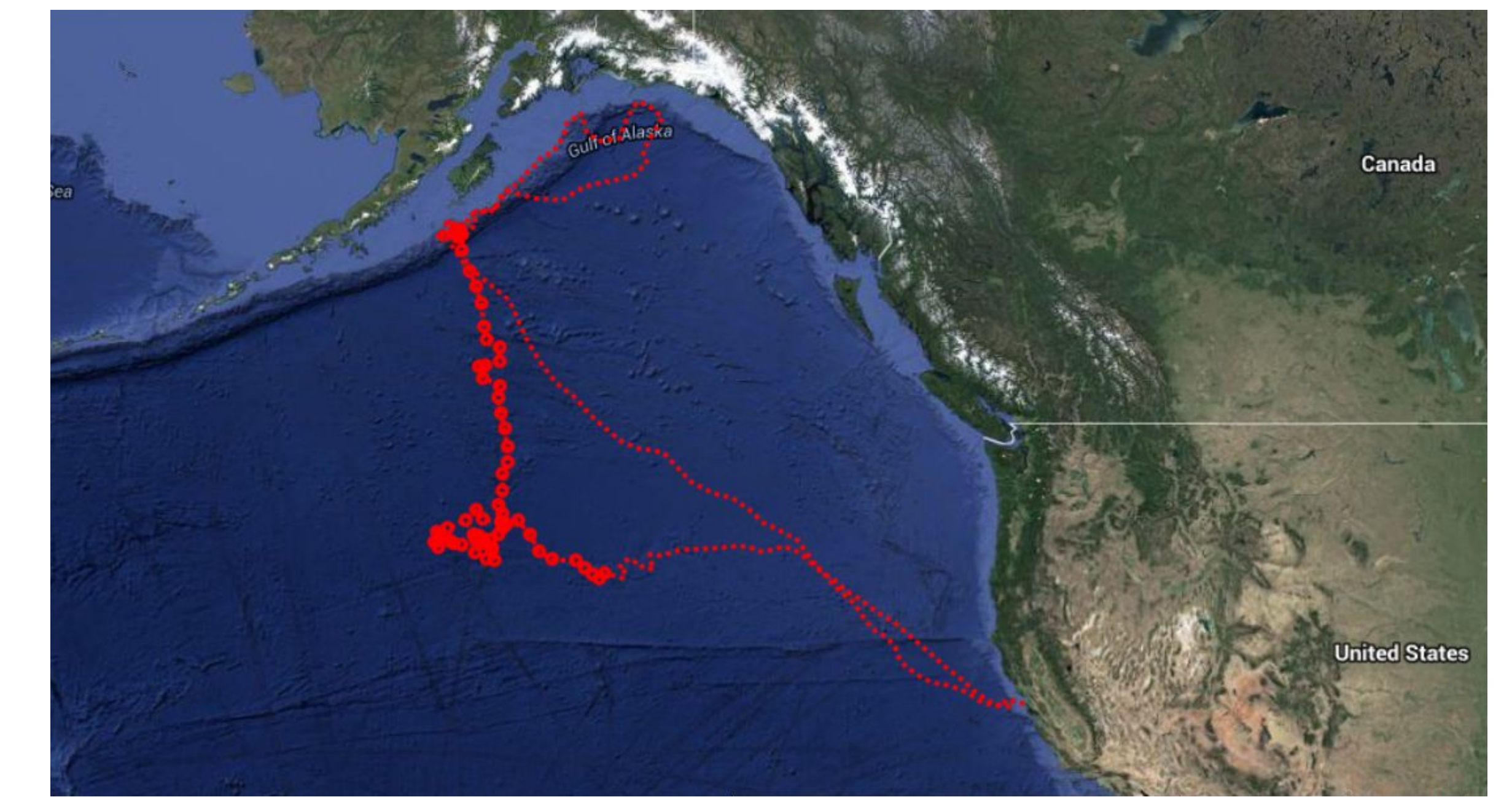


Figure 4a. Seal #302 Migration Pattern (Oceantracks.org)

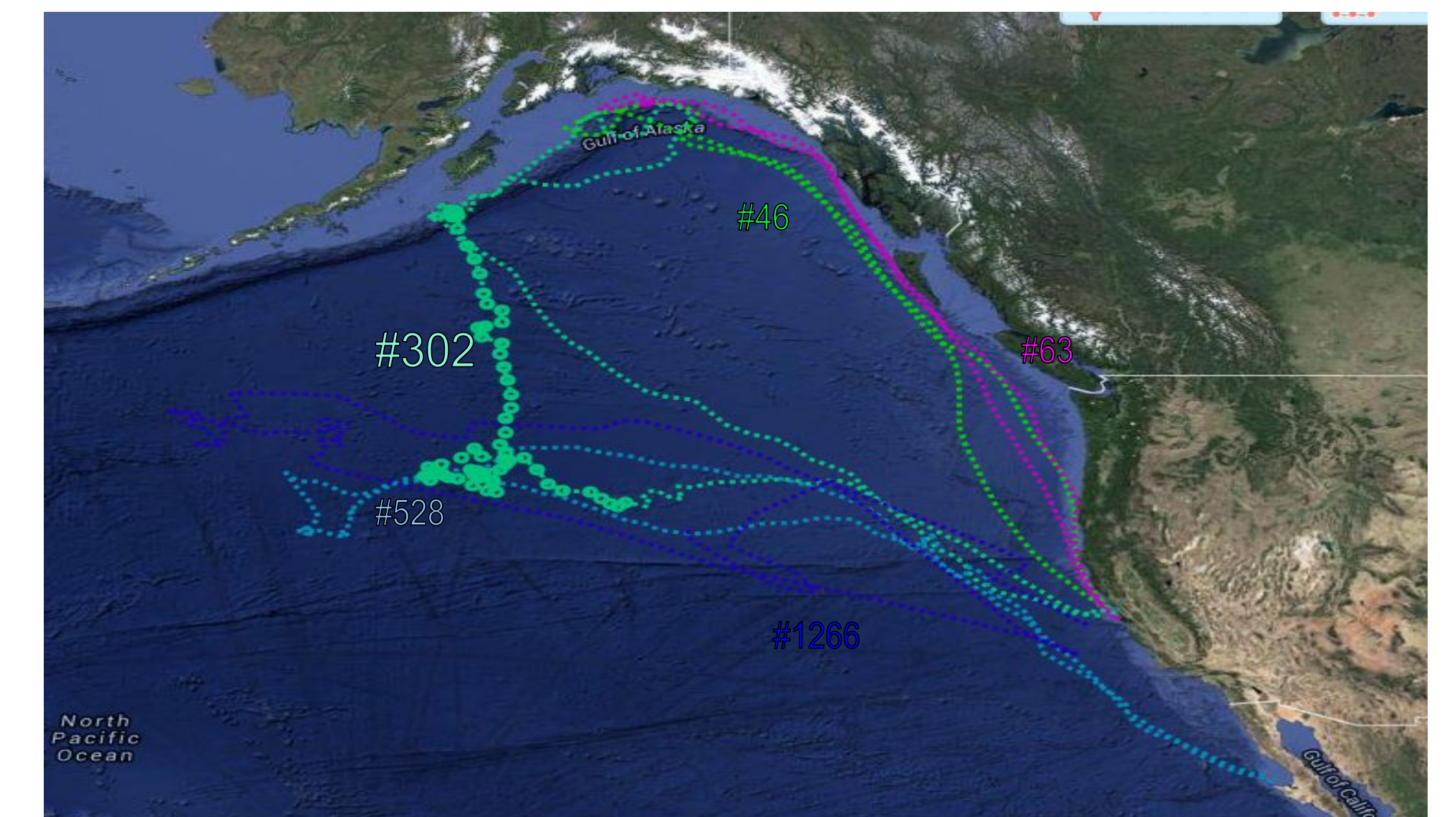


Figure 4b. Seal Migration Patterns Comparison (Oceantracks.org)

Conclusions:

Based on this data, we can conclude that Elephant Seal #302 is female because its migration routes indicate movement west toward open ocean. The Ocean Tracks Website shows that elephant seal #302 spent most of its time out in the open ocean (roughly from October 2004 to January 2005) (Warburton, 2002) In terms of foraging for food, males tended to look for their prey along the continental shelf while the females traveled to the open ocean to search for prey. In this case, Elephant Seal #302 fed on prey south of the Gulf of Alaska and in the open ocean.

Bibliography:

- "Lifestyle." *Earthguide: Elephant Seals*. Earth Guide, 24 June 2013. Web. 19 Apr. 2016.
- "Ocean Tracks Library." *Ocean Tracks Library*. Ocean Tracks, n.d. Web. 19 Apr. 2016.
- Warburton, Karen. "Mirounga Angustirostris (northern Elephant Seal)." *Animal Diversity Web*. Animal Diversity Web, n.d. Web. 19 Apr. 2016.
- "Ocean Tracks." *Ocean Tracks*. EDC and Stanford University, n.d. Web. 19 Apr. 2016.

Acknowledgements:

We would like to acknowledge the Ocean Tracks team and their website. This project would not be possible without them.