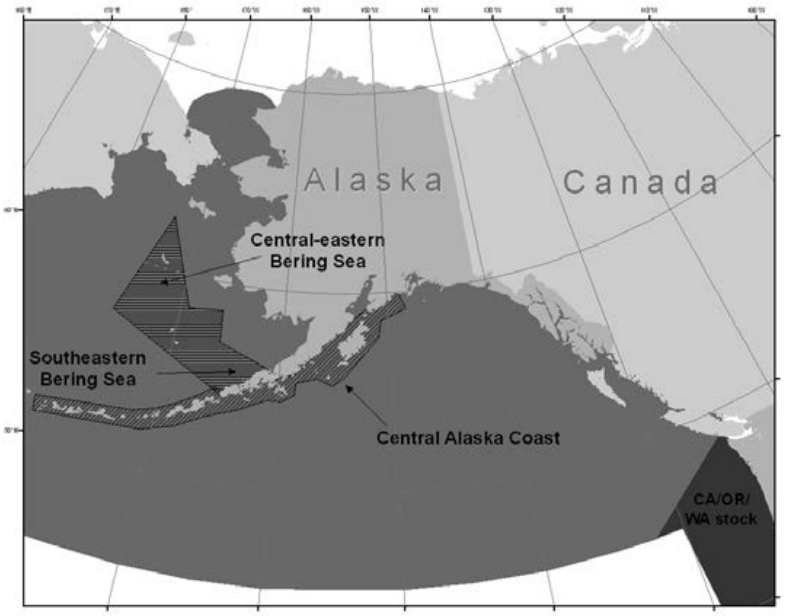
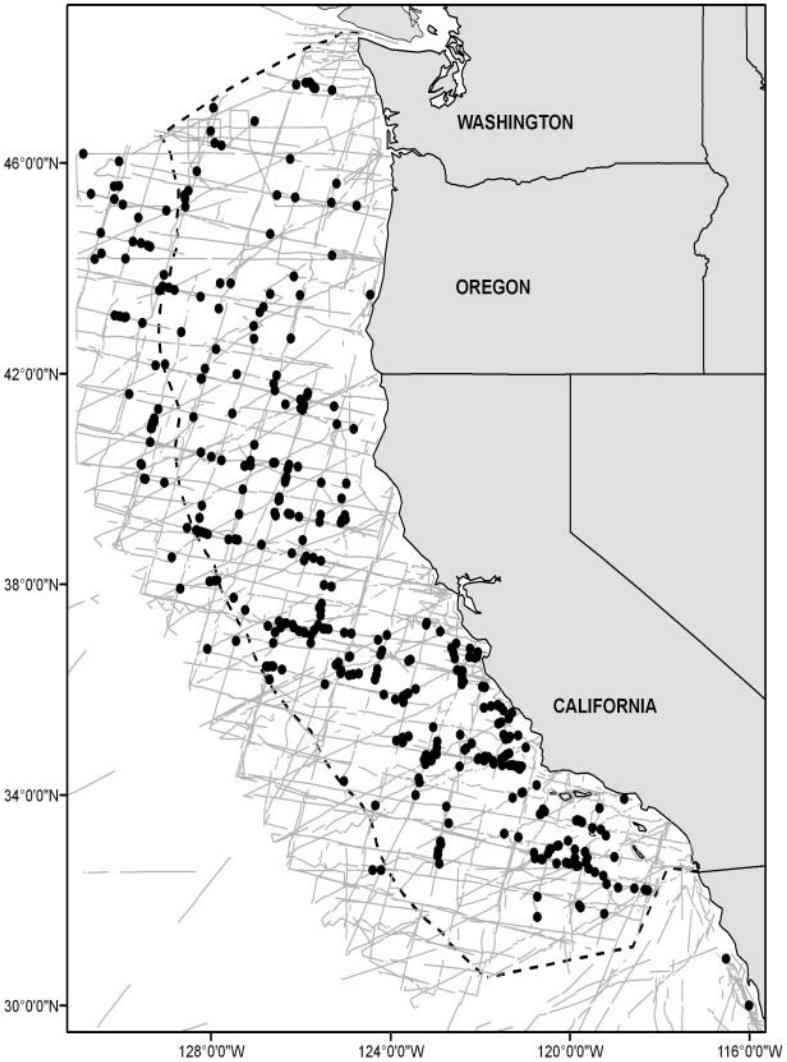
Assessing stock structure with multiple lines of evidence: North Pacific Fin Whales (*Balaenoptera physalus*)

Eric Archer, Marine Mammal Genetics Group

- Global ESA listing as Endangered
- Increasing trend in CA/OR/WA (N_{est} = 3,051)
- Abundance in Alaska stock unknown
- Ship strikes of concern



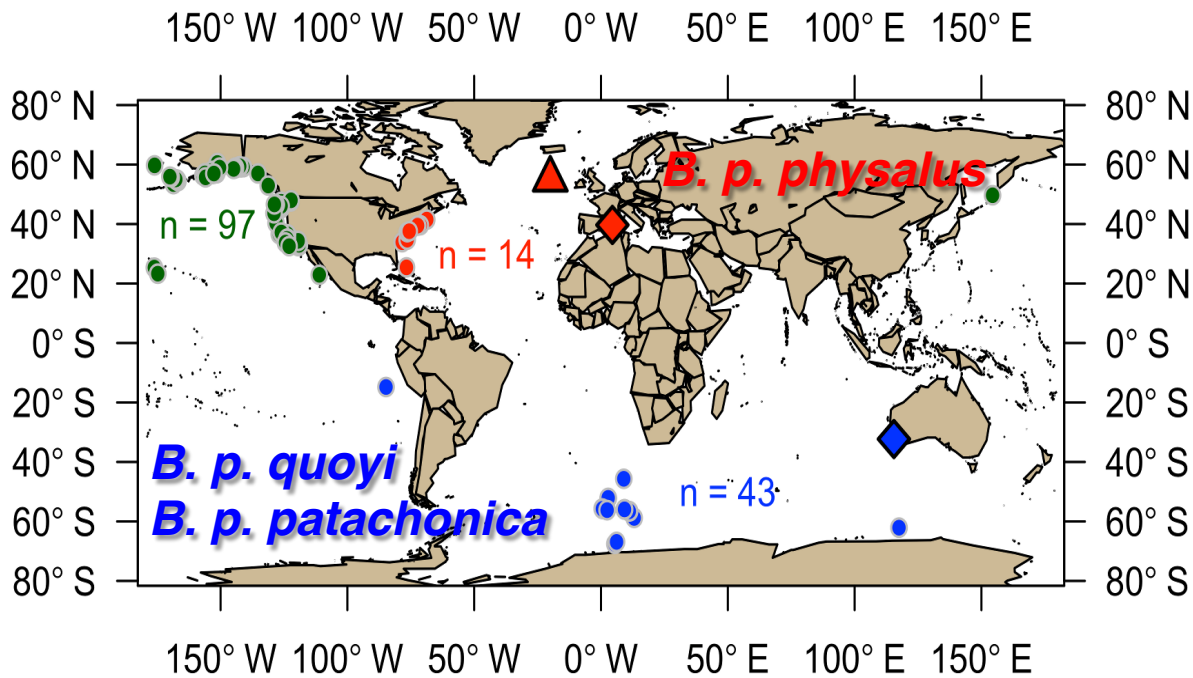
Allen & Angliss 2014

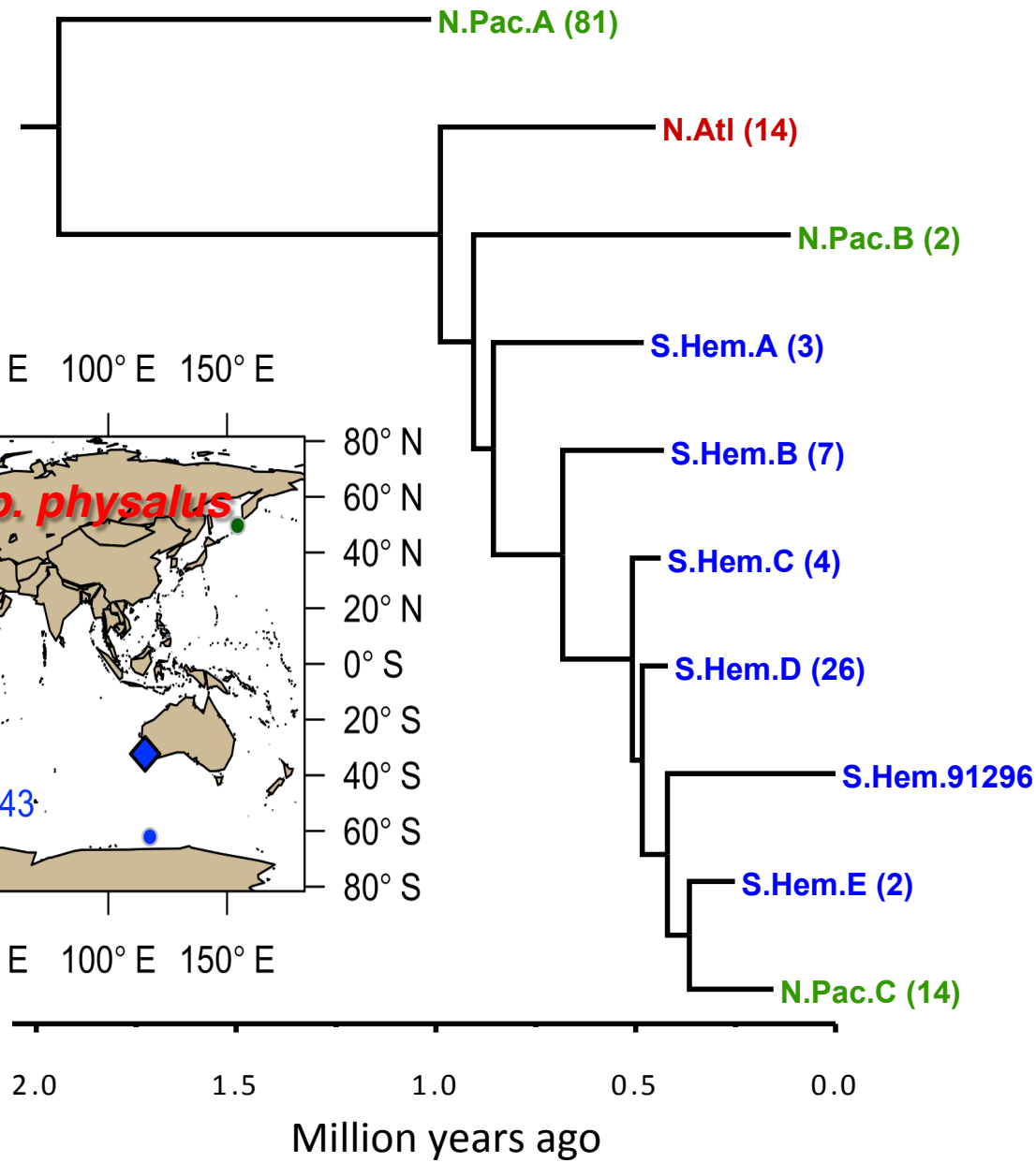


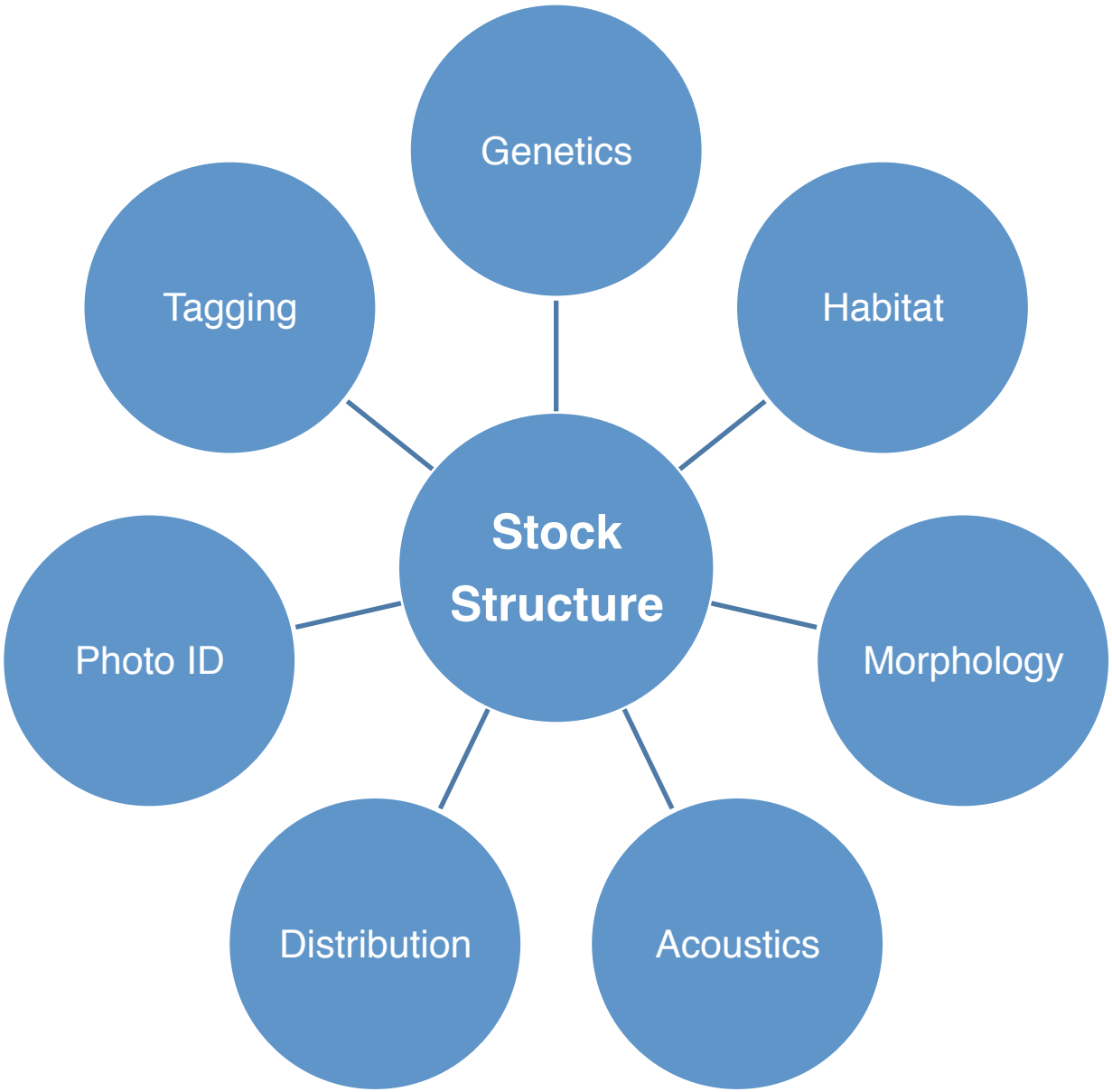
Caretta et al. 2014

Global Taxonomy (*Archer et al. 2013*)

- Next Generation Sequencing
- Distinct mitogenome clades
- Ocean basin diagnosability
- SNP (nuclear) differentiation

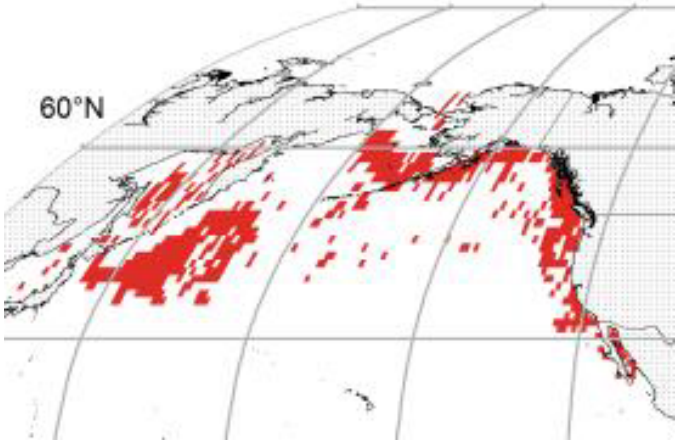


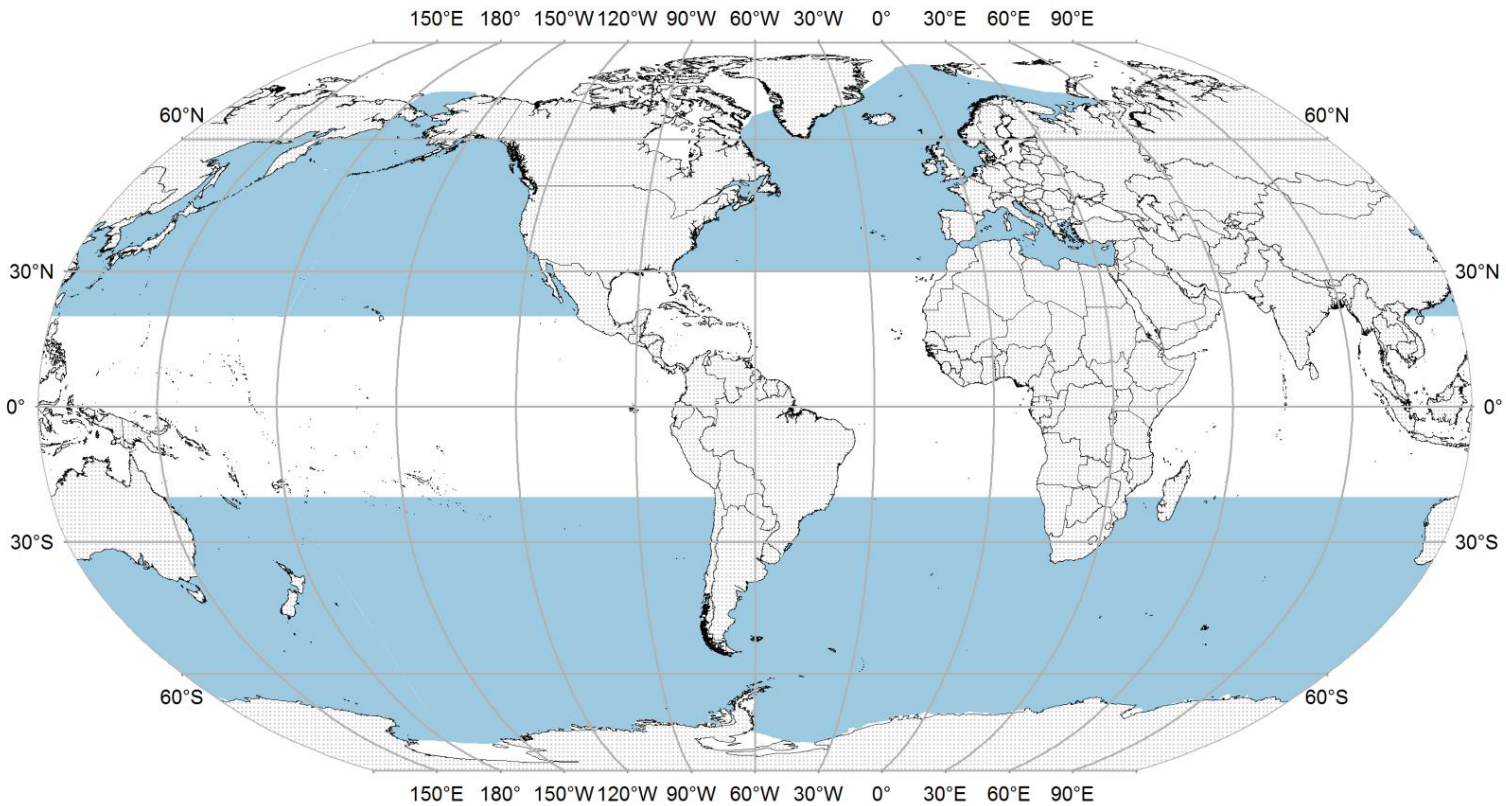



Genetics
Tagging
Habitat
Stock Structure
Photo ID
Morphology
Distribution
Acoustics

North Pacific Distribution (*Edwards et al.*)

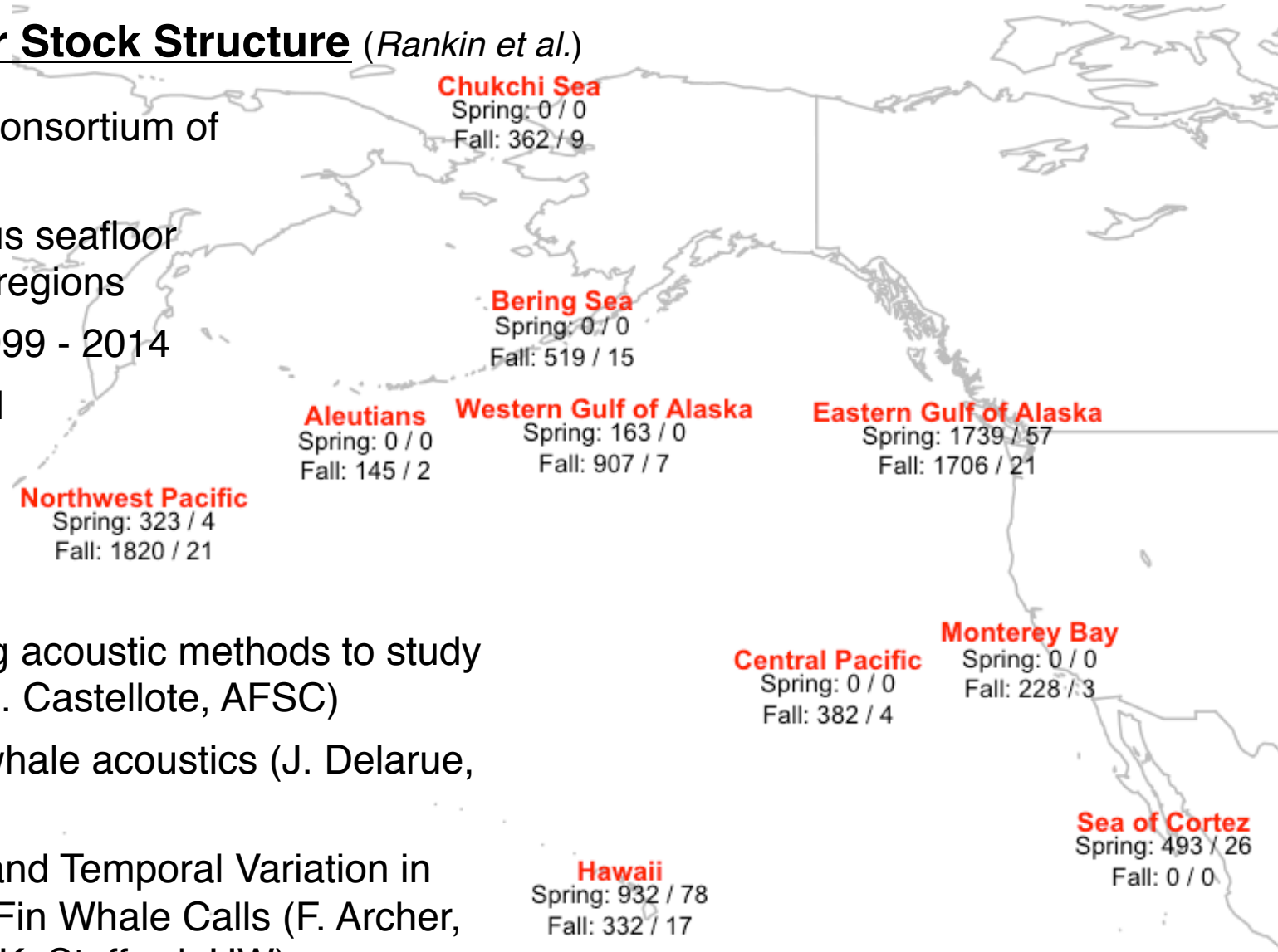
- Comprehensive review of post-whaling distribution
- Equatorial hiatus
- Multi-seasonal presence in many areas
- No evidence of large-scale seasonal migrations
- Identified gaps in effort (Breeding areas?)





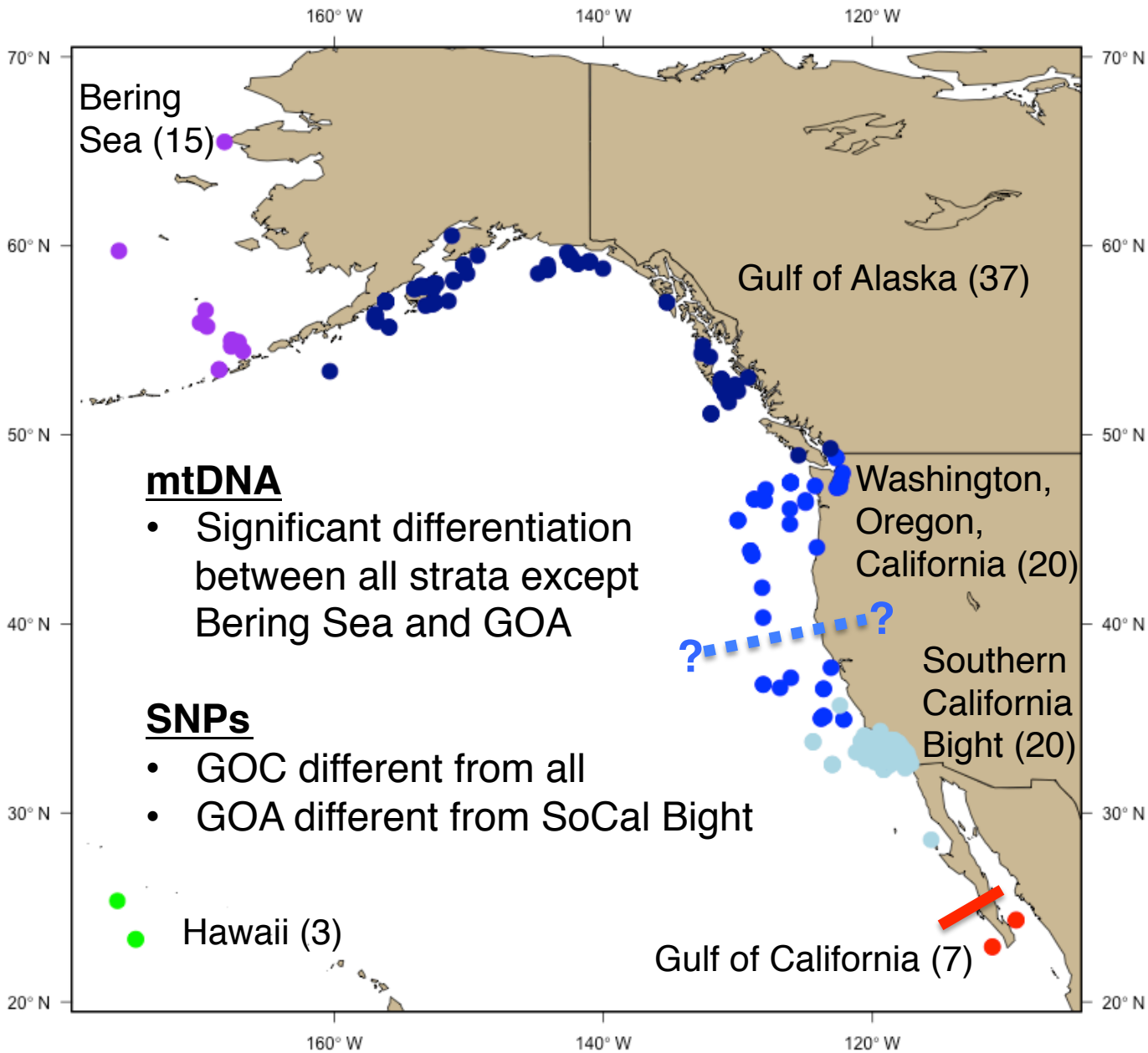
Acoustics for Stock Structure (*Rankin et al.*)

- International consortium of acousticians
- 14 autonomous seafloor recorders, 10 regions
- 65 months, 1999 - 2014
- Spring and fall



1. Standardizing acoustic methods to study fin whales (M. Castellote, AFSC)
2. Defining fin whale acoustics (J. Delarue, JASCO)
3. Geographic and Temporal Variation in Stereotyped Fin Whale Calls (F. Archer, SWFSC and K. Stafford, UW)
4. Practical applications for using acoustics in cetacean stock assessment (S. Rankin, SWFSC)

Genetic Population Structure (*Archer et al.*)



mtDNA

- Significant differentiation between all strata except Bering Sea and GOA

SNPs

- GOC different from all
- GOA different from SoCal Bight

Genetics
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Brittany Hancock-Hanser
Kelly Robertson
Barb Taylor
Matt Leslie
Simone Panigada
Martine Berube

Distribution
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