

BSAI octopus stock structure



**Olav Ormseth * Alaska Fisheries Science Center
BSAI Plan Team * September 2020**

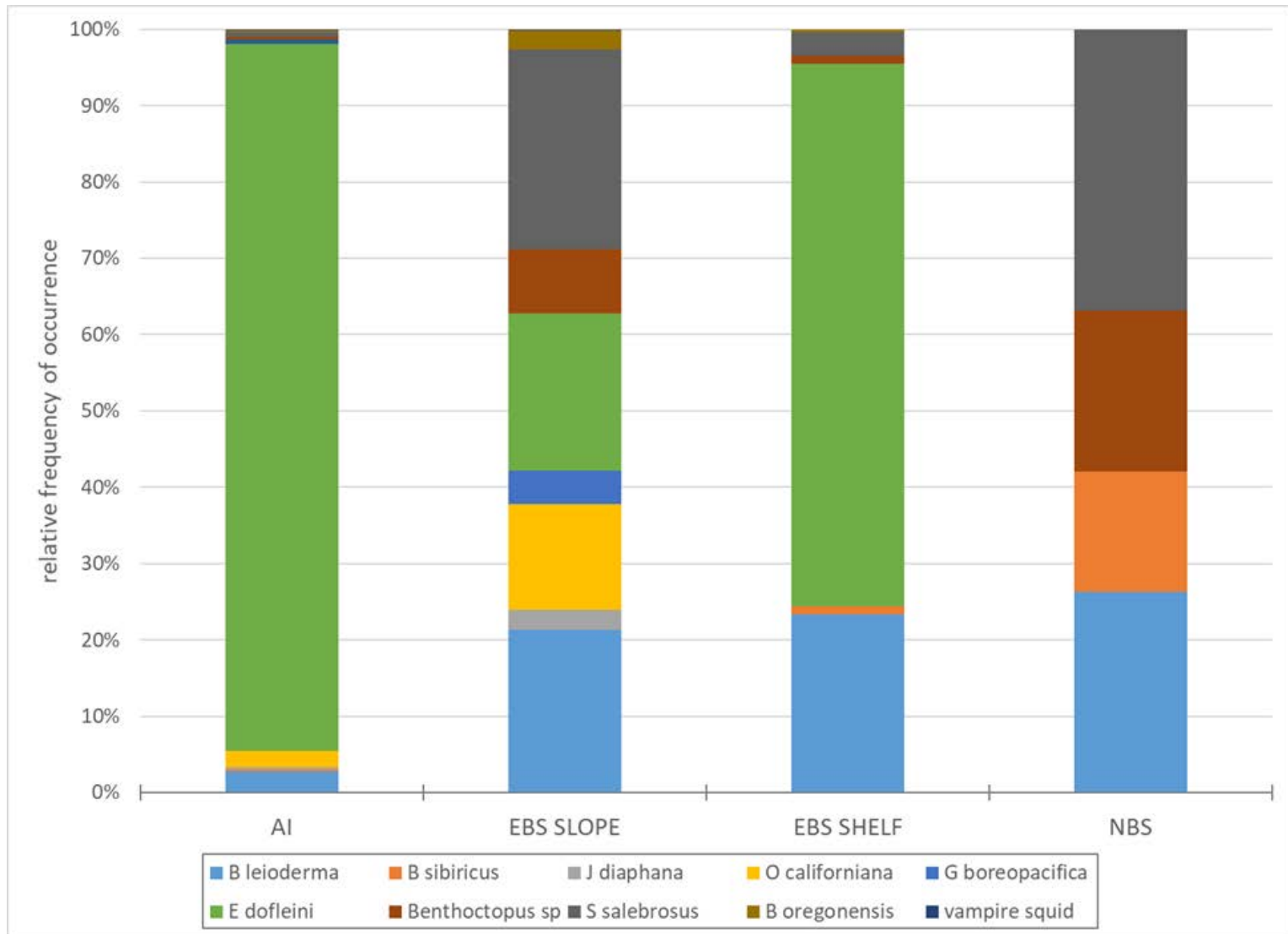
overview

- 1) data limitations
- 2) overview of stock complex
- 3) exploitation rates and catch/biomass spatial patterns
- 4) *E. dofleini* movement
- 5) *E. dofleini* genetic analyses
- 6) conclusions

data limitations

- BSAI and GOA octopus are Tier 6 due to data limitations
- octopus hard to survey with trawls, unreliable biomass estimates likely to be underestimates
- identification to species in the survey only since 2010; no identification to species in catch
- limited studies of movement, genetics, etc. and only for *Enteroctopus dofleini*

octopus species composition*

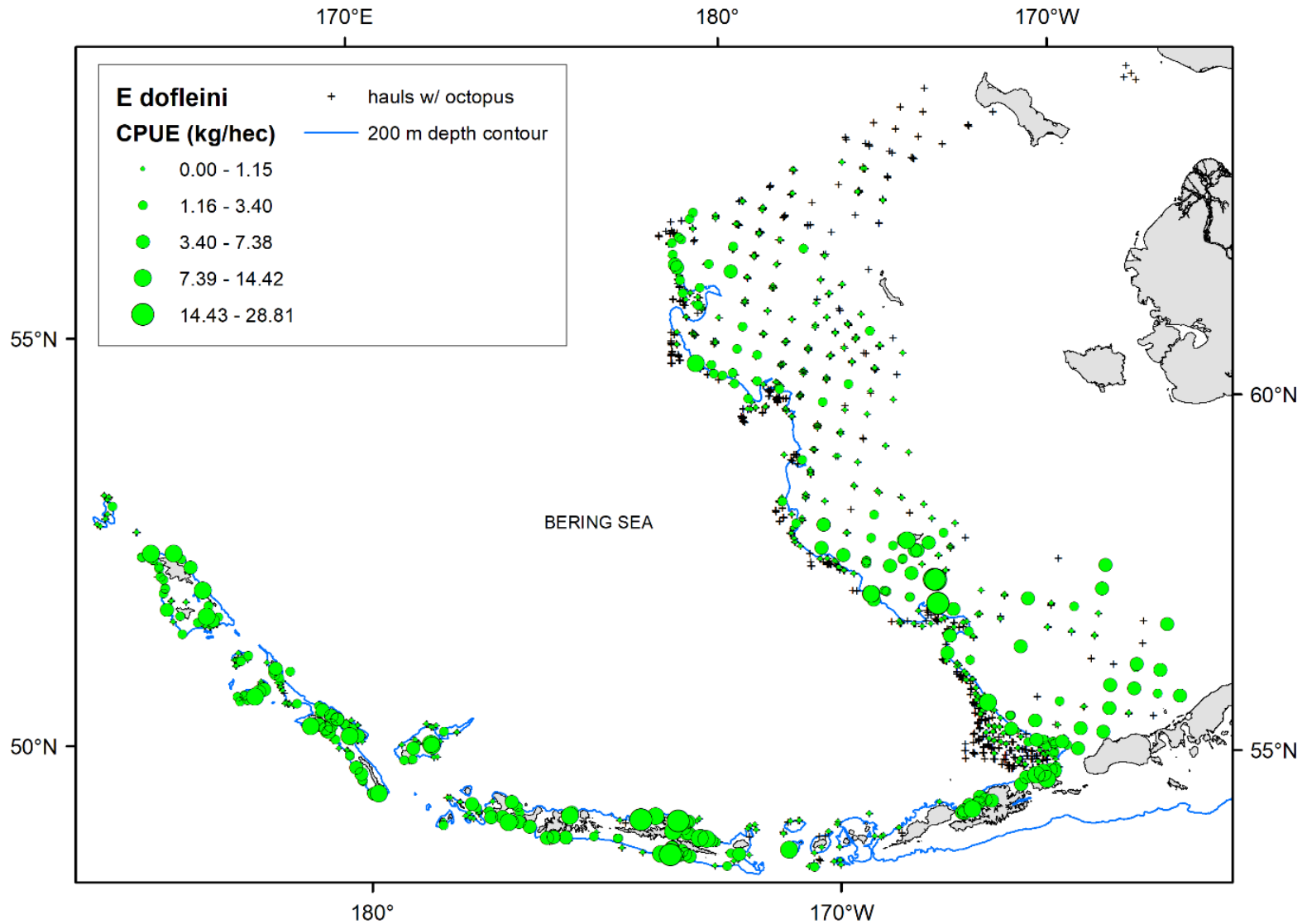


octopus exploitation rates

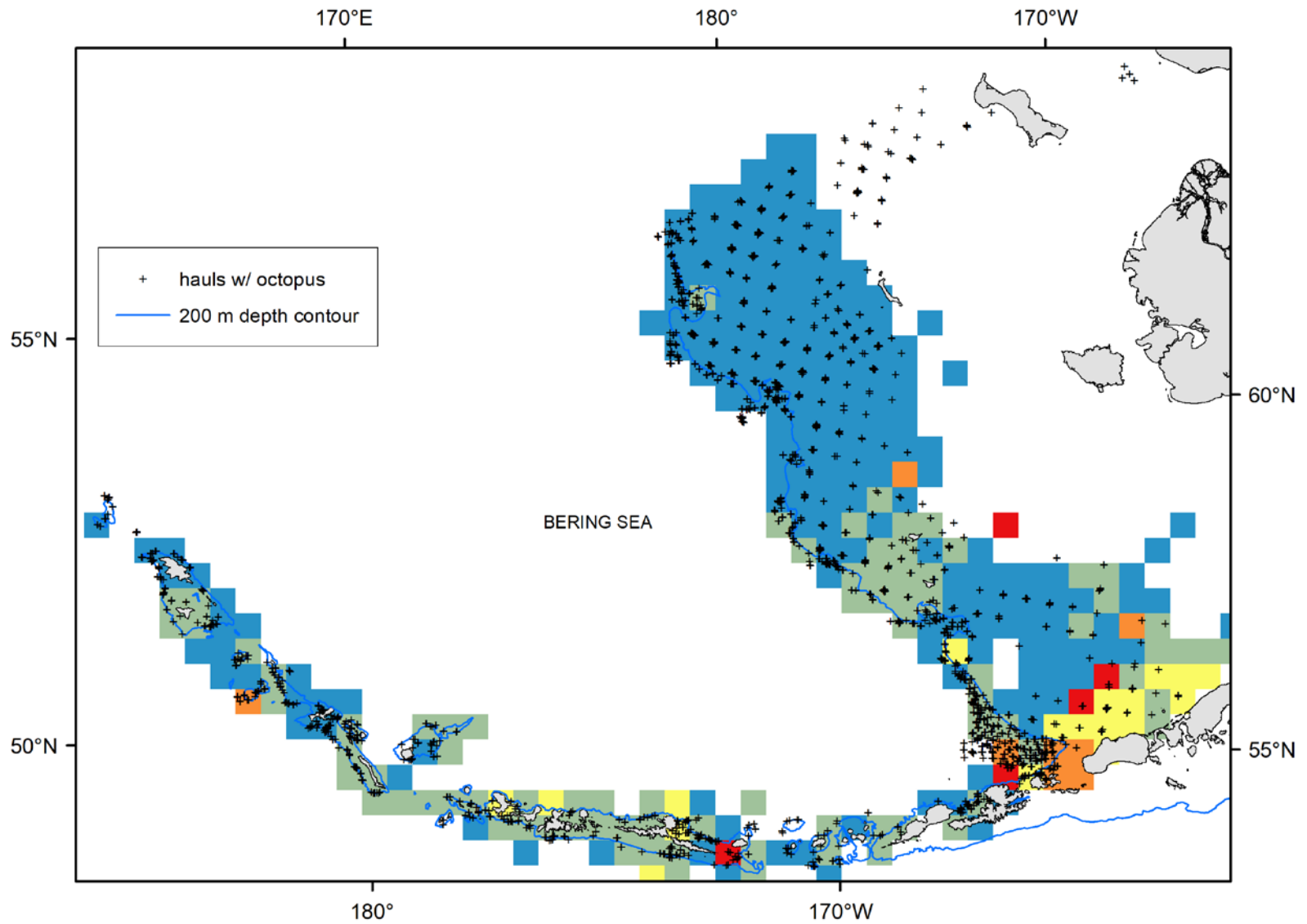
year	Biomass (t)		Catch (t)		exploitation rate	
	EBS	AI	EBS	AI	EBS	AI
2004	6,914	4,095	548	20	0.079	0.005
2010	1,441	3,075	133	49	0.092	0.016
2012	3,986	2,779	127	10	0.032	0.004
2016	9,776	3,833	585	11	0.060	0.003

- limited to years where all 3 BSAI bottom trawl surveys occurred

spatial pattern catch/biomass



spatial pattern catch/biomass



spatial pattern catch/biomass

EBS/AI proportions

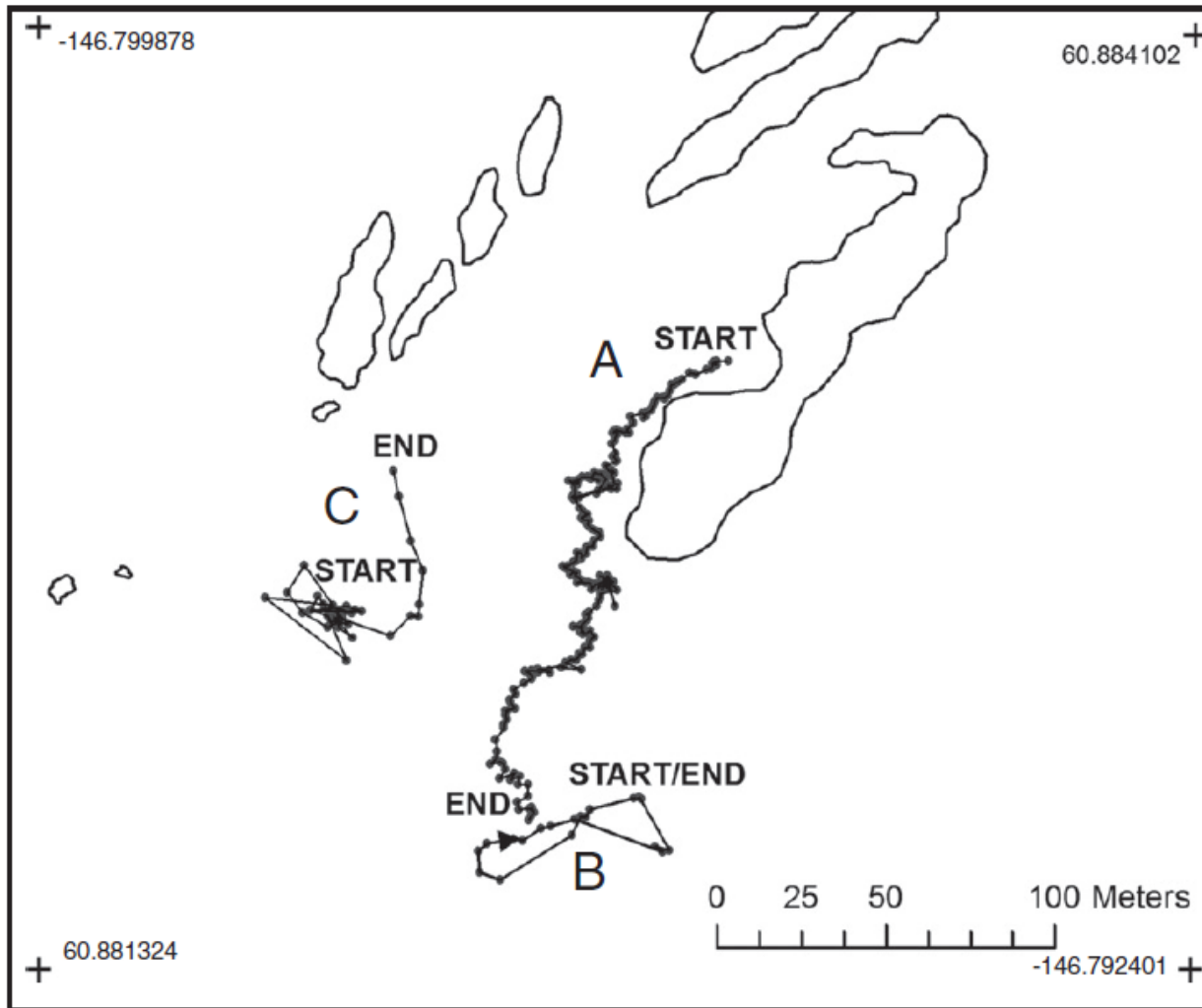
	Catch (t)		Biomass (t)	
	EBS	AI	EBS	AI
2004	0.96	0.04	0.63	0.37
2010	0.73	0.27	0.32	0.68
2012	0.93	0.07	0.59	0.41
2016	0.98	0.02	0.72	0.28

- limited to years where all 3 BSAI bottom trawl surveys occurred

limited movement of adult *E. dofleini*

- octopus stationary 94% of the time in PWS
- maintain small home ranges
- between seasons, mean movement in SEBS was 2.14 km and max movement was 11.5 km
- BUT larvae are pelagic so potential for dispersal is high

limited movement of adult *E. dofleini*

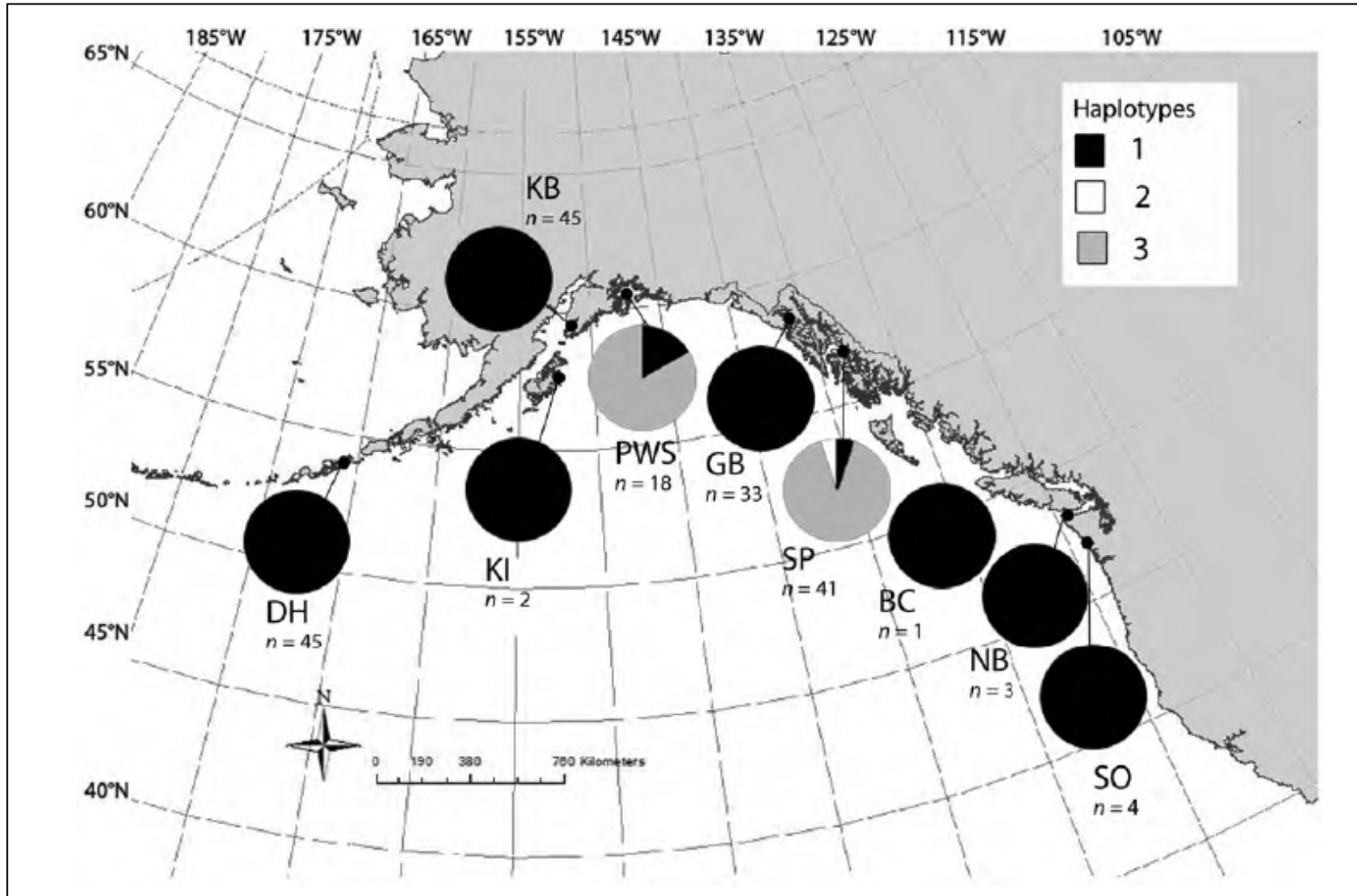


Movement patterns of giant Pacific octopuses, *Enteroctopus dofleini* (Wülker, 1910)

D. Scheel*, L. Bisson

Alaska Pacific University, 4101 University Dr. Anchorage, AK 99508, USA

genetic analysis of *E. dofleini* populations

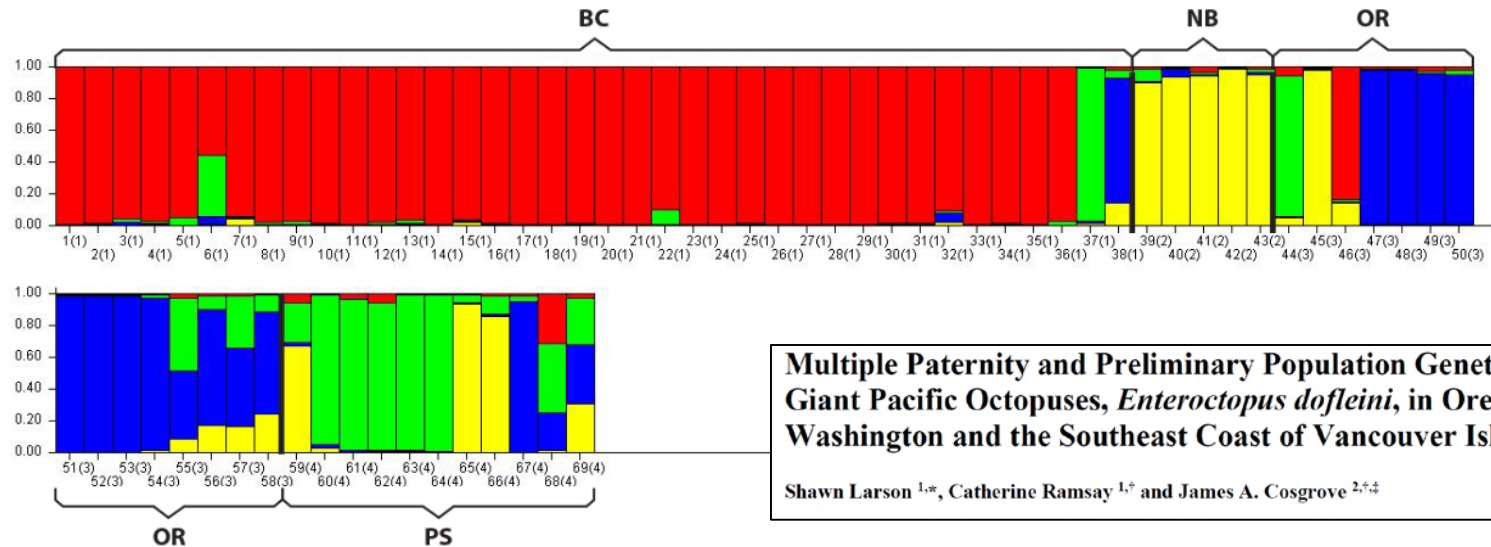
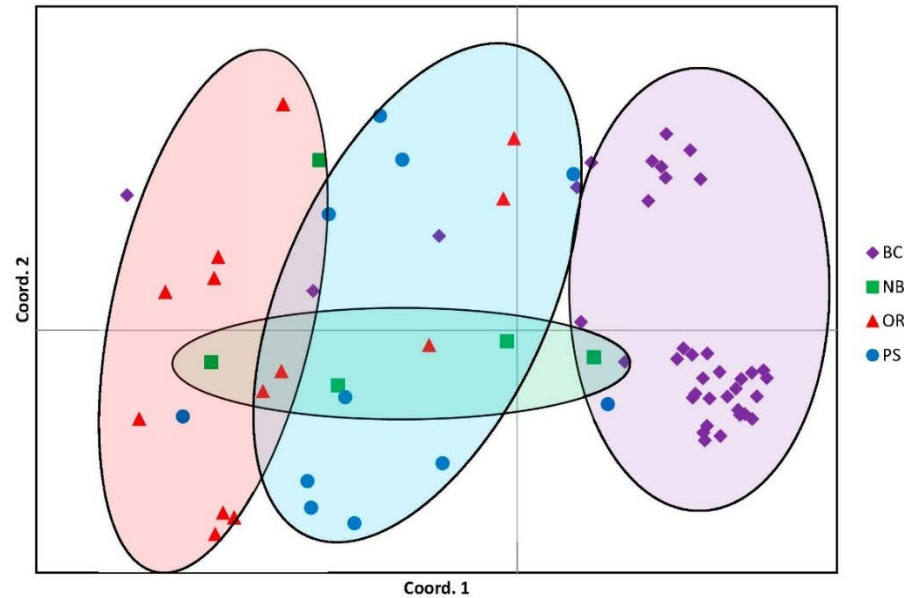


A COMPLEX PATTERN OF POPULATION STRUCTURE IN THE
NORTH PACIFIC GIANT OCTOPUS *ENTEROCTOPUS DOFLEINI*
(WÜLKER, 1910)

PATRICK D. BARRY¹, SHERRY L. TAMONE^{1,2} AND DAVID A. TALLMON^{1,2}

genetic analysis of *E. dofleini* populations

Principal Coordinates (PCoA)



Multiple Paternity and Preliminary Population Genetics of Giant Pacific Octopuses, *Enteroctopus dofleini*, in Oregon, Washington and the Southeast Coast of Vancouver Island, BC

Shawn Larson ^{1,*}, Catherine Ramsay ^{1,†} and James A. Cosgrove ^{2,‡}

summary and conclusions

- 1) Does it make sense to have stock structure analysis for Tier 6 complexes and stocks?
- 2) Octopus catches are disproportionately focused in the southeastern Bering Sea but exploitation rates are relatively low.
- 3) Adult *E. dofleini* do not move over large distances, which might contribute to geographic isolation and a high degree of population structuring. However, the few studies of genetic differentiation in Alaska suggest this is not the case, and this may be due to dispersal of the planktonic larval life stage.
- 4) There is some evidence that *E. dofleini* may actually be two different species. More work needs to be done to confirm this.