Status of Agency GSI Databases and recommendations

Habicht/Beacham/Moran/Narum

(Genetics)

Sockeye salmon loci in DFO baseline

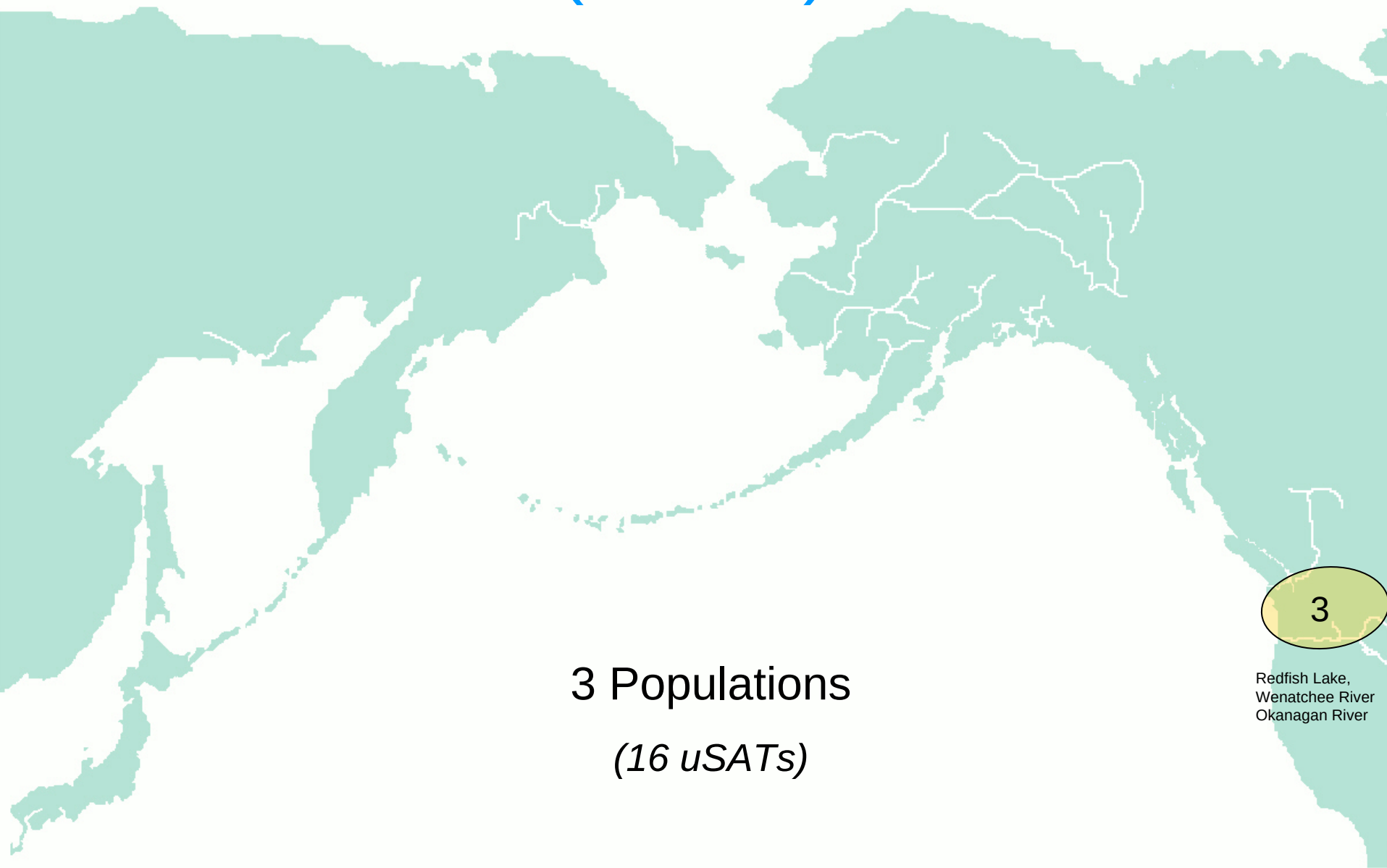
Locus	Alleles
Oki1a	8
Oki1b	10
Ots107	15
Omy77	20
Ots2	26
Ots3	26
Oki16	26
Ots108	29
Ots103	30
One8	32
Ots100	33
Oki6	37
Oki29	39
Oki10	83
DAB-β1	15

Sockeye salmon: Summary of the number of sampling sites or populations within geographic regions from Beacham et al. (2006). Range of annual and population samples sizes within regions is in parentheses. Fourteen microsatellite loci and an MHC locus were surveyed.

Region	Number of populations	Mean annual sample size	Mean population sample size
Columbia River	2	71 (15, 194)	285 (68,502)
Washington	3	114 (50, 201)	114 (50, 201)
Fraser River	53	94 (5, 400)	270 (15, 858)
West coast Vancouver Island	15	90 (19, 197)	132 (19, 279)
Nimpkish River	3	108 (42, 290)	288 (203, 367)
Southern BC	6	114 (12, 219)	171 (18, 325)

Central BC	16	79 (27, 223)	97 (27, 223)
Owikeno Lake	10	77 (7, 114)	224 (86, 398)
Long Lake	3	99 (39, 205)	297 (139, 490)
Queen Charlotte Islands	5	71 (41, 99)	114 (41, 190)
Nass River	11	96 (24, 264)	313 (40, 797)
Skeena River	14	78 (33, 200)	151 (33, 287)
Babine Lake	11	95 (54, 200)	208 (78, 499)
Unuk River	1	50 (50,50)	50 (50,50)
Stikine River	17	83 (6, 405)	152 (26, 474)
Taku River	10	57 (12, 100)	86 (12, 199)
Alsek River	15	83 (10, 238)	144 (10, 592)
Southeast Alaska	20	151 (45, 343)	197 (45, 300)

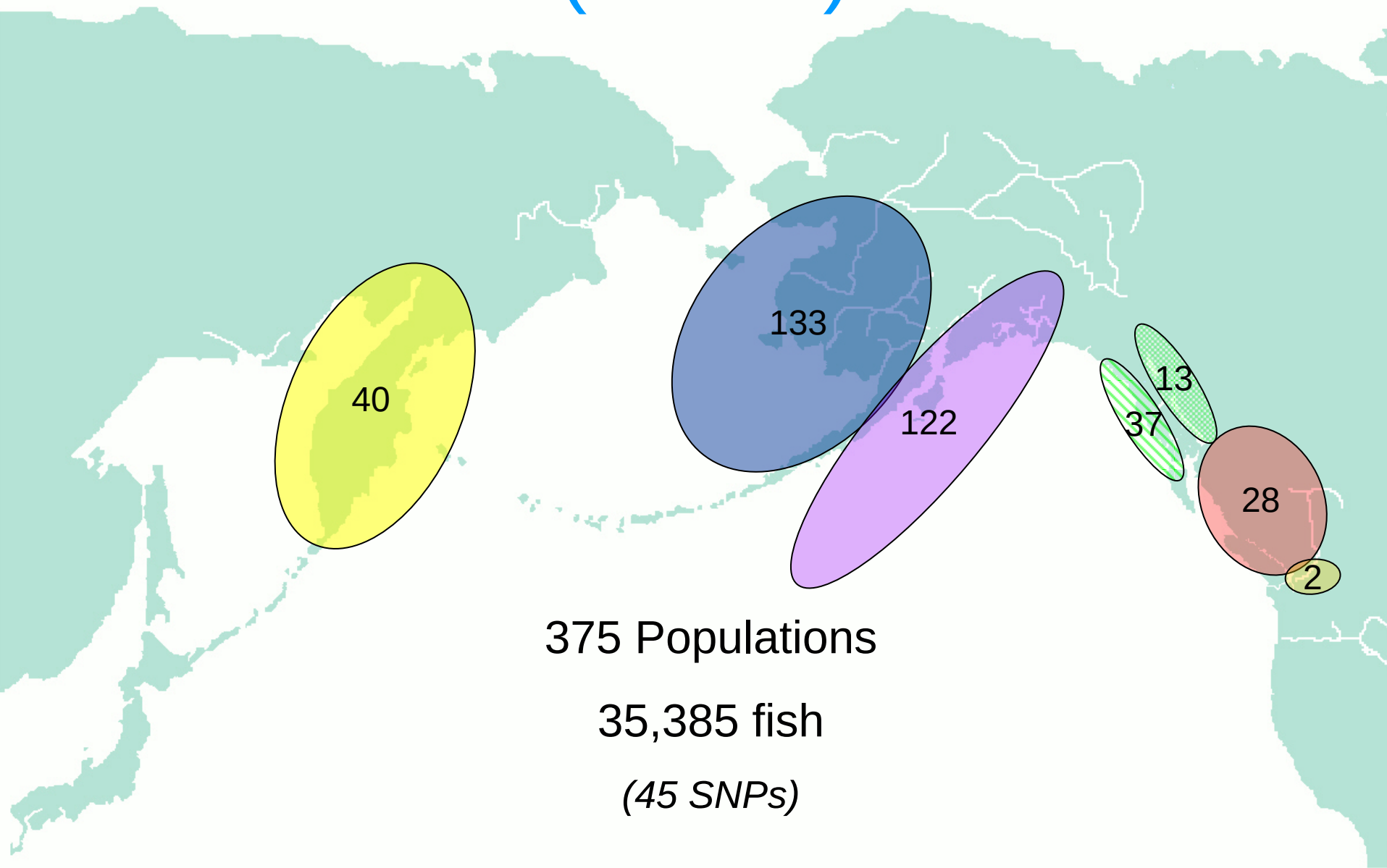
2007 Sockeye Microsatellite Baseline (NOAA)



3 Populations

(16 uSATs)

2007 Sockeye SNP Baseline (ADFG)



375 Populations

35,385 fish

(45 SNPs)

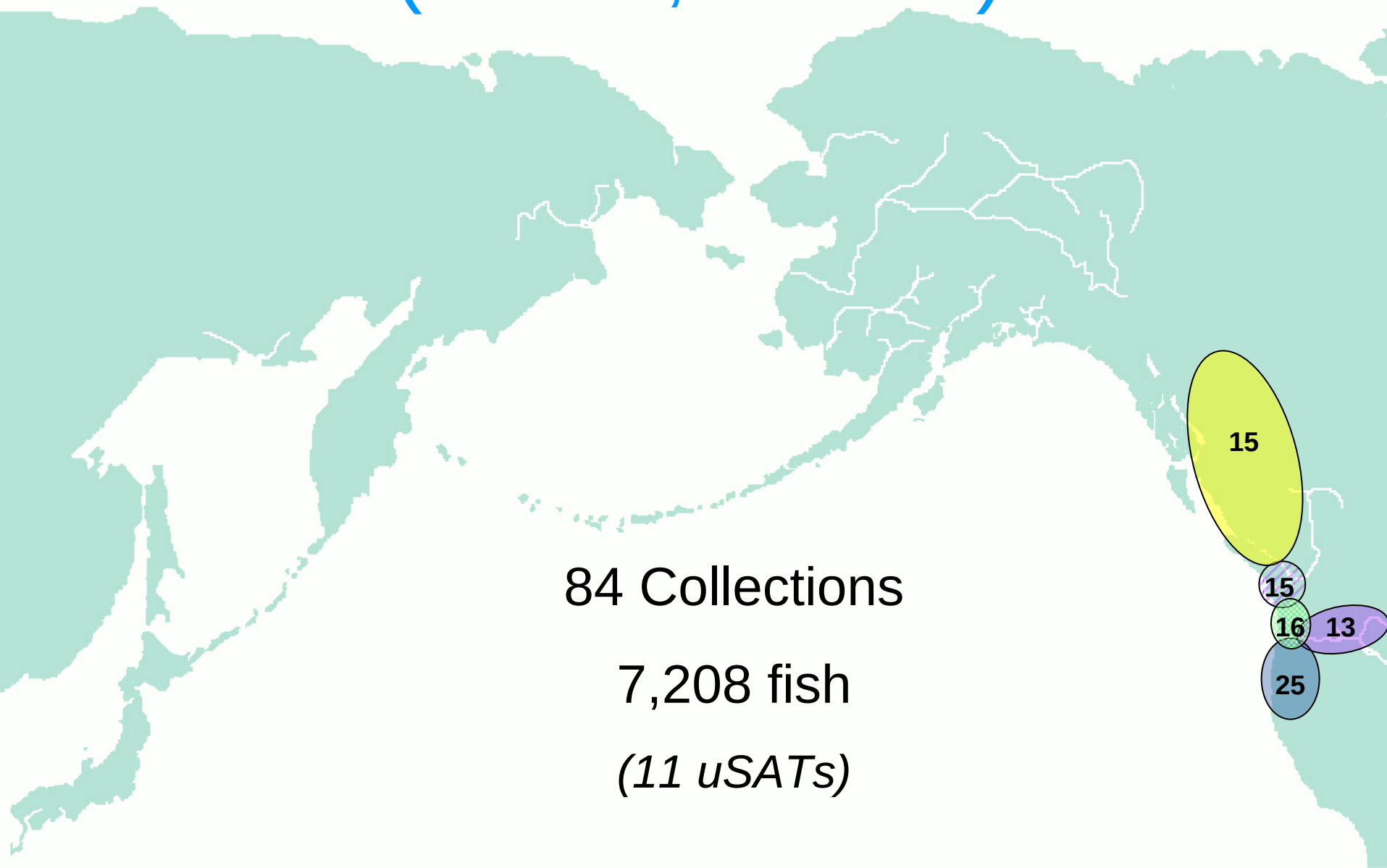
Coho salmon loci in DFO baseline

Locus
Ots2
Ots3
Ots101
Ots103
Oki1
Oki10
Oki100
Oki101
Ogo2
Omy325
One111
OtsG253b
Ssa408
Alpha1
Alpha2

Coho salmon: Summary of the number of regions, sampling sites or populations within geographic regions, and individuals surveyed. Thirteen microsatellite loci and two MHC loci were surveyed.

Region	# of collections	# of coho
Transboundary	7	700
SE Alaska	9	1450
QCI	20	1400
Nass	3	750
Skeena	29	4500
Central Coast	40	5850
South Coast	28	3650
ECVI	22	6350
WCVI	13	4300
Fraser	47	13,300
Washington	15	1400
Columbia	9	800
Oregon	10	850
California	4	150

2007 Coho Microsatellite Baseline (NOAA, Seattle)



84 Collections

7,208 fish

(11 uSATs)

Locus	NMFS Manchester	NMFS Santa Cruz	CDFO/WDFW collaboration	USFWS Abernathy	USFWS Alaska	OSU	BML	Allele ladder Candidates
Ocl8	X	X	X	X				1
Oki1	X	X	X	X	X		X	1
Oki10	X		X	X				2
Oki23	X			X		X		3
One13	X	X		X		X	X	2
Ots103	X	X	X	X		X	X	1
Ots213	X		X	X		X		2
Ots3	X			X		s	X	3
OtsB3	X			X				3
OtsG422	X	X		X				2
P53	X		X	X		X	X	1
iso-Ots2	s						X	
Oki11	s				X			
Oki13	s	X						
Oki2	s							
Oki3	s				X			
Ots101	s		X					3
Ots105	s	X			X			3
Ots2	s					X	X	
Ots208	s							
Ots212	s					s		
OtsG249	s							
OtsG253b	s		X					3
OtsG3	s	X						
OtsG68	s	X						
OtsG78b	s	X						
OtsG83b	s	X						
Ogo1a								
Ogo2			X					3
Oke2					X			
Oke3					X			
Oke4					X			
Oki100			X					3
Oki101			X					3
Oki16						X		
Omm1121								
Omm1128								
Omy1011			X					3
Omy116		X						
Omy325			X					3
Omy77						s		
One111			X					3
One11b		X						
One13M			X					3
One2								
One3					X			
Ots1						s		
Ots10						s		
Ots108		X						
Ots1b		X						
Ots206						s		
Ots208b						s		
Ots209						s		
Ots215						X		
Ots2M			X					3
Ots3.1					X			
Ots3M			X					3
Ots9						s		
Ssa14		X						
Ssa407			X					3
Ssa85		X						
Total in use	11	17	18	11	9	8	7	

X = locus is in use

s = locus has been screened and is being or has been evaluated for possible use

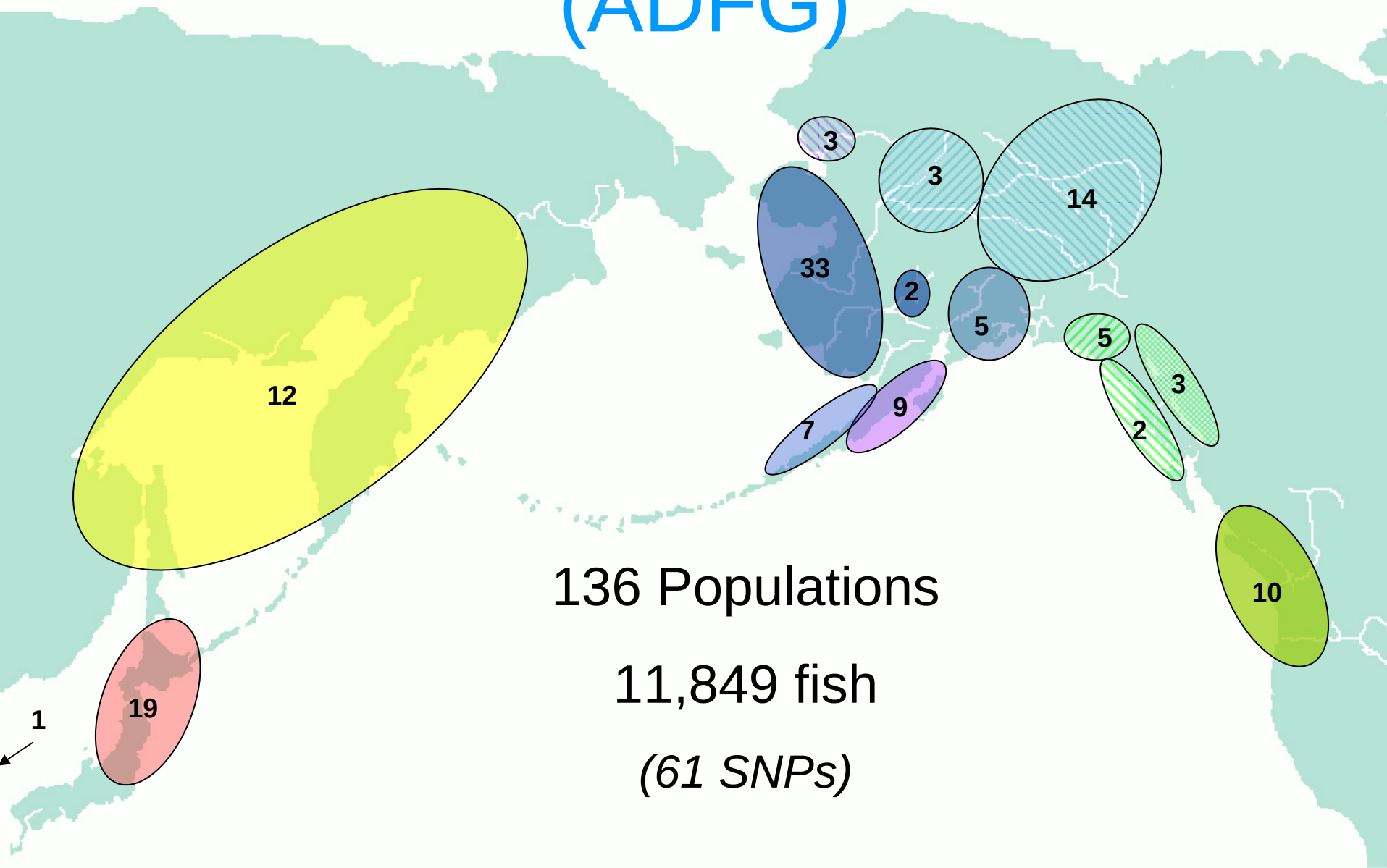
2007 Coho SNP Baseline (ADFG)

6 Populations

376 fish

(13 uSATs)

2007 Chum SNP Baseline (ADFG)

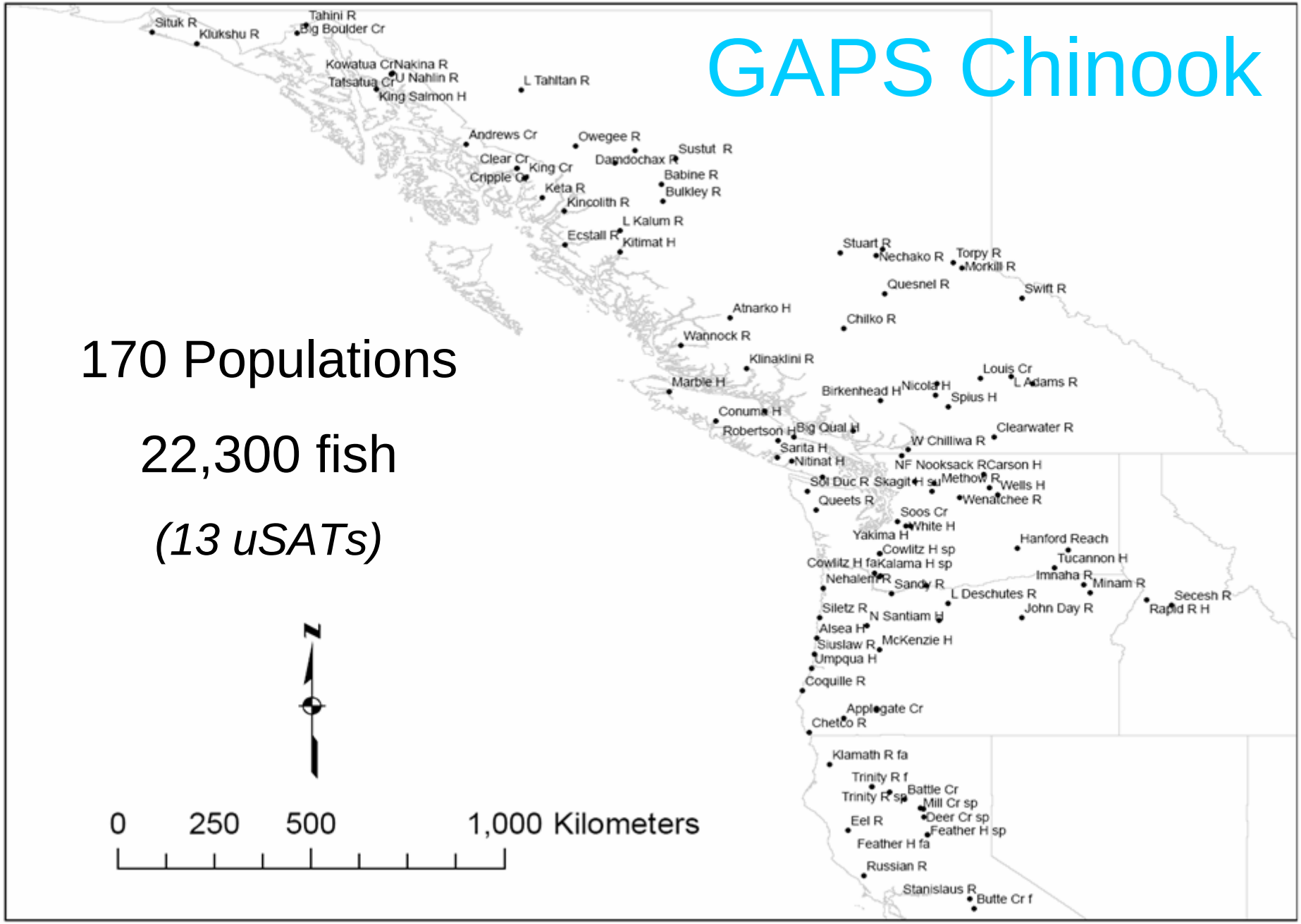


136 Populations

11,849 fish

(61 SNPs)

GAPS Chinook



170 Populations

22,300 fish

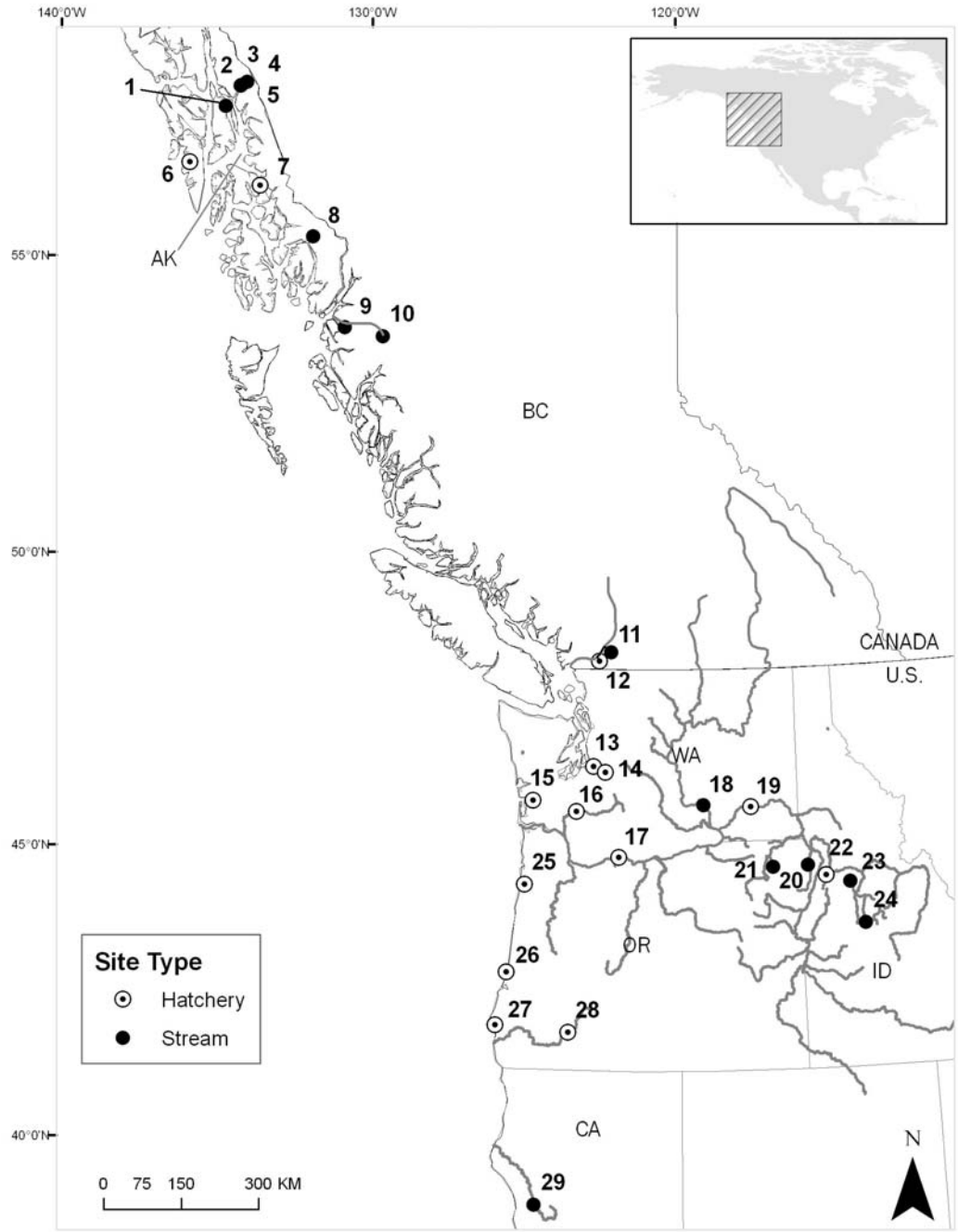
(13 uSATs)

2007 Chinook SNP Baseline Narum et al.

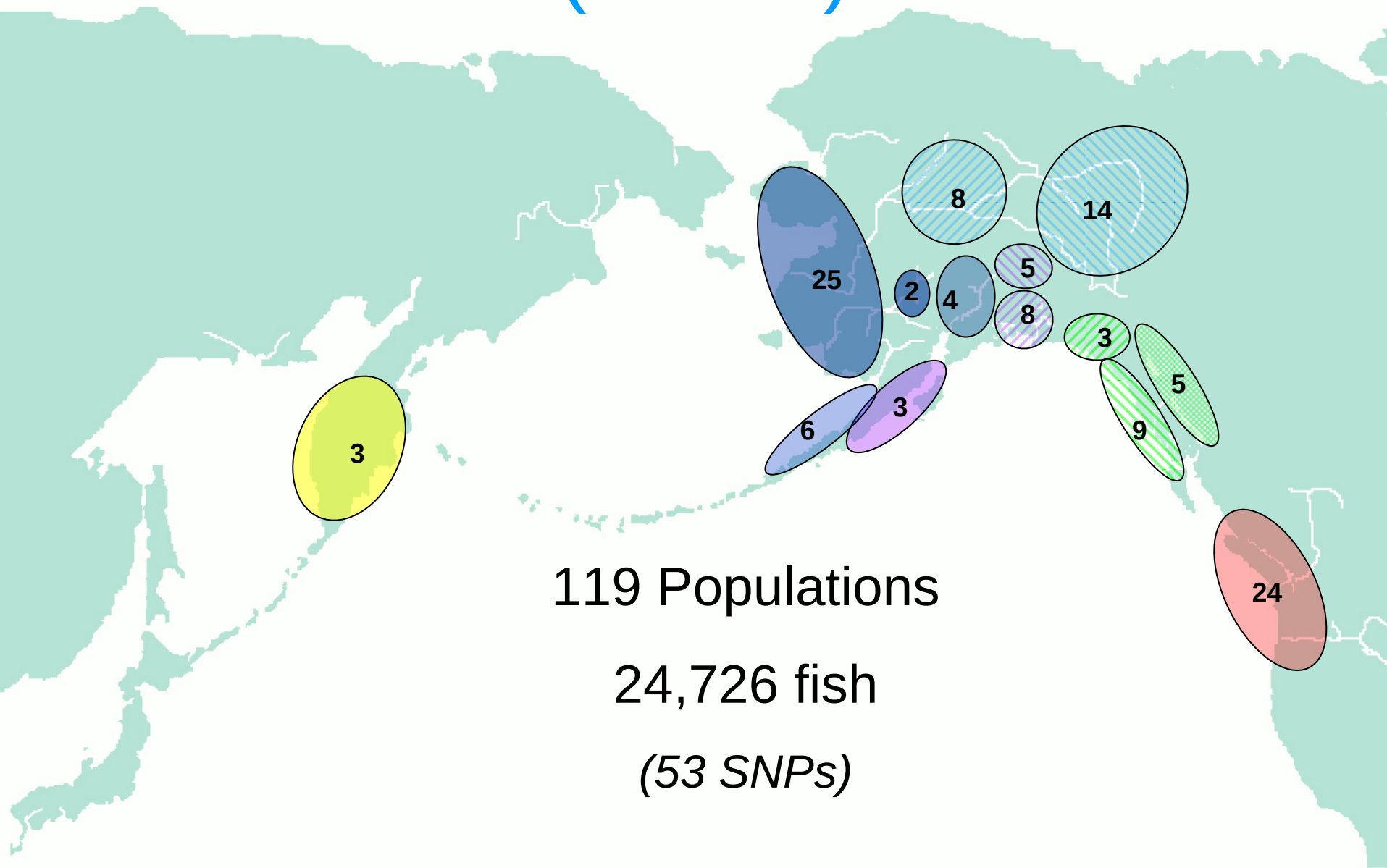
29 Populations

2,782 fish

(37 SNPs)



2007 Chinook SNP Baseline (ADFG)



119 Populations

24,726 fish

(53 SNPs)

SNP assays available for Pacific Salmon

Species	Number of genotyping assays
Chinook salmon	70+
Coho salmon	19
Chum salmon	77
Sockeye salmon	44
Pink salmon	0

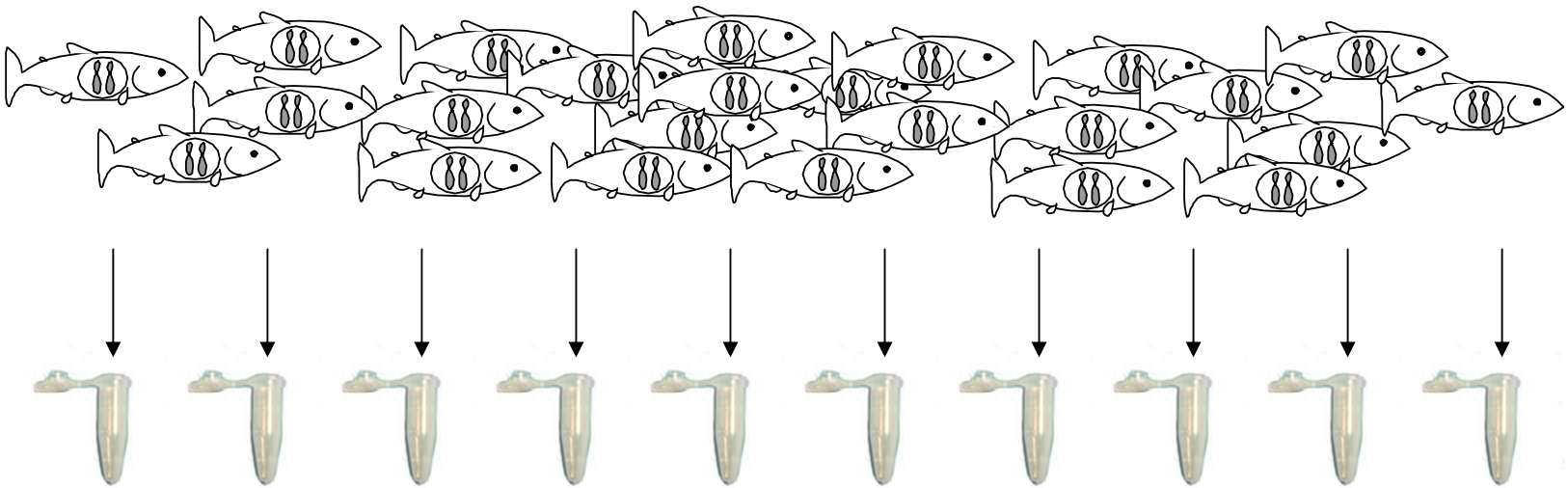
Conclusions/Recommendations

- Both SNP and microsatellite databases are extensive for sockeye, chinook, and chum salmon.
- Empirically test cost-benefit of markers both regionally and coastwide.
- Standardize loci and allele scoring.
- Christian Smith will provide group's recommendations on marker choice.

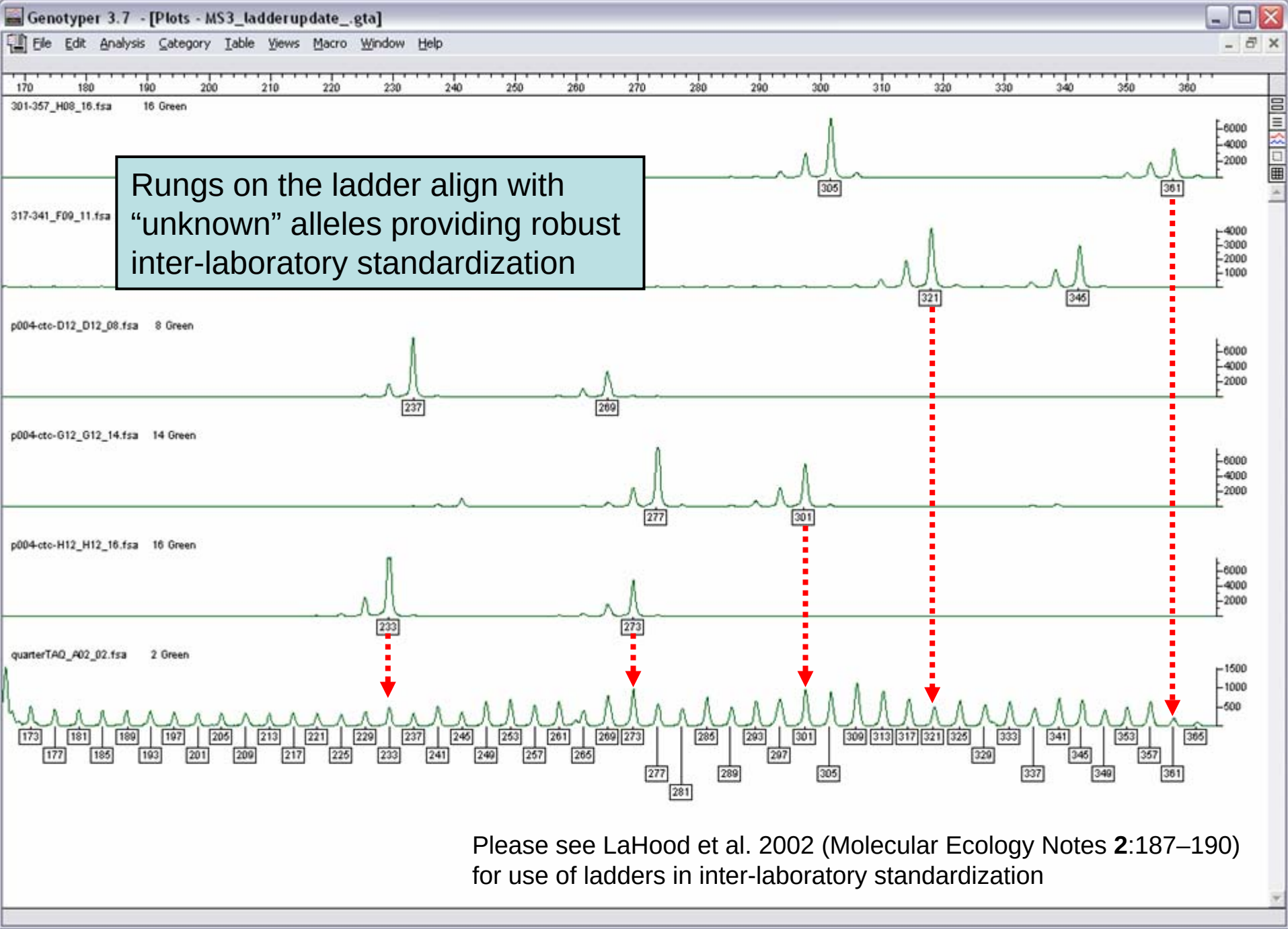
Standardizing coho data

- Current proposal to the Southern Fund to standardize existing coho microsatellite data
- Consolidate standardized and non-standardized coho data in the existing GAPS database
- Allele ladders will dramatically simplify microsatellite standardization and certification of new labs

What is an Allele Ladder?



Combined microsatellite products



Please see LaHood et al. 2002 (Molecular Ecology Notes **2**:187–190) for use of ladders in inter-laboratory standardization