Warm Springs River Chinook Salmon

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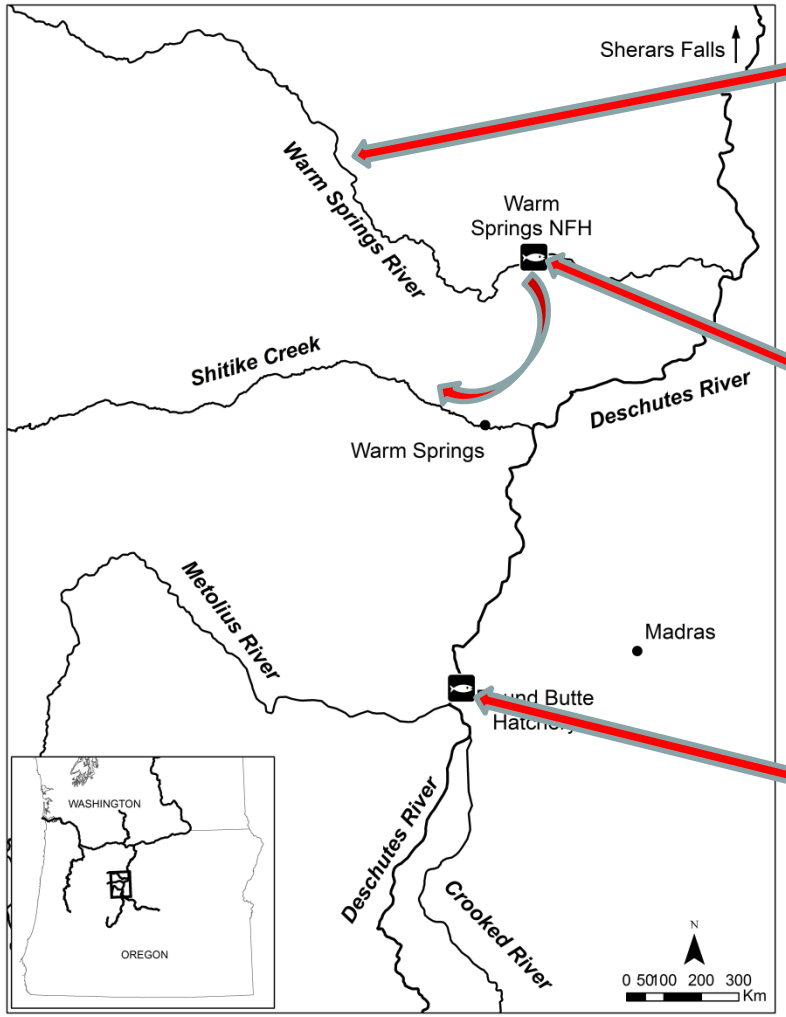
Confederated Tribes of the Warm Springs Reservation of Oregon
Oregon Department of Fish and Wildlife
U.S. Fish and Wildlife Service

Photo Credit: Matt Smith

Deschutes River Spring Chinook salmon



Natural spawning in Warm Springs R.

- Ancestral Deschutes Basin

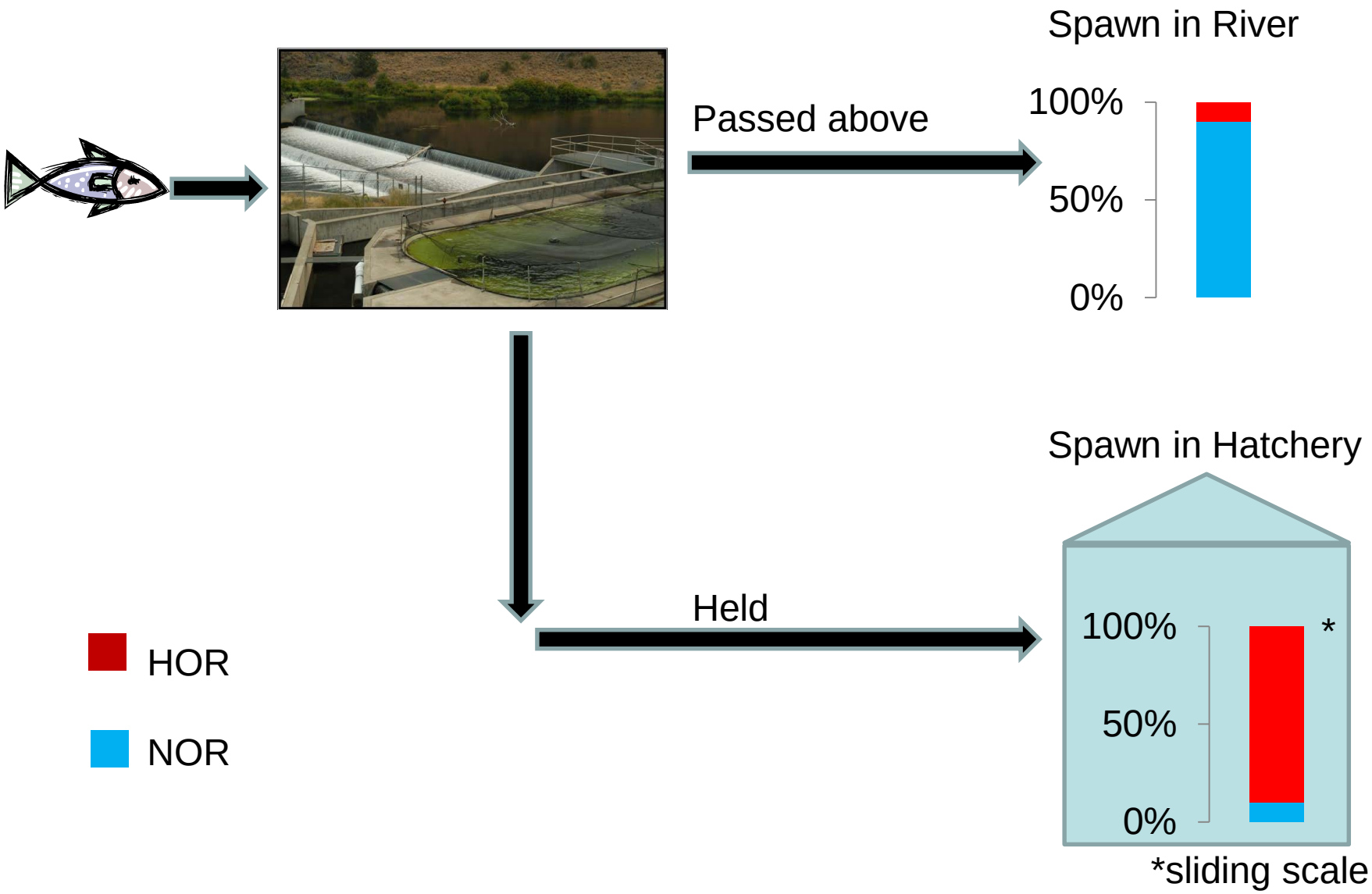
Warm Springs NFH

- integrated
- founded 1978
- fishery enhancement and conservation

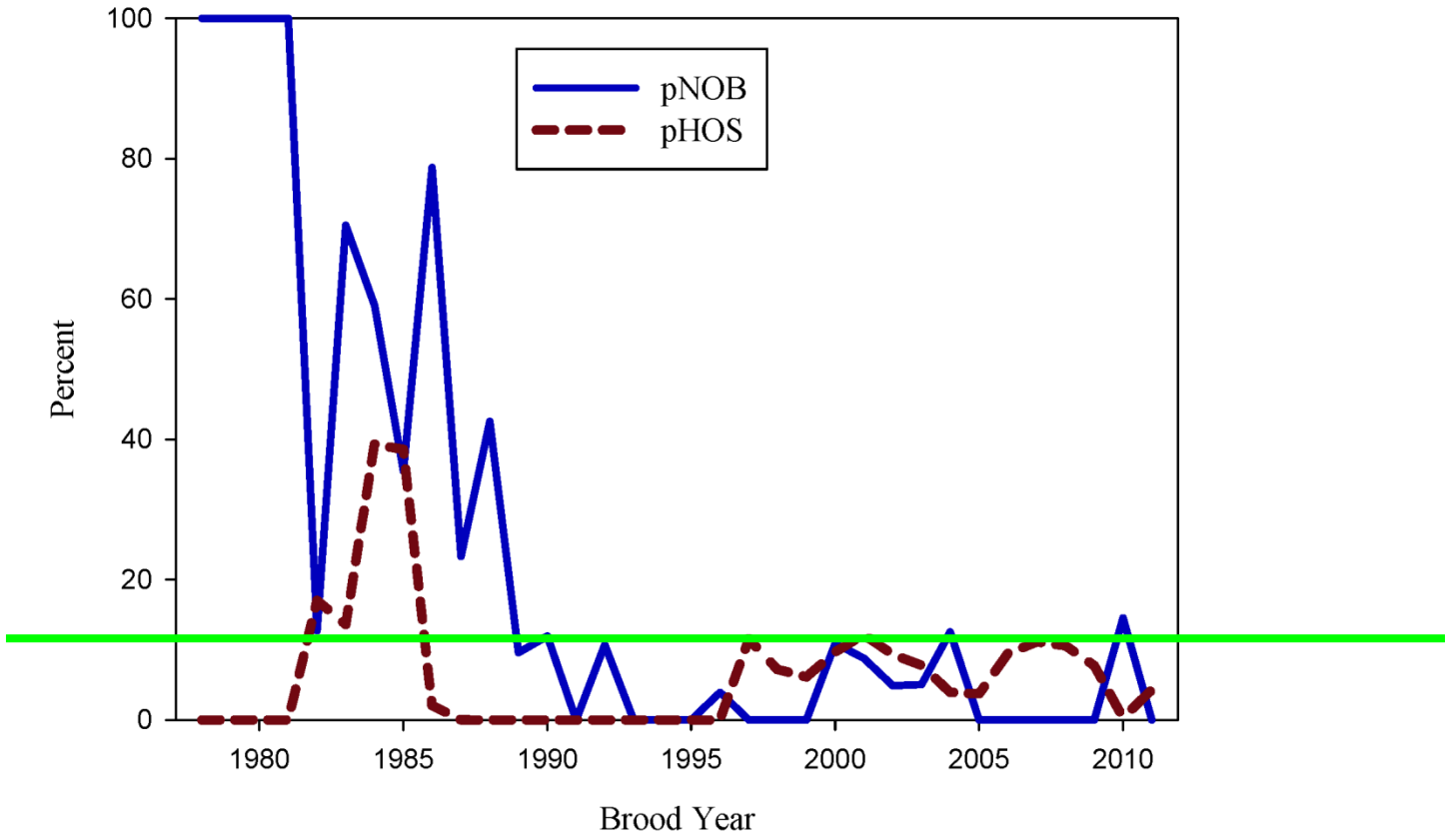
Round Butte Hatchery

- segregated
- founded 1972
- fishery enhancement

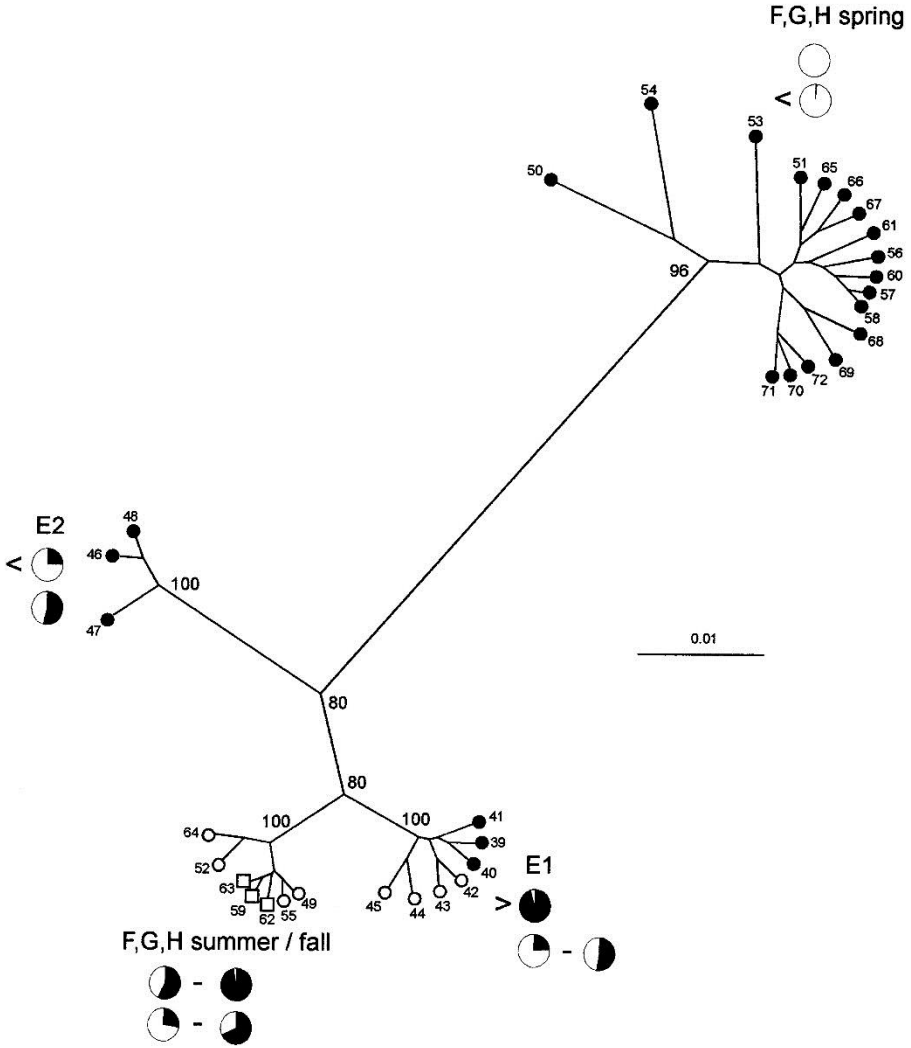
Integration strategy at WS NFH



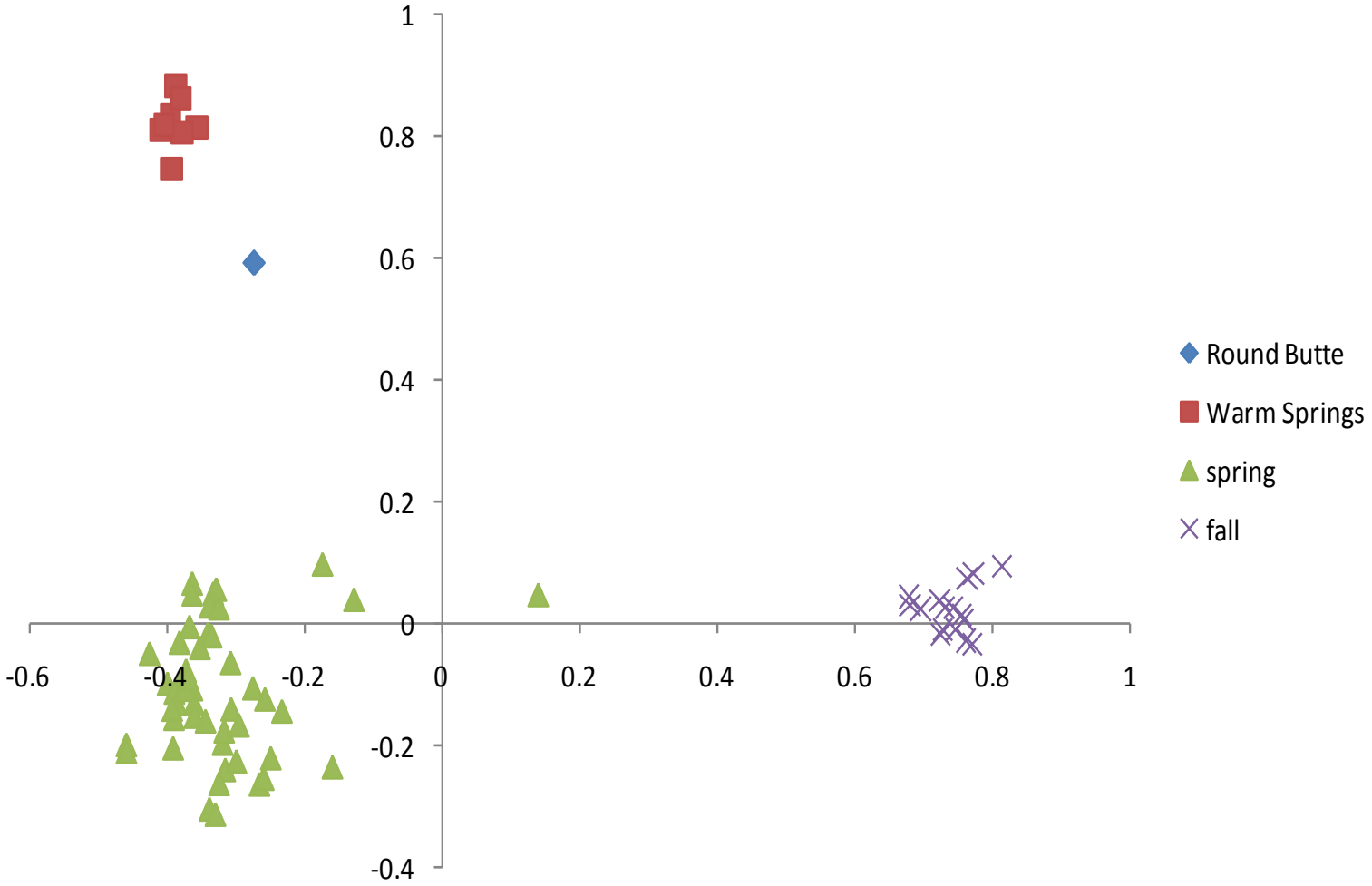
Success at meeting percent natural influence targets has been variable



Divergence among Columbia River Chinook salmon based on allozymes



Divergence among Columbia River Chinook salmon based on microsatellites



Questions

- How are Warm Springs Chinook salmon related to those from Round Butte Hatchery and other members of the ESU?

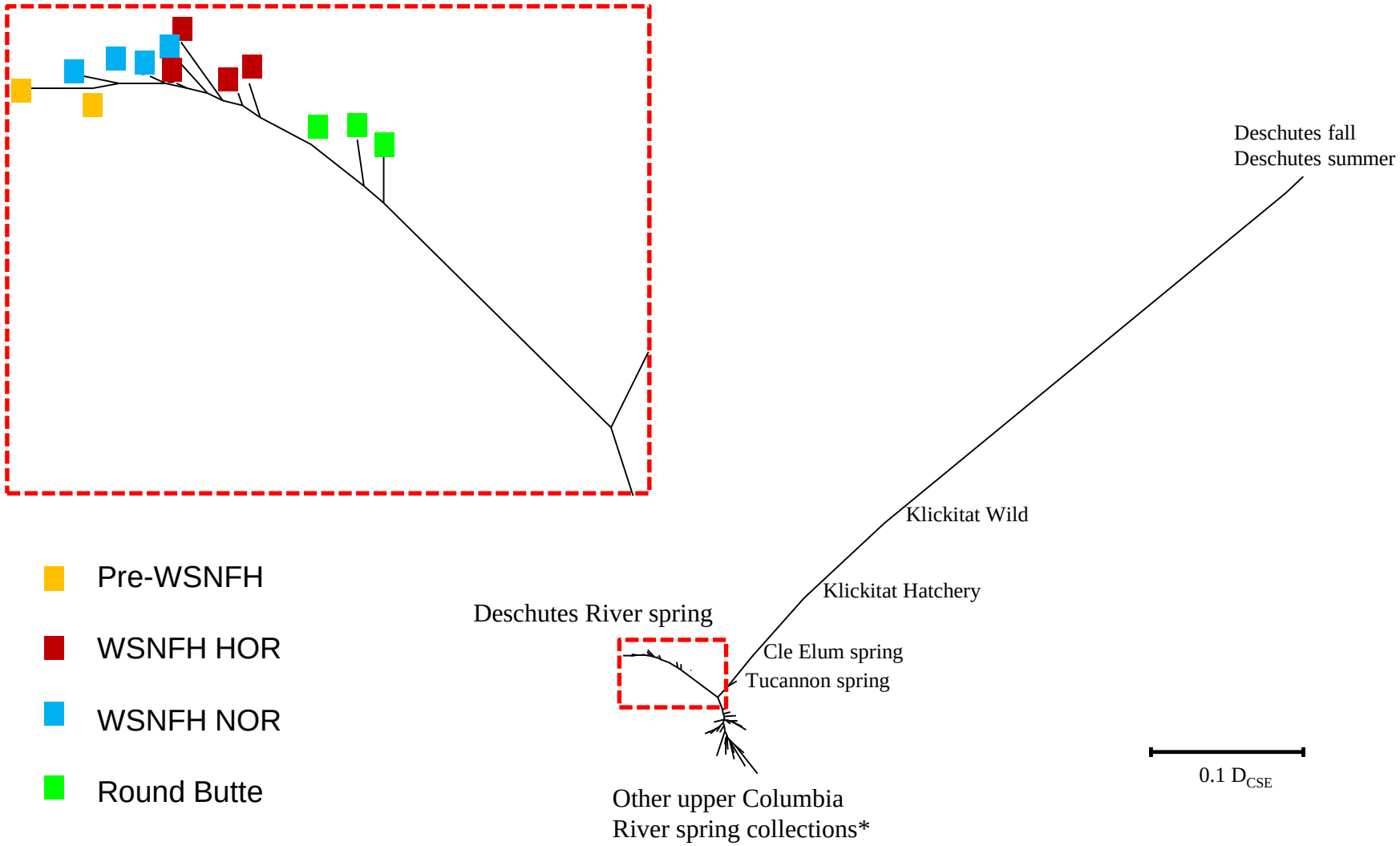
- Has the Warm Springs population changed since inception of WSNFH?

- Are HOR and NOR fish from the Warm Springs River different from one another?

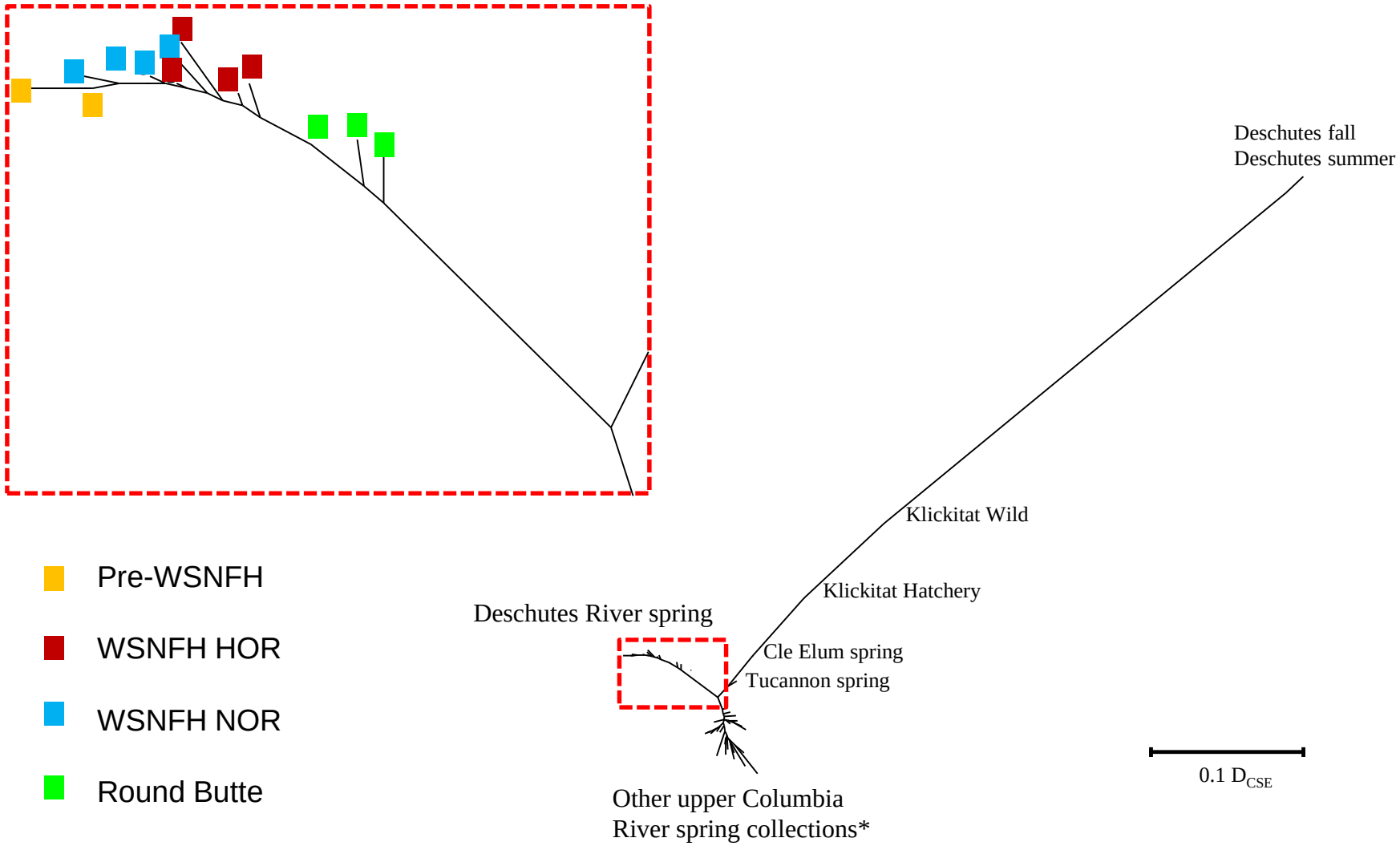
13 collections analyzed with 76 SNP (TaqMan) markers

Number	Collection site	Year	Life stage	Origin	N
1	Warm Springs R	1976	juvenile	n	71
2	Warm Springs R	1977	juvenile	n	73
3	Warm Springs H	2001	adult	h	55
4	Warm Springs H	2001	adult	n	37
5	Warm Springs H	2004	adult	h	43
6	Warm Springs H	2004	adult	n	48
7	Warm Springs H	2010	adult	h	133
8	Warm Springs H	2010	adult	n	84
9	Warm Springs H	2011	adult	h	100
10	Warm Springs H	2011	adult	n	102
11	Round Butte H	2010	adult	h	141
12	Round Butte H	2011	adult	h	95
13	Round Butte H	2012	adult	h	96

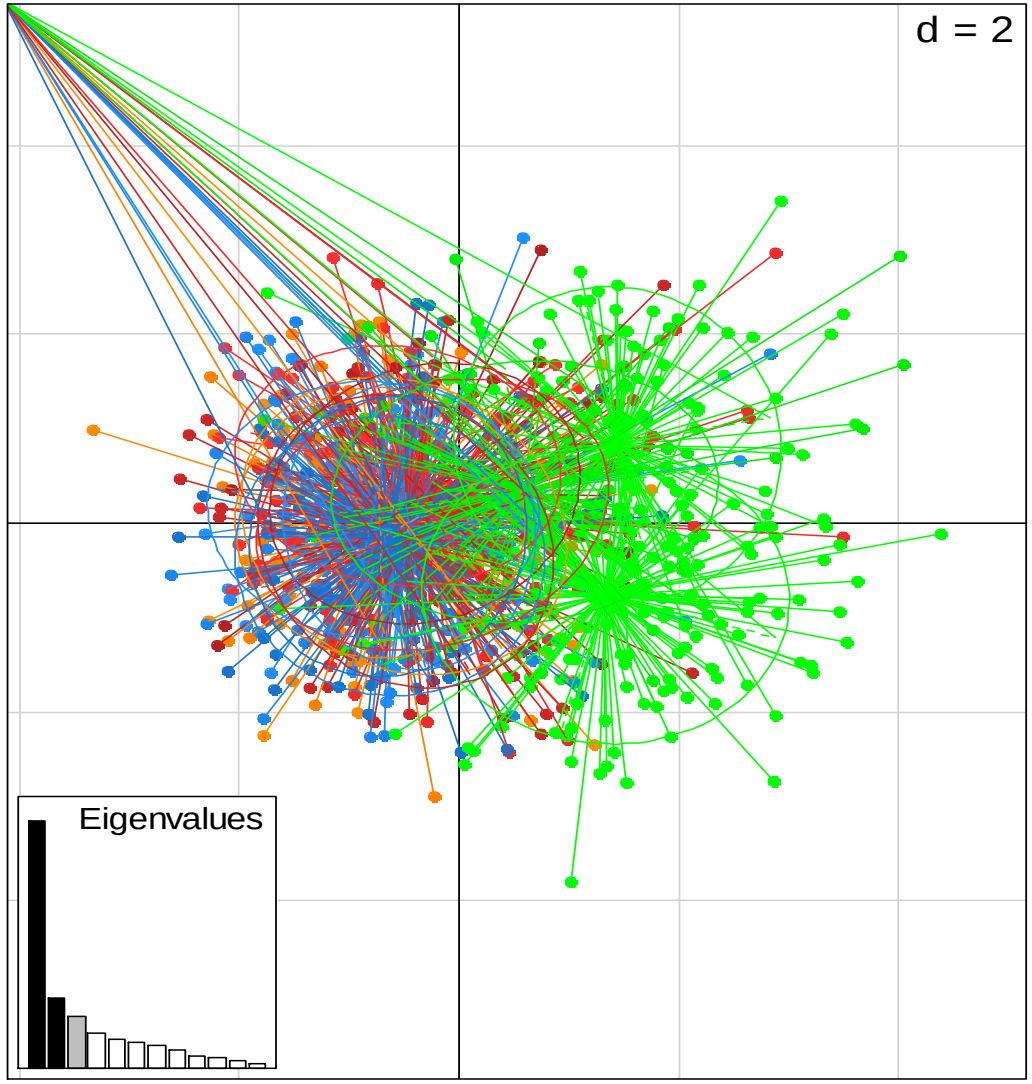
SNP divergence among Columbia River Chinook salmon



SNP divergence among Columbia River Chinook salmon



Divergence among Deschutes Basin Spring Chinook salmon



Pre-WSNFH

WSNFH HOR

WSNFH NOR

Round Butte

Conclusions

- Deschutes Basin Spring Chinook salmon are distinct.
- Within the Deschutes, the primary divergence is between Round Butte and Warm Springs
- NOR Warm Springs fish returning now are similar to those that returned prior to inception of the hatchery
- HOR fish from Round Butte (and to a lesser extent Warm Springs) exhibit genetic characteristics typical of hatchery fish

Acknowledgements

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