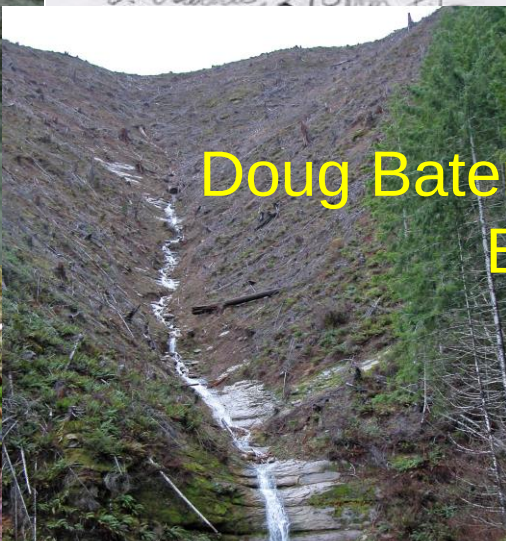
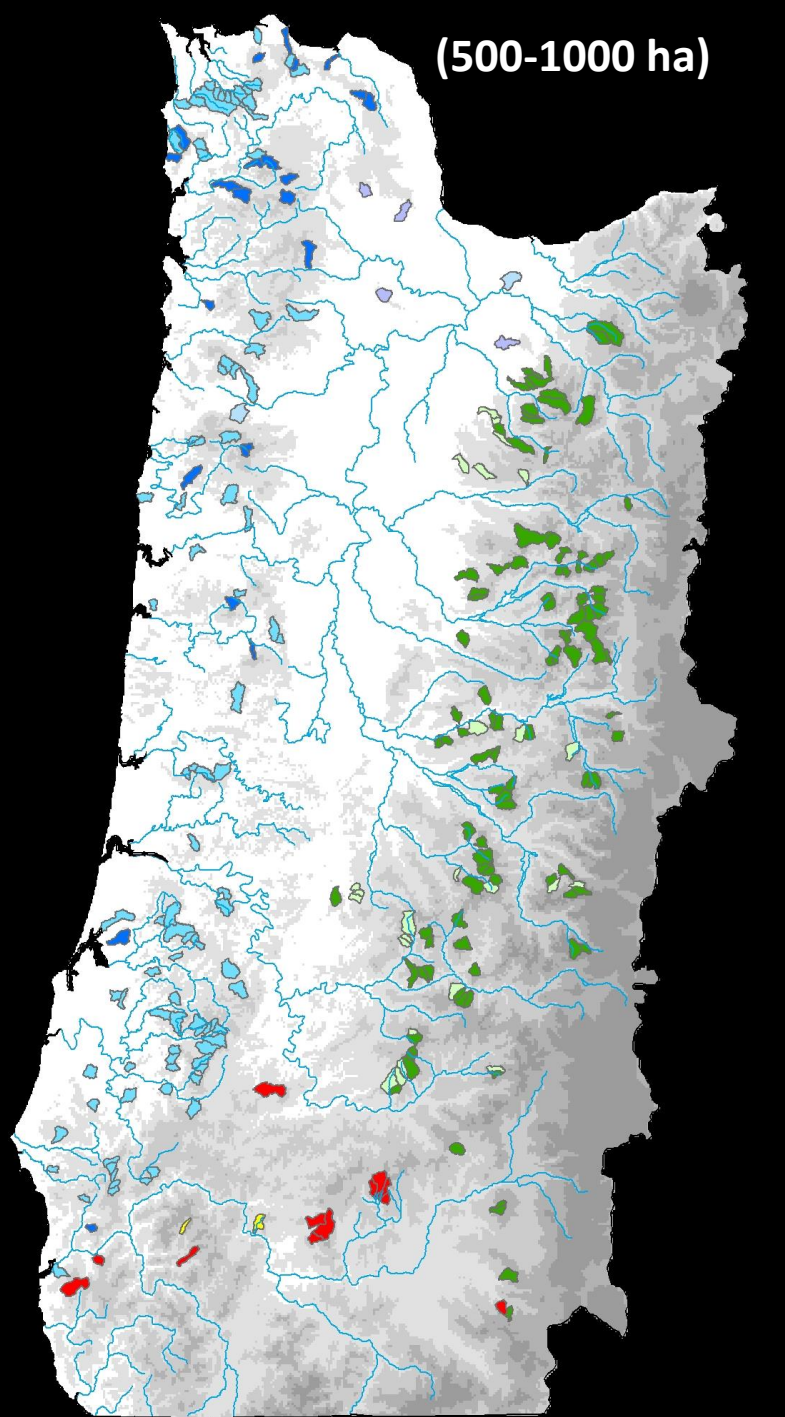




Multi-Scale Assessment of CCT Demographics in Headwater Streams of Western Oregon



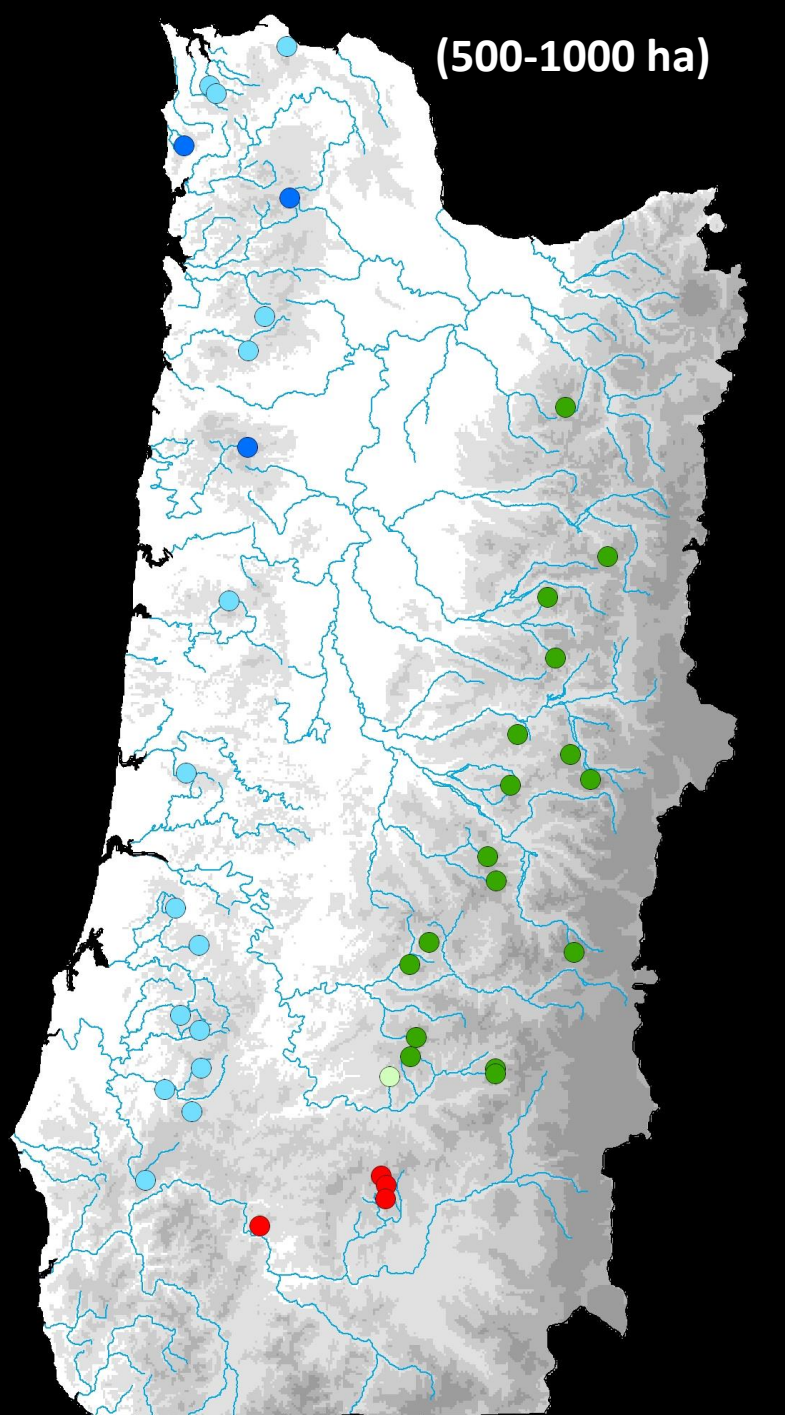
Doug Bateman and Bob Gresswell
Both Retired!!!



Site selection

Isolated headwater
populations of
coastal cutthroat trout
($N = 269$)

<u>Ecoregion</u>	<u>Rock type</u>	
	Hard	Soft
Coast Range		
Cascades		
Klamath		



Site selection

Randomly selected
populations
($n = 40$)

<u>Ecoregion</u>	<u>Rock type</u>	
	Hard	Soft
Coast Range		
Cascades		
Klamath		

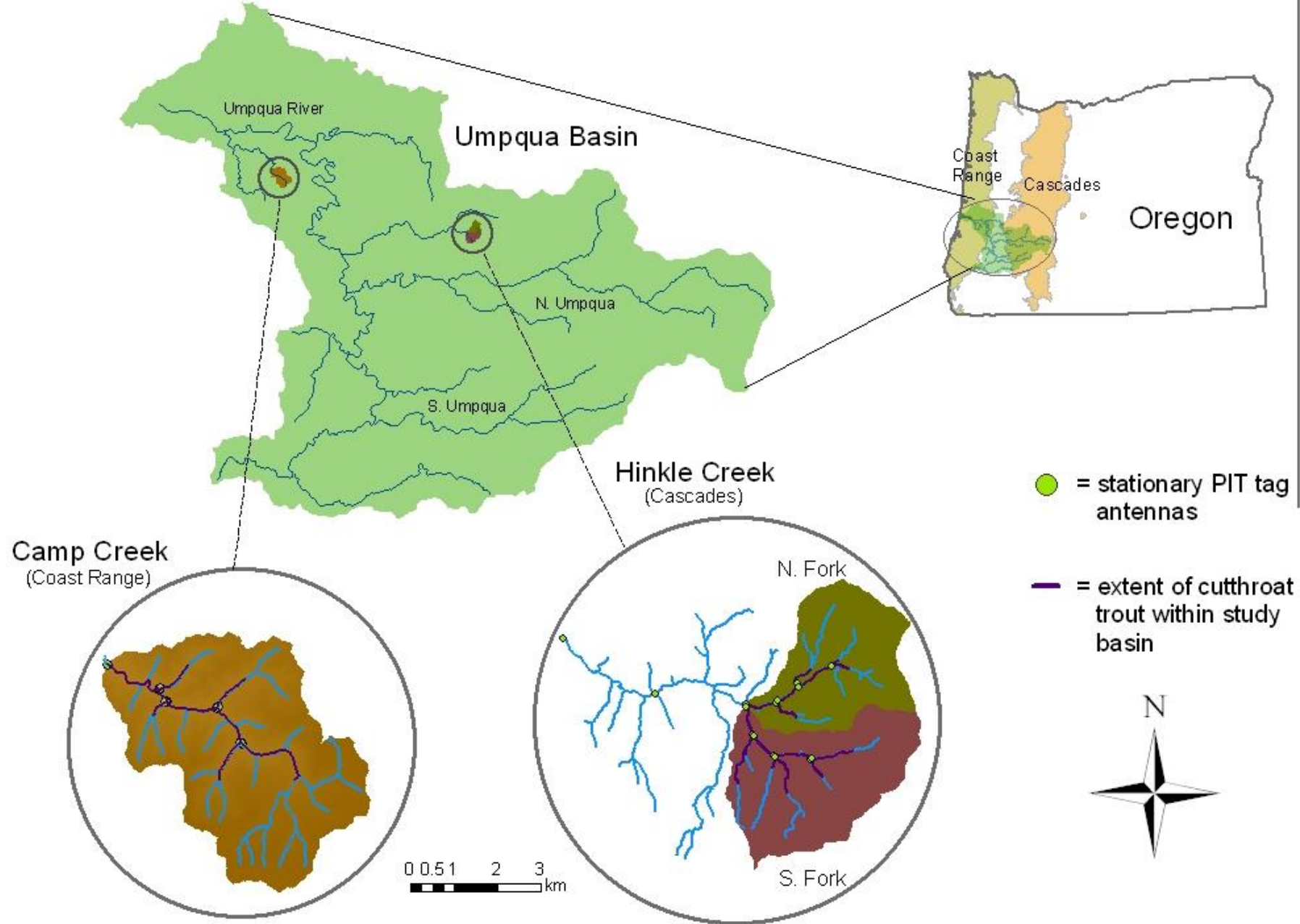
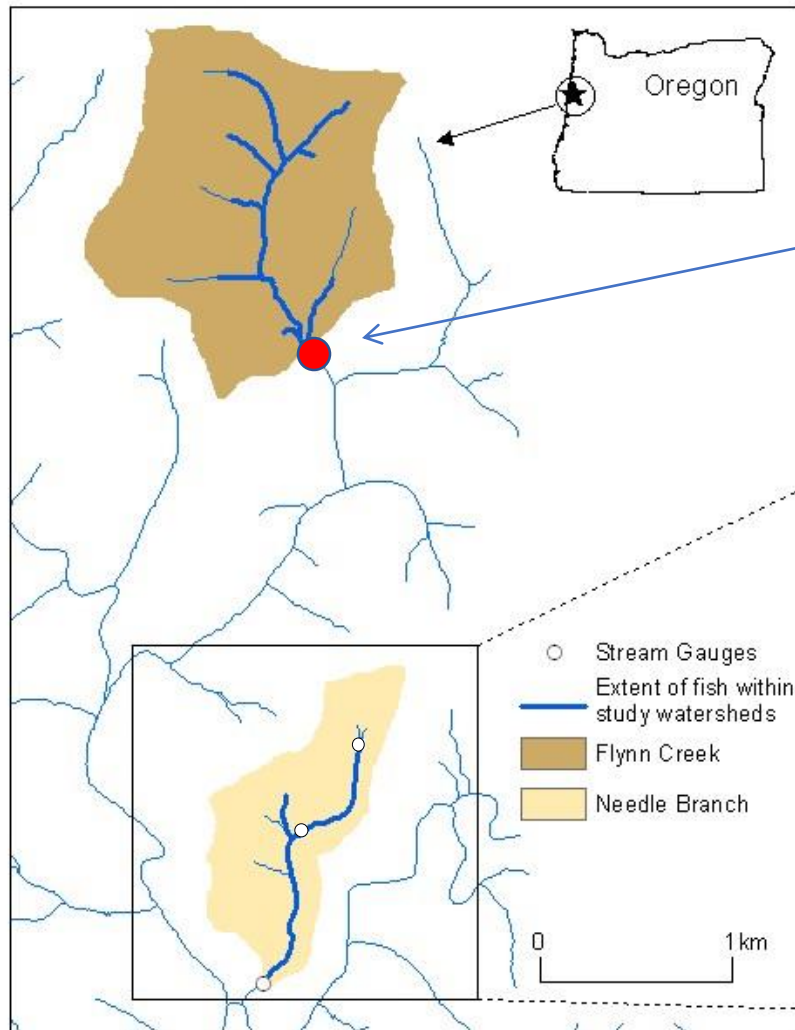
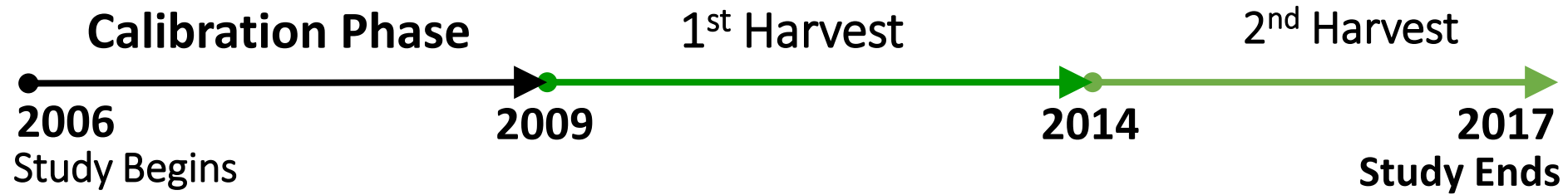
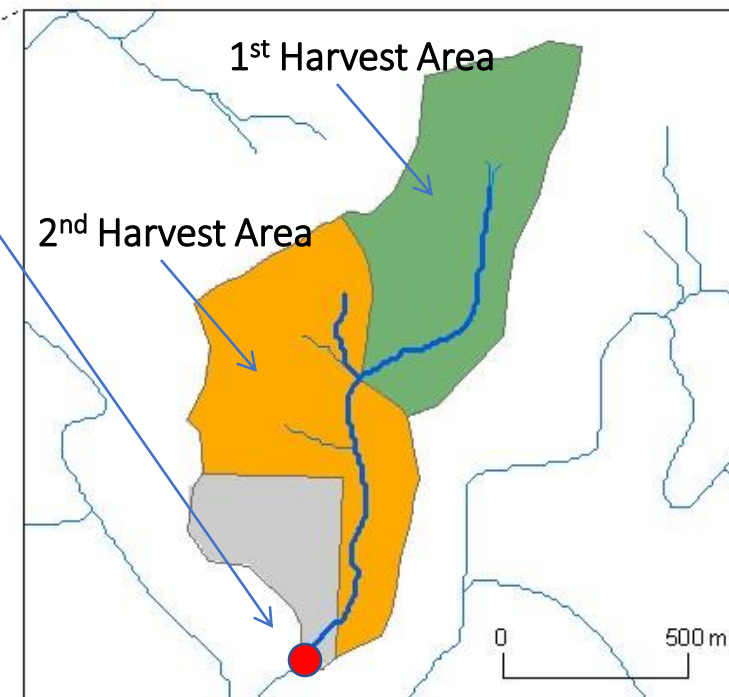


Figure 1: Study Area - Overview

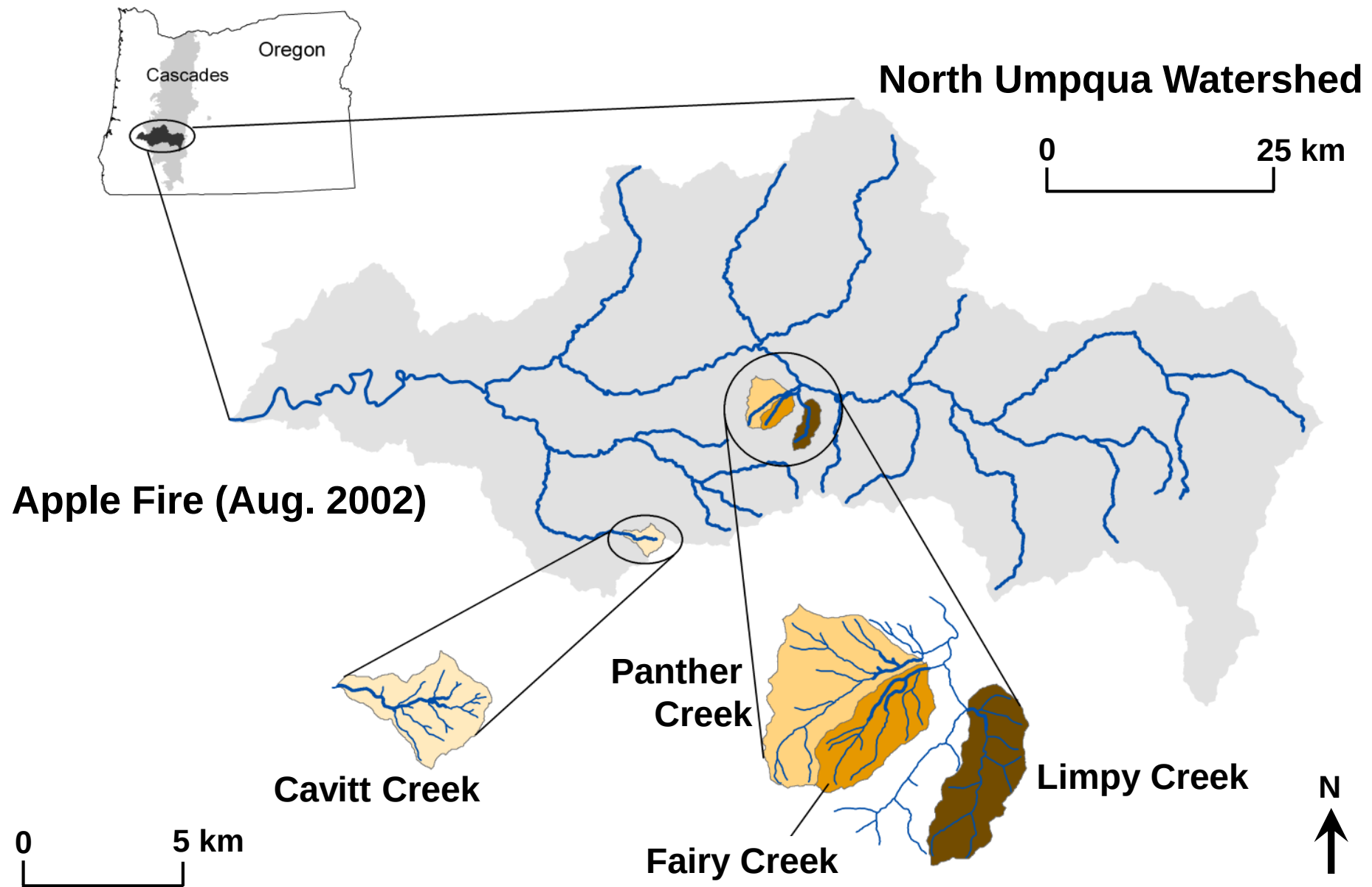
Experimental Timeline: Alsea Watershed Study Revisted



Swim Through PIT Tag Antennas



Fire Basins

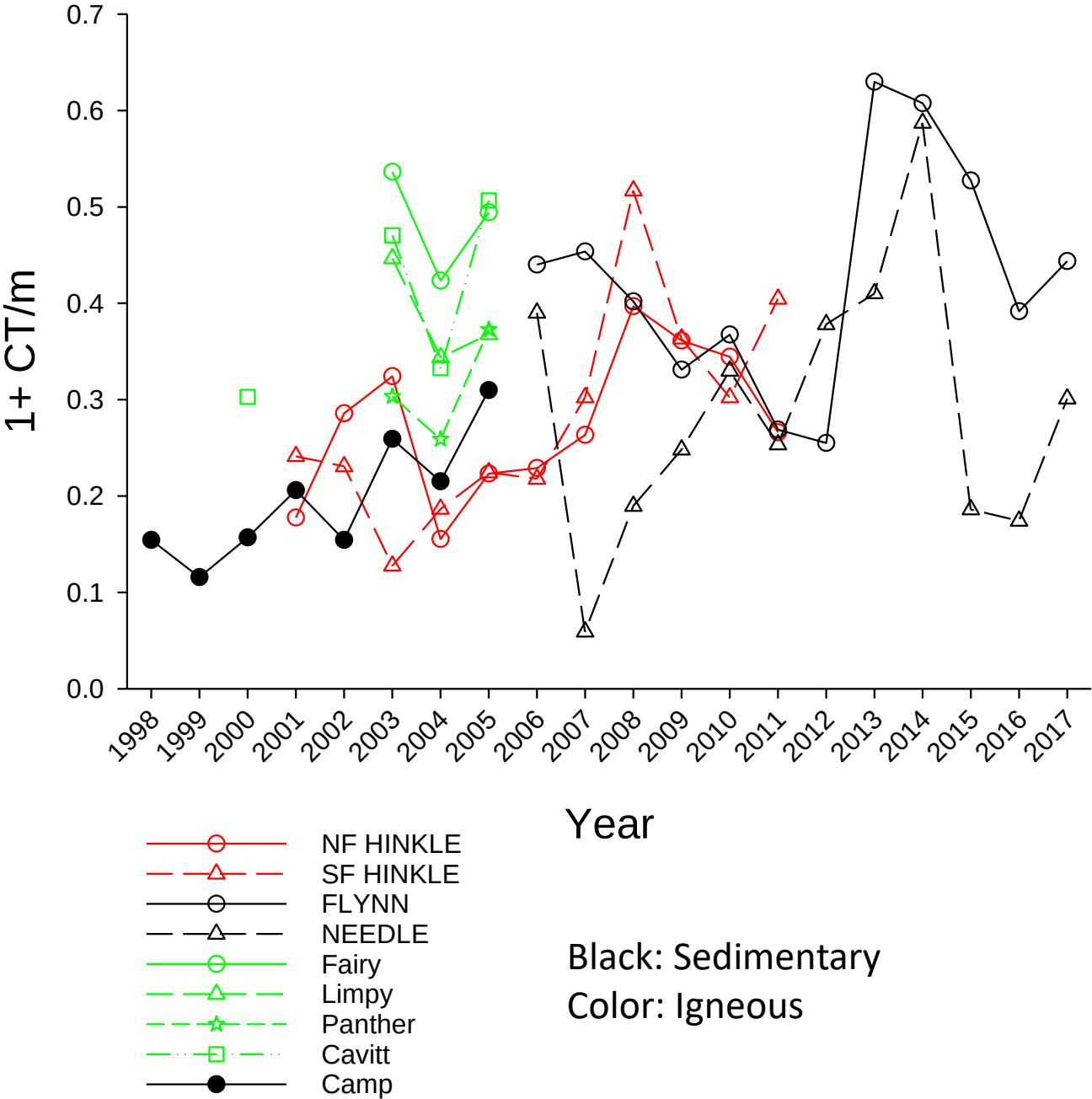


Limpy Creek: severe burn

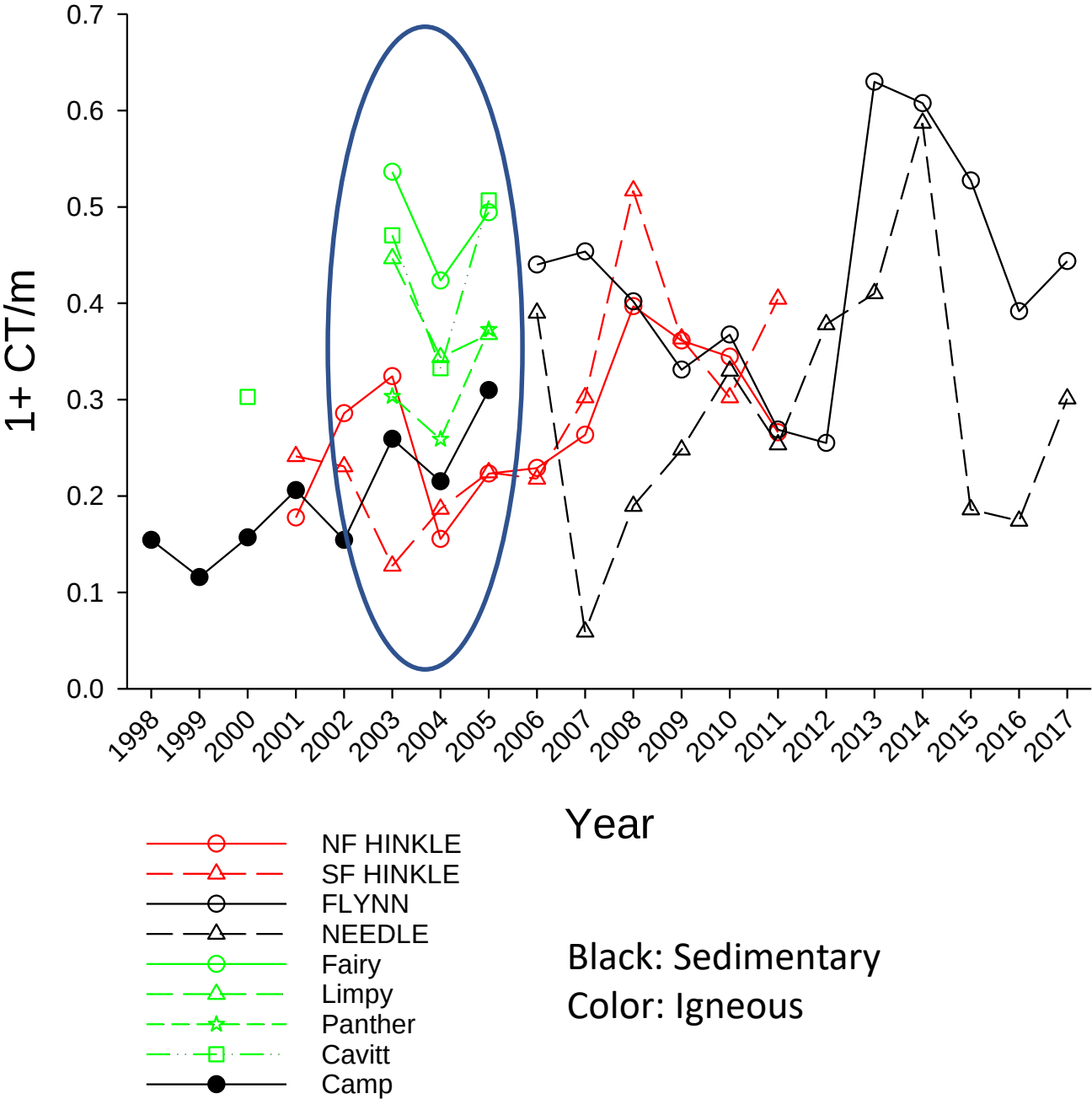


Stream	Years or # of Catchments	Mean 1+CT/m	Range	Factor of Difference between min and max	Coefficient of Variation
Cavitt	4	0.4	0.3-0.5	1.7	22
Limpy	3	0.4	0.3-0.4	1.3	14
Panther	3	0.3	0.3-0.4	1.4	18
Fairy	3	0.5	0.4-0.5	1.3	16
Camp	8	0.2	0.1-0.3	2.7	31
N. F. Hinkle	11	0.3	0.2-0.4	2.6	28
S. F. Hinkle	11	0.3	0.1-0.5	4.1	39
Needle	12	0.3	0.1-0.6	10.0	48
Flynn	12	0.4	0.3-0.6	2.5	28
Random 40	40	0.4	0.1-1.3	13	71

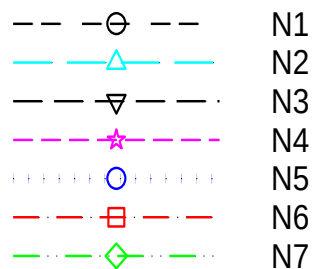
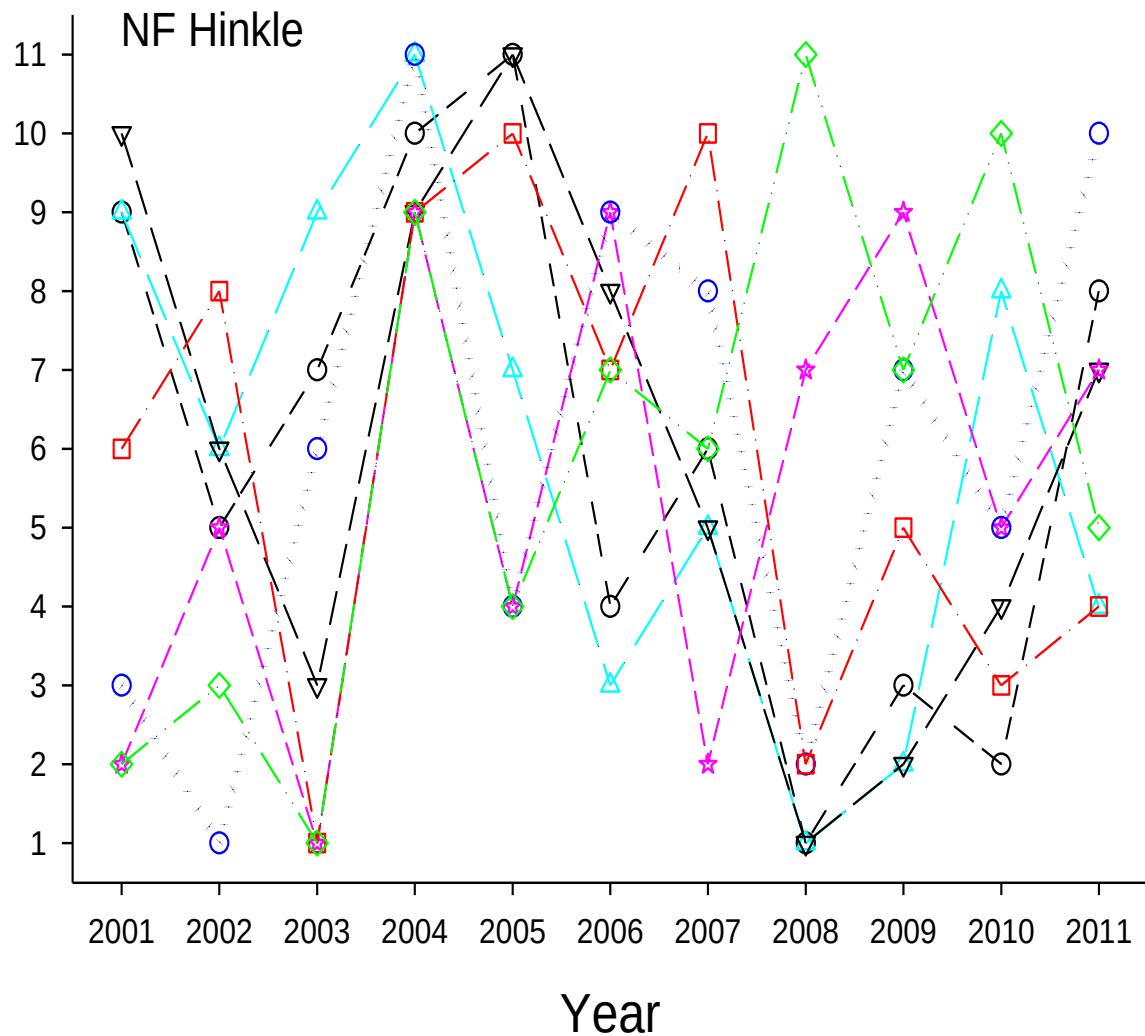
Pattern of Abundance of Coastal Cutthroat Trout in Multiple Catchments Through Time



Pattern of Abundance of Coastal Cutthroat Trout in Multiple Catchments Through Time

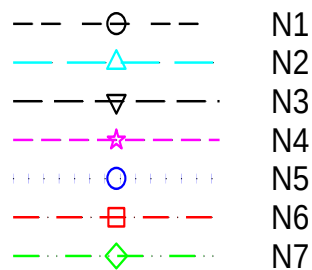
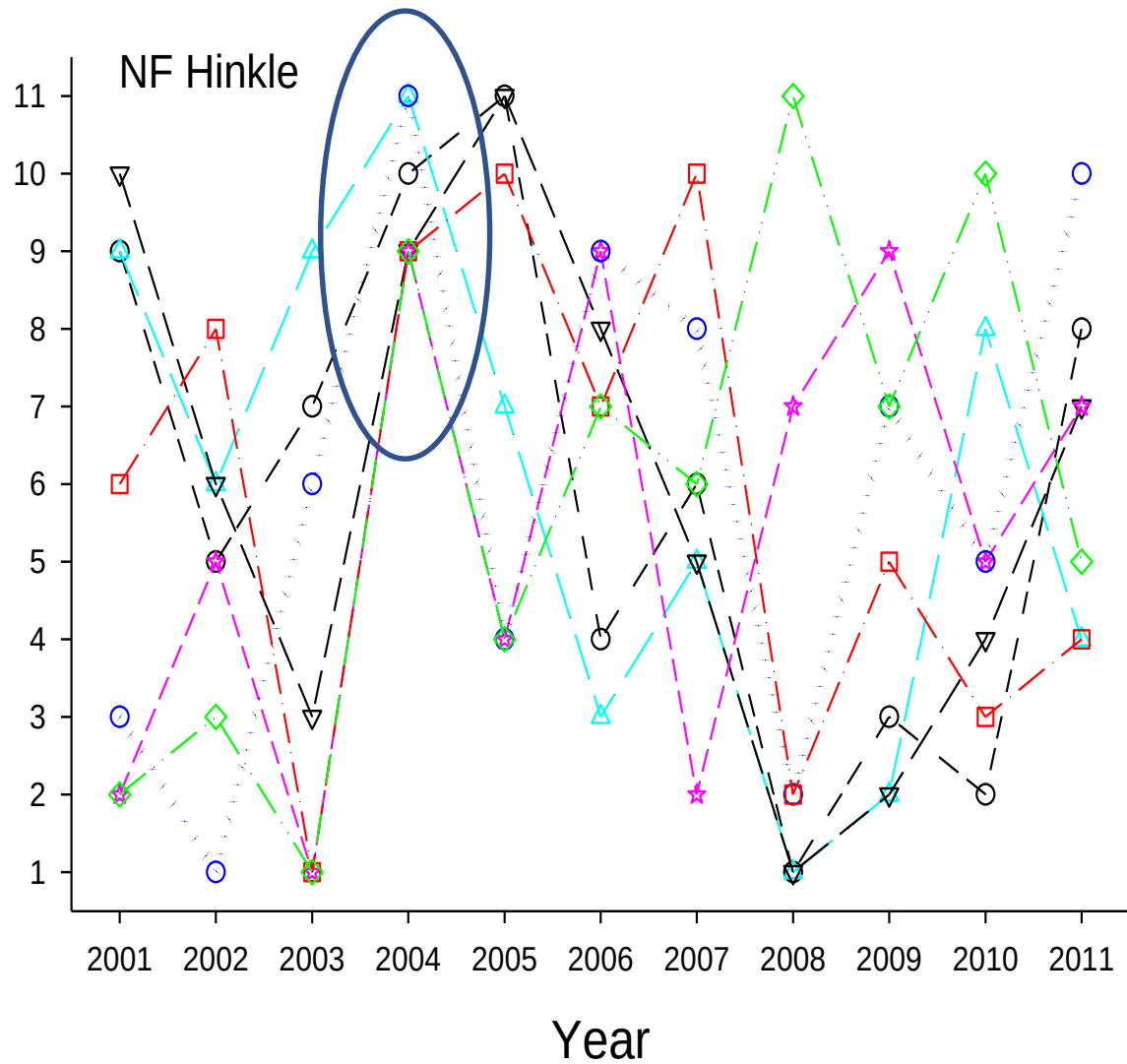


Rank



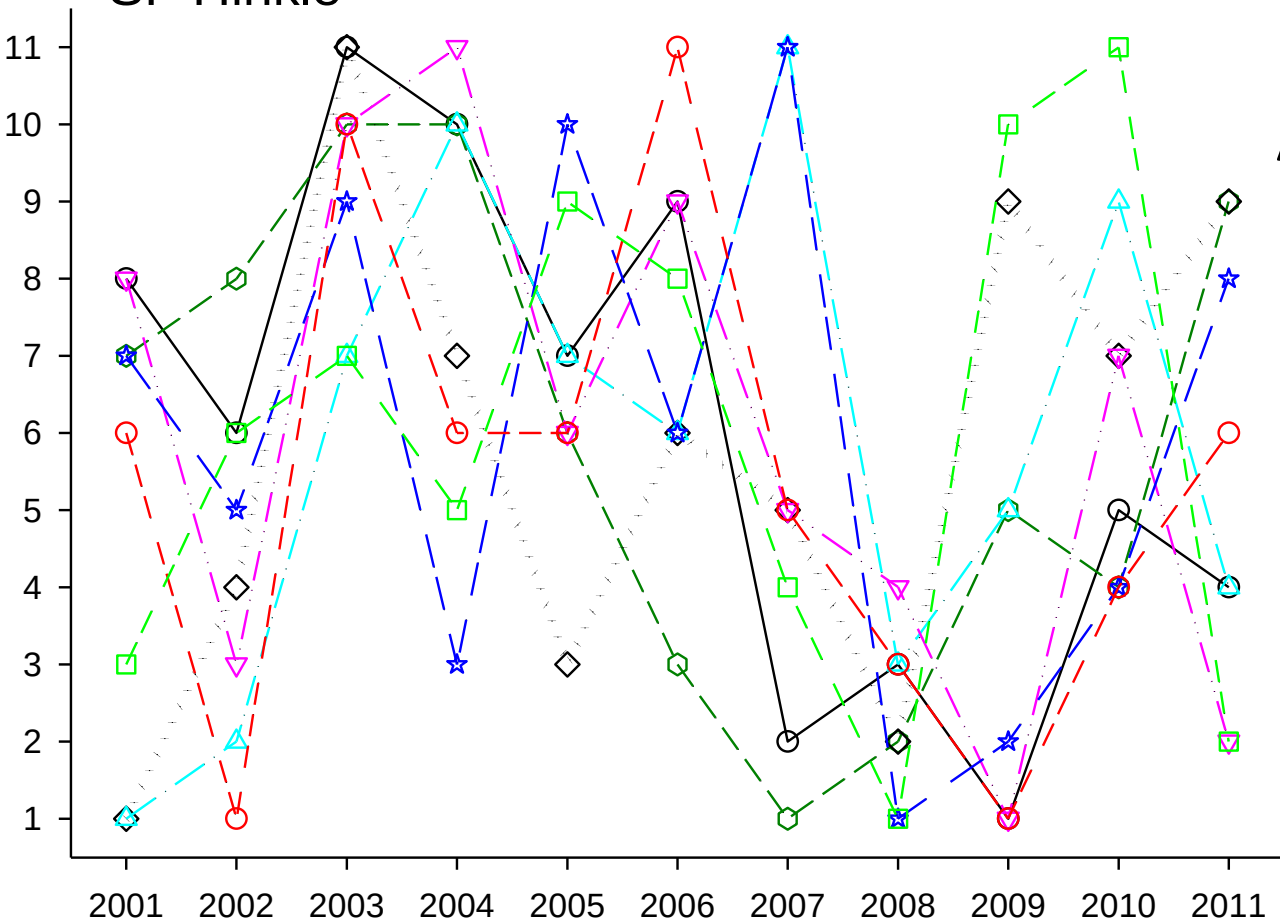
Stream Segments Ranked by
Age 1+ Cutthroat Trout Abundance
for Each Year (1 = highest
abundance, 11 = lowest)

Rank

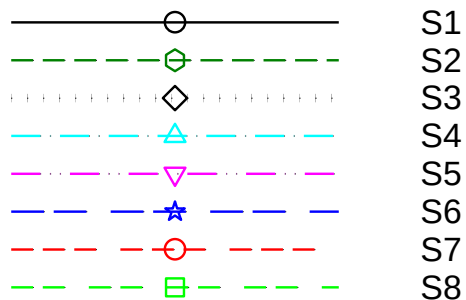


Stream Segments Ranked by
Age 1+ Cutthroat Trout Abundance
for Each Year (1 = highest
abundance, 11 = lowest)

SF Hinkle

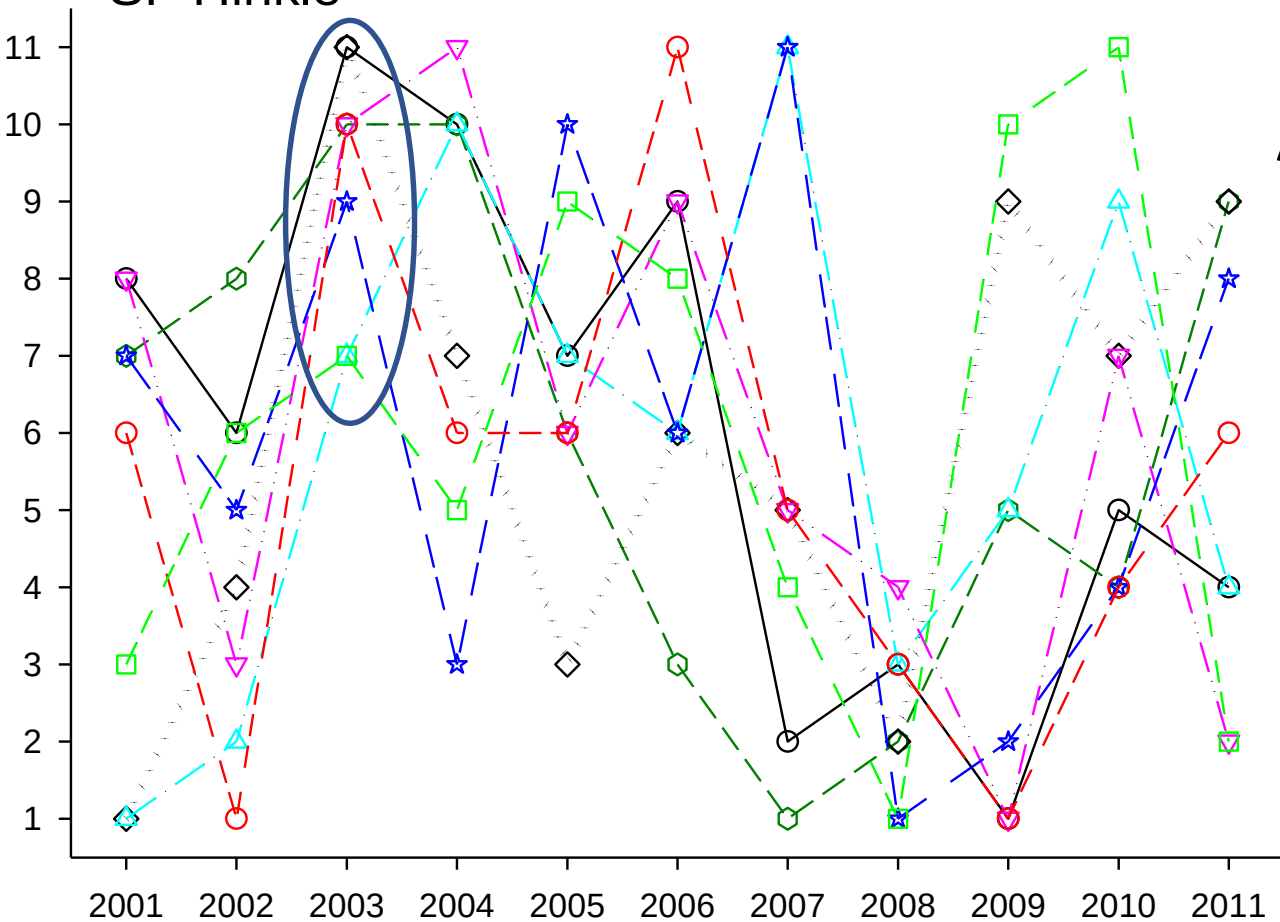


Year

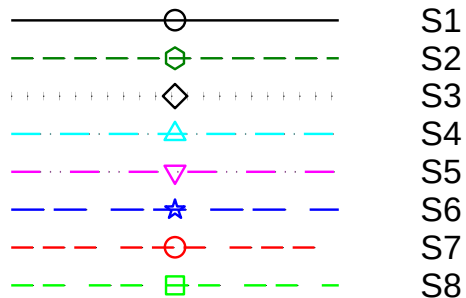


Stream Segments Ranked by
Age 1+ Cutthroat Trout Abundance
for Each Year (1 = highest
abundance, 11 = lowest)

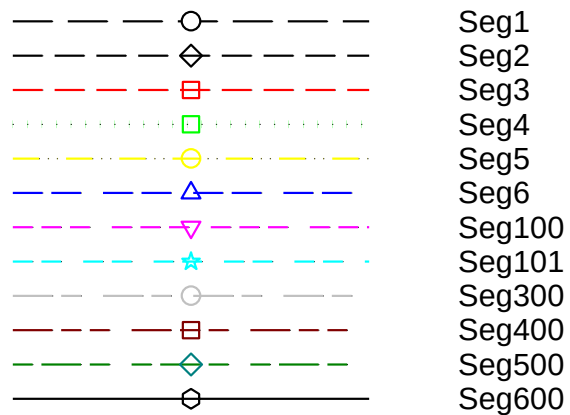
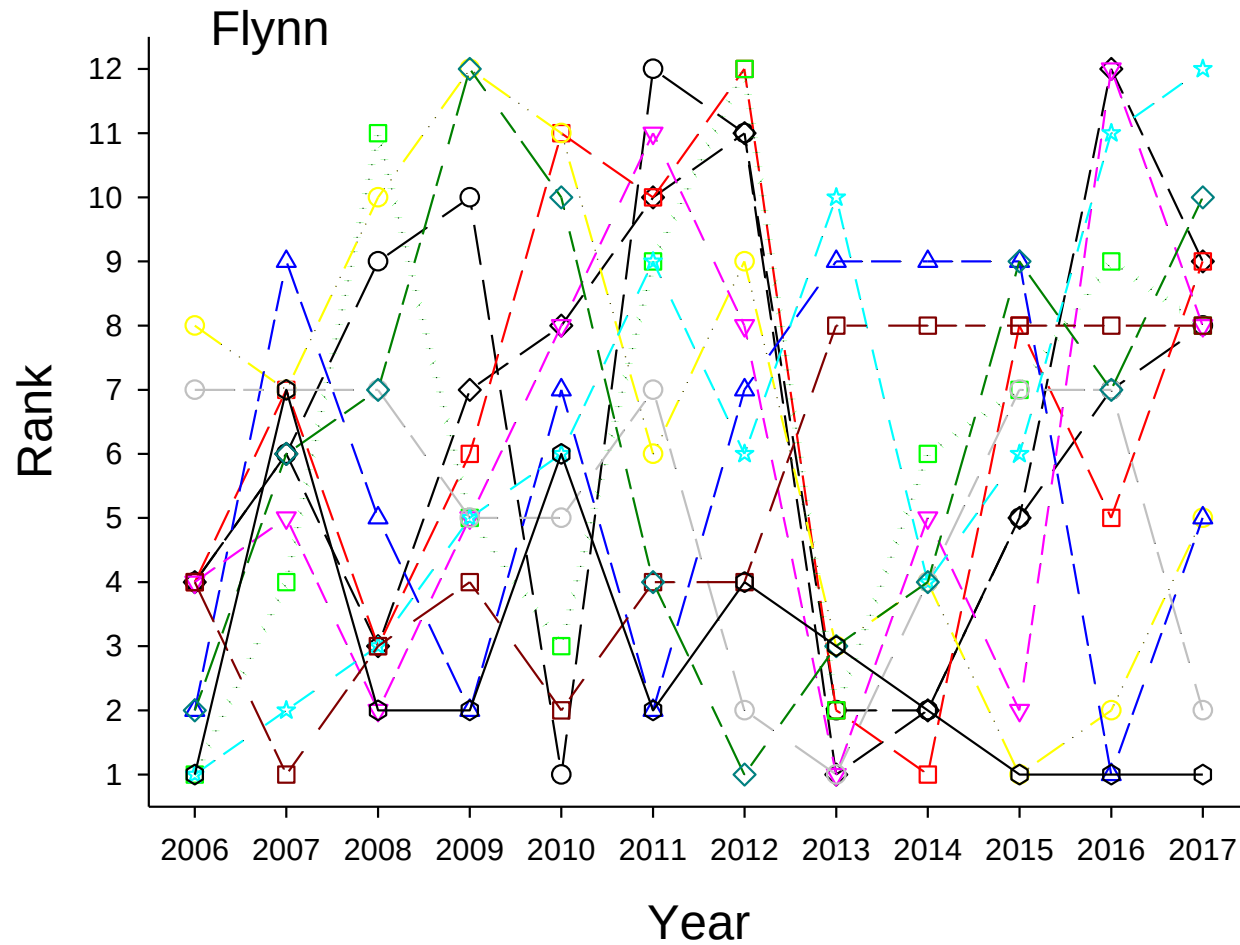
SF Hinkle



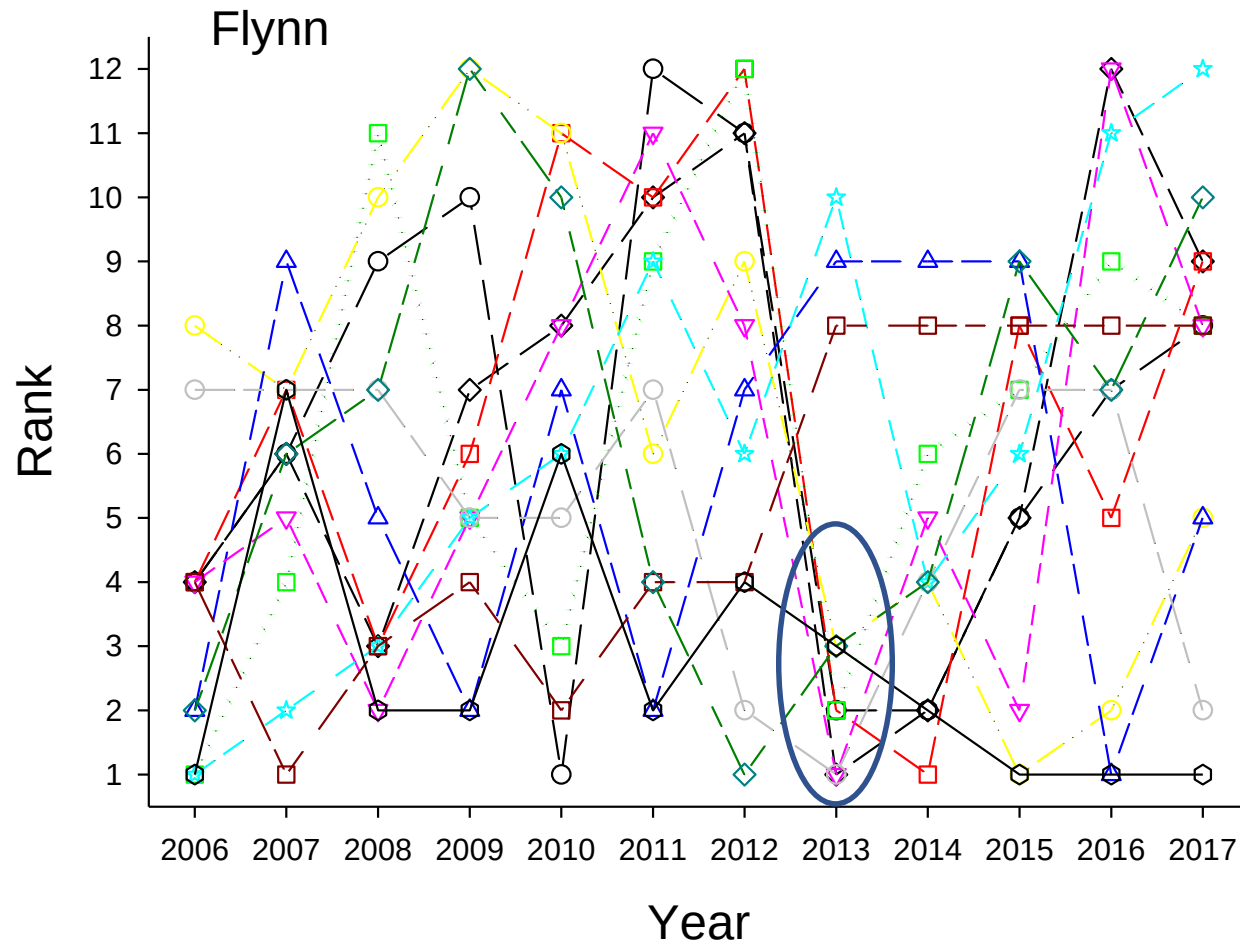
Year



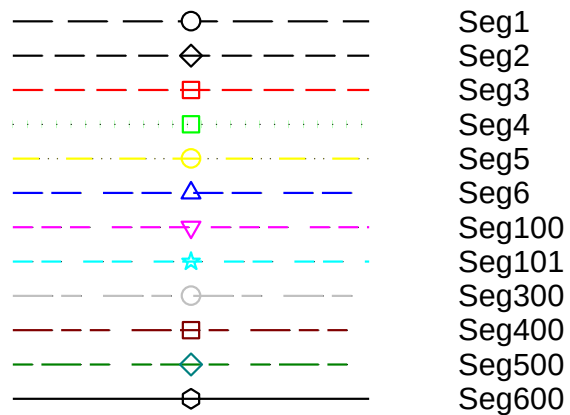
Stream Segments Ranked by
Age 1+ Cutthroat Trout Abundance
for Each Year (1 = highest
abundance, 11 = lowest)



Stream Segments Ranked by
Age 1+ Cutthroat Trout Abundance
for Each Year (1 = highest
abundance, 12 = lowest)



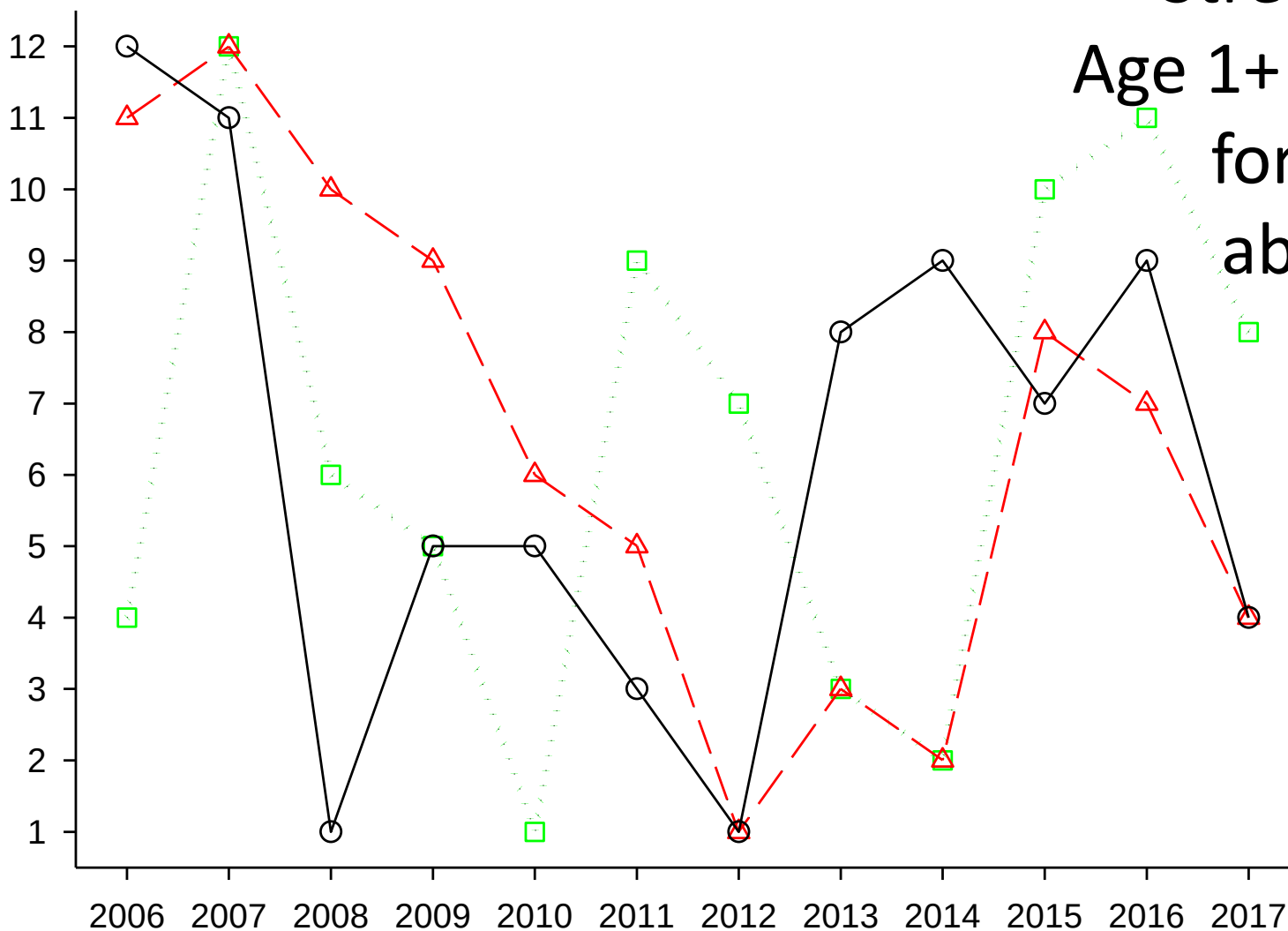
Stream Segments Ranked by
Age 1+ Cutthroat Trout Abundance
for Each Year (1 = highest
abundance, 12 = lowest)



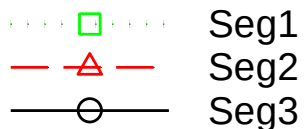
Needle

Stream Segments Ranked by
Age 1+ Cutthroat Trout Abundance
for Each Year (1 = highest
abundance, 12 = lowest)

Rank



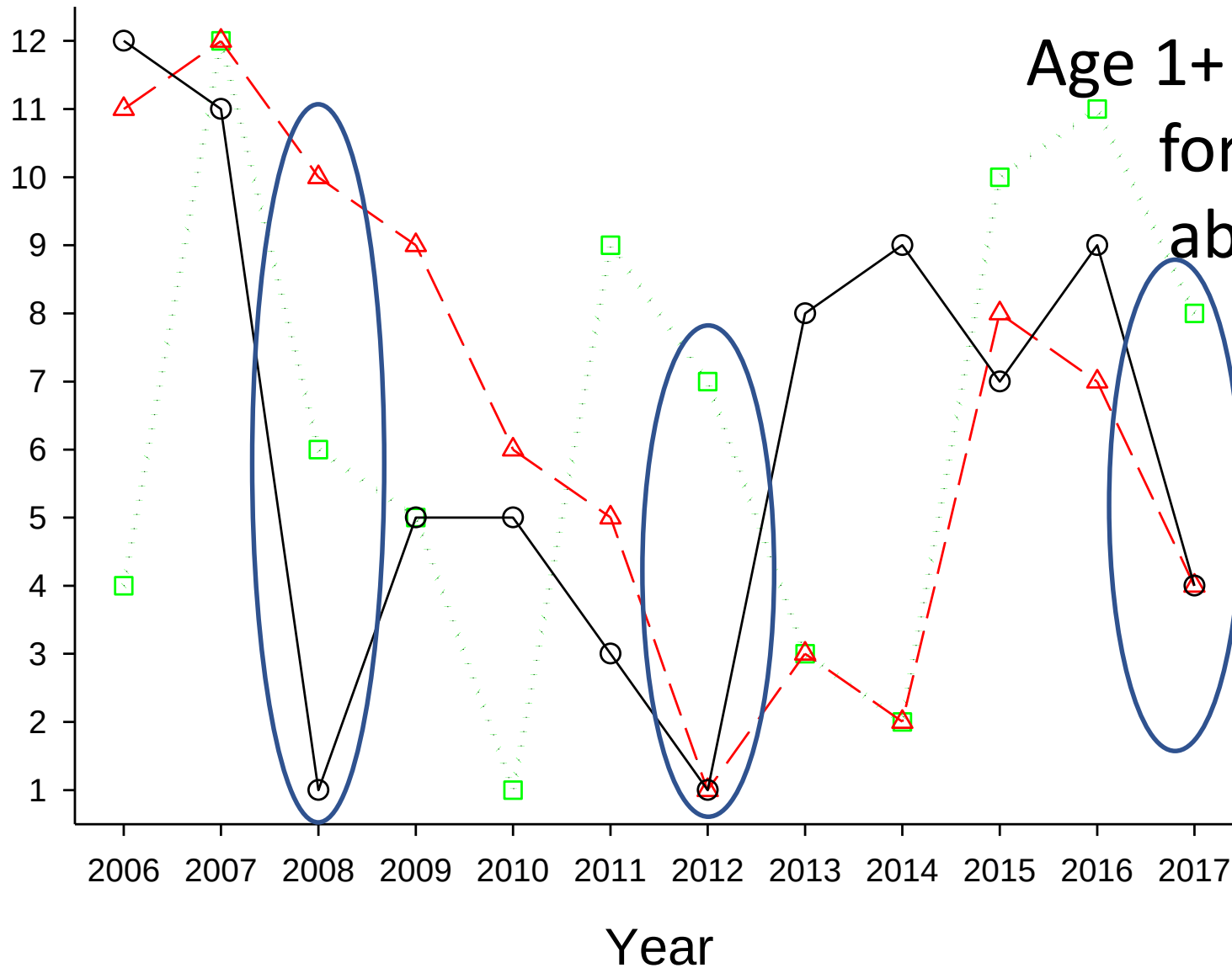
Year



Needle

Stream Segments Ranked by
Age 1+ Cutthroat Trout Abundance
for Each Year (1 = highest
abundance, 12 = lowest)

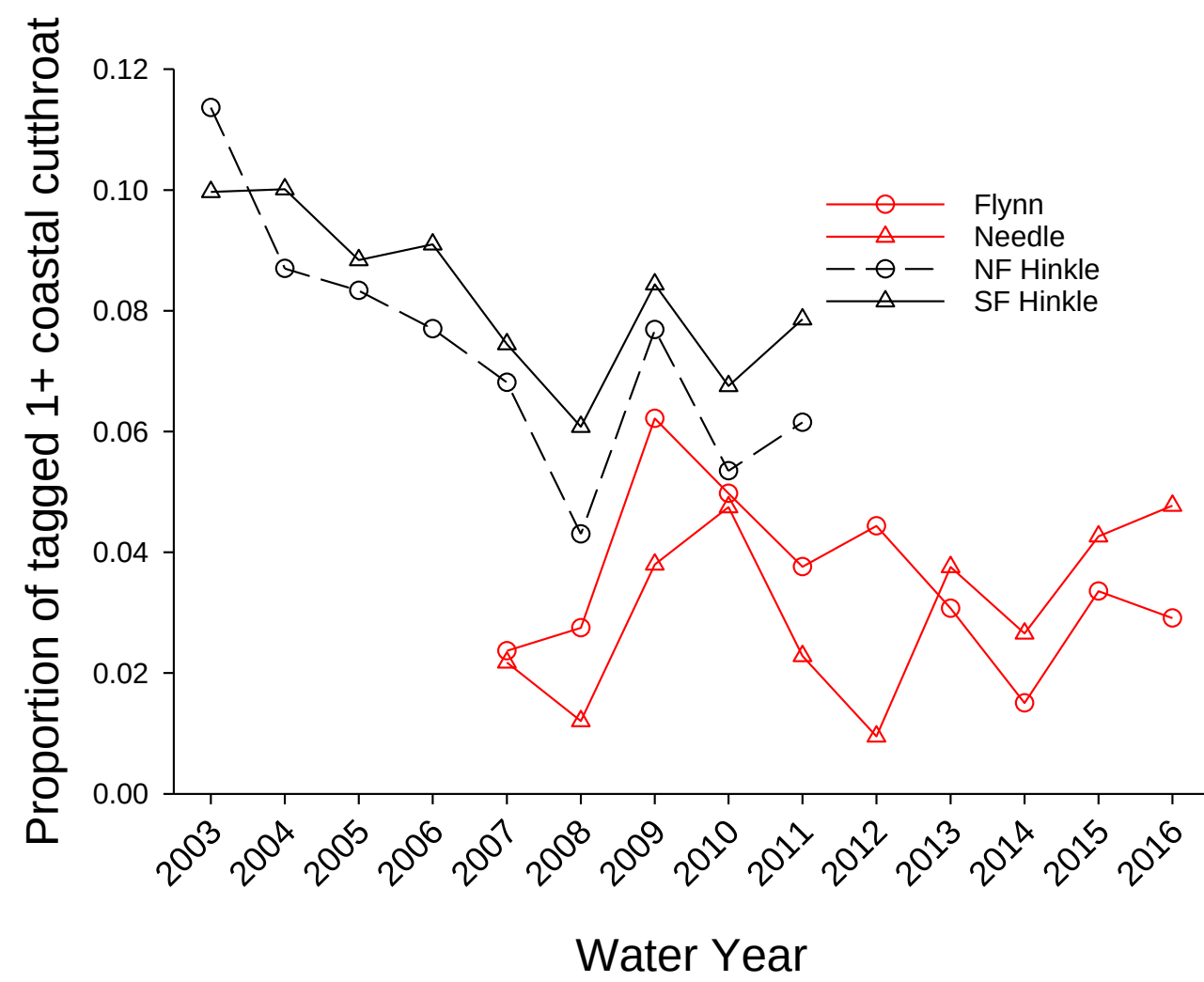
Rank



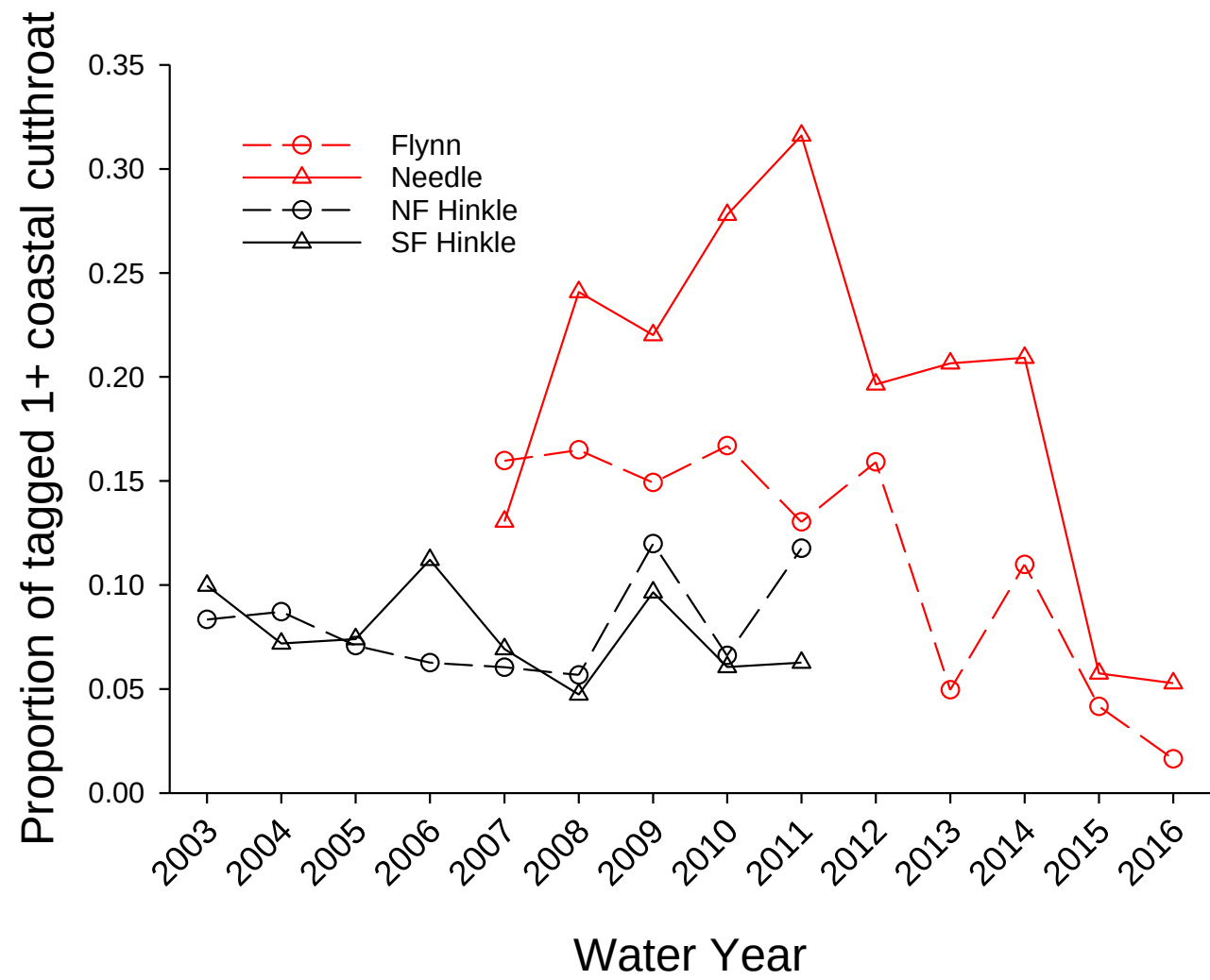
Seg1
Seg2
Seg3

Movement

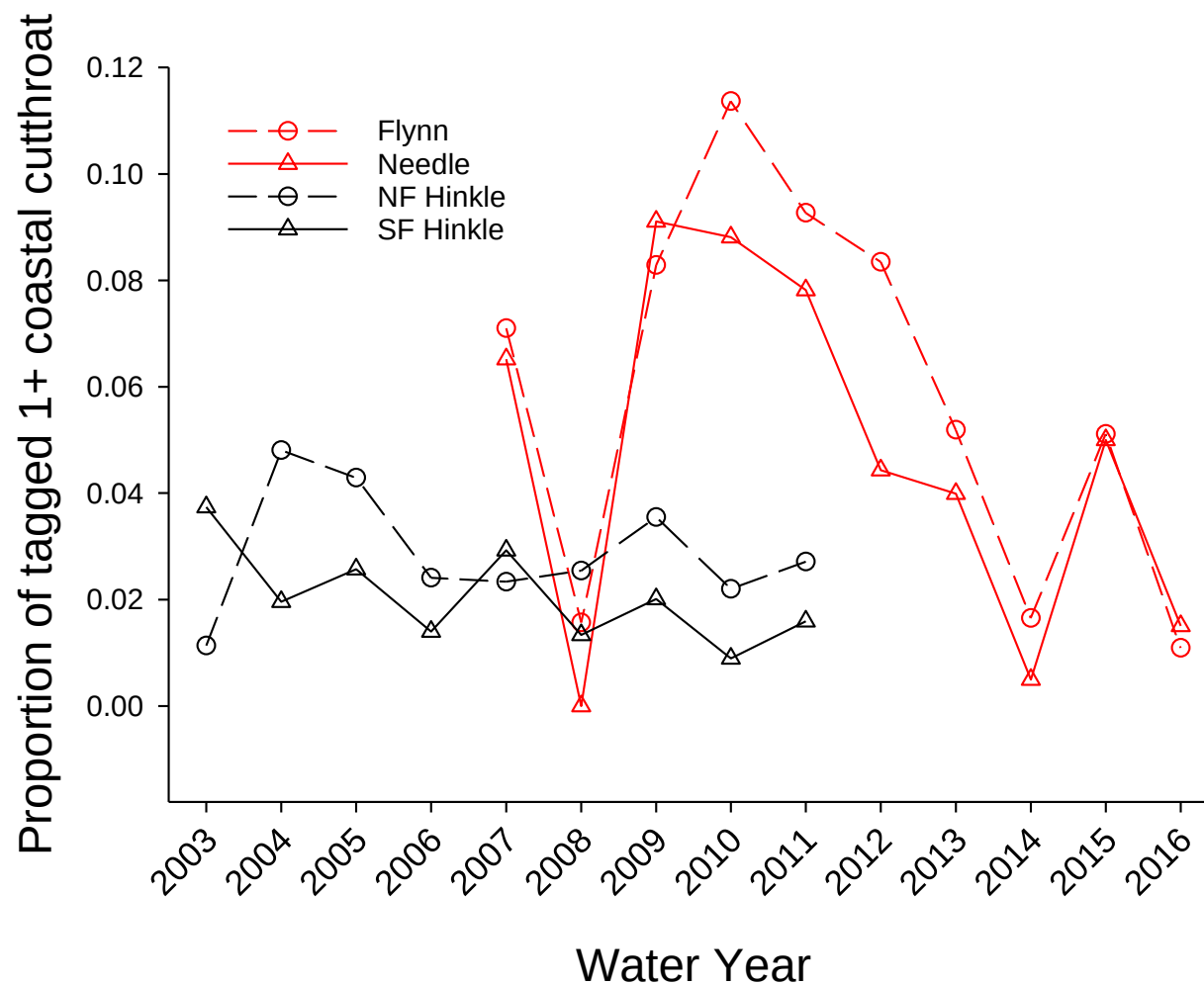
Proportion of Tagged 1+ Coastal Cutthroat Trout Detected Moving Only Upstream within a Water Year



Proportion of Tagged 1+ Coastal Cutthroat Trout Detected Moving Only Downstream within a Water Year



Proportion of Tagged 1+ Coastal Cutthroat Trout Detected Moving Both Upstream and Downstream within a Water Year



Percent of Tagged Coastal Cutthroat Population Exhibiting Movement Strategies on an Annual Basis in Four Catchments

Stream	Years	Movement Type	Mean	Range	Coefficient of Variation
N. F. Hinkle	9	Both	3	1-5	37
		DS	8	6-12	28
		US	7	4-11	26
S. F. Hinkle	9	Both	2	1-4	41
		DS	8	5-11	26
		US	8	6-10	16
Needle	10	Both	5	0-9	70
		DS	19	5-32	45
		US	3	1-5	46
Flynn	10	Both	6	1-11	61
		DS	11	2-17	50
		US	4	2-6	39

Percent of Tagged Coastal Cutthroat Population Exhibiting Movement Strategies on an Annual Basis in Four Catchments

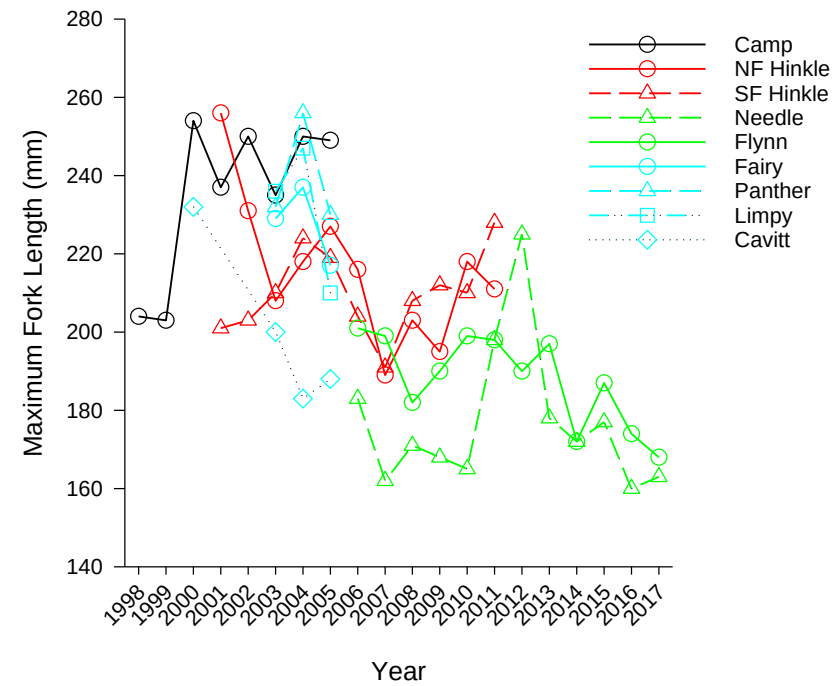
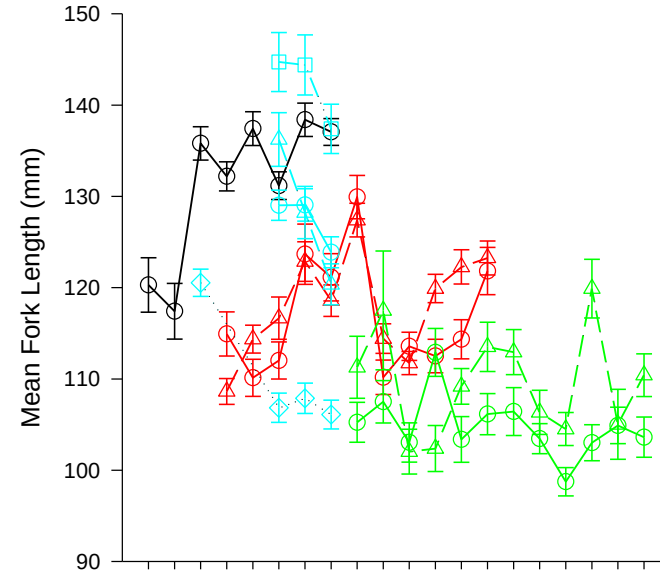
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		DS	8	5-11	26
		US	8	6-10	16
Needle	10	Both	5	0-9	70
		DS	19	5-32	45
		US	3	1-5	46
Flynn	10	Both	6	1-11	61
		DS	11	2-17	50
		US	4	2-6	39

Propagules vs Migrants

Size and Growth

Fork Length for Age 1+ Coastal Cutthroat Trout

from Nine Catchments in Western Oregon



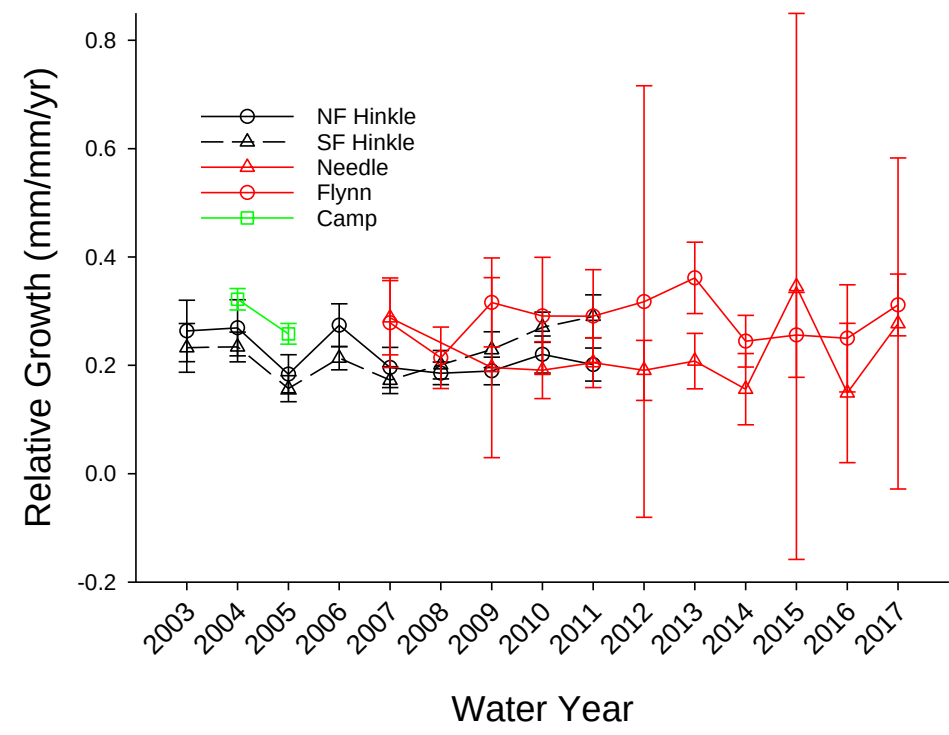
Average Mean Fork Length of Age 1+ Coastal Cutthroat Trout

Stream	Years or # of Catchments	Average Mean Length (mm)	Range	Coefficient of Variation
Cavitt	4	110	106-121	6
Limpy	3	142	137-145	3
Panther	3	128	120-136	6
Fairy	3	127	124-129	2
Camp	8	131	117-138	9
N. F. Hinkle	11	117	110-130	6
S. F. Hinkle	11	118	109-127	5
Needle	12	109	102-120	6
Flynn	12	105	99-113	3
Random 40	40	118	104-139	11

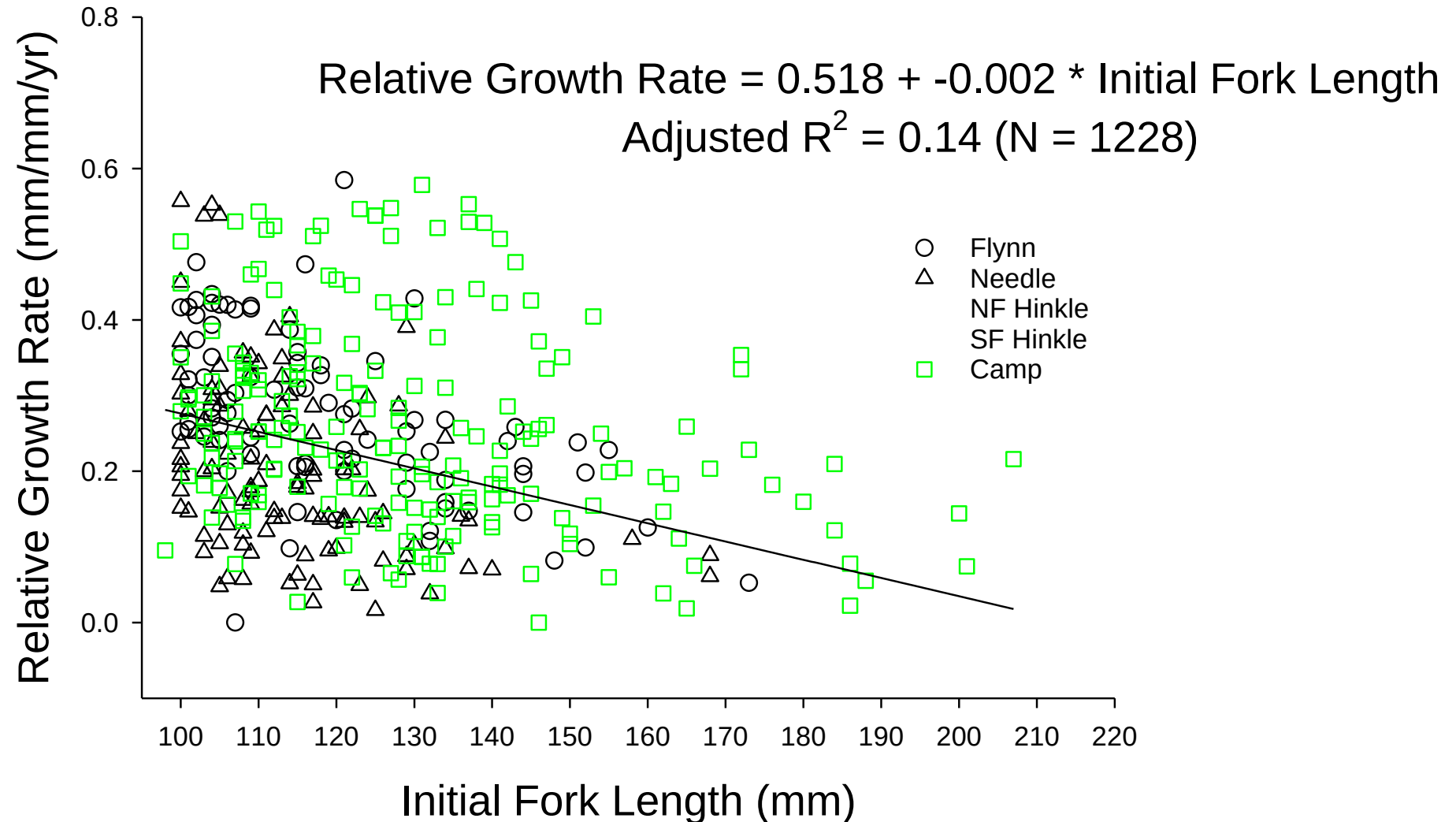
Average Maximum Fork Length of Age 1+ Coastal Cutthroat Trout

Stream	Years or # of Catchments	Average Max Length (mm)	Range	Coefficient of Variation
Cavitt	4	201	183-232	11
Limpy	3	231	210-247	8
Panther	3	239	230-256	6
Fairy	3	228	217-237	4
Camp	8	235	203-254	9
N. F. Hinkle	11	216	195-256	9
S. F. Hinkle	11	210	191-228	5
Needle	12	177	160-225	10
Flynn	12	188	168-201	6
Random 40	40	208	158-289	11

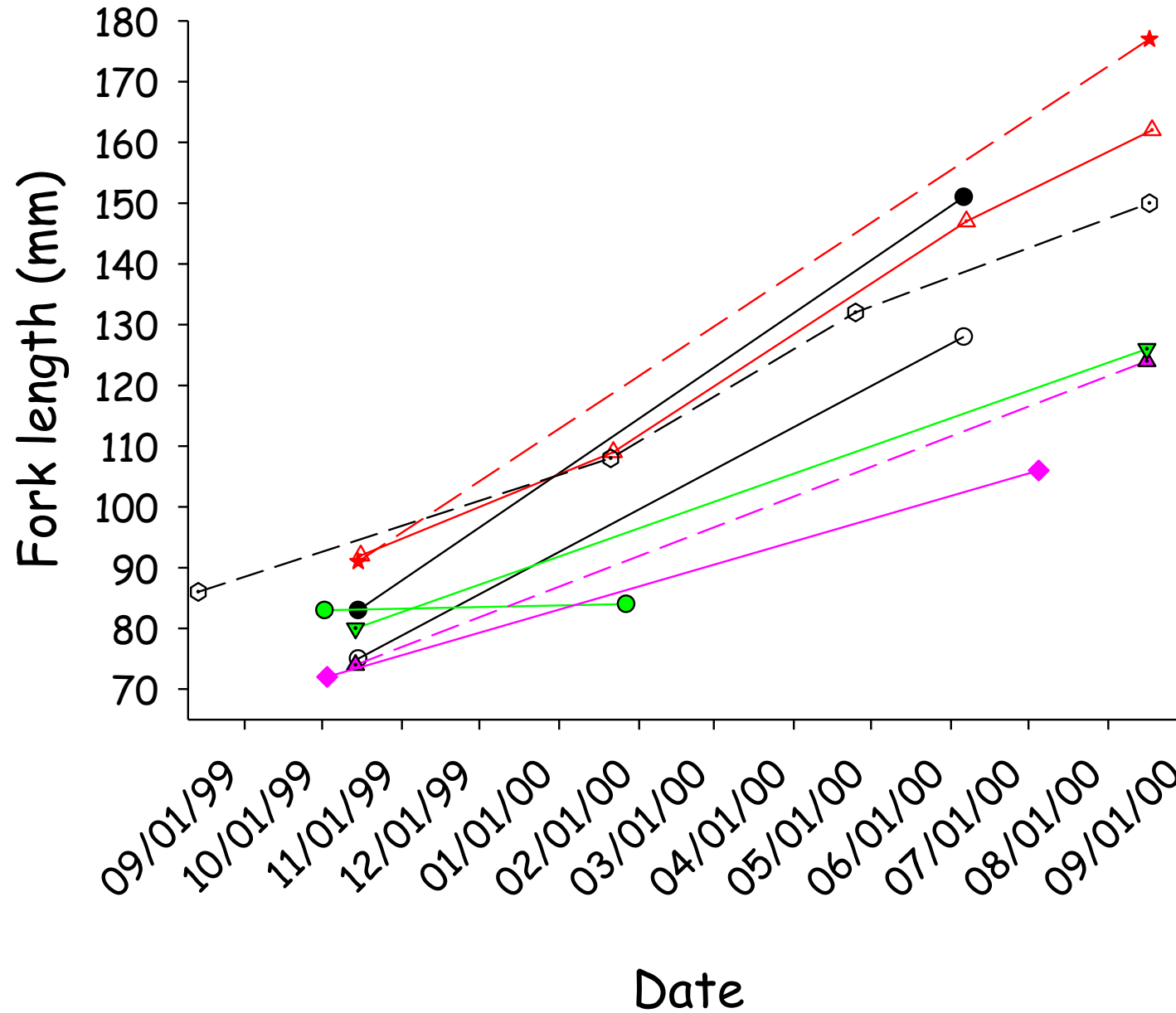
Mean Relative Growth Rates with 95% Confidence Intervals for Coastal Cutthroat Trout 100 mm Fork Length or Greater in Five Catchments



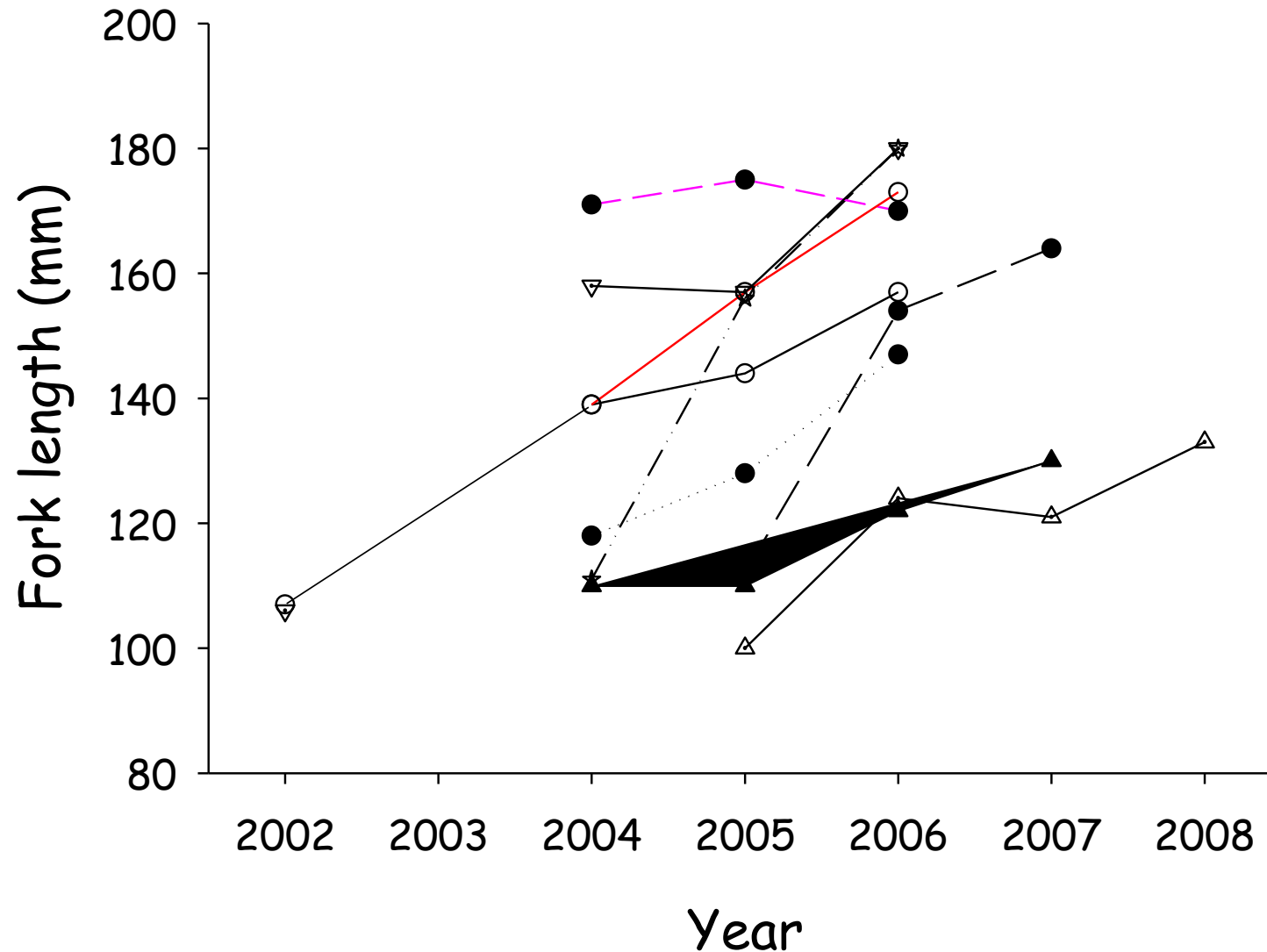
Relative Growth Rates of Coastal Cutthroat Trout from Five Catchments in Western Oregon



Camp Creek: Growth of Age 0 Cutthroat Trout



North and South Forks of Hinkle Creek: Patterns in Annual Growth of Age 1+ Coastal Cutthroat Trout



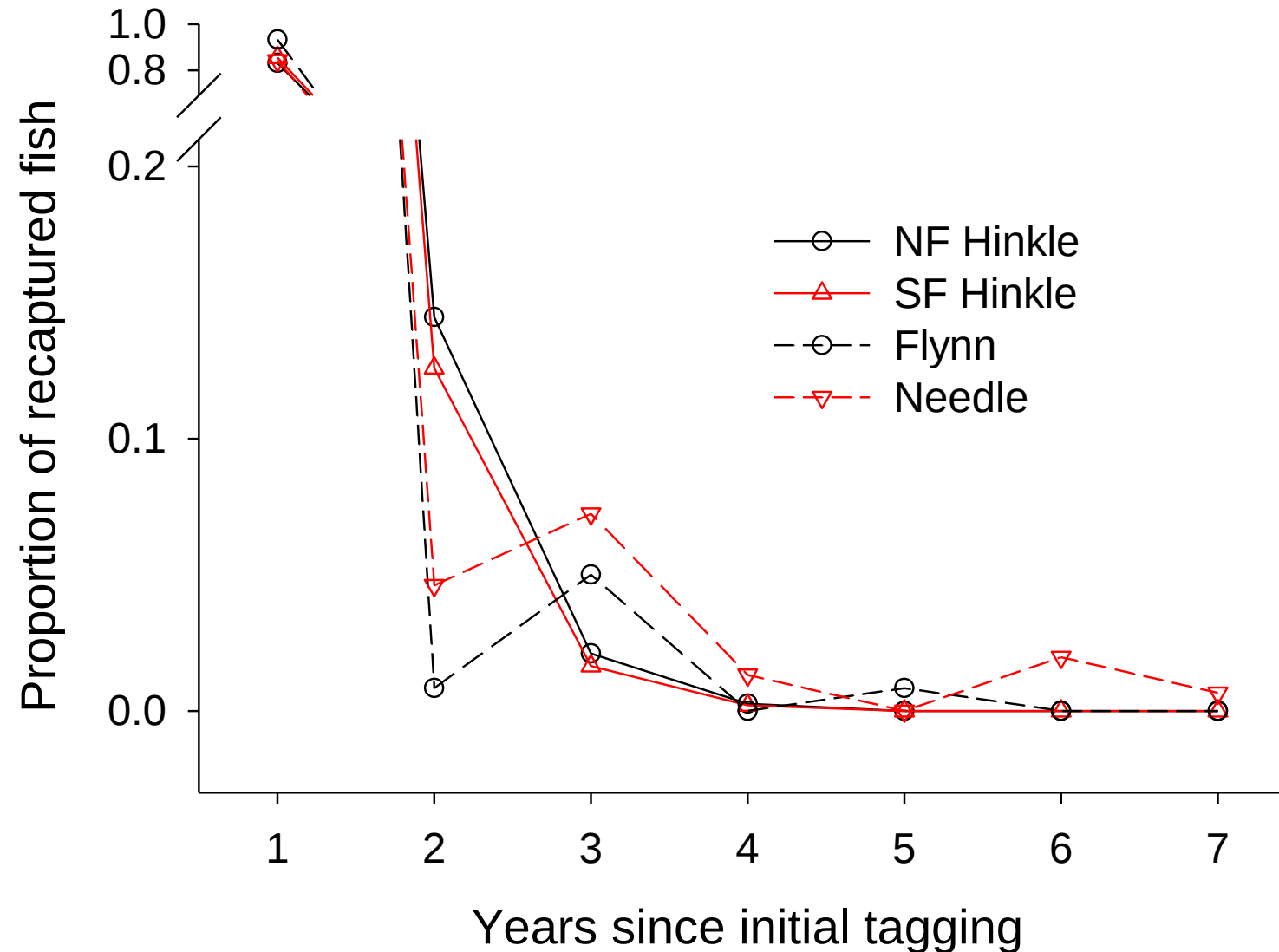
Maximum Ages from Scales for Random 40

3 populations age 3

24 populations age 4

8 populations age 5

Maximum Elapsed Time to Last Recapture for Age 1+ Coastal Cutthroat Trout > 99 mm Fork Length



Questions

Acknowledgements:

David Leer, David Hockman-Wert, Christian Torgersen, Arne Skaugset, Jason Dunham, Jeff Light, Mike Heck, Bill Rehe, and a bunch of great field assistants, the Forest and Rangeland Ecosystem Science Center, the CFER program and Watershed Research Cooperative.