

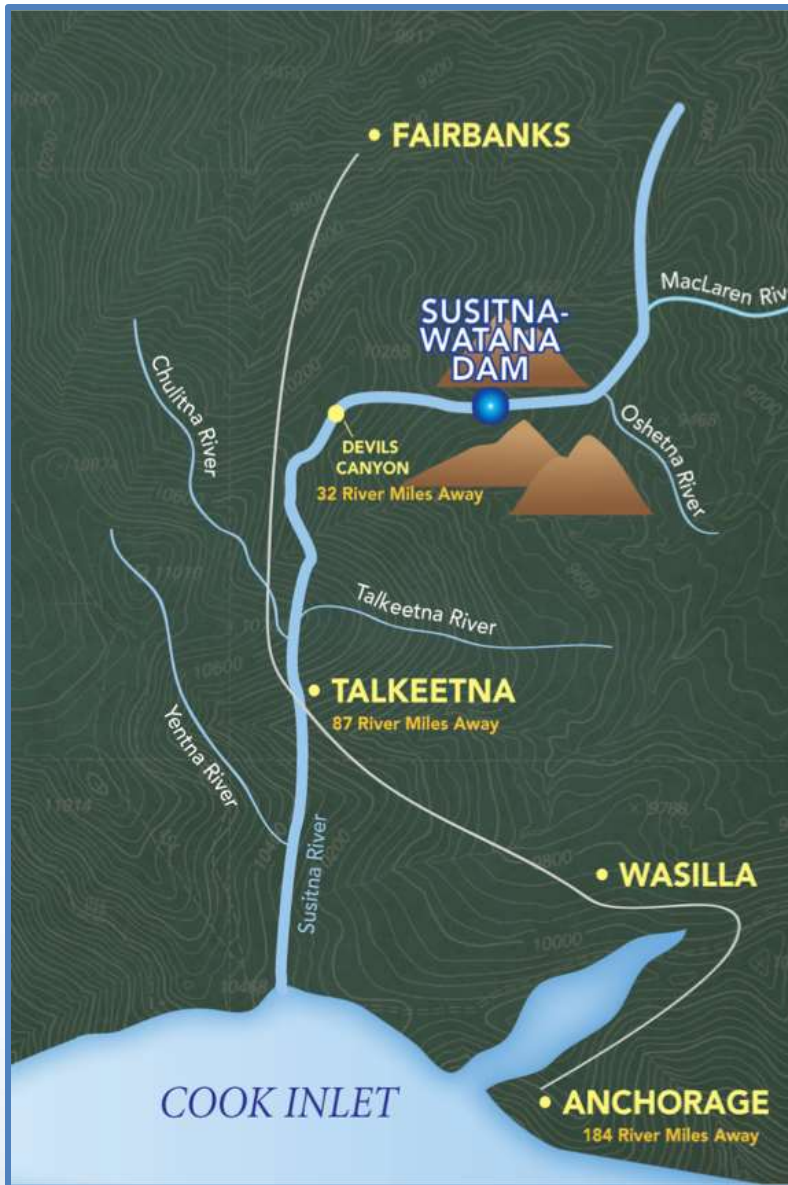
Technical Team Meeting

Study 9.5 Fish Distribution and Abundance in the Upper Susitna River:

Modifications for Future Sampling

3/20/14

Prepared by R2 Resource
Consultants, Inc.



Study 9.5 FDA Upper River

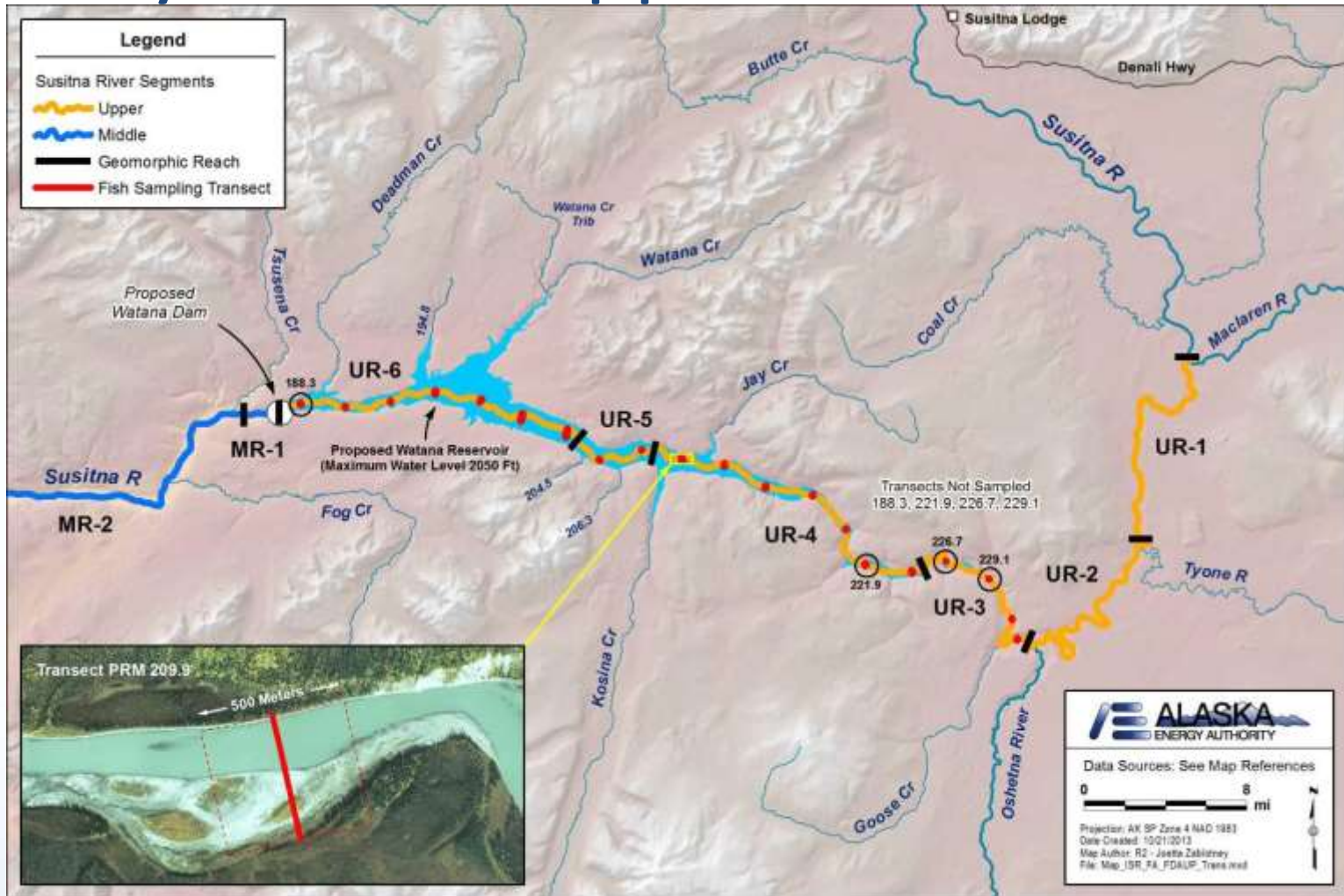
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Objective: Characterize fish abundance by mesohabitat type (RSP Section 9.5.4.3.1, Task C)

- *Upper River Mainstem Habitats*
 - *Mainstem Surveys in 2013*
 - *Habitats in remote line mapping*
 - *Proposal for increased sampling*
- *Upper River Tributaries*
 - *Sampling in 2013*
 - *Proposal for increased sampling*



Study 9.5 FDA Upper River Mainstem³



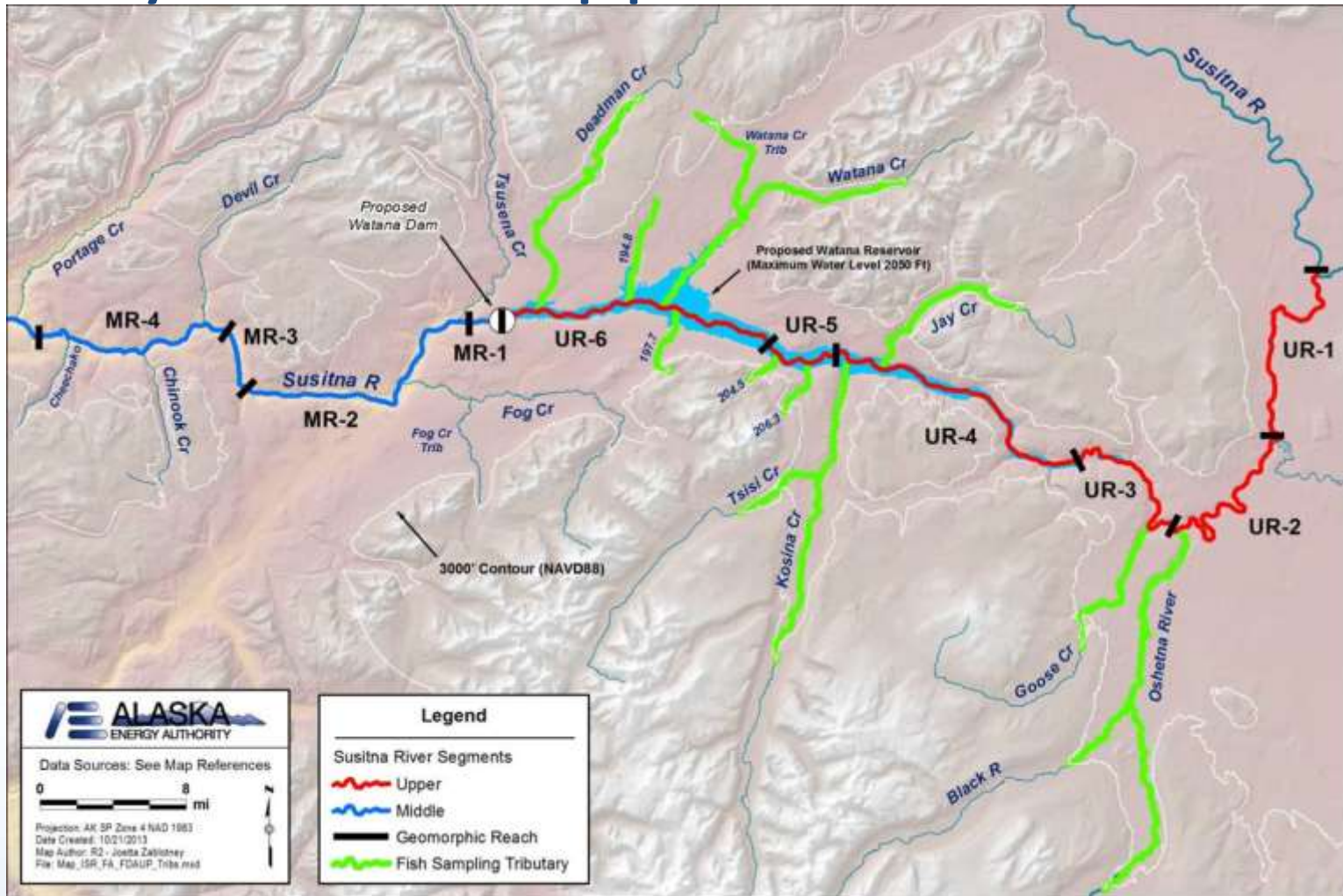
Study 9.5 FDA Upper River Mainstem Surveys in 2013

		Sites per Geomorphic Reach				
Macrohabitat Type	Reach Length	UR-3 (PRM 234.5 - 224.9)	UR-4 (PRM 224.9 - 208.1)	UR-5 (PRM 208.1 - 203.4)	UR-6 (PRM 203.4 - 187.1)	TOTAL
Main Channel Macrohabitats						
Main Channel	500 m	2 (2)	6 (1)	2	6 (1)	16 (4)
Split Main Channel						
Multi-Split Main Channel						
Side Channel						
Off-Channel Macrohabitats						
Side Slough	200 m	-	-	-	1	1
Upland Slough		-	-	-	-	0
Special Habitat Features						
Tributary Mouth	200 m	-	3	-	-	3
Clear Water Plume		-	-	-	-	0
Backwater		-	-	-	-	0
Total		2(2)	9(1)	2	9(1)	22 (4)
(#) indicates number of sites deemed unsafe for sampling						

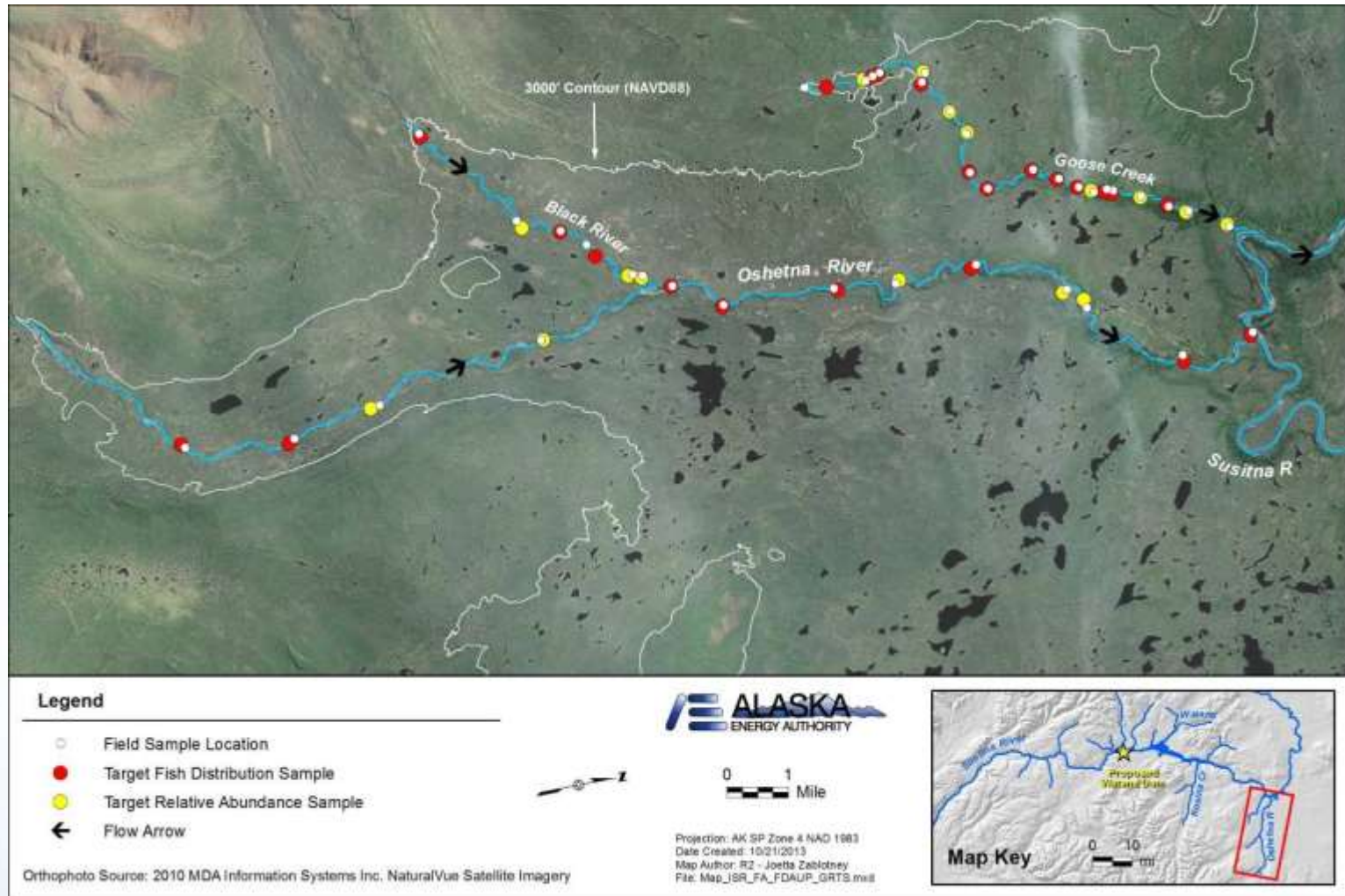
Study 9.5 FDA Upper River Proposed Future Surveys

		Sites per Geomorphic Reach				
Macrohabitat Type	Reach Length	UR-3 (PRM 234.5 - 224.9)	UR-4 (PRM 224.9 - 208.1)	UR-5 (PRM 208.1 - 203.4)	UR-6 (PRM 203.4 - 187.1)	TOTAL
Main Channel Macrohabitats						
Main Channel	500 m	2	3	2	3	10
Split Main Channel						
Multi-Split Main Channel						
Side Channel						
Off-Channel Macrohabitats						
Side Slough	200 m	6				6
Upland Slough		6				6
Special Habitat Features						
Tributary Mouth	200 m	6				6
Clear Water Plume		6				6
Backwater		6				6
					Total	46

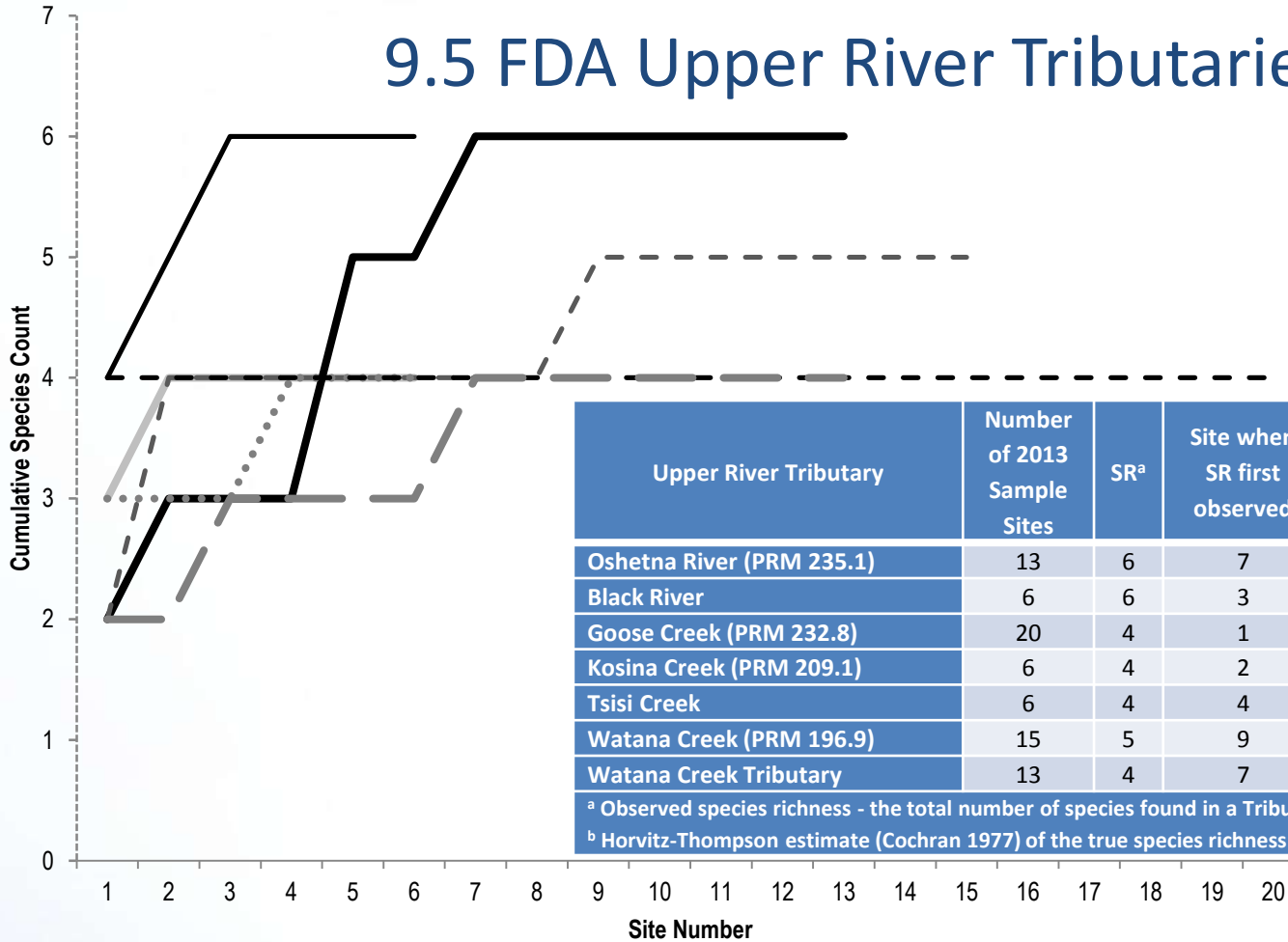
Study 9.5 FDA Upper River Tributaries⁶



Study 9.5 FDA Upper River Tributaries⁷



9.5 FDA Upper River Tributaries



- Kosina Creek (PRM 209.1) — Oshetna River (PRM 235.1) - - Watana Creek (PRM 196.9)
- Black River ••••• Tsisi Creek - - Goose Creek (PRM 232.8)
- Watana Creek Tributary

Study 9.5 FDA Upper River Tributaries⁹

Proposed Tributary Sampling

GRTS Sampled Tributaries	Drainage Basin Area (km ²)	Chinook Salmon Presence	GRTS Sampling Unit Size (m)	Number of GRTS Population Sample Units	Number of 2013 Sample Sites	Number of Meso-habitats Sampled 2013	Meters sampled 2013	% Sampled	Average Wetted Width (m)	Average bankful width (m)	CWs Sampled (wetted)	Kirsch et al. 2014 Target (CW)	Kirsch et al. 2014 Target (m)	Kirsch et al. 2014 Target (%)	Proposed Change (m)
Oshetna River (PRM 235.1)	1424.5	yes	800	52	13	28	2,604	6%	36	41.9	73	140	5,026	12%	2,422
Black River	NA	no	400	24	6	11	1,050	11%	23	24.5	46	140	3,178	33%	2,128
Goose Creek (PRM 232.8)	269.1	no	200	81	20	38	3,107	19%	14	16.8	219	120	1,704	11%	(1,403)
Kosina Creek (PRM 209.1)	1036.5	yes	800	24	6	10	1,000	5%	32	34.7	31	140	4,522	24%	3,522
Tsisi Creek	NA	no	400	23	6	10	980	11%	14	15.2	69	140	1,988	22%	1,008
Unnamed Tributary 206.3	<80.3	no	200	29	0	0	-	0%	3	4.8	0	40	124	2%	124
Unnamed Tributary 204.5	<80.3	no	200	21	0	0	-	0%	5 (est)	5 (est)	0	40	200	5%	200
Unnamed Tributary 197.7	<80.3	no	200	41	0	0	-	0%	5 (est)	5 (est)	0	40	200	2%	200
Watana Creek (PRM 196.9)	452.7	yes	400	60	15	30	2,561	11%	11	15.5	231	140	1,554	6%	-
Watana Creek Tributary	NA	no	200	67	13	18	1,459	11%	10	13.3	154	140	1,330	10%	-
Unnamed Tributary 194.8	321.2	no	400	32	2	4	300	2%	3	5.5	88	140	476	4%	176
Total	--	--	--	454	81	149	13,061	8%					20,302	12%	8,377

Study 9.5 FDA Upper River Tributaries

Oshetna River Mesohabitat Review

GRTS Site	FDA Mesohabitat Type Sampled	Mesohabitat Types Present at 5 Second Intervals within Video
Site-01	Boulder-Riffle, Percolation Channel	Boulder-Riffle, Run/Glide
Site-02	Boulder-Riffle, Run/Glide	Rapid, Boulder-Riffle, Riffle, Split, Beaver Pond
Site-03	Run/Glide	Boulder-Riffle, Riffle, Pool, Split
Site-05	Rapid, Riffle, Run/Glide	Rapid, Boulder-Riffle, Riffle, Run/Glide
Site-06	Boulder-Riffle, Run/Glide	Boulder-Riffle, Run/Glide, Split,
Site-07	Riffle, Run/Glide	Rapid, Boulder-Riffle, Riffle, Run/Glide
Site-09	Boulder-Riffle	Chute, Rapid, Boulder-Riffle, Run/Glide, Pool
Site-10	Boulder-Riffle, Run/Glide	Riffle, Run/Glide, Pool, Split
Site-11	Boulder-Riffle, Run/Glide	Rapid, Boulder-Riffle, Riffle, Run/Glide
Site-13	Boulder-Riffle	Rapid, Boulder-Riffle, Run/Glide

Study 9.5 FDA Upper River Tributaries

Black River Mesohabitat Review

GRTS Site	FDA Mesohabitat Type Sampled	Mesohabitat Types Present at 5 Second Intervals within Video
Site-01	Pool, Run/Glide	Run/Glide
Site-02	Riffle, Run/Glide	Run/Glide, Split, Pool
Site-04	Boulder-Riffle	Split, Boulder--Riffle
Site-06	Boulder-Riffle, Run/Glide	No video
Site-07	Boulder-Riffle	Boulder-Riffle, Run/Glide, Riffle
Site-09	Boulder-Riffle	Boulder-Riffle, Split