

CHaMP Study Design Summary: Design Types

Total number of sites

	Design Types	2011	2012	2013	Total
Spatial	Status and Trend	362	341	340	1043
	<i>Trend Only (Annual)</i>	<i>160</i>	<i>154</i>	<i>178</i>	<i>~164</i>
	<i>Effectiveness Monitoring (TUC)</i>	<i>14</i>	<i>19</i>	<i>18</i>	
	Intensively Monitored Watersheds	68	89	96	
	Action Effectiveness Monitoring	0	3	60	60
Temporal*	10% repeats	25	27	25	~25
	Crew Variability	6	0	0	6
	PIBO Comparison	0	18	0	18

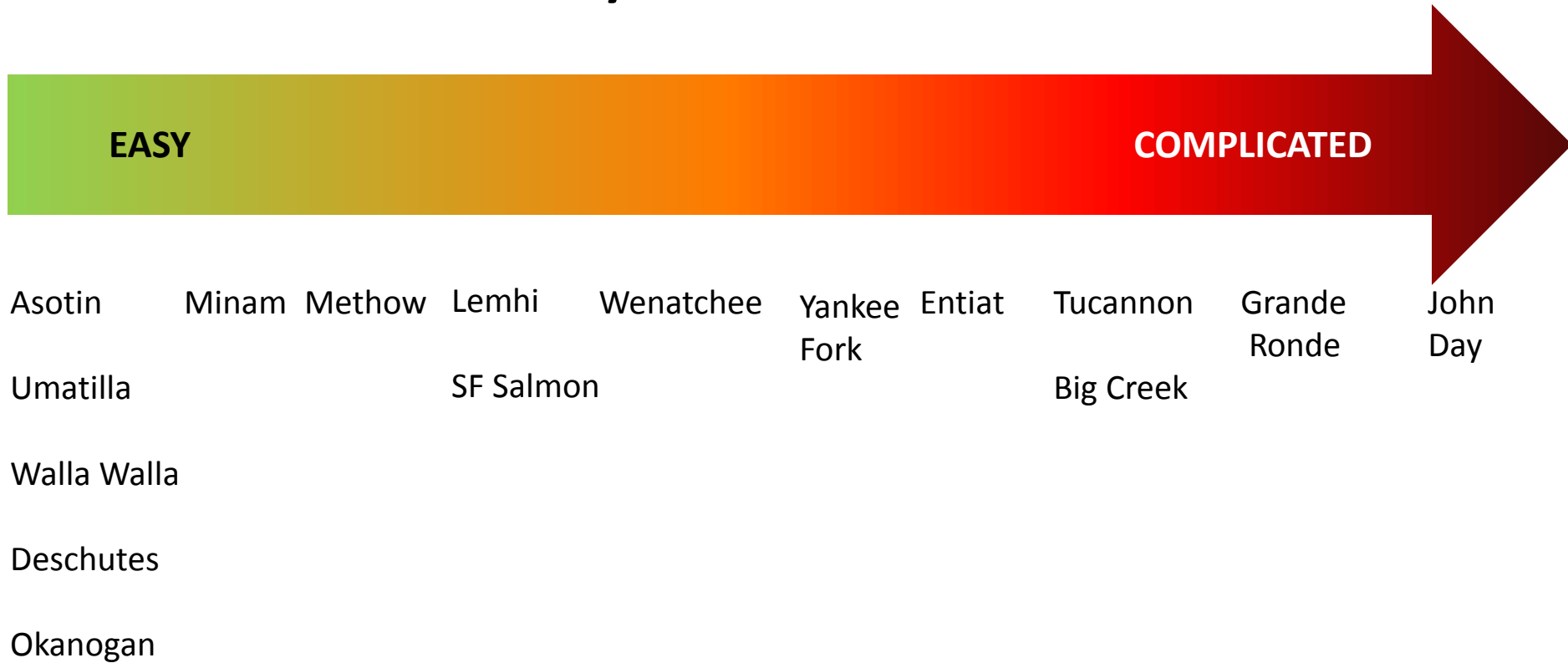
CHaMP Study Design Summary: Design Complexity

Total number of watersheds

Factors that add complexity	2011	2012	2013
Multiple Agencies	2	3	5
Multiple Designs	3	3	6
New Designs	10	1	5
Use of legacy sites in new design	7	0	1
No Changes	--	2	1
Frame Changes	--	5	1
Design Changes	--	5	1
Objective Changes	--	2	1

Factors that add complexity	Multiple agencies	Multiple Designs	New Designs in 2012 or 2013	Legacy Sites	Frame Changes	Design Changes	Objective Changes	TOTAL
Asotin			Yes	Yes				2
Entiat		Yes		Yes	Yes	Yes		4
Grande Ronde	Yes	Yes	Yes	Yes	Yes	Yes		6
John Day	Yes	Yes	Yes	Yes	Yes	Yes	Yes	7
Lemhi		Yes		Yes				2
Methow				Yes				1
Minam	Yes		Yes					2
South Fork Salmon		Yes			Yes		Yes	3
Tucannon	Yes	Yes	Yes			Yes		4
Wenatchee				Yes	Yes	Yes		3
Yankee Fork		Yes	Yes			Yes		3
Big Creek (CA)		Yes		Yes		Yes	Yes	4
Umatilla	Yes		Yes	Yes		Yes		4
Deschutes, Walla Walla, Okanogan			Yes	Yes				2

Design Complexity: Every watershed is different —some easy, some not so much.



Design Evolution: John Day

2011

- 2 agencies with overlapping areas of interest
- Legacy site incorporation from 2 different designs
- 3 different design types: STMs, IMWs, Continuous sampling in ISWs

2012

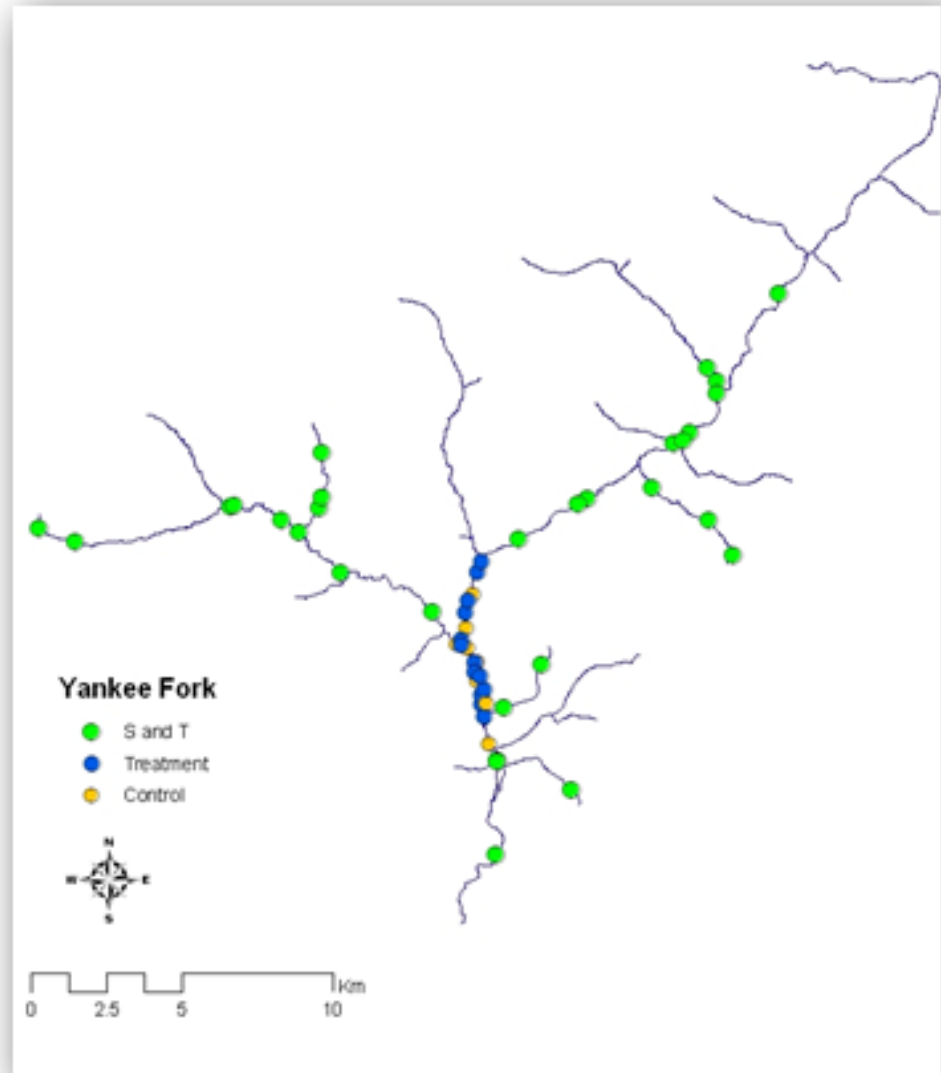
- Design and frame change of ISW design

2013

- Design objective change due to funding shortage
- Design change and frame reduction
- Addition of a 4th design type by 2 additional agencies: AEM

Combining Status and Trend and Effectiveness Monitoring Designs: Yankee Fork

- Started in 2013
- 2 strata: Status and Trend and Restoration Areas
- Phased restoration with planned before/after sampling resulted in unique 'Step Panel' sampling approach
- Combines AEM and Status and Trend Objectives.
- Status and Trend Sites used as Reference for AEM sites (provides control at different scales)



Design development process take home lessons

- Current CHaMP designs have a range of complexity based on several factors (e.g. multiple designs, legacy samples, frame changes, etc.)
- There isn't really a 'standard' CHaMP design but there is a standard 'framework'. Framework seems to accommodate changing needs.
- Unique combinations of factors in each watershed causes customized development of designs.
- **Flexibility is key:** designs need to be assessed annually and updated

What does this mean for 2014 sampling?

- Review 2011-2013 metrics and indicators
(Jan-Feb 2014)
- Organizations review existing designs
 - Are frame, strata and sampling frequency aligned with design objectives?
 - Are required assumptions still being met?*(Feb-March 2014)*
- Design updates based on evaluations
(March-April 2014)