

Bruce A. Measure  
Chair  
Montana

Rhonda Whiting  
Montana

W. Bill Booth  
Idaho

James A. Yost  
Idaho



Dick Wallace  
Vice-Chair  
Washington

Tom Karier  
Washington

Bill Bradbury  
Oregon

Joan M. Dukes  
Oregon

March 29, 2011

## MEMORANDUM

**TO:** Council Members

**FROM:** Chris Drivdahl

**SUBJECT: The Power of Partnership in the Upper Columbia: Presentation by Julie Morgan, Executive Director of Upper Columbia Salmon Recovery Board**

The Upper Columbia Salmon Recovery Board (UCSRB), a non-profit organization that uses a collaborative approach to salmon recovery in North Central Washington, will present a recently-released 12 minute video called *The Power of Partnership*. Produced by Wenatchee-based Howell at the Moon Productions, the video features outstanding cinematography highlighting local landscapes and partners, and tells a remarkable story underlying the grass-roots salmon recovery efforts in this region.

This regional effort is a compelling story and, with encouraging increases in recent salmon returns, it appears that the efforts of the UCSRB and its partners are showing early signs of success. Last year's spring Chinook returns were the third largest in records dating back to 1980. The 2009 count of steelhead passing Priest Rapids Dam and entering the Upper Columbia basin was the highest since 1977.

Following the video, the UCSRB will directly relate how the power of partnership is productively assisting implementation of the Upper Columbia Programmatic Habitat Project (#2010-001-00). The UCSRB will also put the Programmatic Project in the broader context of implementation that will occur in 2011, 2012, and beyond.

# The Power of Partnership in the Upper Columbia: A People Story



Presentation to the  
Northwest Power and Conservation Council  
April 12, 2011



# Overview of Presentation

- Introduction
- Elaboration of the Partnership:
  - Implementation Infrastructure
  - Role of Science
  - Monitoring to Answer Key Management Questions and to Adaptively Manage
  - Habitat Programmatic and Reach-Based Restoration

Upper Columbia  
Steelhead DPS

**Threatened**

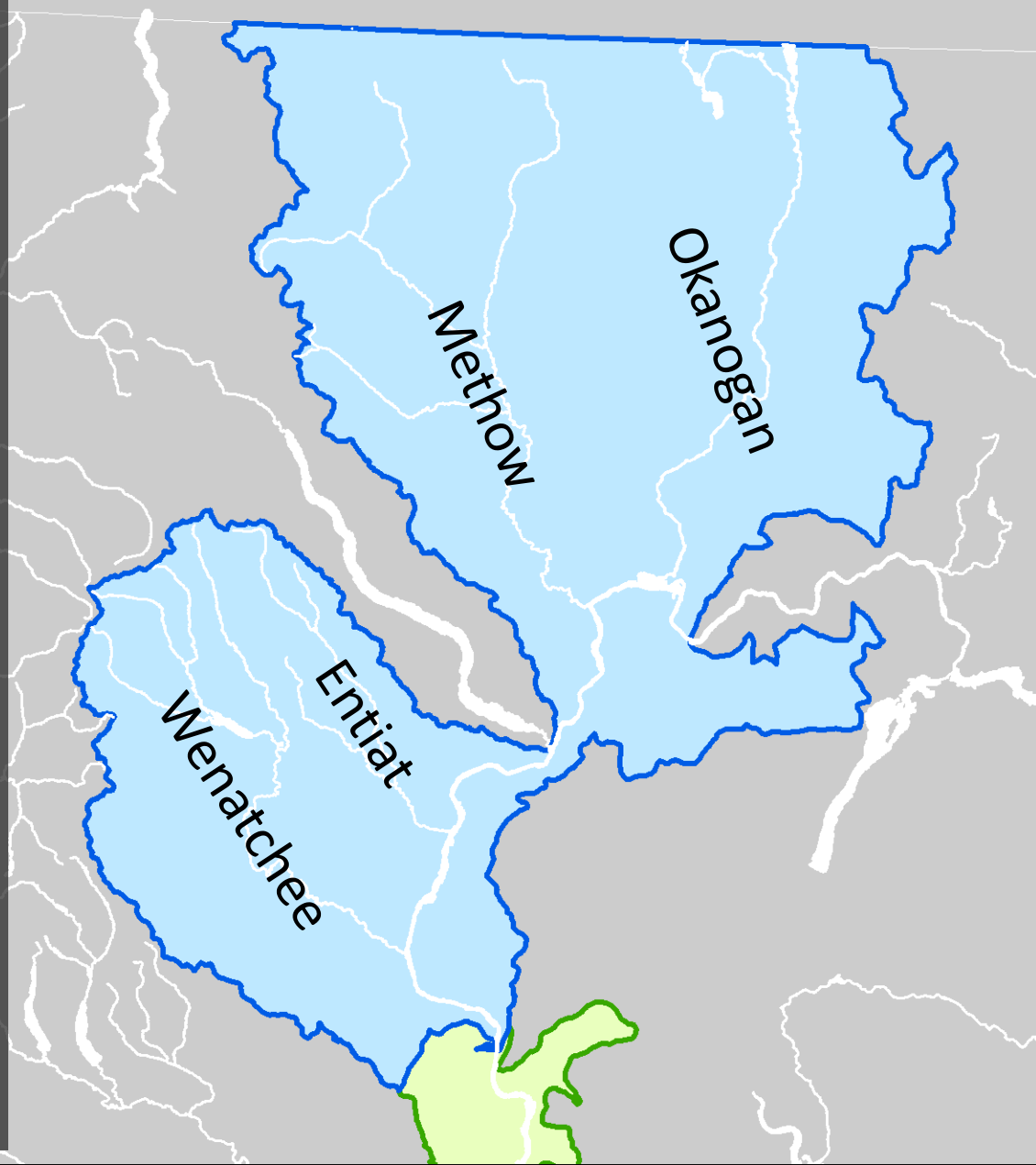
August 1997

Upper Columbia  
Spring Chinook ESU

**Endangered**

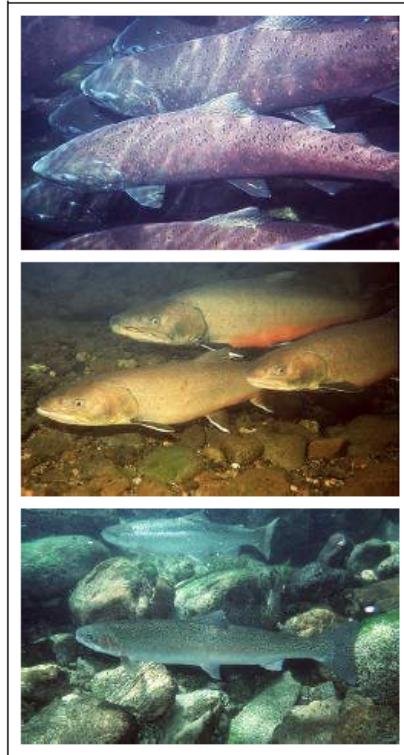
March 1999

Upper  
Columbia  
Subbasins



# UCSRB and ED





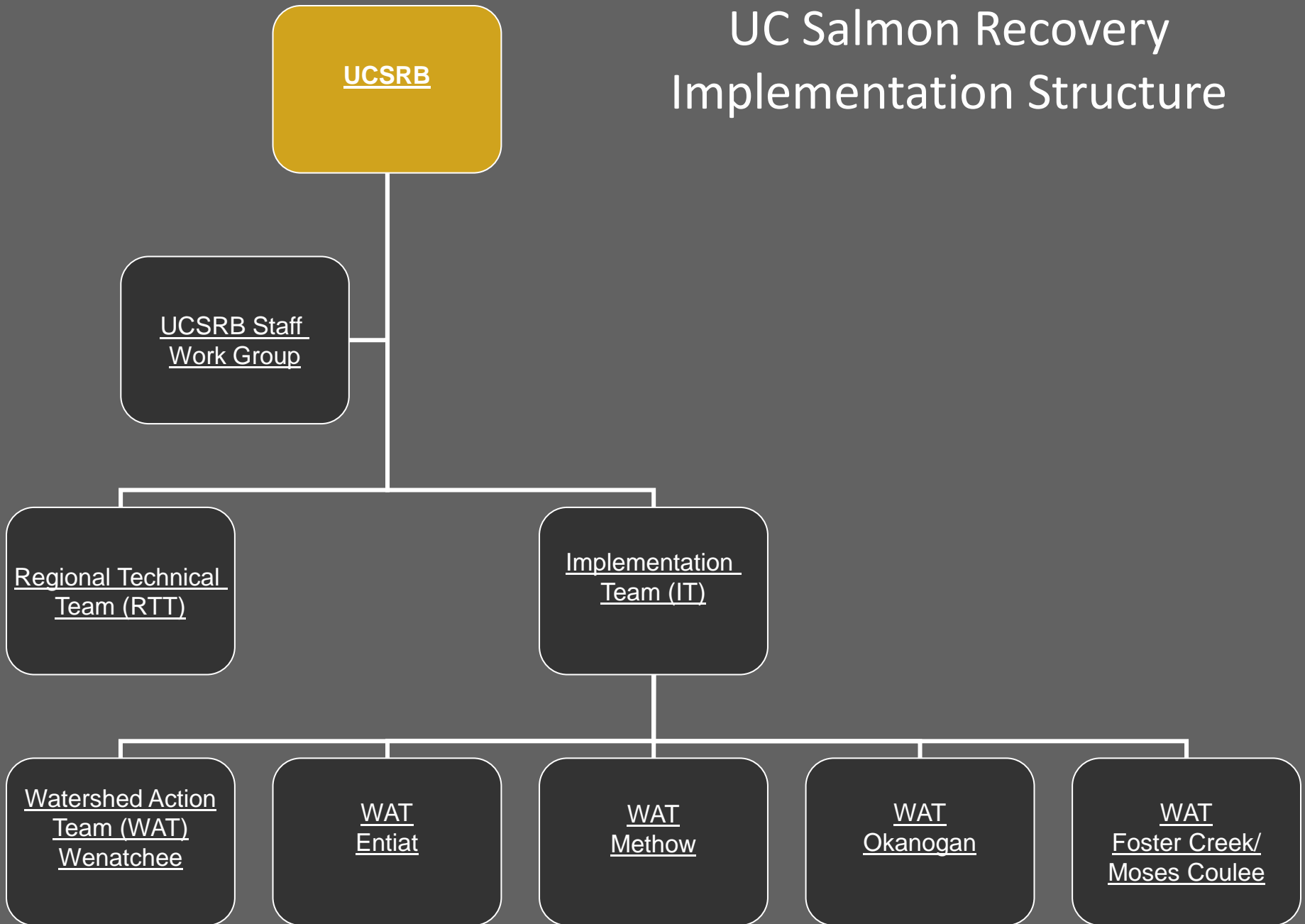
## Upper Columbia Spring Chinook Salmon and Steelhead Recovery Plan\*

August 2007

Upper Columbia Salmon Recovery Board

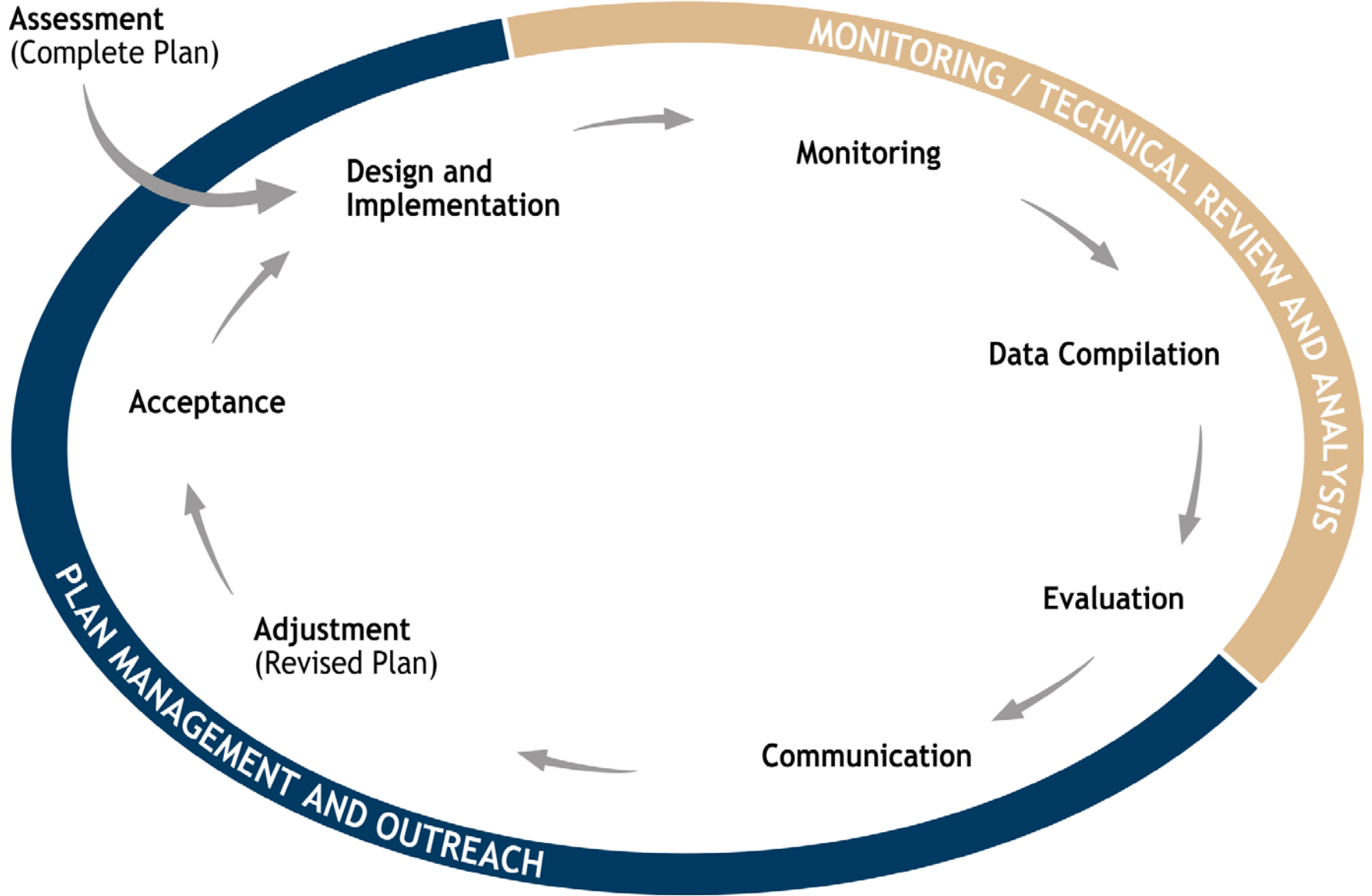
\*This Plan also covers bull trout, which are under the jurisdiction of the U.S. Fish and Wildlife Service. The strategies and actions in this proposed plan are intended as additional recommendations for the draft bull trout recovery plan that was published by the U.S. Fish and Wildlife Service in April 2002.

# UC Salmon Recovery Implementation Structure



# HABITAT ADAPTIVE MANAGEMENT FRAMEWORK

- FOR UPPER COLUMBIA SALMON RECOVERY -





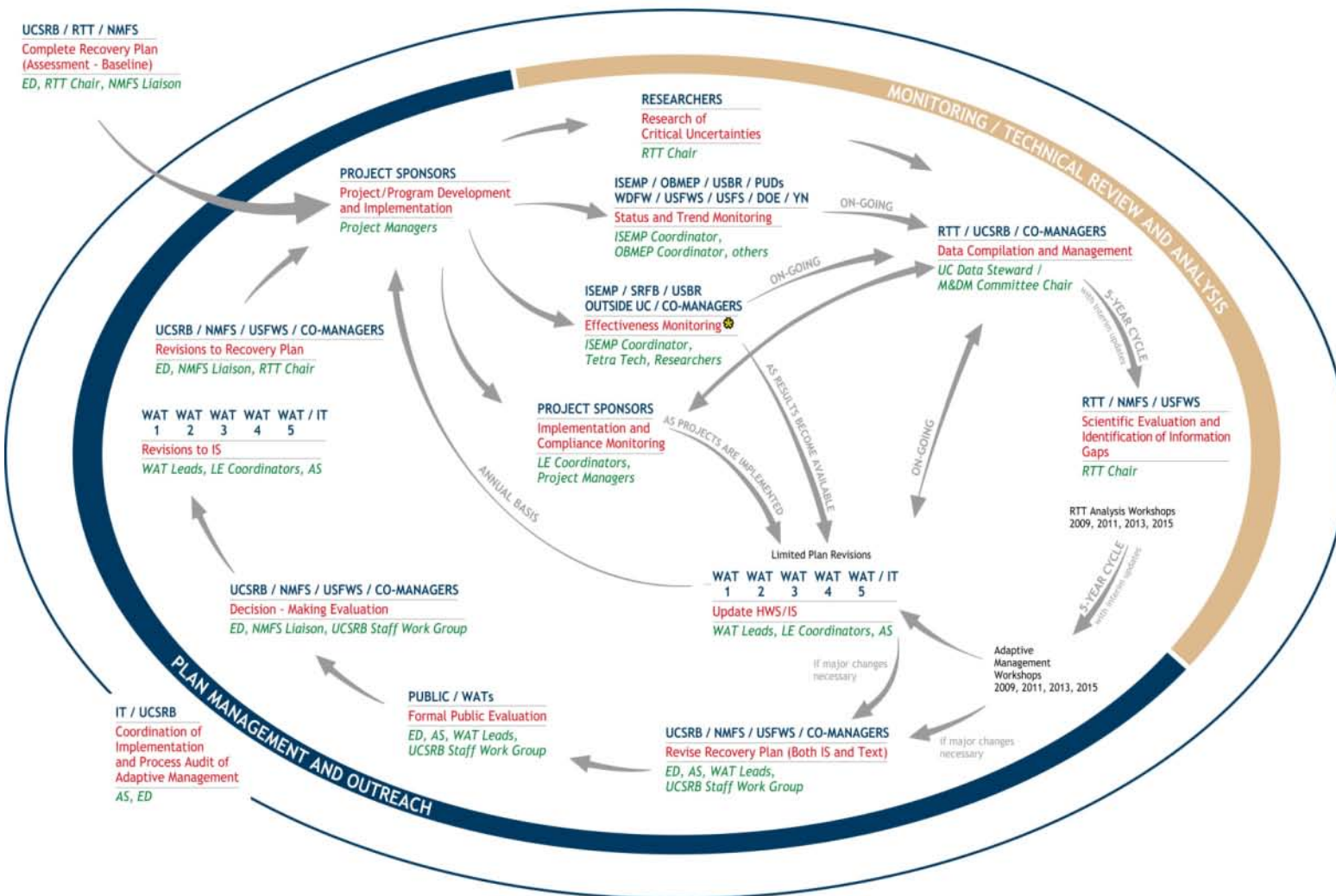
# HABITAT ADAPTIVE MANAGEMENT FRAMEWORK

- FOR UPPER COLUMBIA SALMON RECOVERY -

LEGEND 10/19/07

- Responsible Entities
- Activity
- Facilitator/Coordinator
- ⊗ From outside UC as well

UCSRB / RTT / NMFS  
Complete Recovery Plan  
(Assessment - Baseline)  
ED, RTT Chair, NMFS Liaison



## The WATs of the Upper Columbia:

**Wenatchee Subbasin**  
Wenatchee Habitat Subcommittee of the Wenatchee Watershed Planning Unit (WWPU)

**Entiat Subbasin**  
Entiat Watershed Planning Unit (EWPU)

**Methow Subbasin**  
Methow Restoration Council (MRC)

**Okanogan Subbasin**  
Okanogan Restoration Council (ORC)

**Douglas County Watersheds**  
Douglas County Watershed Planning Unit (DCWPU)

## Acronyms

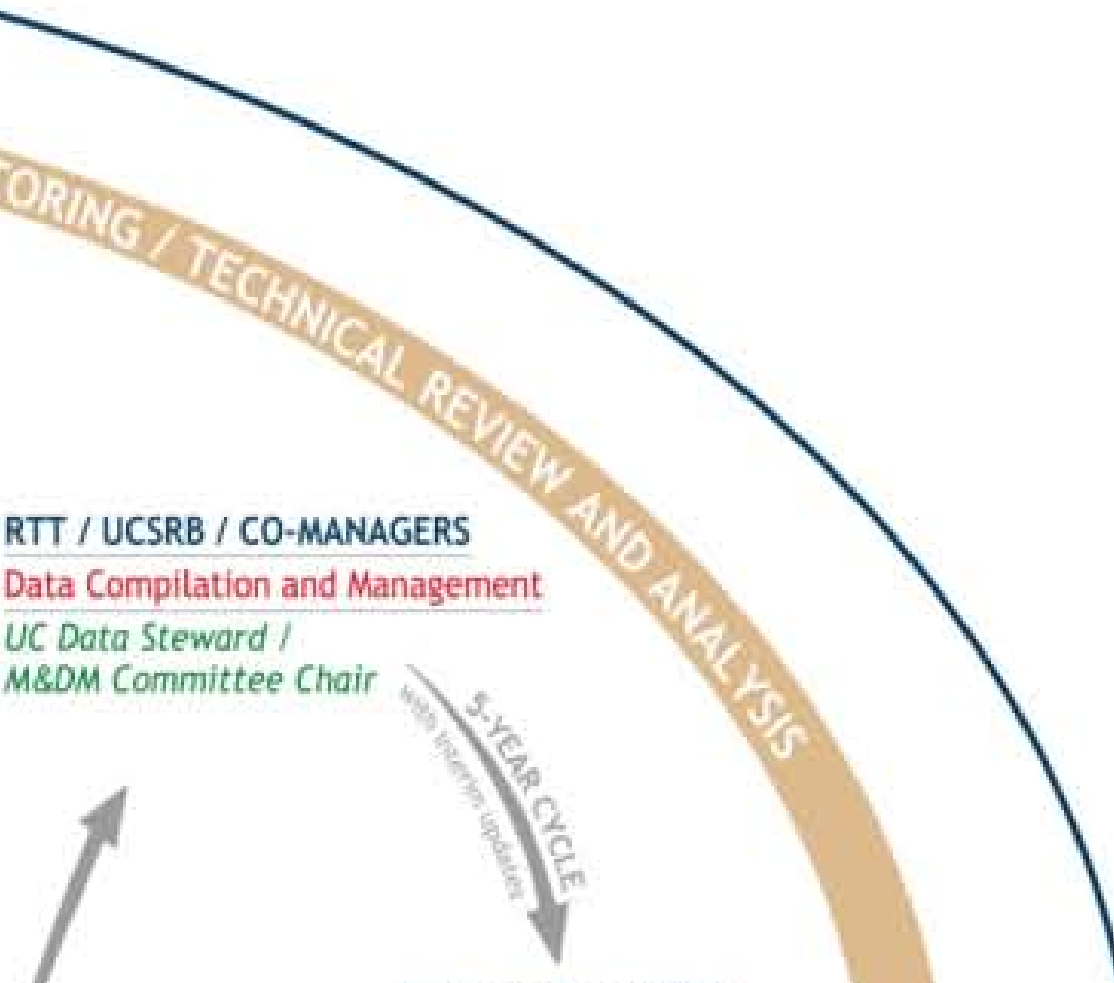
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IS	Implementation Schedule
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IT	Implementation Team
LE	Lead Entity
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YN	Yakama Nation

# WORK

## LEGEND

10/19/07

- Responsible Entities
- Activity
- Facilitator/Coordinator
- ✳ From outside UC as well



### UCRTT / UCSRB / CO-MANAGERS

#### Data Compilation and Management

*UC Data Steward /*

*M&DM Committee Chair*

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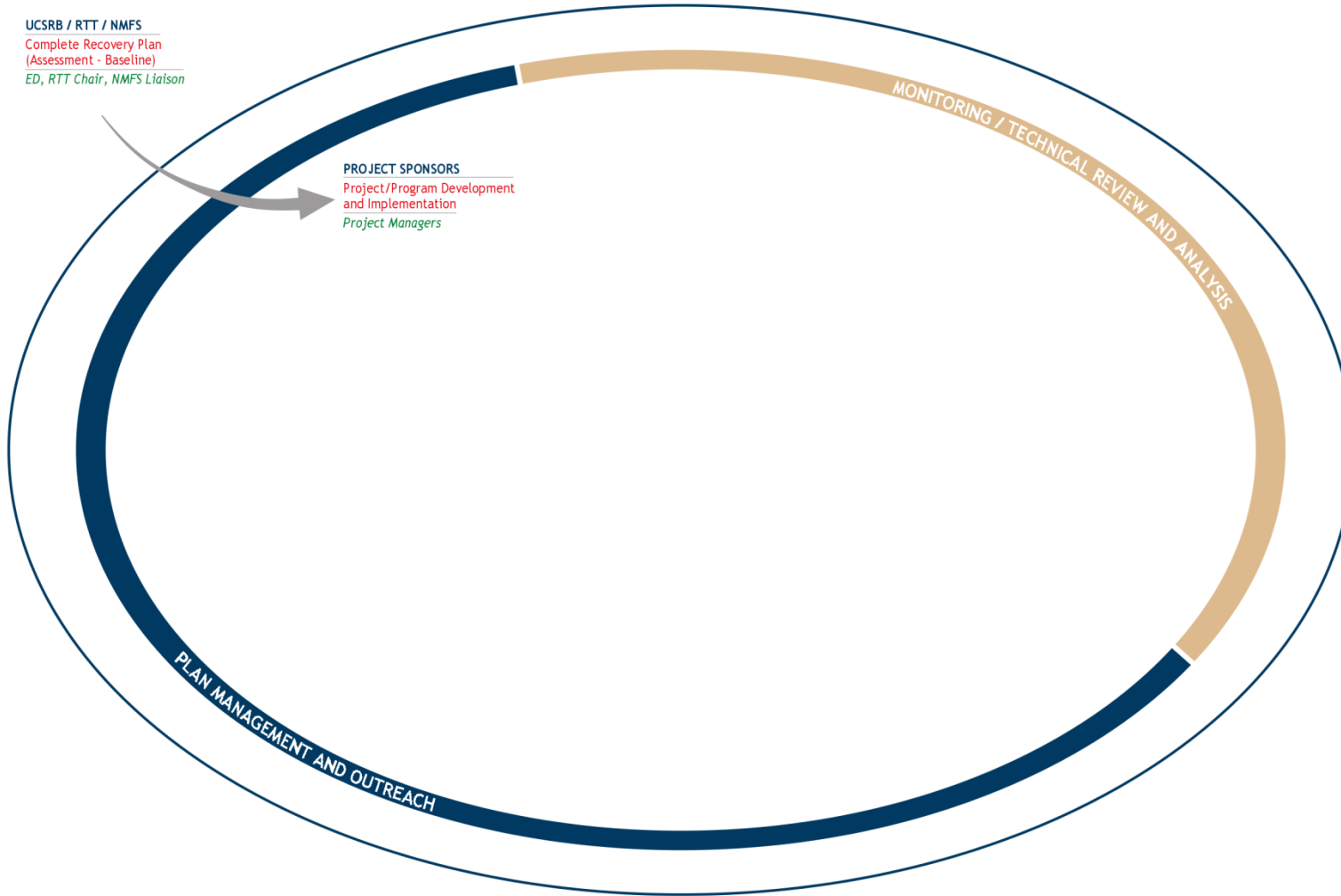
Douglas County Watershed Planning Unit (DCWPU)

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- FOR UPPER COLUMBIA SALMON RECOVERY -

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 Complete Recovery Plan  
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**PROJECT SPONSORS**  
 Project/Program Development  
 and Implementation  
 Project Managers



## LEGEND

- Responsible Entities
- Activity
- Facilitator/Coordinator
- ⦿ From outside UC as well

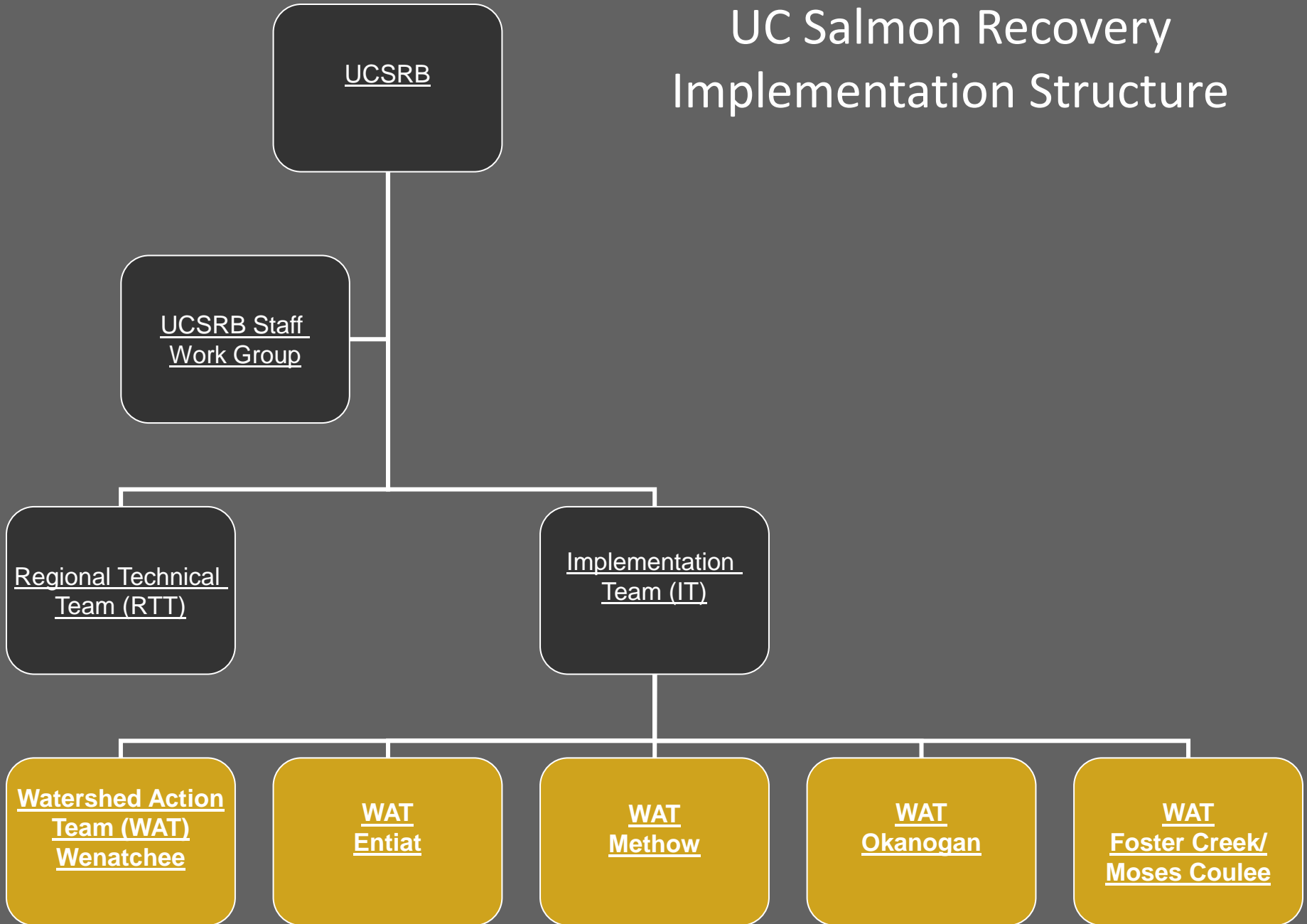
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# UC Salmon Recovery Implementation Structure



# Watershed Action Team – Methow Methow Restoration Council





WENATCHEE



OKANOGAN



ENTIAT

# Watershed Action Team Leads

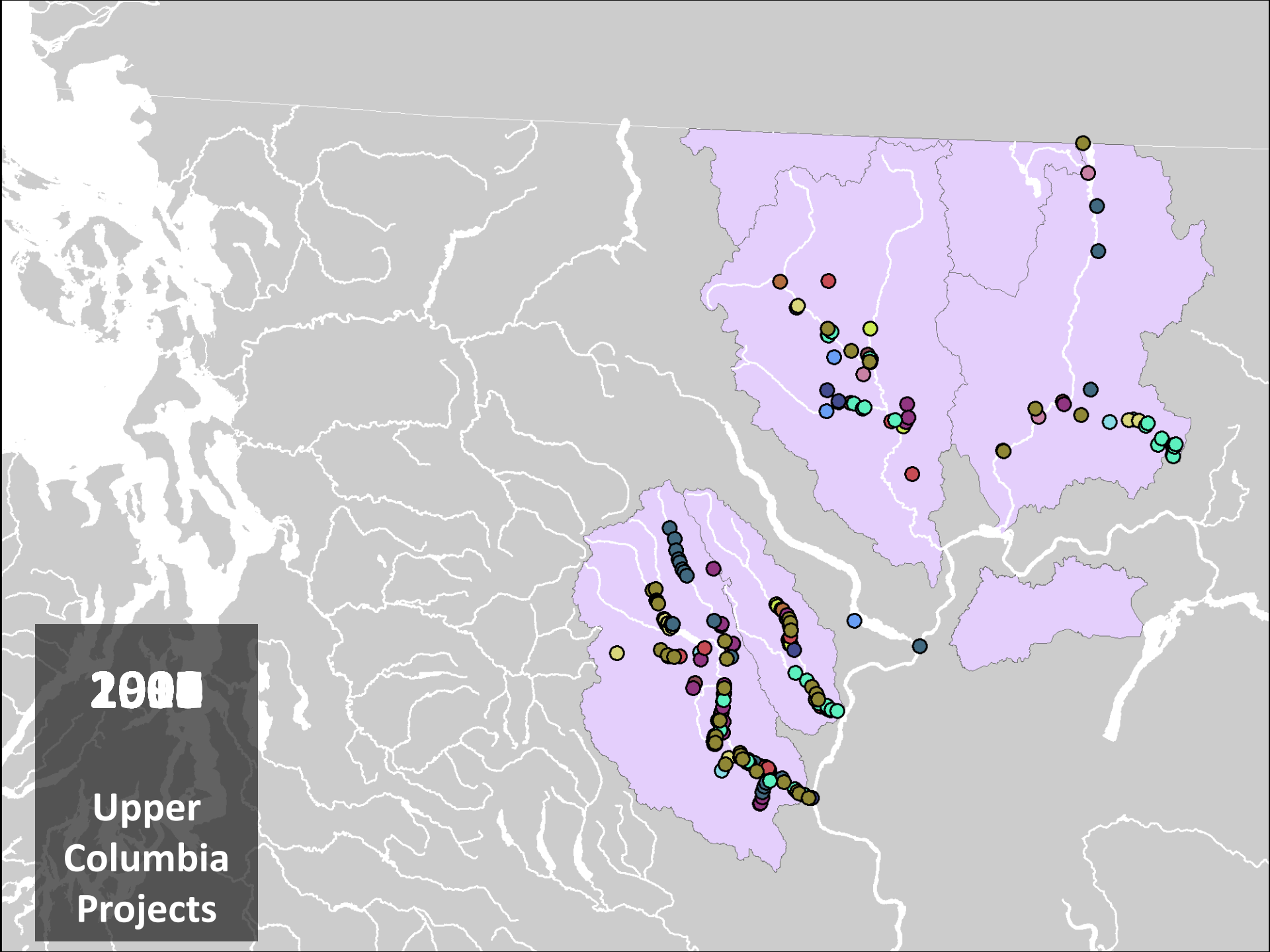


METHOW



# Watershed Action Teams Key Tasks

- Forum for coordination of implementation of habitat restoration and protection projects
- Update the implementation schedule
- Project and funding coordination for larger-scale, multi-partner, multi-year projects



2000

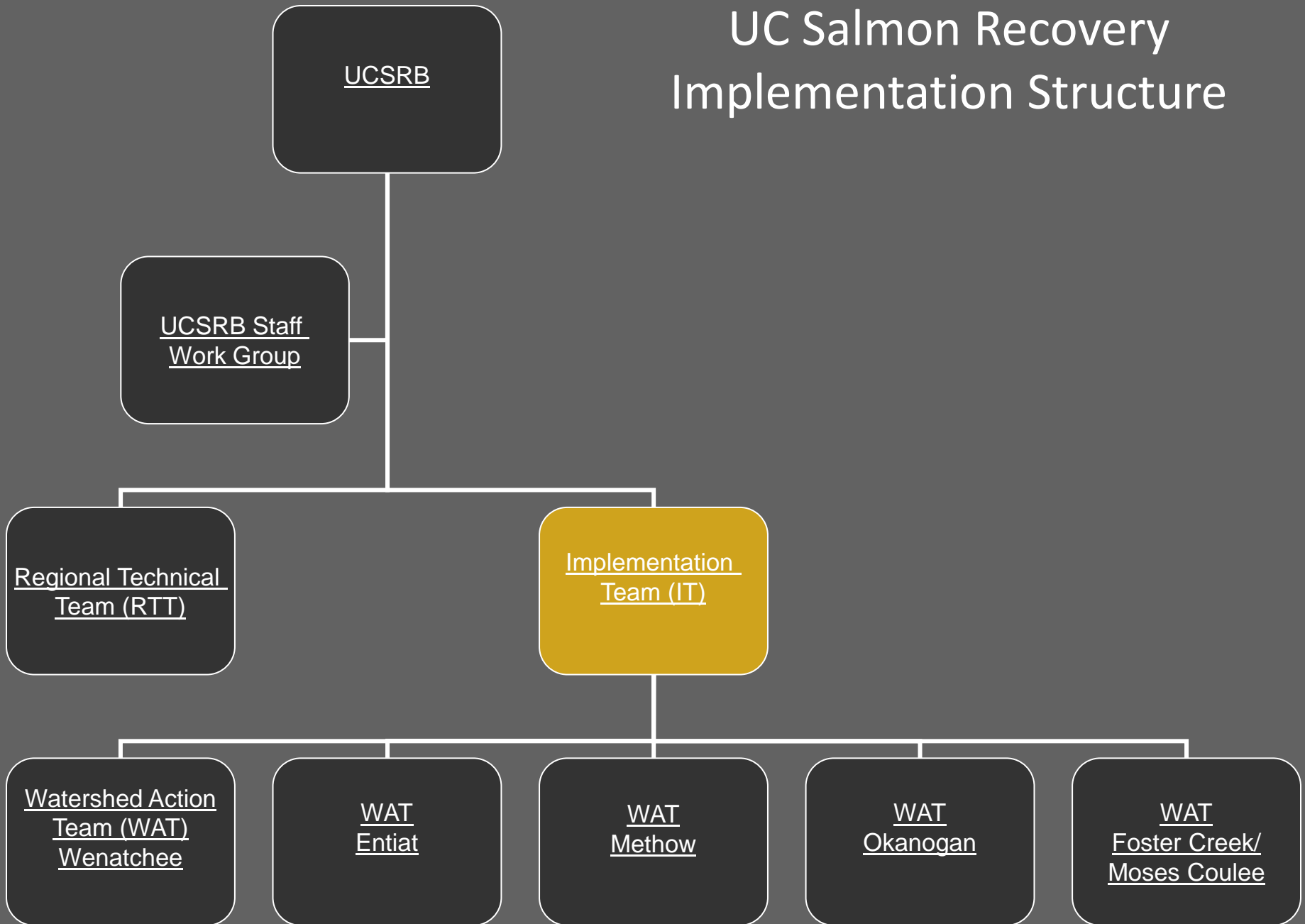
Upper  
Columbia  
Projects







# UC Salmon Recovery Implementation Structure



# Upper Columbia Implementation Team (IT)



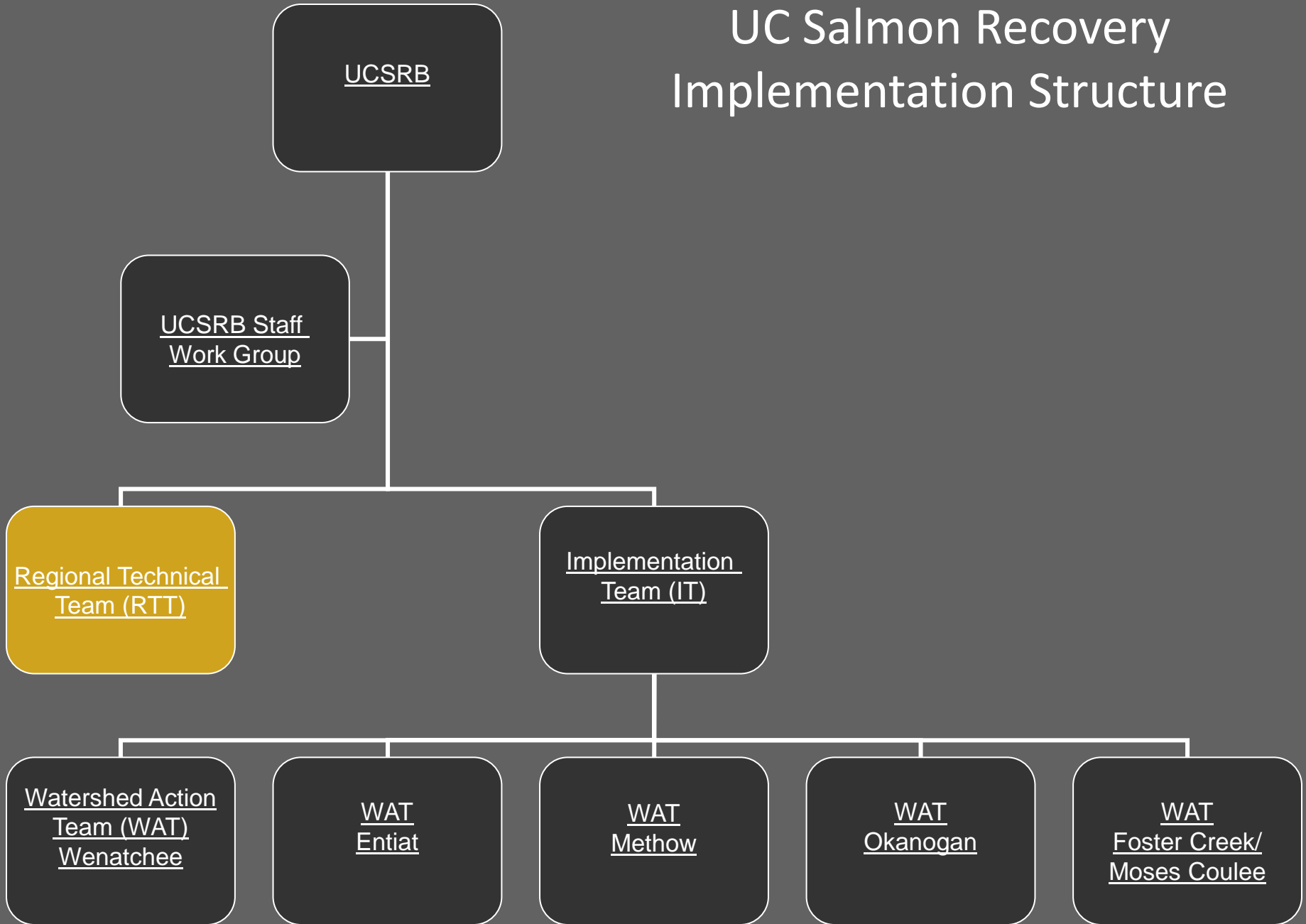
# UC Implementation Team Leader



# Implementation Team Key Tasks

- Promotes coordination of recovery actions across watersheds to increase effectiveness and efficiency.
  - Coordinates the updates to the Recovery Plan implementation schedules
  - Coordinates project and funding coordination
- Identifies issues of implementation and develops recommendations for the Board's consideration.
- Conducts a periodic process audit of the adaptive management framework to regularly evaluate the overall efficacy of the framework's process flow.
- Compiles an annual summary of plan progress and implementation actions for the Board.

# UC Salmon Recovery Implementation Structure





# Regional Technical Team

(March 2008 Meeting)







RTT Chair



MaDMC  
Chair

# Technical Leads/Coordinators



RTT Vice Chair



UC Data  
Steward

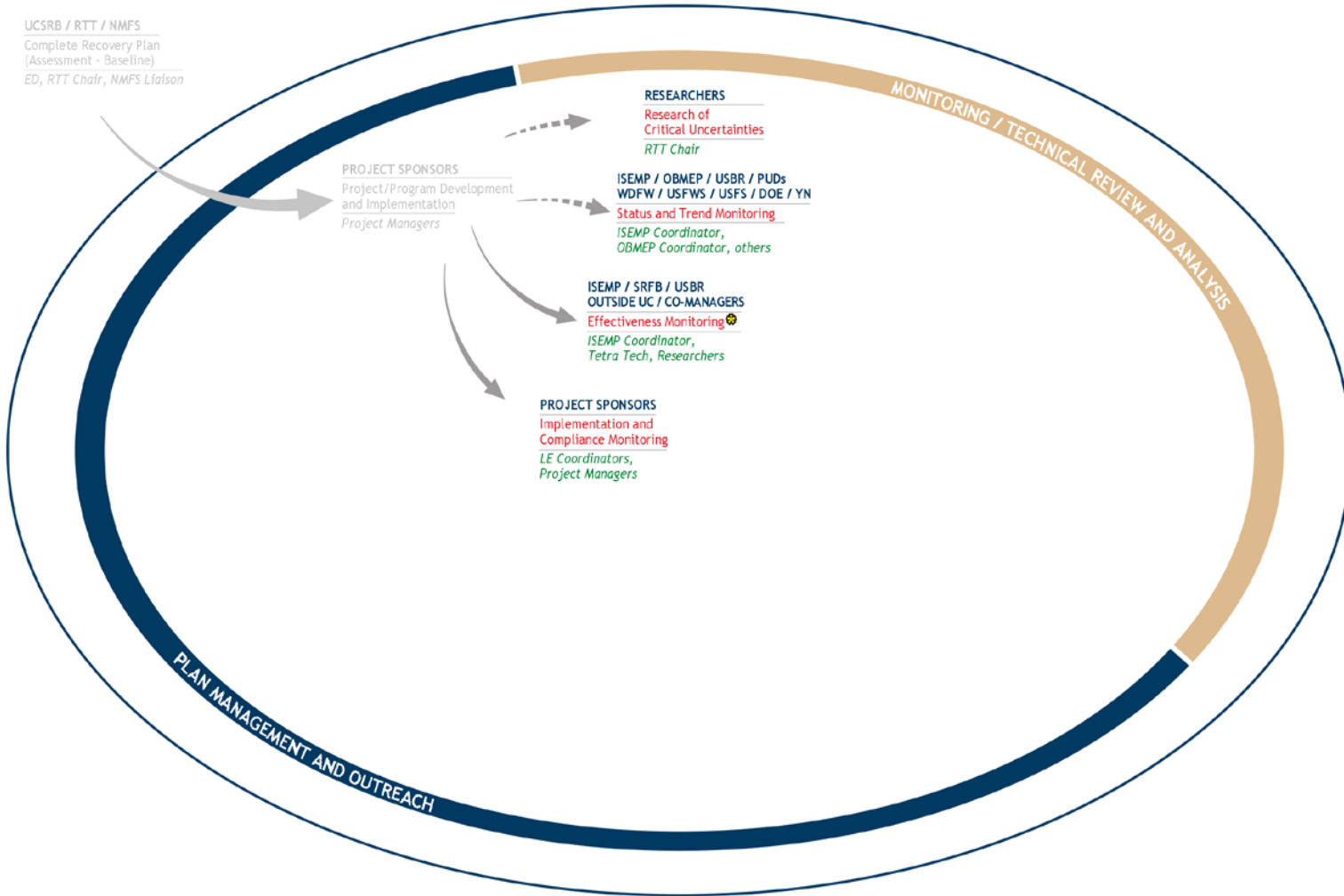
# UC RTT Key Tasks

- Recommend region-wide approaches and priorities to protect and restore salmonid habitat.
- Develop and evaluate salmonid recovery projects within the Upper Columbia region.
- Develop and guide salmonid recovery monitoring plans as appropriate.

# HABITAT ADAPTIVE MANAGEMENT FRAMEWORK

- FOR UPPER COLUMBIA SALMON RECOVERY -

UCSRB / RTT / NMFS  
Complete Recovery Plan  
(Assessment - Baseline)  
ED, RTT Chair, NMFS Liaison



## LEGEND

- Responsible Entities
- Activity
- Facilitator/Coordinator
- 🌐 From outside UC as well

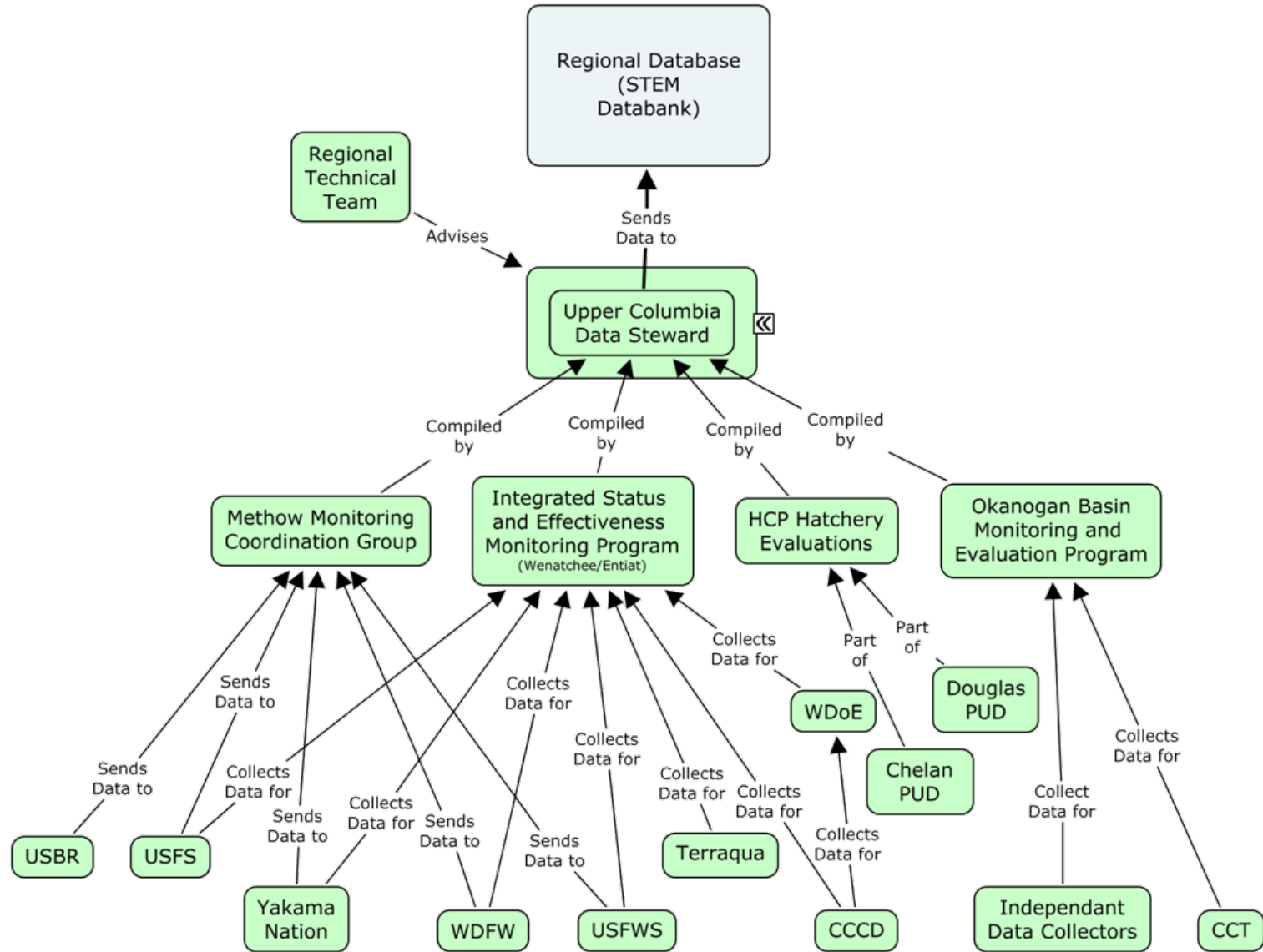
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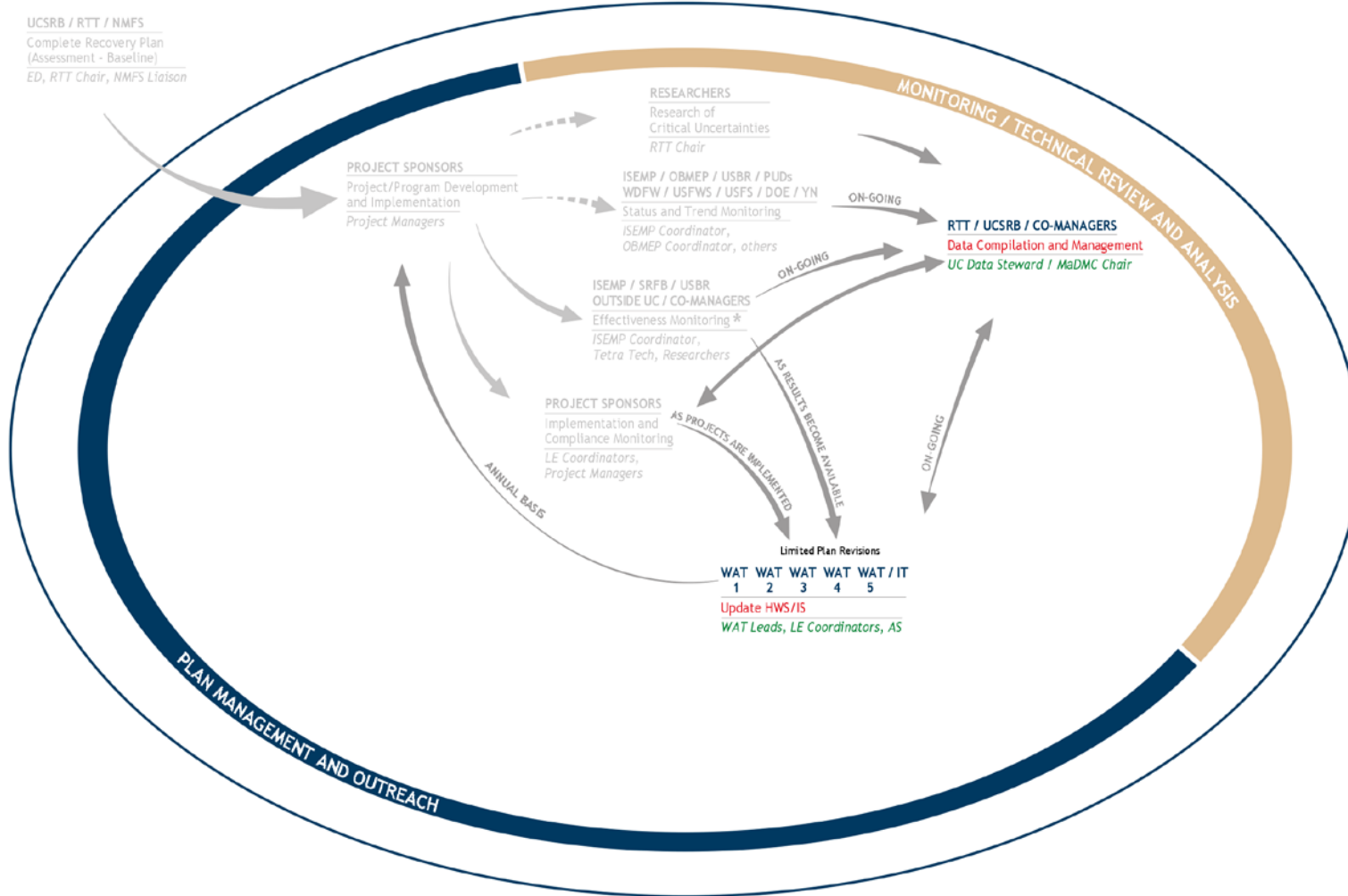
# Upper Columbia Monitoring Data Flow



# HABITAT ADAPTIVE MANAGEMENT FRAMEWORK

- FOR UPPER COLUMBIA SALMON RECOVERY -

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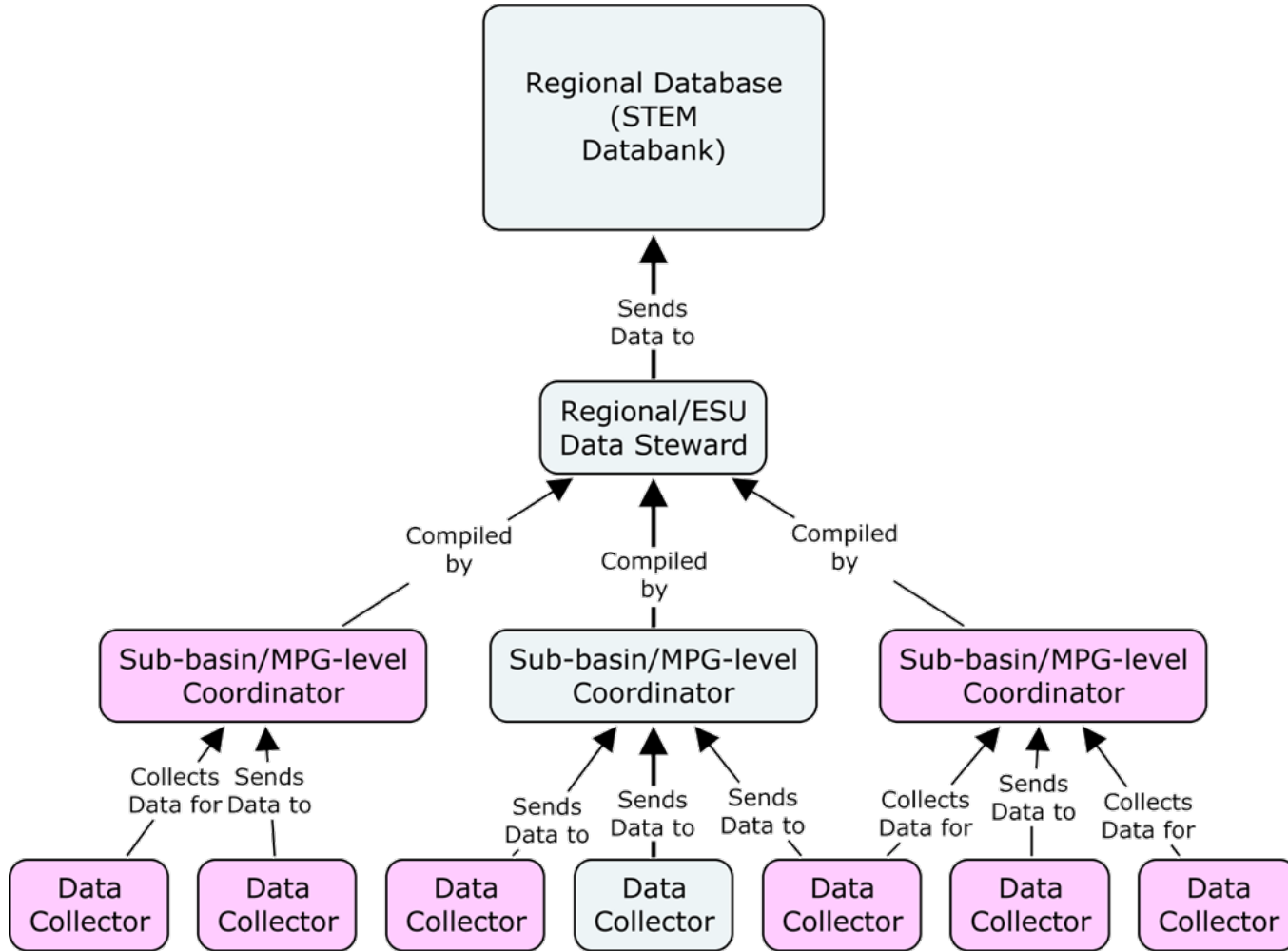
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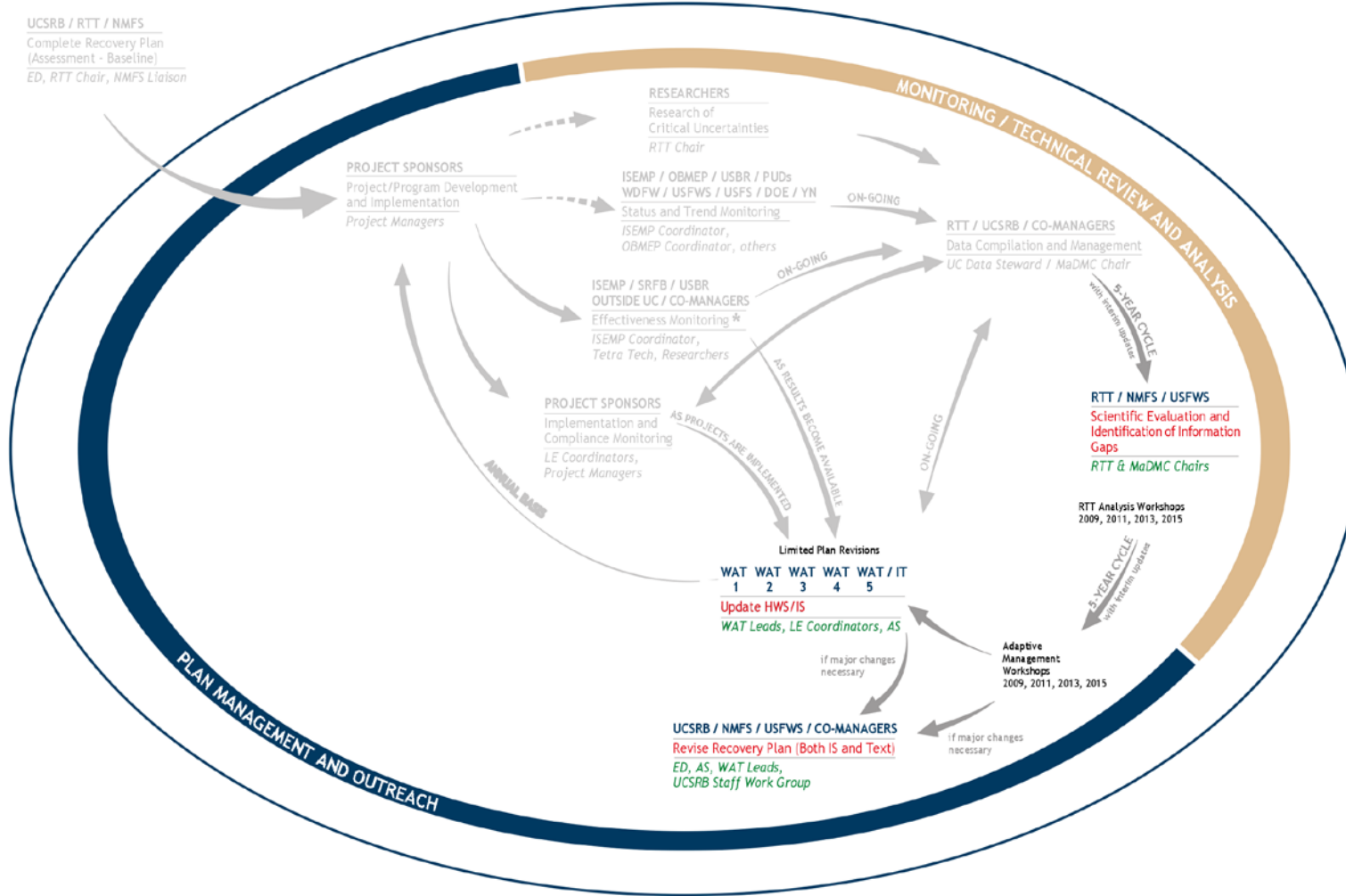
# Human Workflow for Data



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**JTSIDE UC / CO-MANAGERS**

**Effectiveness Monitoring**

**EMP Coordinator,  
Ultra Tech, Researchers**

**SPONSORS**

**Education and  
Monitoring**

**Managers,  
Managers**

**YEAR CYCLE**  
with Interim updates

**RTT / NMFS / USFWS**

**Scientific Evaluation and  
Identification of Information  
Gaps**

**RTT & MaDMC Chairs**

RTT Analysis Workshops  
2009, 2011, 2013, 2015

**5-YEAR CYCLE**  
with Interim updates

Adaptive  
Management  
Workshops  
2009, 2011, 2013, 2015

**UCSRB / NMFS / USFWS / CO-MANAGERS**

**Revise Recovery Plan (Both IS and Text)**

**WAT Leads,  
UCSRB Staff Work Group**

ON-GOING

AS RESULTS BECOME AVAILABLE

AS PROJECTS ARE IMPLEMENTED

Limited Plan Revisions

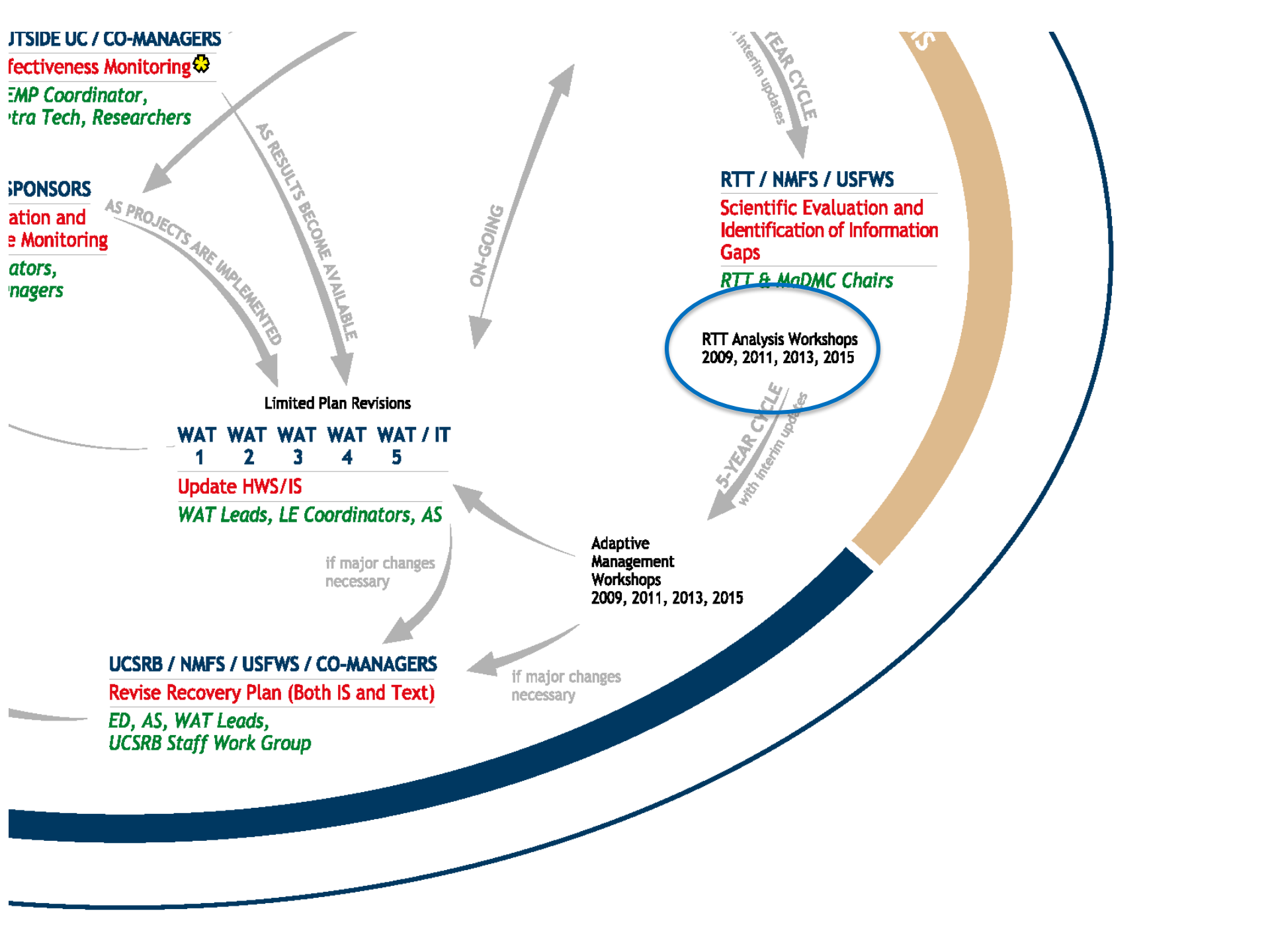
WAT 1 WAT 2 WAT 3 WAT 4 WAT 5 / IT

Update HWS/IS

WAT Leads, LE Coordinators, AS

if major changes  
necessary

if major changes  
necessary





Adaptive Management

# RTT ANALYSIS WORKSHOP



# HABITAT ADAPTIVE MANAGEMENT FRAMEWORK

- FOR UPPER COLUMBIA SALMON RECOVERY -

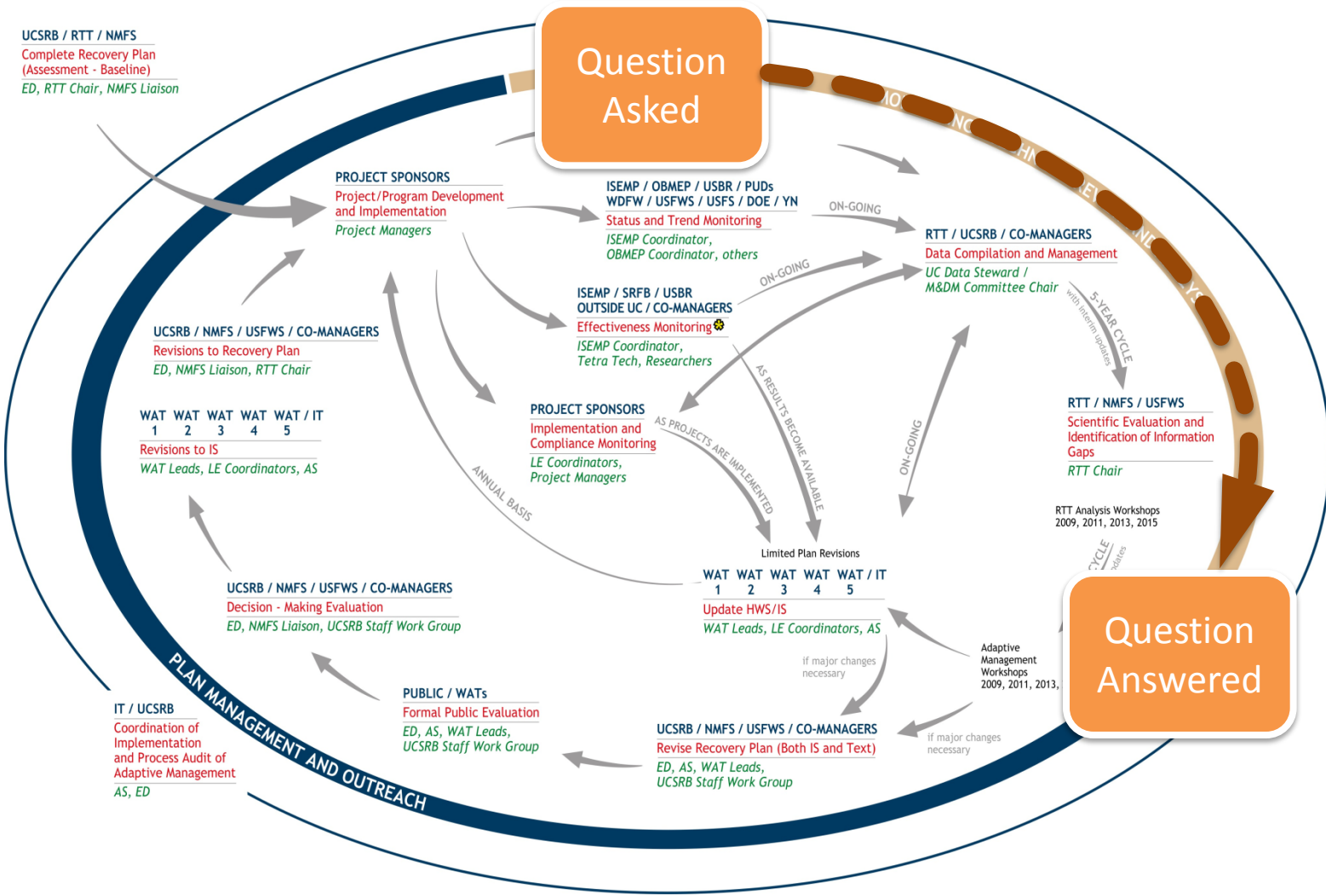
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UCSRB / RTT / NMFS  
Complete Recovery Plan  
(Assessment - Baseline)  
ED, RTT Chair, NMFS Liaison

**PROJECT SPONSORS**  
Project/Program Development  
and Implementation  
Project Managers

Question  
Asked

ISEMP / OBMEP / USBR / PUDs  
WDFW / USFWS / USFS / DOE / YN  
Status and Trend Monitoring  
ISEMP Coordinator,  
OBMEP Coordinator, others

RTT / UCSRB / CO-MANAGERS  
Data Compilation and Management  
UC Data Steward /  
M&DM Committee Chair

ISEMP / SRFB / USBR  
OUTSIDE UC / CO-MANAGERS  
Effectiveness Monitoring  
ISEMP Coordinator,  
Tetra Tech, Researchers

RTT / NMFS / USFWS  
Scientific Evaluation and  
Identification of Information  
Gaps  
RTT Chair

UCSRB / NMFS / USFWS / CO-MANAGERS  
Revisions to Recovery Plan  
ED, NMFS Liaison, RTT Chair

WAT 1 WAT 2 WAT 3 WAT 4 WAT 5 / IT  
Revisions to IS  
WAT Leads, LE Coordinators, AS

**PROJECT SPONSORS**  
Implementation and  
Compliance Monitoring  
LE Coordinators,  
Project Managers

Question  
Answered

UCSRB / NMFS / USFWS / CO-MANAGERS  
Decision - Making Evaluation  
ED, NMFS Liaison, UCSRB Staff Work Group

WAT 1 WAT 2 WAT 3 WAT 4 WAT 5 / IT  
Update HWS/IS  
WAT Leads, LE Coordinators, AS

IT / UCSRB  
Coordination of  
Implementation  
and Process Audit of  
Adaptive Management  
AS, ED

**PUBLIC / WATs**  
Formal Public Evaluation  
ED, AS, WAT Leads,  
UCSRB Staff Work Group

UCSRB / NMFS / USFWS / CO-MANAGERS  
Revise Recovery Plan (Both IS and Text)  
ED, AS, WAT Leads,  
UCSRB Staff Work Group

PLAN MANAGEMENT AND OUTREACH

# Upper Columbia M&E Plan

Draft Work in Progress  
Appendix P: Monitoring and Evaluation Plan

## Appendix P

### Upper Columbia Monitoring and Evaluation Plan

#### Introduction

The desired outcome of the recovery plan is the long-term persistence of viable populations of naturally produced spring Chinook and steelhead distributed across their native range and the long-term persistence of self-sustaining, complex, interacting groups of bull trout distributed across their native range. In order to determine if the desired outcome has been achieved, monitoring is needed to assess the status of the populations and their limiting factors. In the absence of monitoring, there is no reliable method to determine if the recovery plan has been successful. Without monitoring, it will be very difficult for the federal agencies (NOAA Fisheries and the U.S. Fish and Wildlife Service) to determine if the populations/ESU/DPS have met recovery criteria and can be removed from ESA listing.

There are two major questions that need to be answered in order for the agencies to determine if the recovery plan is working.

*(1) Is the status of the population/ESU/DPS improving?*

*(2) Are the primary factors limiting the status of the population/ESU/DPS increasing or decreasing?<sup>1</sup>*

Answers to these questions will guide decisions regarding the reclassification or delisting of the ESU, DPS, or populations. Additional questions, which are less important in guiding decisions regarding reclassification or delisting, but are nevertheless important to the Board, funding entities, and management agencies, include:

*(3) Are the actions identified in the recovery plan being implemented correctly and according to the implementation schedule?*

*(4) Which actions are effective and should be continued?*

*(5) How will the data be managed and curated?*

These five questions require different types of monitoring. Questions 1 and 2 require **Status and Trend Monitoring**. This type of monitoring describes the status or condition of the

<sup>1</sup> The federal agencies determine if a population/ESU/DPS is no longer in danger of extinction by evaluating both the status of the population/ESU/DPS and the extent to which the threats facing the population/ESU/DPS have been addressed. This monitoring plan does not attempt to monitor "threats." Rather, this plan measures the "limiting factors" that directly or indirectly affect the status of the population/ESU/DPS. Although threats cause a factor to be limiting, it is actually the factor that limits the population. For example, forest roads and landslides (threats) may increase recruitment of fine sediments (limiting factor) to a stream channel, thereby limiting survival of juvenile steelhead. Simply monitoring threats will not tell us if the limiting factor is decreasing. Therefore, it is important to monitor changes in the limiting factor.

## UC Key Management Questions

*Taken from the revised Appendix P (Hillman 2008)*

### 1 Is the status of the population/ESU/DPS improving?

- 1.1 Is the abundance of naturally produced adult fish trending to the recovery criteria for each population?
- 1.2 Is the population productivity of naturally produced fish trending to the recovery criteria for each population?
  - 1.2.1 Is juvenile productivity of naturally produced fish increasing within each population?
- 1.3 Is the spatial structure of the populations trending to the recovery criteria for each population?
  - 1.3.1 Does the number and spatial arrangement of spawning areas meet recovery criteria for each population?

This question deals with the number and spatial arrangement of major and minor spawning areas that are occupied within the geographic area of each population. Spatial arrangement refers to the distribution of spawning areas (e.g., linear structure, dendritic, trellis, etc.).
  - 1.3.2 Does the spatial extent or range of the population meet recovery criteria for each population?

This question deals with the proportion of the historical range that is currently occupied and the presence of spawners in major spawning areas.
  - 1.3.3 Do the gaps or continuities between spawning areas meet recovery criteria for each population?

This question is concerned with the distance (stream km) between spawning areas.
- 1.4 Is the phenotypic and genotypic diversity of the population trending to the recovery criteria for each population?
  - 1.4.1 Are all the major life-history strategies that occurred historically still expressed within the population?

# RECLAMATION

*Managing Water in the West*

## Genetic Variation in *O. mykiss* in the lower Methow Tributaries

D. Strawn, W. Powell, Aquaculture Research Institute, University of Idaho  
P. Conroy, K. Anderson, USGS, Columbia River Research Lab



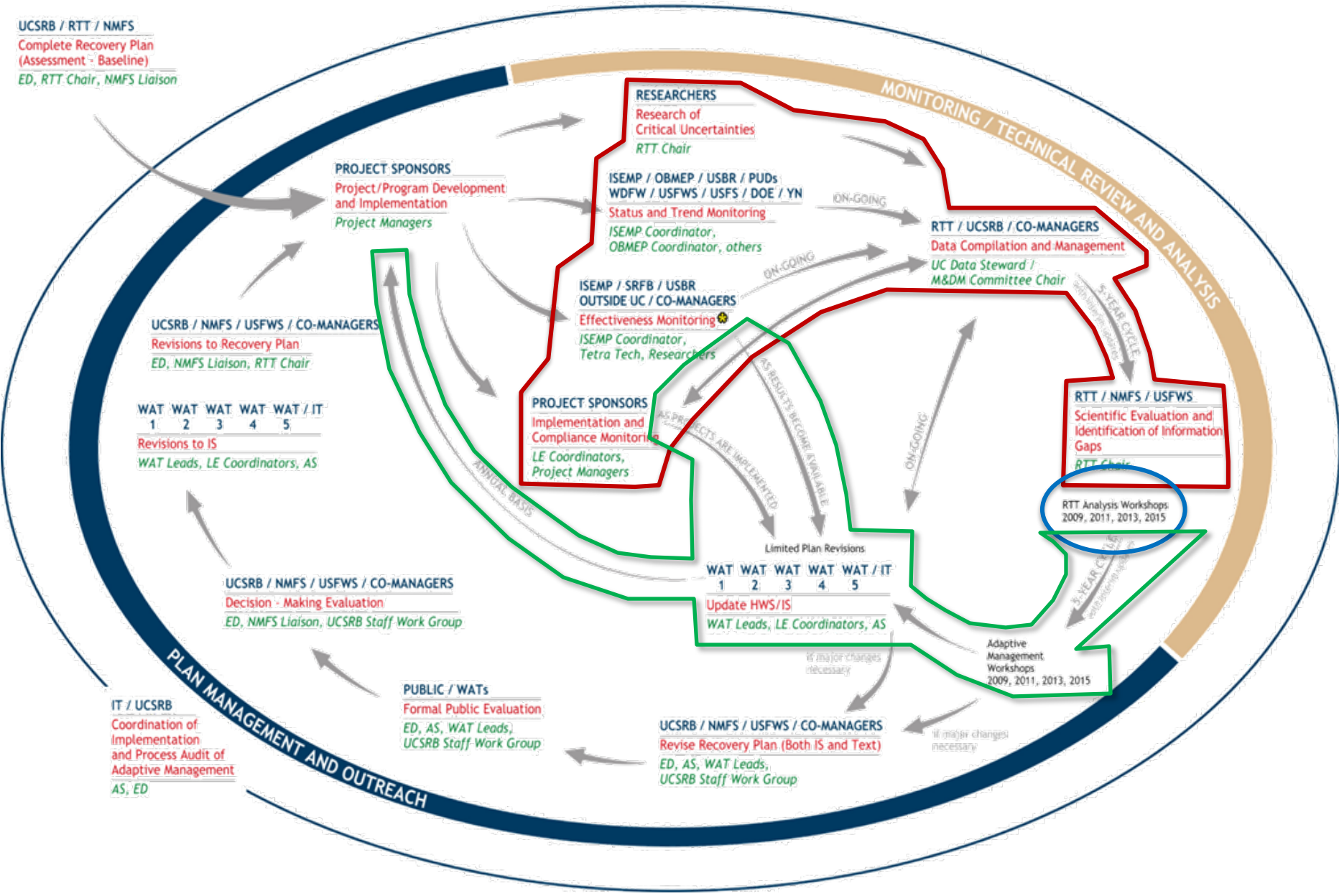
## Types of Restoration



UC Monitoring – A People Story

# **GETTING THE MESSAGE OUT: REPORTING UP, DOWN, AND SIDEWAYS**

UCSRB / RTT / NMFS  
 Complete Recovery Plan  
 (Assessment - Baseline)  
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**RESEARCHERS**  
 Research of  
 Critical Uncertainties  
 RTT Chair

ISEMP / OBMEP / USBR / PUDs  
 WDFW / USFWS / USFS / DOE / YN  
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**MONITORING / TECHNICAL REVIEW AND ANALYSIS**

RTT / UCSRB / CO-MANAGERS  
 Data Compilation and Management  
 UC Data Steward /  
 M&DM Committee Chair

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 Project Managers

UCSRB / NMFS / USFWS / CO-MANAGERS  
 Revisions to Recovery Plan  
 ED, NMFS Liaison, RTT Chair

WAT WAT WAT WAT WAT / IT  
 1 2 3 4 5  
 Revisions to IS  
 WAT Leads, LE Coordinators, AS

UCSRB / NMFS / USFWS / CO-MANAGERS  
 Decision - Making Evaluation  
 ED, NMFS Liaison, UCSRB Staff Work Group

Limited Plan Revisions  
 WAT WAT WAT WAT WAT / IT  
 1 2 3 4 5  
 Update HWS/IS  
 WAT Leads, LE Coordinators, AS

RTT Analysis Workshops  
 2009, 2011, 2013, 2015

**PUBLIC / WATs**  
 Formal Public Evaluation  
 ED, AS, WAT Leads,  
 UCSRB Staff Work Group

UCSRB / NMFS / USFWS / CO-MANAGERS  
 Revise Recovery Plan (Both IS and Text)  
 ED, AS, WAT Leads,  
 UCSRB Staff Work Group

Adaptive  
 Management  
 Workshops  
 2009, 2011, 2013, 2015

**IT / UCSRB**  
 Coordination of  
 Implementation  
 and Process Audit of  
 Adaptive Management  
 AS, ED

**PLAN MANAGEMENT AND OUTREACH**

ANNUAL BASIS

AS RESULTS BECOME AVAILABLE

AS PROJECTS ARE IMPLEMENTED

ON-GOING

ON-GOING

ON-GOING

ON-GOING

ON-GOING

ON-GOING

ON-GOING

5-YEAR CYCLE

5-YEAR CYCLE

5-YEAR CYCLE

5-YEAR CYCLE

5-YEAR CYCLE

5-YEAR CYCLE

5-YEAR CYCLE

5-YEAR CYCLE

5-YEAR CYCLE

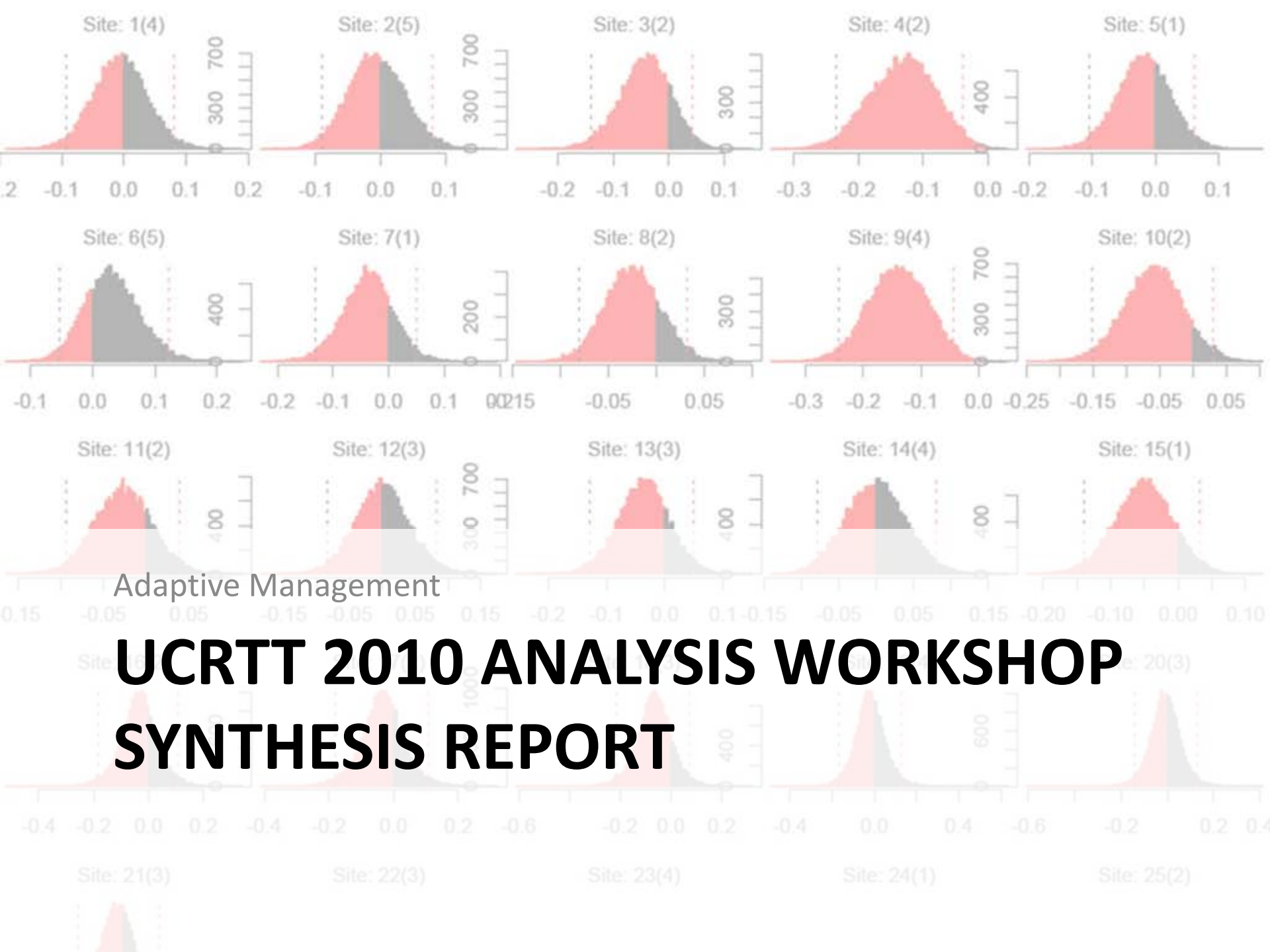
5-YEAR CYCLE

5-YEAR CYCLE

5-YEAR CYCLE

5-YEAR CYCLE

5-YEAR CYCLE



Adaptive Management

# UCRTT 2010 ANALYSIS WORKSHOP SYNTHESIS REPORT



# UCRTT

UPPER COLUMBIA  
REGIONAL  
TECHNICAL TEAM



2010 ANALYSIS WORKSHOP  
SYNTHESIS REPORT



ABUNDANCE

POPULATION GROWTH RATE

0.25  
0.53  
0.95  
1  
1.03  
1.05  
1.08  
1.1  
1.13  
1.15  
1.17  
1.18



## MAJOR SPONSORS

Bonneville Power Administration • Confederated Tribes and Bands of the Yakama Nation  
Salmon Recovery Funding Board • Upper Columbia Salmon Recovery Board



## SPONSORS

Anchor QEA, LLC • BioAnalyst, Inc. • Cascadia Conservation District  
Confederated Tribes of the Colville Reservation • Integrated Status and Effectiveness Monitoring Program  
National Marine Fisheries Service • Okanogan Basin Monitoring and Evaluation Program



Upper Columbia Habitat Adaptive Management  
2010 SCIENCE CONFERENCE  
NOVEMBER 16 - WENATCHEE, WA

Adaptive Management

**ADAPTIVE MANAGEMENT 2010  
SCIENCE CONFERENCE**

Status of  
Spring Chinook,  
Steelhead  
& their Habitat

## Session 1. Species status and trend

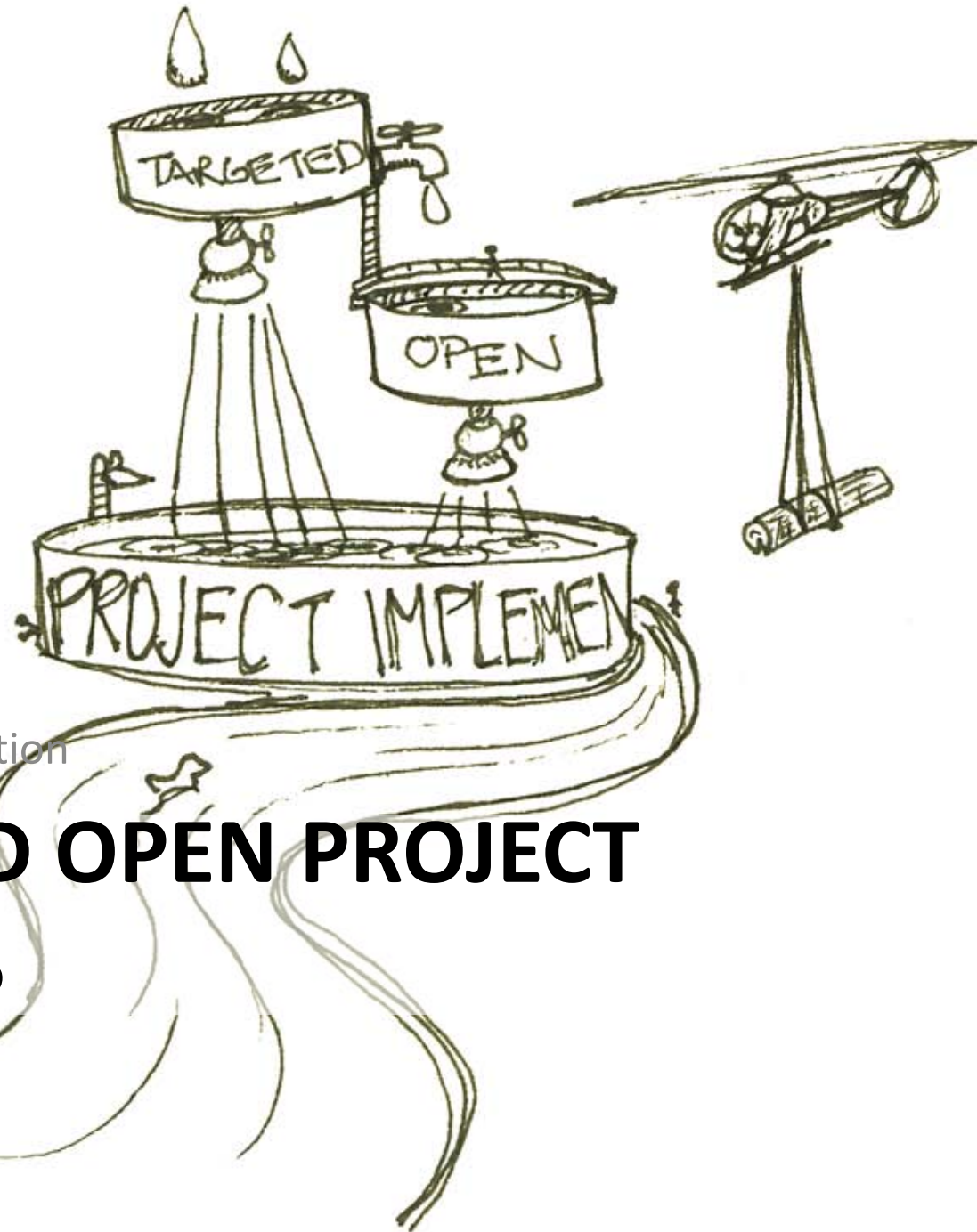
How are the fish doing with respect to the VSP parameters?

VSP = Viable Salmonid Population

- 1) Abundance
- 2) Productivity
- 3) Spatial structure
- 4) Diversity



# **PROJECT AND FUNDING COORDINATION**

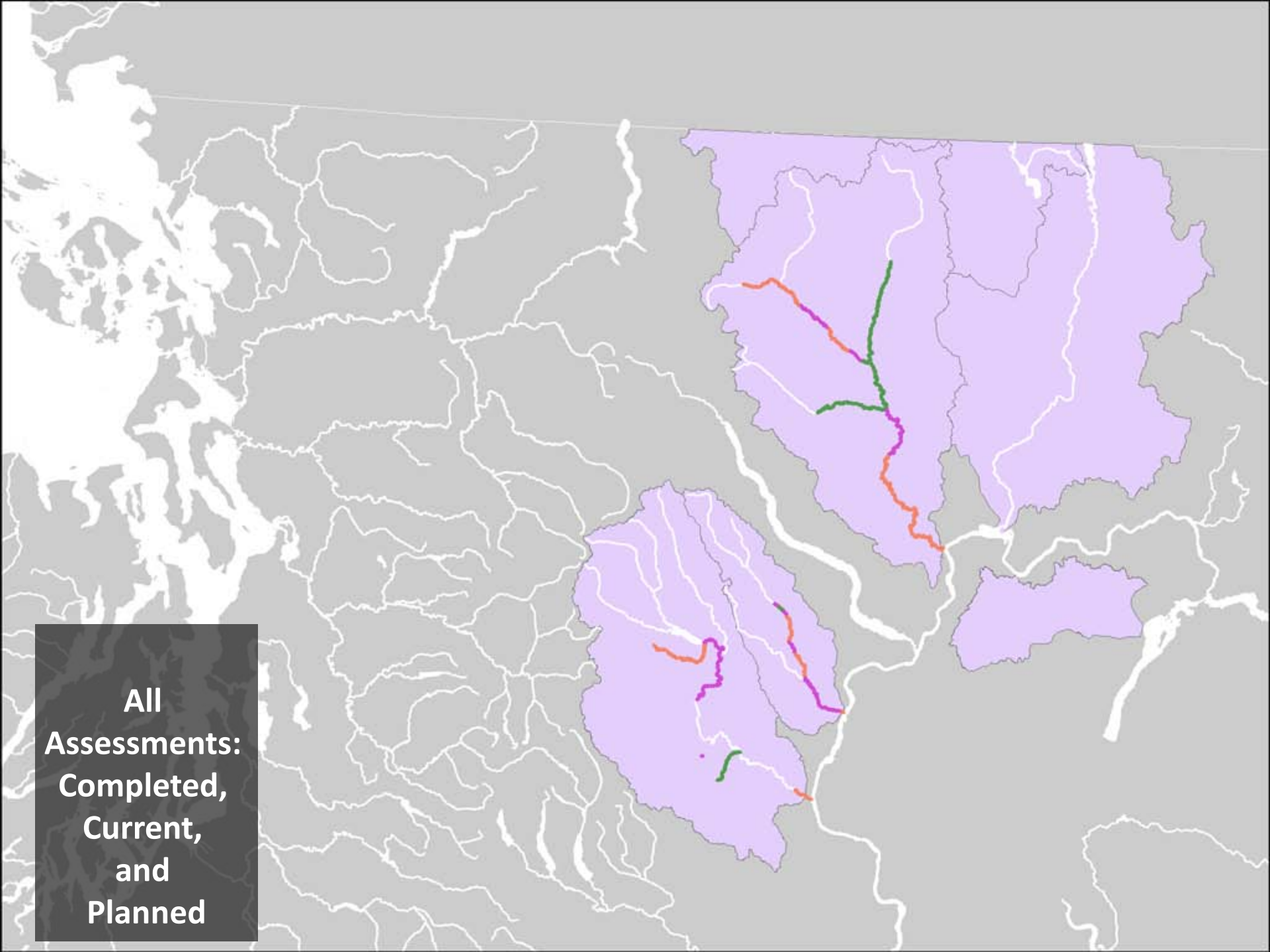


Project and Funding Coordination

# TARGETED AND OPEN PROJECT SOLICITATIONS

Upper Columbia Region Reach and Tributary Assessment Status & Schedule (September 2010)			
	LOCATION	ASSESSMENT TYPE	ENTITY
Wenatchee Subbasin			
Completed	Lower Wenatchee (RM 0-4)	Channel Migration Zone Study	Jones and Stokes
	Nason Creek (RM 0-4)	Channel Migration Zone Study	Jones and Stokes
	Nason Creek (RM 4-14)	Habitat Assessment	Reclamation
	Nason - Upper White Pine RM (12-14.5)	Tributary Assessment	Reclamation
	Nason - Lower White Pine RM (9.45-11.55)	Reach Assessment	Reclamation
	Nason - Kahler (RM 4.65-8.9)	Reach Assessment	Reclamation
In Progress	Peshastin RM (0-7)	Reach Assessment	Yakama Nation
Future Priorities	Upper Wenatchee (Lake Wenatchee-Tumwater Canyon)	Reach Assessment	Yakama Nation
	Icicle (boulder field- Upper Icicle)	Reach Assessment	Reclamation 2011/2012
Entiat Subbasin			
Completed	Entiat RM (0-26)	Tributary Assessment	Reclamation
	Preston RM (22.7-23.3)	Reach Assessment	Reclamation
	Stormy RM (17.9-18.1)	Reach Assessment	Reclamation
	Entiat 3D RM (24-25)	Reach Assessment	Yakama Nation
In Progress	Entiat 1B, 1C, 1E (RM 0.8-4.3, RM 6.3-6.9)	Reach Assessment	Reclamation (completed by 2014)
Future Priorities	Entiat 2A, 3C, 3F (RM 16.1-17.9, RM 23.3-24, RM 25.6-26)	Reach Assessment	Yakama Nation (completed by 2017)
	Entiat 1D, 1F (RM 4.3-6.3, RM 6.9-10.6)	Reach Assessment	TBD (completed by 2020)
Methow Subbasin			
Completed	Methow Subbasin (RM 0-80)	Tributary Assessment	Reclamation
	Big Valley (RM 54.2-60)	Reach Assessment	Reclamation
	Methow mainstem to Winthrop (RM 40-51.5)	Reach Assessment	Reclamation
	Chewuch (RM 0-20)	Reach Assessment	Yakama Nation
	Lower Twisp (RM 0-15)	Reach Assessment	Yakama Nation
Future Priorities	Methow mainstem, Winthrop to Wolf Creek (51.5-54.2)	Reach Assessment	Reclamation
	Methow mainstem, Weaman Bridge to Mazama (RM 61-67)	Reach Assessment	TBD
	Methow Silver (RM 29-40, RM 52-55)	Reach Assessment	Reclamation

**All  
Assessments:  
Completed,  
Current,  
and  
Planned**



# UC Project and Funding Coordination

## Habitat Project Implementation Funds

Enabling Action	Main Funding Sources	Annual \$
State Salmon Recovery Act	SRFB (PCSRF and Washington State)	\$2 M
Mid-Columbia PUDs FERC	HCPs Tributary Fund Committee (Chelan and Douglas County PUDs)	\$2 M
Mid-Columbia PUDs FERC	Priest Rapids Coordinating Committee (Grant County PUD)	\$1 M
NW Power Act (NPCC) FCRPS BiOp	Yakama Nation Fish Accords (BPA) Colville Tribes Fish Accords (BPA)	\$6 M \$3 M
<i>NW Power Act (NPCC) FCRPS BiOp</i>	<i>UCSRB Non-Accord Funds (BPA)</i>	<i>\$3.5 M</i>
FCRPS BiOp	USBR (Non-construction funds)	\$4 M
Others	Community Salmon Fund, USFS, USFWS, WDOE, NOAA, RFEG	\$1 M
	<b>TOTAL</b>	<b>\$22.5 M</b>



# Targeted Project Solicitation Timeline

Federal Fiscal Year	FY 10 10/1/09 to 9/30/10	FY 11 10/1/10 to 9/30/11	FY 12 10/1/11 to 9/30/12	FY 13	FY 14	FY 15
BPA Amount Other Funds?	~\$1 Million Left	~\$3.5 Million	~\$3.5 Million	~\$3.5 Million	~\$3.5 Million	~\$3.5 Million
Targeted Projects	None	- Middle Entiat IMW - Nason Railroad Project	- Upper White Pine? -N-1? - Methow M-2?	- Methow M-2?	- Entiat IMW?	
Targeted Solicitation and Selection Process Window	N/A	Compressed. Start February 2010	Will start October 2010. Wrap up May 2011	Will start October 2011. Wrap up May 2012	Will start October 2012. Wrap up May 2013	
Contract Negotiation			Can start in June 2011	Can start in June 2012	Can start in June 2013	
Contract Window		October 2010 to September 2011 (Can go up to September 2012)	October 2011 to September 2012 (Can go up to September 2013)	October 2012 to September 2013 (Can go up to September 2014)	October 2013 to September 2014 (Can go up to September 2015)	
Construction		Summer 2011	Summer 2012	Summer 2013	Summer 2014	



Project and Funding Coordination

# **ROUND 1 OF THE TARGETED SOLICITATION PROCESS 2011**



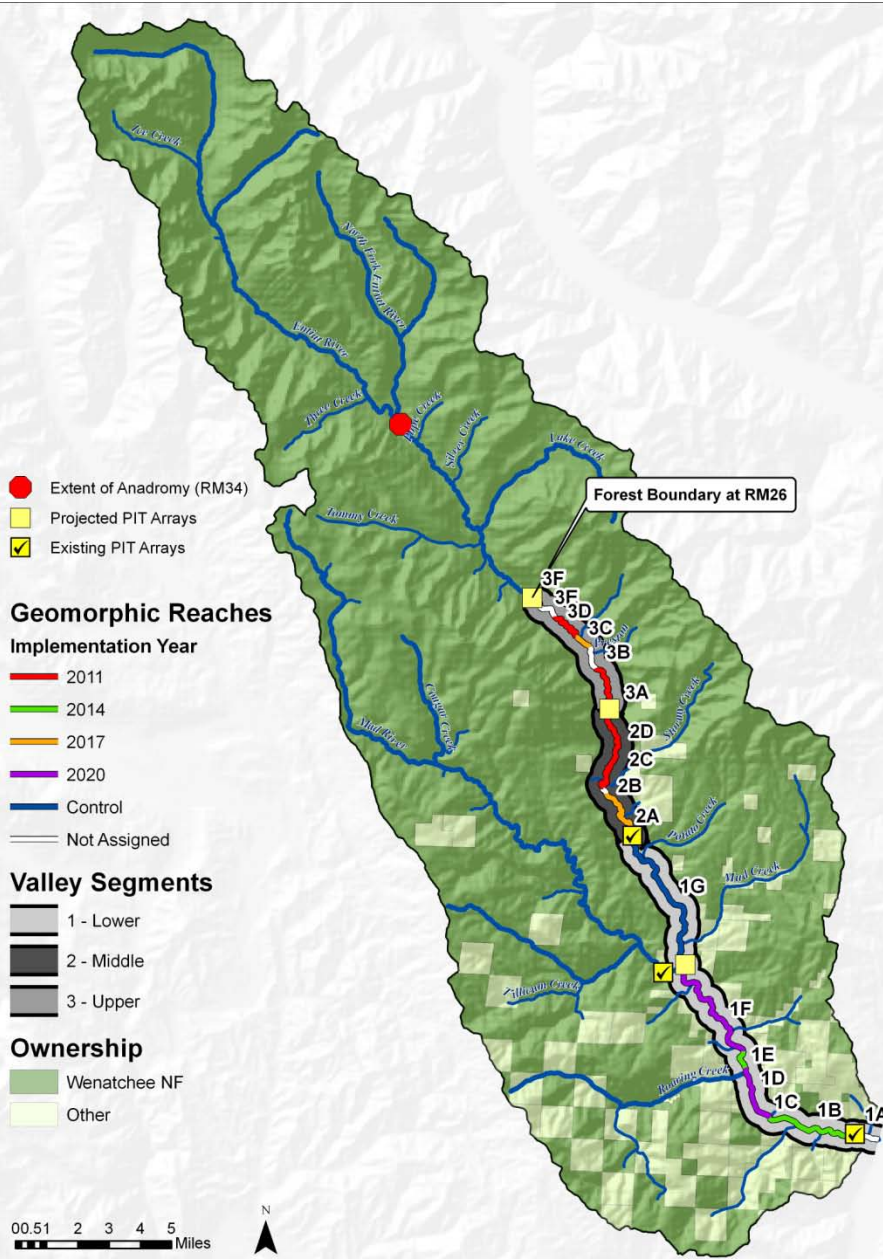
# Future of Entiat Restoration

## Restoration

- 2011
- 2014
- 2017
- 2020

Projects are consistent with:

- RTT Priorities
- UCSRB Implementation of Primary Limiting Factors

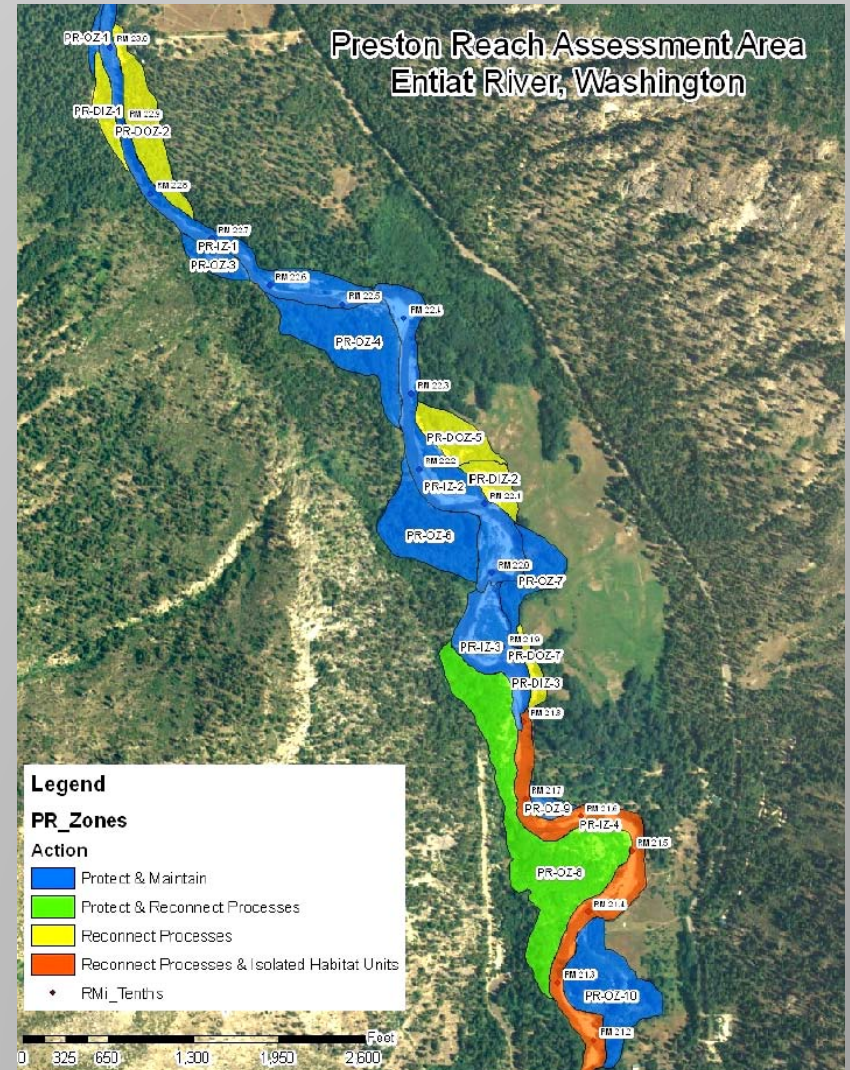


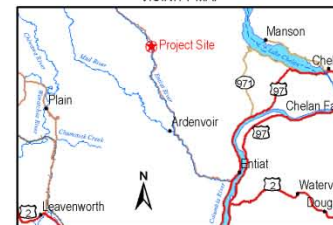
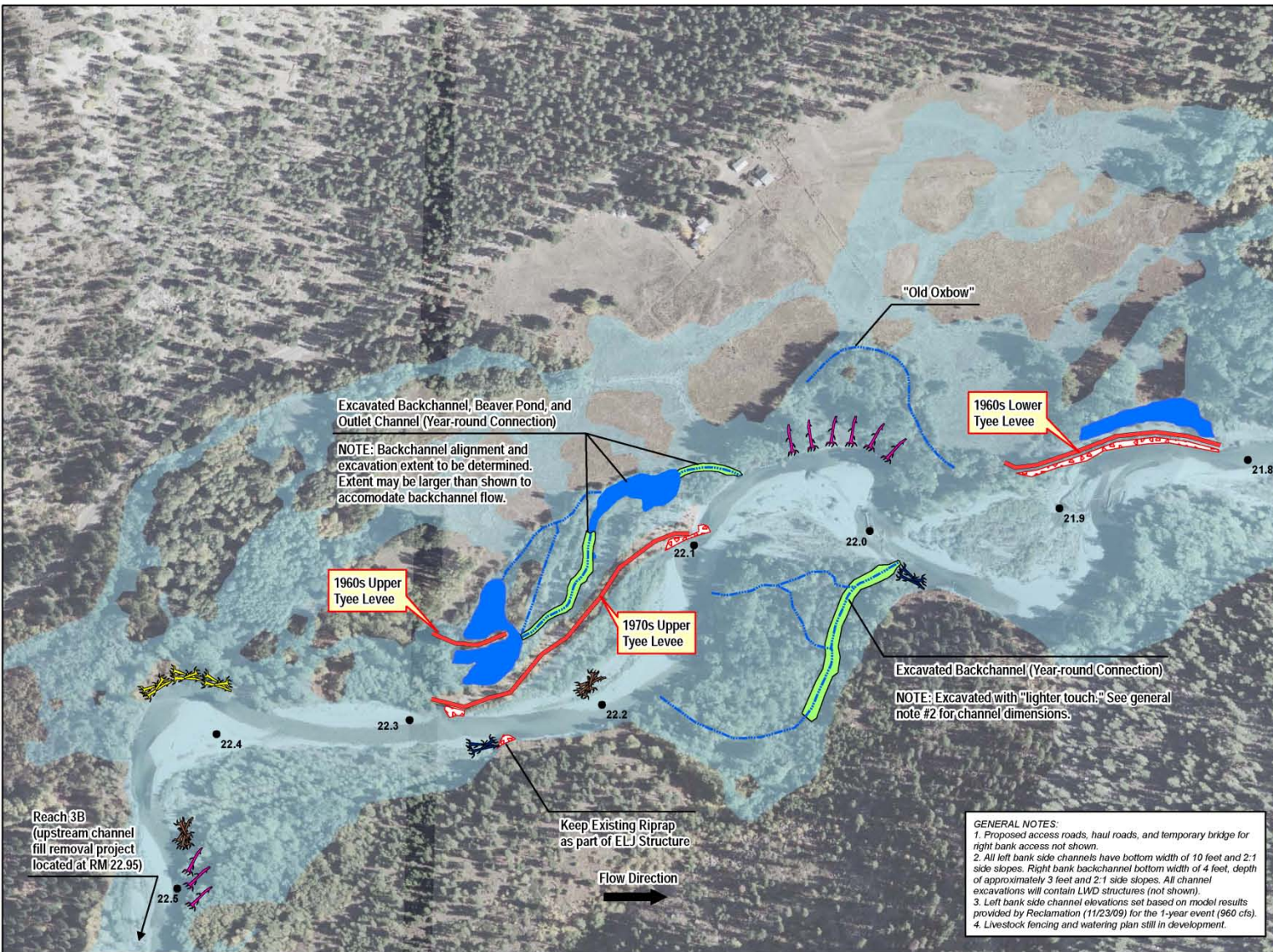
# IMW: Reach Scale Restoration

2011 Implementation

## Preston Reach

- 2010 3A Sub-Reach 4
  - Project in Permitting
    - “Yurt Site”
- 2011 3A Sub-Reach 2 & 3
  - Project in Design
    - Tye Ranch
- 2011 3A Sub-Reach 4
  - Projects in Design
    - LWD placement
- 2011 3D Yakama Nation
  - Project in Design/Permitting
    - Side/backwater Channel reconnections
    - Decommissioning borrow pit
    - LWD placement

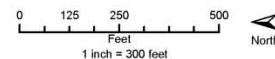




**PROPOSED ELEMENTS (LOCATIONS APPROXIMATE)**

- Side Channel Excavation Extent
  - NOTE: Livestock fencing and watering plan still in development.
  - Wood Enhancement LWD
  - Mid-channel ELJ
  - Bank ELJ
  - Floodplain Connection Channel ELJ
- EXISTING ELEMENTS**
- Levee
  - Flow Path
  - Riprap
  - Pond
  - 100-Year Inundation Extent
  - River Miles (tenth-mile intervals)

SOURCE: 2006 Orthophoto (Watershed Sciences 2007); Side Channels Extent, Riprap, Flow Path (CH2M HILL); Pond (CCD, obtained 2/01/10 from ICF International); LWD and ELJ (ICF International 2010); Inundation Extent, Levee, River Miles (Reclamation 2009a).



**EXHIBIT 1 - Option C Entiat River (Reach 3A) Restoration Alternatives on the Tye Property**

Revised November 30, 2010  
Beaver Pond Backchannel, Instream Improvements, and Reach 3B



Project and Funding Coordination

# **ROUND 2 OF THE TARGETED SOLICITATION PROCESS 2012**



# Middle Methow (aka M2)

**RECLAMATION**  
*Managing Water in the West*

Middle Methow  
 Reach Assessment  
 Methow River

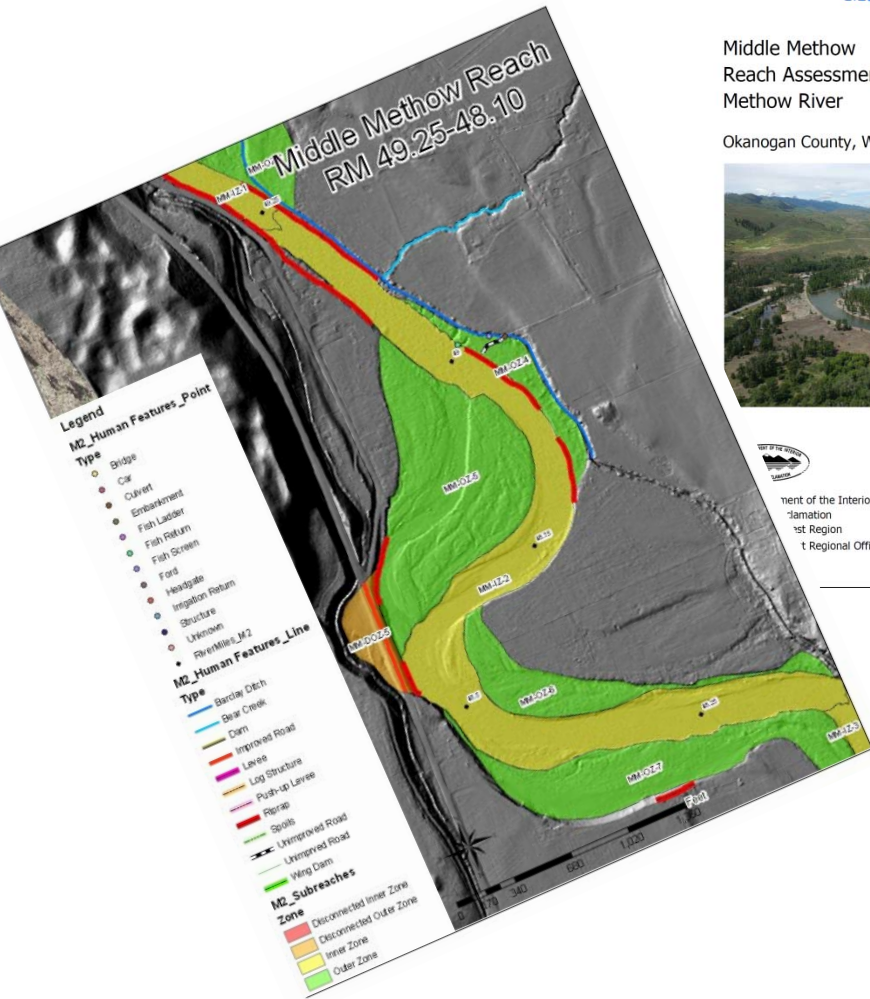
Okanogan County, Washington



Department of the Interior  
 Bureau of Reclamation  
 Northwest Region  
 Northwest Regional Office, Boise, Idaho



August 20...

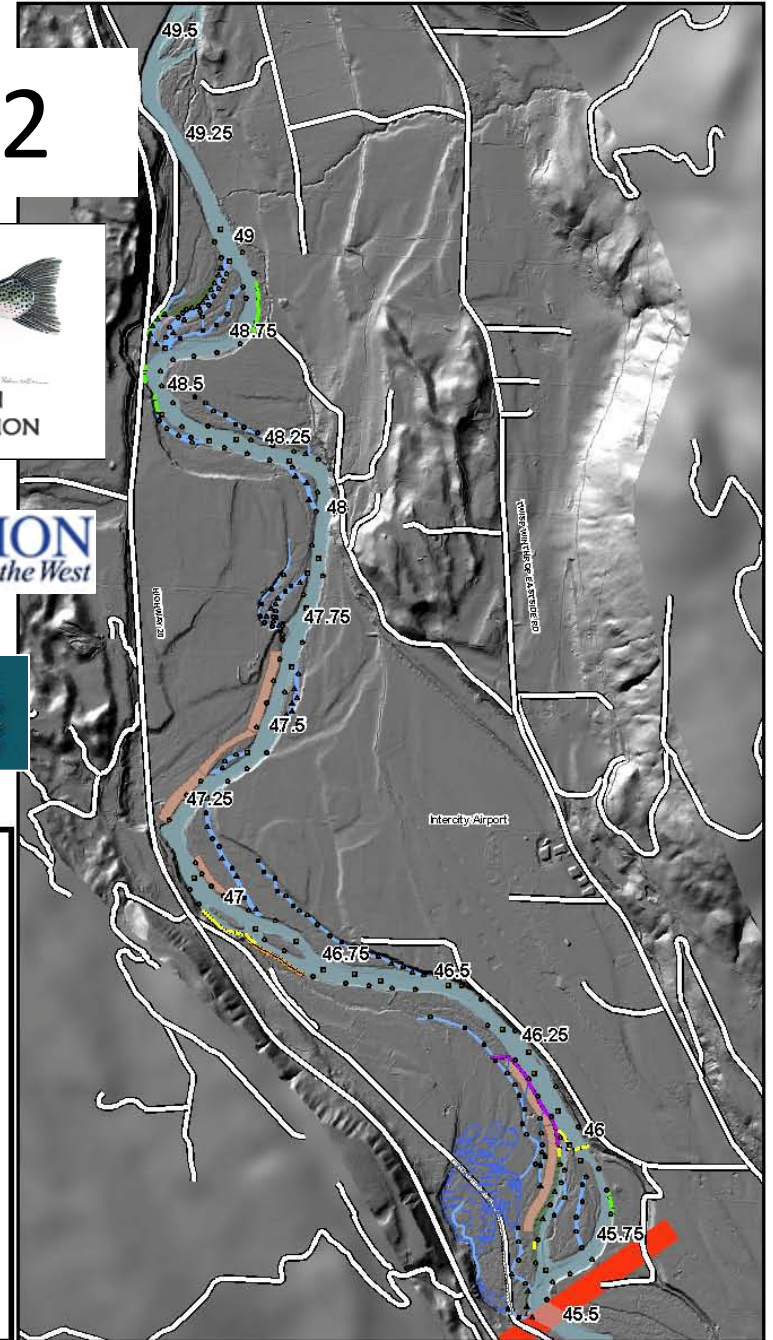
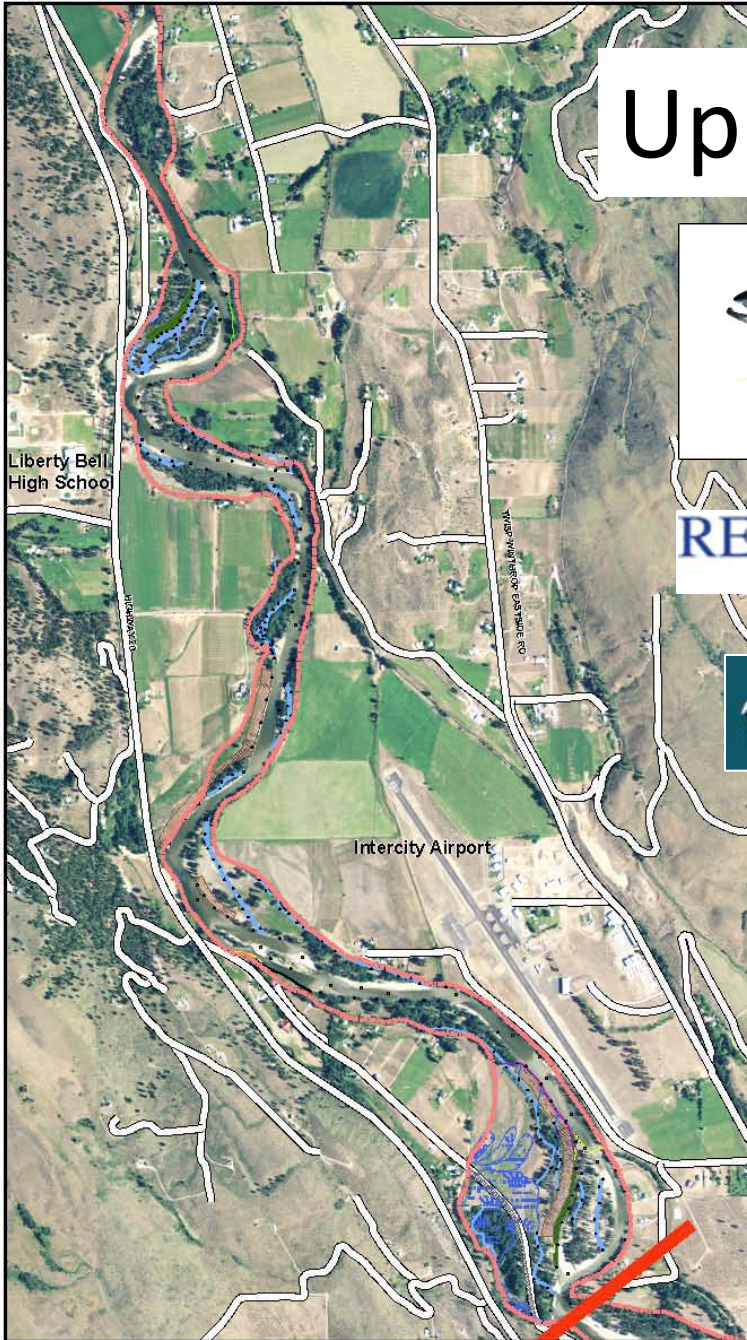


# Upper M2



METHOW SALMON  
RECOVERY FOUNDATION

RECLAMATION  
*Managing Water in the West*



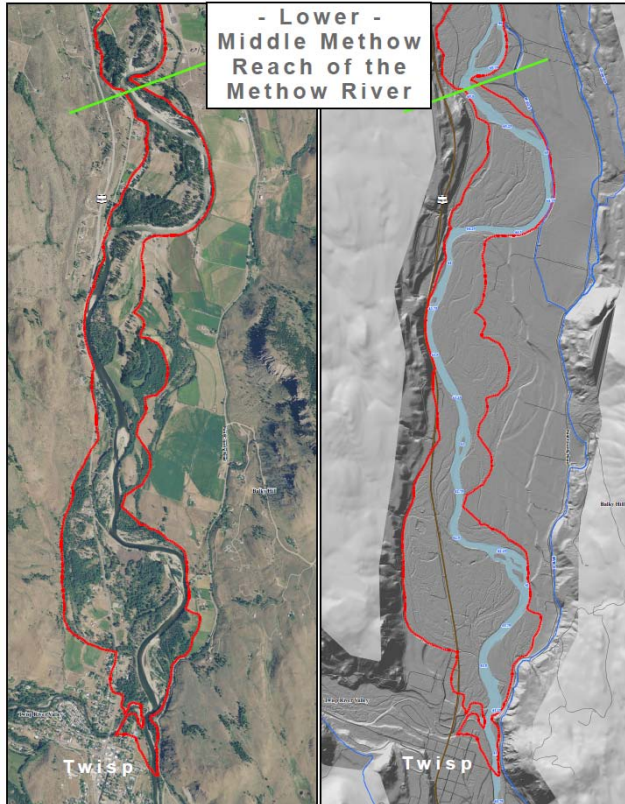
### Legend

- Conceptual Project Actions - LWD
  - Bar Apex ELU
  - Channel Grade ELU
  - Single UMD
  - Barb Jam ELU
  - Triangular Assembly UMD
- Conceptual Project Actions
  - Flow Source or Flow Path (No Excavation)
  - Infrastructure Removal
  - Levee Removal
  - Joint Planting
  - Log Oriswall
- Conceptual Project Actions
  - Gravel Bar Riparian Development
  - Curvrt Replacement
  - Pool Enhancement
  - Bank Treatment
  - Floodplain Connectivity
  - Infrastructure Removal
  - Floodplain and Side Channel Development
  - Groundwater Source Pool
  - Wetland Development
  - Wetland Development - Upland





# Upper Columbia Habitat Restoration Project LRT Restoration Project



- Working with Inter-Fluve, Inc. for restoration design
- Currently conducting Landowner Outreach to gain permissions for survey and implementation
- Includes protection effort
- Modeling and permitting coordination is on-going with other Methow River Habitat Project participants
- Accords funded implementation planned for 2012 - 2014



**Methow River**  
Habitat Project

U.S. DEPARTMENT OF THE INTERIOR  
**PARTNERS IN CONSERVATION**  
AWARD

*In recognition of outstanding conservation achievements  
attained through collaboration and partnership with others*

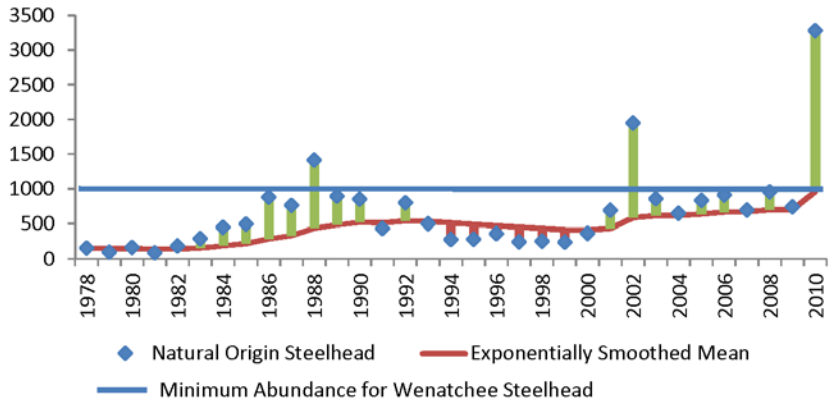
*Upper Columbia Salmon Recovery Board  
Upper Columbia Salmon Recovery Board  
Implementation Team*

*is hereby awarded this certificate in the year 2010*

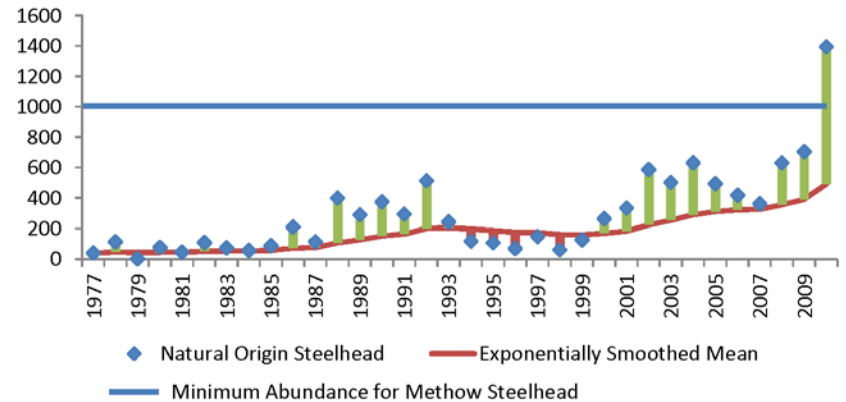


*Ken Salazar*  
Secretary of the Interior

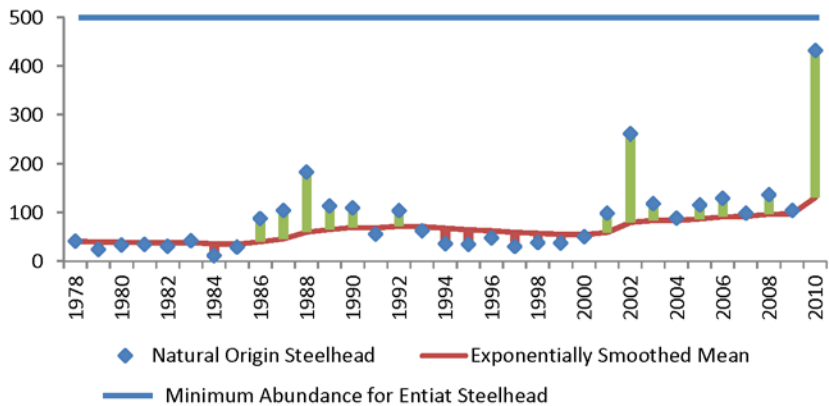
### Wenatchee Steelhead



### Methow Steelhead



### Entiat Steelhead



### Okanogan Steelhead

