Yakima River Steelhead Status and Trends RM&E Project Overview:

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Basis of Project Development

- Expand RM&E activities to fill critical monitoring gaps for Yakima MPG identified in:

1. 2009 Columbia Basin monitoring strategy Review
2. FCRPS Biological Opinion RPA review
3. Yakima River Steelhead Recovery Plan

* Critical gaps identified for estimating abundance, productivity, spatial structure, and diversity (VSP parameters) for individual populations

Overarching Project Goals

- Collect biological data specific to each of the Yakima steelhead populations for status and trends monitoring

1. Inform local adaptive management actions and guide recovery efforts based on population performance
   - Habitat restoration/protection
   - Artificial propagation

2. FCRPS Adaptive Management Implementation Plan(AMIP)
   - Provide abundance triggers for evaluating need for rapid response actions for MID-C DPS

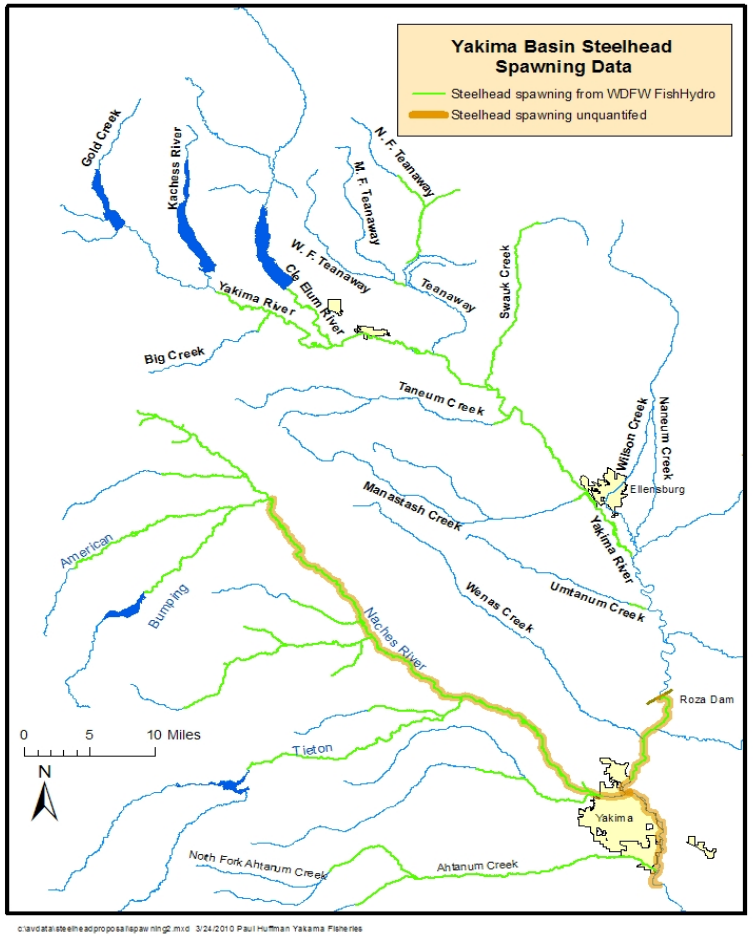
3. Population viability analysis (PVA's)
   - NOAA five year review process of ESA listed stocks

Why the additional monitoring?

- Current estimates of steelhead VSP parameters for the Yakima MPG are limited for the following reasons:

1. Steelhead abundance (i.e., run size) is determined at Prosser Dam, but only at the MPG level (aggregate of all four populatons)
2. No reliable spawner abundance estimates for several populations exist.
3. Spatial structures of Naches and Upper Yakima populations are unknown
4. Influence of resident *O. mykiss* in upper Yakima and Naches is unknown
5. No estimates of juvenile productivity exist for any population
6. Limited understanding of the relationship between life stage survival rates and habitat limiting factors

Biological Objectives



1. Determine spatial distribution for Yakima steelhead populations

- Three year radio telemetry study
  - Better define Upper Yakima & Naches spawning distributions
  - Clarify extent, distribution, and contribution of mainstem spawners
- Supplemental spawner surveys in out years

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Biological Objectives

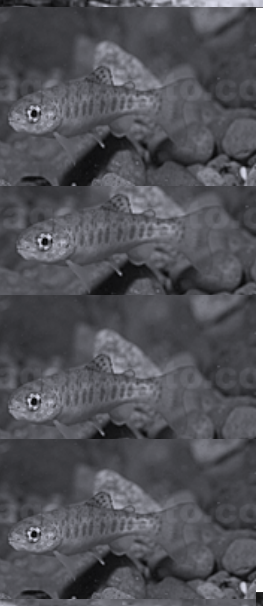
2. Generate adult abundance estimates

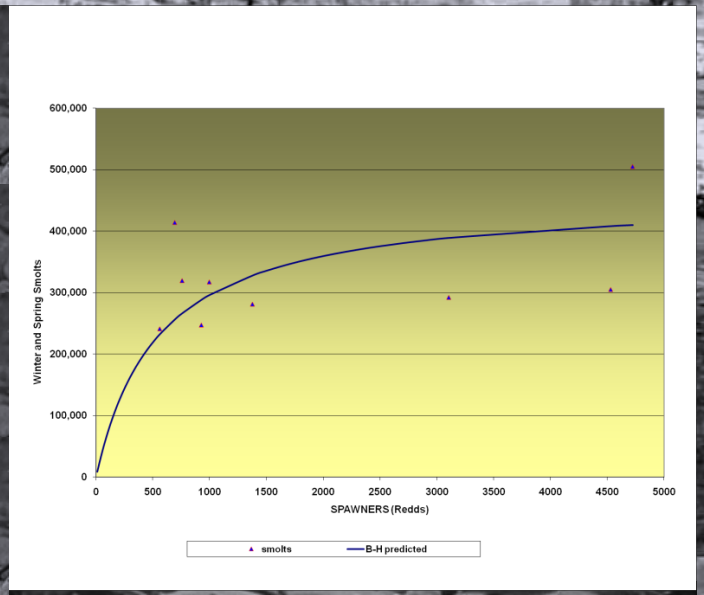
- Three year radio telemetry study
  - Estimate population specific adult abundance
  - Assess, ground truth GSI techniques for long-term implementation
    - Run at large dissagregation

3. Generate juvenile abundance estimates
   - Estimate population specific juvenile abundance
     - GSI techniques

Biological Objectives

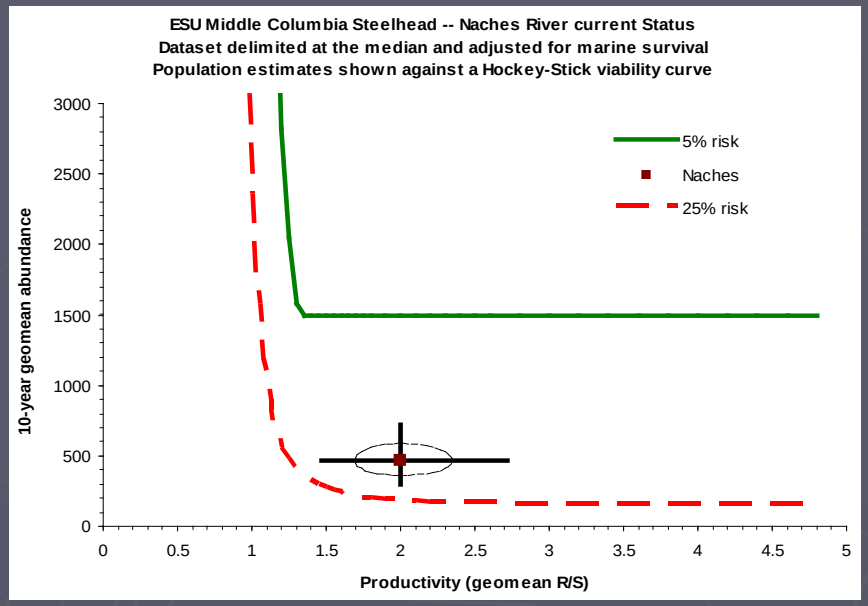
4. Generate productivity estimates





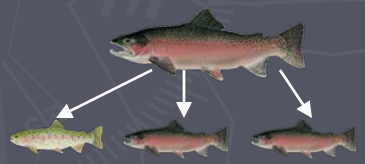
- Estimate population specific productivity
  - Adult-to-adult ratios
  - Intrinsic productivity
    - Stock recuitment functions
- Freshwater productivity
  - Smolt production
  - Juvenile apportioning
    - GSI

Biological Objectives

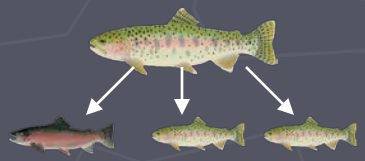


4. Characterize phenotypic & genotypic life-history traits
   - ➢ Population specific demographics
     - Cohort analysis
   - * Population Viability Analysis (PVA)
   - ✓ Status & Trends monitoring
5. Evaluate sympatric population dynamics between anadromous and resident forms of O.*mykiss*
   - ➢ Degree of sympatry & interbreeding
   - ➢ Cross ecotype production

Anadromous female



Resident female



Questions?

Why Didn’t you Reproduce First?

Project 2010/11

- **Data Collection – William Meyer**