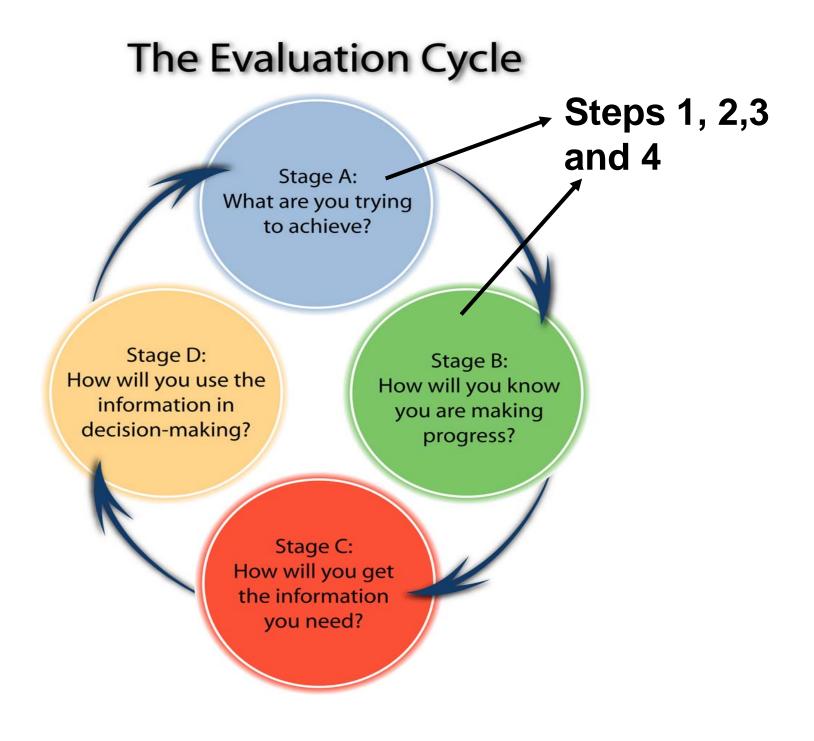
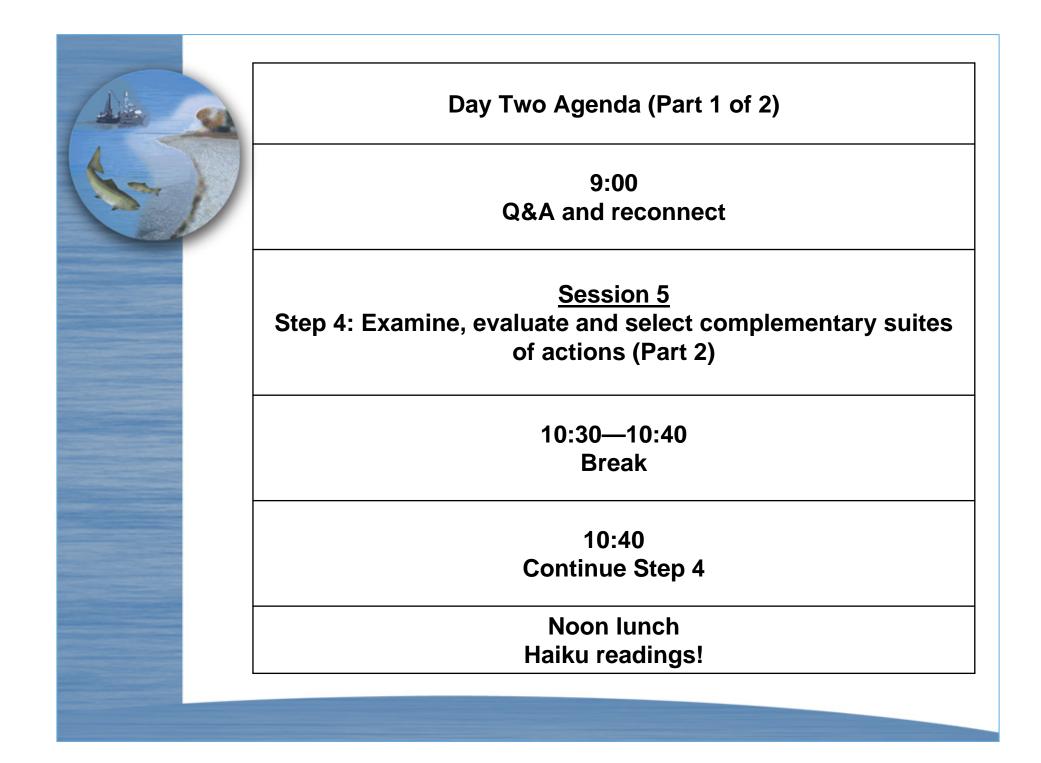
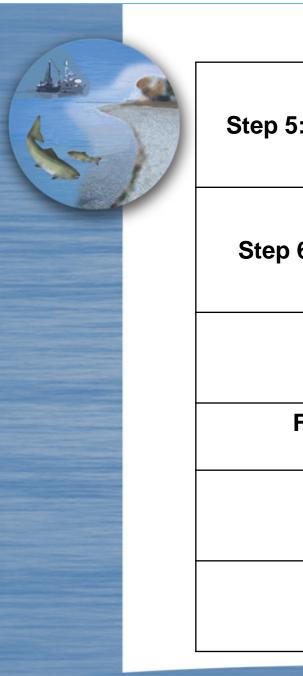
## Hatchery, Harvest, Habitat Integration & Adaptive Management



### **6 Steps to Integration**

- 1. Identify and involve needed participants
- 2. Gain a common understanding of the system
- 3. Agree upon common goals and outcomes across H-sectors
- 4. Examine, evaluate, and select a suite of complementary actions
- 5. Document rationale, implementation steps, expected outcomes and benchmarks
- 6. Build and implement a Verification, Effectiveness and Accountability System





Day Two Agenda (Part 2 of 2)

Session 6 Step 5: document rationale and hypotheses, and describe implementation steps

Session 7 Step 6: Build & implement a verification, effectiveness & accountability system

> Session 8 Next steps '06 to '07 & resources available

Feedback on overall H-I approach and process Haiku contest winner announced!

> 3:30 Closing Speaker

> > 4:00 Close

### Where are we in all this? In your table groups, tell each other how you answered the questions on the worksheet from yesterday's sessions. The purpose is let each other know how you see things, not to gain agreement (yet). Then, Step 4 questions.

## Hatchery, Harvest, Habitat Integration & Adaptive Management

### **Step Four**

Examine, evaluate and select a suite of complementary actions across the H-s to achieve the outcomes.



### Step Four

Now that we have:

The key decision makers involved. A good baseline understanding of our system.

A specific idea of what we want to achieve....



### Step Four

We are ready to look at some potential scenarios to see if a certain combined set of actions in habitat, hatchery, and harvest can get us there.

- 1. Choose a few different combinations of actions that you think might help you achieve your goals.
- 2. Use the tools available to you to analyze the potential outcomes of those suites of actions and test if they are likely to achieve your specific goals and outcomes.
- 3. Come up with new actions if the first ones you choose don't get you there.
- 4. Choose the set of actions that seem to have the greatest likelihood of achieving your goals.

Jeanette's Nisqually AHA case study



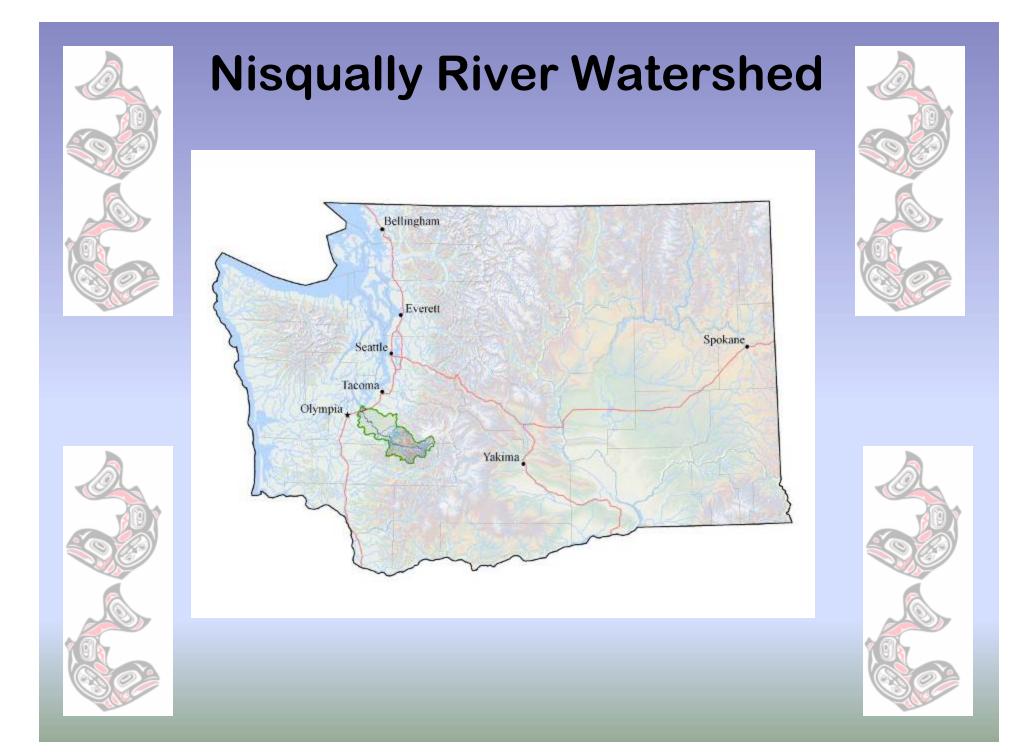




#### Integrating Harvest, Hatcheries, and Habitat









#### Nisqually River Management Program

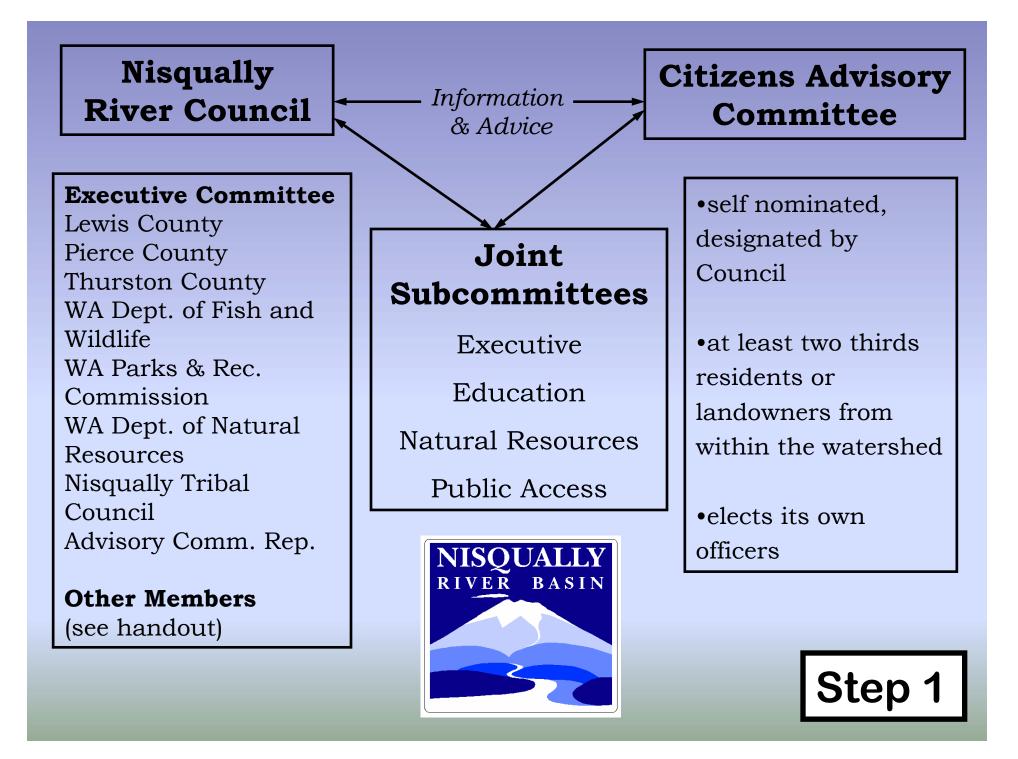
#### 1987

Nisqually River Management Plan approved by State Legislature

Nisqually River Council formed to oversee implementation of the plan

Key principle of the plan:

Healthy watershed - Healthy economy



#### Nisqually River Management Program

Greatest success over the last 14 years:

Creating good working relationships with all the members of the watershed community in an atmosphere of respect and trust.



# Factors affecting the biological status of Nisqually Chinook

• Loss of critical habitat features.



## Factors affecting the biological status of Nisqually Chinook

- Loss of critical habitat features.
- Hydroelectric facilities historically caused dramatic changes in streamflow patterns.



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- Introduction of outside genetics from hatcheries, outplanting.



# Factors affecting the biological status of Nisqually Chinook

- Loss of critical habitat features.
- Hydroelectric facilities historically caused dramatic changes in streamflow patterns.
- Introduction of outside genetics from hatcheries, outplanting.
- Decades of overfishing fisheries on stocks destined for the South Sound not managed to ensure natural production escapement until 2000.



# Nisqually – resulting impacts on biological status of the stock

- Probable extinction of wild native Nisqually Chinook genetics.
- Current stock is not locally adapted, same genetics as hatchery stock.
- Current habitat supports reduced productivity, capacity, and life history diversity.







#### Nisqually Chinook Recovery Plan



August 2001

Prepared by the

Nisqually Chinook Recovery Team





#### Nisqually River Salmon Recovery

Adaptive Management review led to:

- 1. Recognition that the goals were too vague.
- 2. Realization that some goals were in conflict and required attention.









#### Nisqually River Salmon Recovery

Began an iterative process to define measurable goals, outcomes and prioritize goals when they might be in conflict.

- Started with long-term goals defined by policy folks (co-managers and Nisqually River Council).
- Technical workgroup used status evaluation to evaluate long-term goals, suggest potential measurable outcomes.
- Co-managers review and revise goals and outcomes after considering technical analysis.
- 4. Nisqually River Council reviewed and finalized goals and outcomes



#### Nisqually Goals – long term (next 100 years)

- Assure natural production of fall Chinook in perpetuity by providing high quality functioning habitat and by promoting the development of locally adapted, functioning populations.
- Assure sustainable harvest opportunities.

#### Nisqually Goal – short term (next 15 years)

#### Clear, specific stock goals

- Based on biological status of the stock.
- Based on specific community goals.
- Make a significant contribution to recovery of stock.
- Clear prioritization of goals when they might be in conflict.

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### **Step 4** Evaluation of suites of actions

Use the All H Analyzer (AHA) model to look at integrated suites of actions and their potential effect on the stock

Subbasin	Species Stock Name											
	Current		nt	10-12 year Habitat Plan Improvement, MSY Harvest Rate		10-12 year Habitat Plan,MSY & Reduce Hatchery Program for 30% pHos Goal		10-12 year Habitat Plan, MSY+ Weir to Control Strays		PFC, MSY for PFC, Weir to Control Strays		
	Productivity   Capacity	3.60	4,803	4,40	6,271	4.40	6.271	4,40	6.271	8,40	11,400	
Habitat:	Min NOR Escapement   %Kelt	1		1		1		1		1		
San and and the	Variable SAR? (Y/N)	У		Y	· · · · · ·	У		У		У		
Harvest:	Harv.Rate -Marine (NORs(HORs)	0.15	0.15	0.10	0.10	0.10	0.10	0.10	0.10	0.12	0.12	
	Puget Sound [NORs[HORs]	0.27	0.27	0.17	0.17	0.17	0.17	0.17	0.17	0.22	0.22	
	-Terminal (NORs HORs)	0.61	0.61	0.36	0.36	0.36	0.36	0.36	0.36	0.48	0.48	
	Total Expl. Rate [NORs[HORs]	0.76	0.76	0.52	0.52	0.52	0.52	0.52	0.52	0.64	0.64	
Other	Program Name Runsize Div Contri		Runsize Div Contril Runsize		Div. Contril	2 Runsize	Div Contrib Runsize Div		Div Cont			
Hatchery Program(s)												
Primary Hatchery	Broodstock Composition: Goal Realized	pNOB	pHOS 30% 68%	900g	pHOS 30% 50%	PN0E O	pHOS 30% 31%	pNOB	pHOS 30% 20%	pNOB	pHOS 20% 9%	
	Realized	Local Import	00 1	Local Import	30 11	Local Import	and the second se	Local Import	La Carlo Car	Local Import	311	
Program	Broodstock   Smolt Release]	2700	4,039,875	2700	4,039,875	1000	1.496.250	2700	4,039,875	2700	4,039,875	
riogram	HOR Destination [Hat   River]	90%	10%	90%	10%	90%	10%	98%	2%	98%	2%	
	[Recruits/Spawner   Fitness?]	11.0	V	11.0	v	11.0	v	11.0	V	11.0	v	
Dealland Car												
100 -1 0.80 - 4 0.60 -	awning Composition 2 3 4 5 PNI 5 7	14,000 12,000 10,000 6,000 4,000 2,000 0		16,000 14,000 12,000 0,000 6,000 4,000 2,000 0		6,000 5,000 4,000 2,000 1,000 0		16,000 14,000 12,000 0,000 6,000 2,000 0				
0.20	e. 01 080 080 080 090	AND AND	11/1		11/13		11/1/		11111		11/1/	

#### Nisqually AHA Current Conditions Input Source Data

Habitat: productivity and capacity - from EDT model

Harvest rates: current pre-terminal rates from CWT and FRAM model data, terminal rates from harvest management data

Weir to

11,400

0.12

0.48

pHOS 20%

4.039.875

2%

ays

Other Hatchery Program(s

> Primary Hatchery

Program

Realized 5

0.80

0.40

0.40 0.60

0.80

PHOS

Subbasin

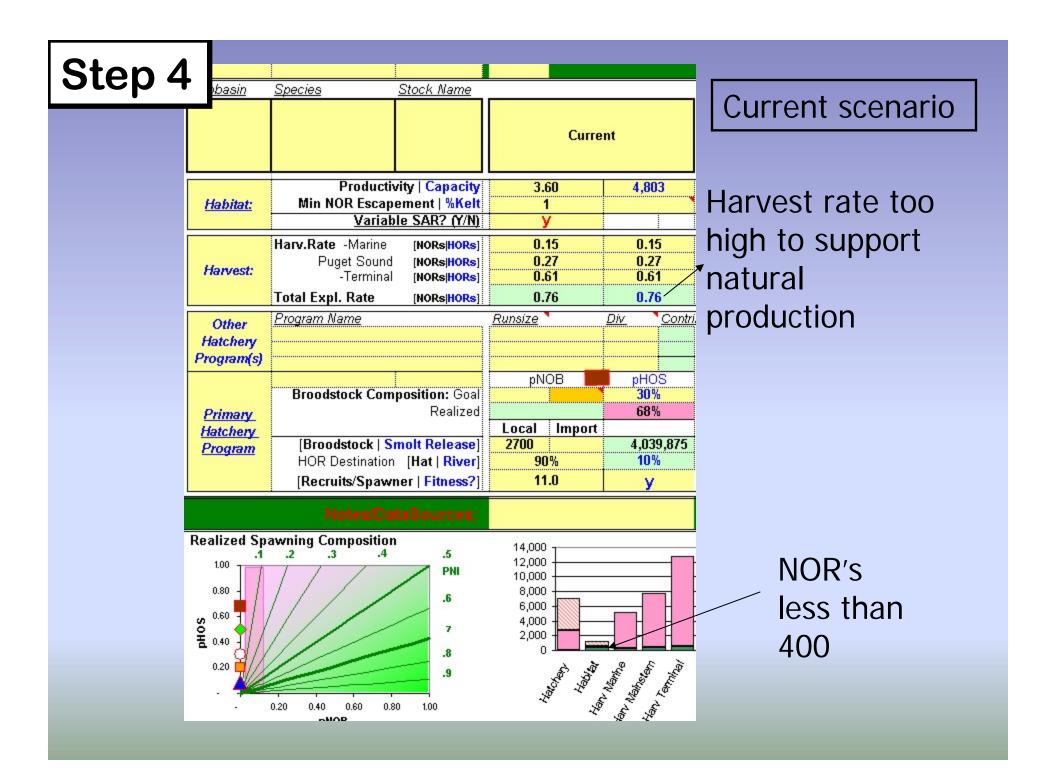
Habitat:

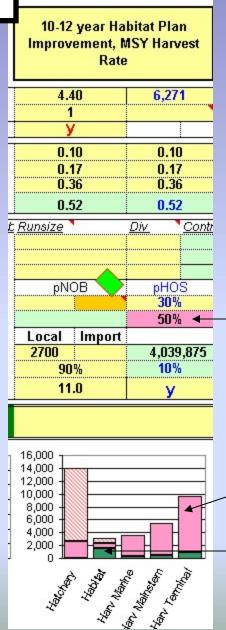
Harvest

Spawning grounds broodstock composition data: from spawning ground surveys and in-river test fishery

Hatchery broodstock, smolt release numbers: from Nisqually hatchery data

4,000





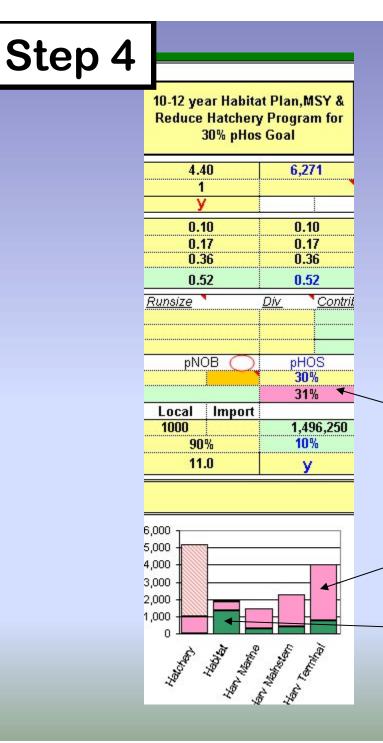
#### Scenario 1

- proportional harvest reductions
- implement habitat action plan

Proportion of hatchery fish on spawning grounds too high.

- Harvest goal nearly met.

- Natural origin goal met.



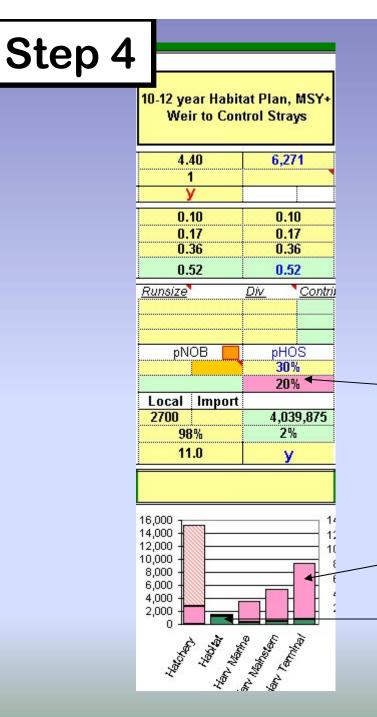
#### Scenario 2

- proportional harvest reductions
- implement habitat action plan AND...
- reduction in hatchery program to reduce hatchery strays on spawning ground

Proportional goal met

Harvest goal not met!

Natural origin goal met



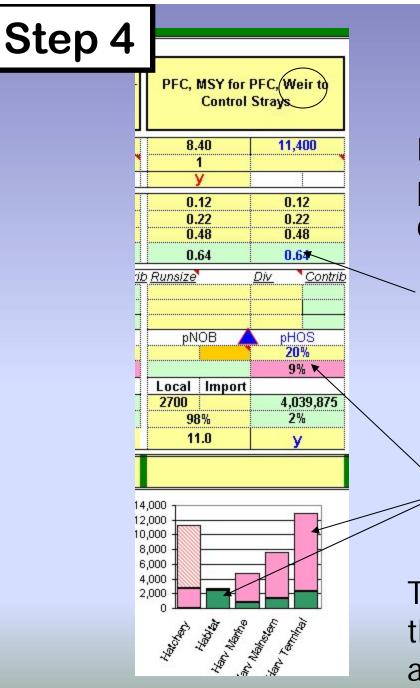
#### Scenario 3

- proportional harvest reductions
- implement habitat action plan AND...
- installs seasonal weir in the river to reduce hatchery strays on spawning ground

Proportional goal met

-Harvest goal nearly met

Natural origin goal met



#### Long Range Scenario

Long range scenario looks promising and opens up opportunities.

Sustainable harvest rate increases with increased habitat productivity.

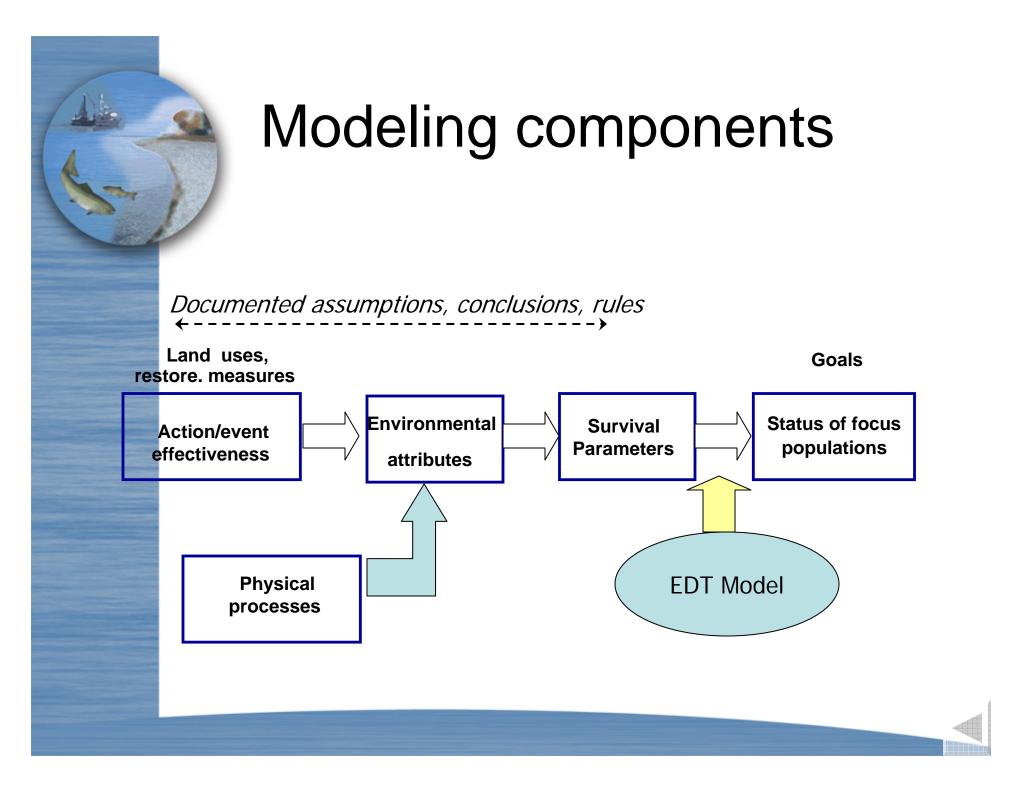
All goals met, but...

This balancing act requires the permanent operation of a seasonal weir. Now we are ready for Steps 5 and 6...

# Hatchery, Harvest, Habitat Integration & Adaptive Management

### Snohomish Basin Chinook Evaluating Suites of Actions

- Recovery Goals (EDT) -
- Habitat Protection/Restoration (Shiraz)
- Harvest Management (VRAP)
- Hatchery Management (AHA)



## Environmental Attributes

#### **CHANNEL LENGTH AND WIDTH**

Channel length Channel month Maximum width (ft) Channel month Minimum width (ft)

#### **FLOW RELATED**

Flow - change in interannual variability in high flows Flow - changes in interannual variability in low flows Flow - Intra daily (diel) variation Flow - intra-annual flow pattern Hydrologic regime - natural Hydrologic regime - regulated Water withdrawals TEMPERATURE

Temperature - daily maximum (by month) Temperature - daily minimum (by month)

Temperature - spatial variation

#### CHANNEL/HABITAT CHARACTERISTICS

Bed scour Confinement - Hydromodifications Confinement - natural Embeddedness Fine sediment Gradient Hatchery fish outplants Icing Obstructions to fish migration Riparian function Turbidity Wood

#### **MISC. WATER QUALITY/BIOTIC QUALITIES**

Alkalinity Benthos diversity and production Dissolved oxygen Fish community richness Fish pathogens Fish species introductions Harassment Metals - in water column Metals/Pollutants - in sediments/soils Miscellaneous toxic pollutants - water column Nutrient enrichment Predation risk Salmon carcasses

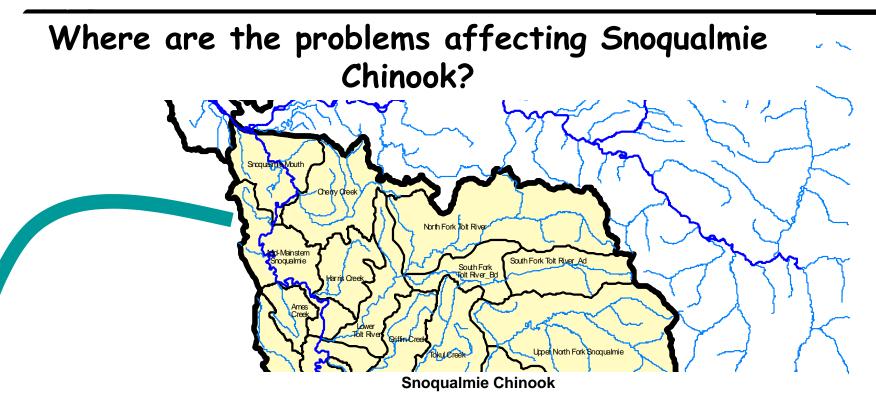
#### **CHANNEL/HABITAT CHARACTERISTICS**

Habitat type - backwater pools Habitat type - beaver ponds Habitat type - glides Habitat type - large cobble/boulder riffles Habitat type - off-channel habitat factor Habitat type - pool tailouts Habitat type - primary pools Habitat type - small cobble/gravel riffles



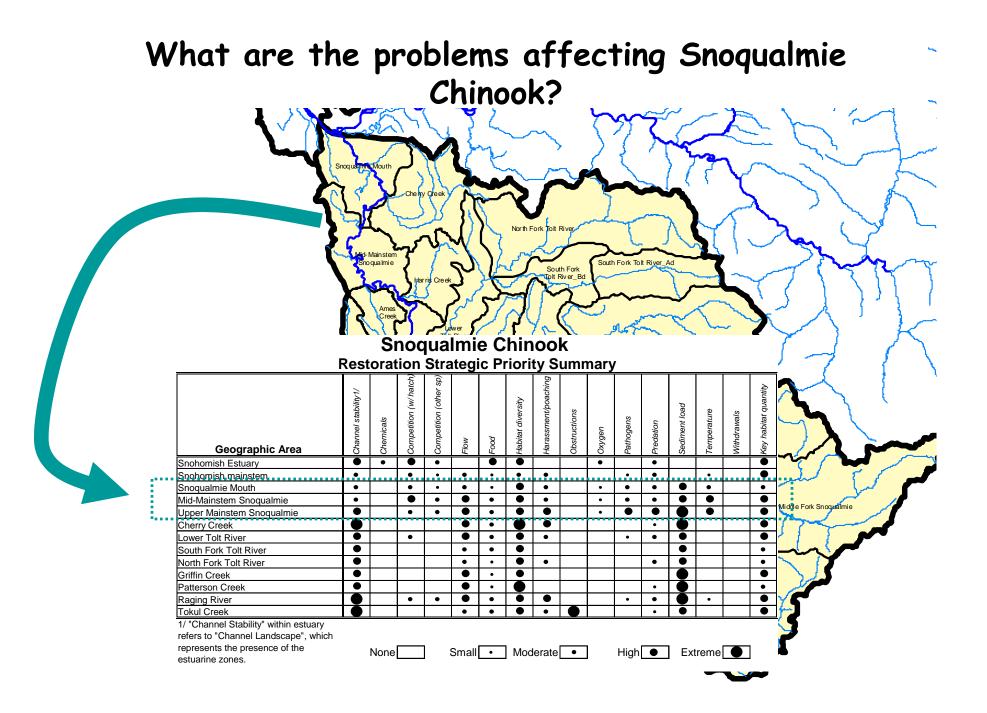
# **EDT Results**

Snoqualmie			
Scenario	Productivity	Capacity	Equilibrium
Historic potential	13.2	27,779	25,675
"80%"	10.6	22,223	20,124
"PFC"	9.8	20,877	18,747
Current	3.1	3,374	2,286
GOAL	10.0	21,500	19,300



#### **Relative Importance Of Geographic Areas For Preservation and Restoration Measures**

Geographic Area	Preserve Benefit category	Restore Benefit category	Abundance			Productivity			Diversity Index					
Marine Areas Outside Puget Sound NA D	D													
larine Areas Puget Sound	NA	С												
Snohomish Estuary	А	В												
Snohomish mainstem	В	D												
Snoqualmie Mouth	В	В												
Mid-Mainstem Snoqualmie	А	A												
Jpper Mainstem Snoqualmie	В	A												
Cherry Creek	С	С												
Lower Tolt River	В	С												
North Fork Tolt River	С	E												
South Fork Tolt River	В	D												
Griffin Creek	С	D												
Patterson Creek	D	D												
Raging River	В	В												
Tokul Creek	E	D												



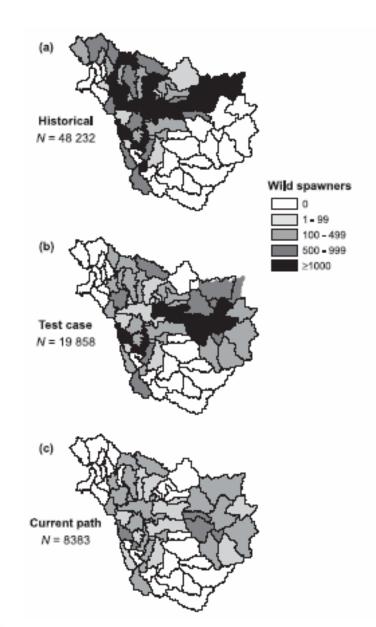
# Diagnosis conclusions: Snoqualmie

- Estuary
  - Loss of habitat quantity, quality, breadth
- Snoqualmie mainstem, Tolt, Raging
  - Sediment load, loss of quantity and quality
- Tributaries
  - Sediment load, loss of quantity

### Snohomish Basin Chinook Evaluating Suites of Actions

- Recovery Goals (EDT)
- Habitat Protection/Restoration (Shiraz)
- Harvest Management (VRAP)
- Hatchery Management (AHA)

- Shiraz model used to compare habitat action scenarios
- Addresses <u>habitat</u> conditions in subbasins
- Takes <u>harvest</u> and <u>hatchery</u> management into account.



## Snohomish Basin Chinook Evaluating Suites of Actions

- Recovery Goals (EDT)
- Habitat Protection/Restoration (Shiraz)
- Harvest Management (VRAP)
- Hatchery Management (AHA)

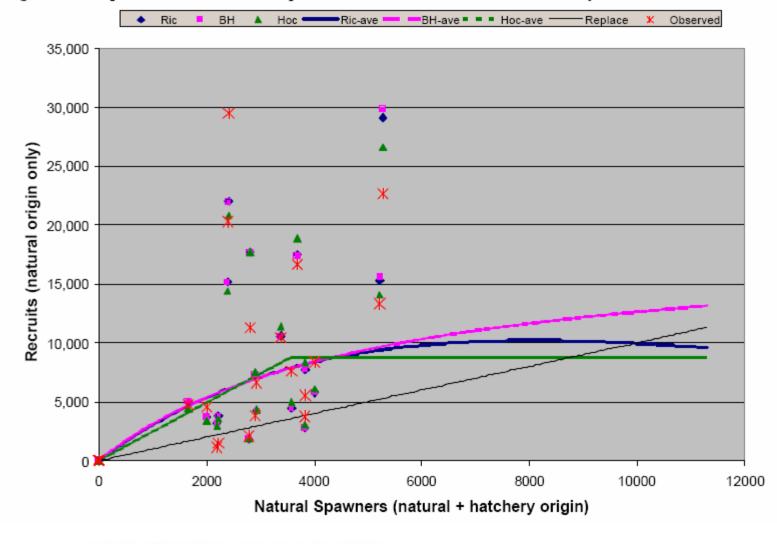
# VRAP: Spawner-Recruit Models

$$(\mathbf{R} = \mathbf{aSe}^{-\mathbf{bS}})(\mathbf{M}^{\mathbf{c}}\mathbf{e}^{\mathbf{dF}})$$
 [Ricker]

 $(\mathbf{R} = \mathbf{S} / [\mathbf{b}\mathbf{S} + \mathbf{a}]) (\mathbf{M}^{c} e^{d\mathbf{F}})$  [Beverton-Holt]

 $(\mathbf{R} = min[\mathbf{aS}, \mathbf{b}])(\mathbf{M}^{c} \mathbf{e}^{d\mathbf{F}})$  [hockey stick]

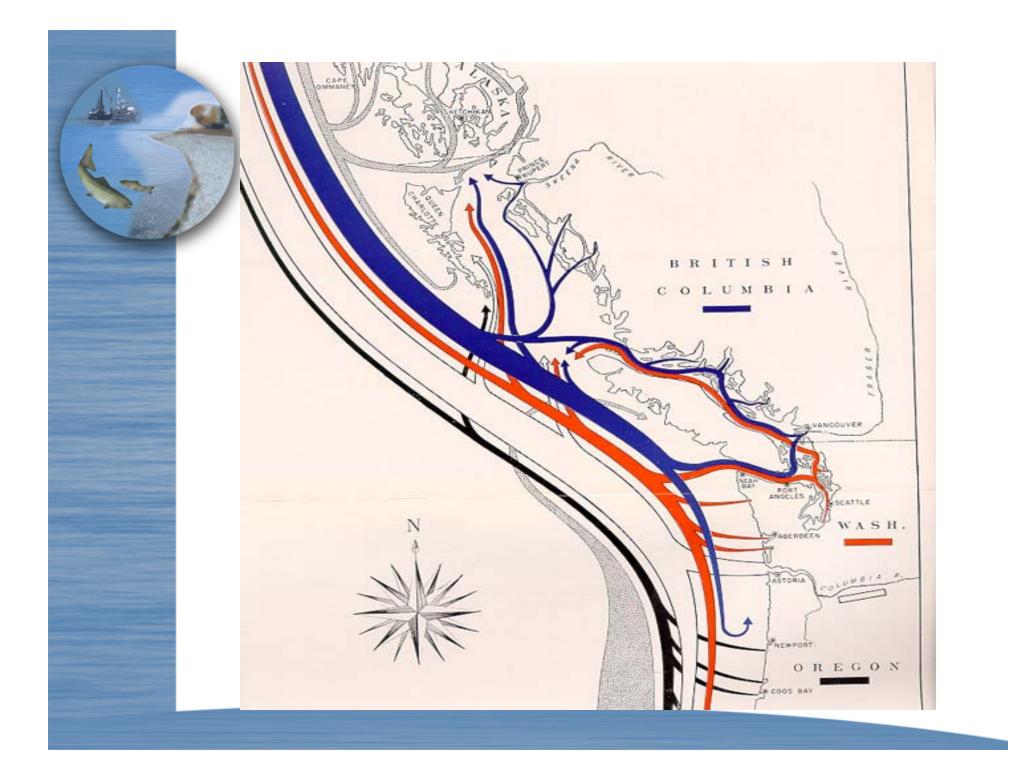
Figure 1. Comparison of observed and predicted recruitment numbers for the Skykomish chinook





# **VRAP Model**

- Projects population using fitted S-R curves and observed variation
- Finds exploitation rate (RER) that has <5% probability of going below critical level and >80% probability of exceeding MSY escapement level
- As productivity increases (<u>habitat</u> improvement) MSY level goes up

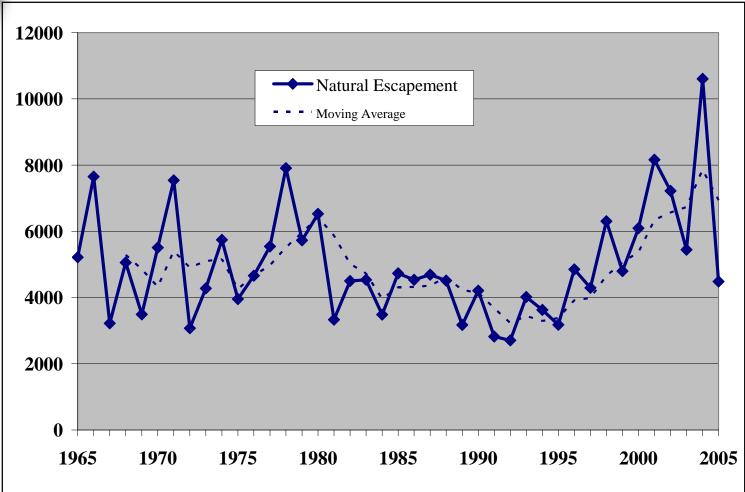


### Harvest Management Guidelines

- Manage total impact of all harvest (Alaska to Oregon) to be below RER
- BUT, maintain minimum fisheries in PS when northern rates make RER unreachable
- During recovery "excess" spawners go to escapement



# Snohomish Escapement



### Snohomish Basin Chinook Evaluating Suites of Actions

- Recovery Goals (EDT)
- Habitat Protection/Restoration (Shiraz)
- Harvest Management (VRAP)
- Hatchery Plan (AHA) 🔶

# Issues Addressed 2005 Snohomish HatcheryPlan (based on HSRG recommendations)

- Convert to 100% in-system native broodstock
- Fish marking
- Integration of wild fish into hatchery broodstock
- Allocation of eggs

# Integration of Hatchery and Natural Broodstock

#### Previous

- Hatchery broodstock came from fish returning to Wallace Hatchery
- Hatchery-origin fish strayed to natural spawning areas (average of 40% of natural escapement)

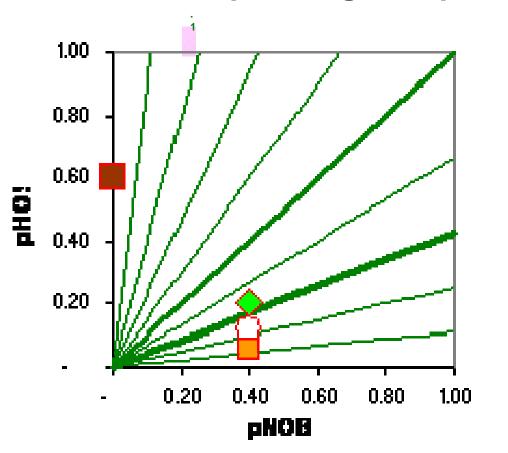
### New Plan

- Hatchery broodstock includes natural origin component
- AHA model used to determine fraction needed
- Limits to natural fish removed from spawning grounds

# Scenarios Modeled in AHA

- Pre 2005 Plan
- 2005 hatchery and harvest plans
- As above but with habitat ¼ recovered, harvest increased appropriately
- As above but with full recovery





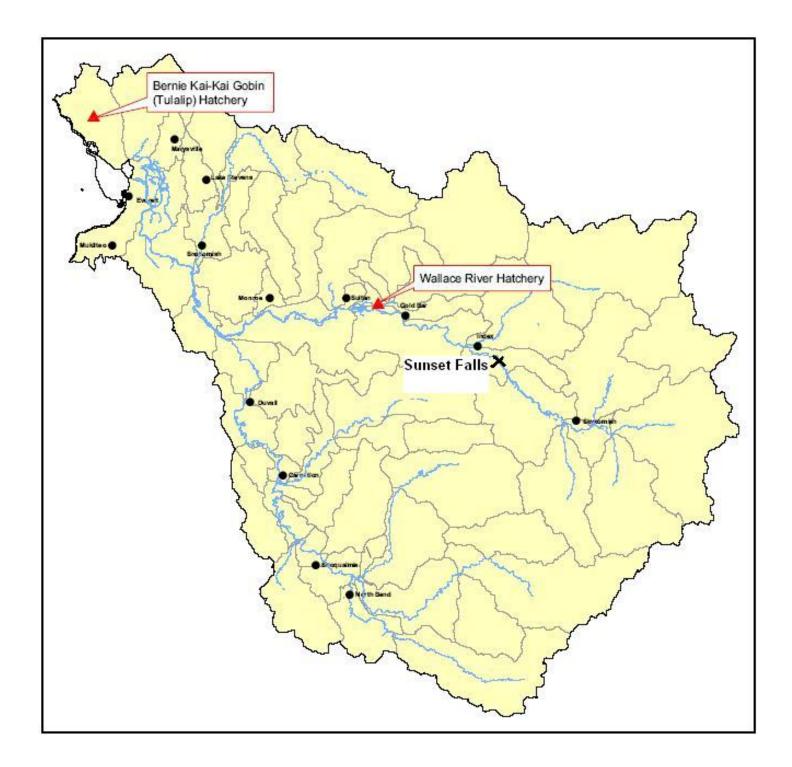
### **Realized Spawning Composition**

# Integration of Natural Origin Broodstock (NOB)

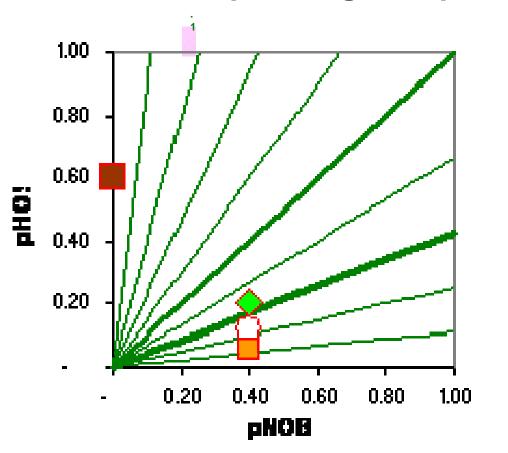
 AHA says 300-700 NOB will give PNI of

.5 - .7 (HSRG recommendation)

- Natural escapement protected by:
  - Limiting sources of NOB to two places in the system
  - Taking maximum of 20% of Sunset Falls escapement
  - Calling off NOB integration if natural escapement falls below threshold



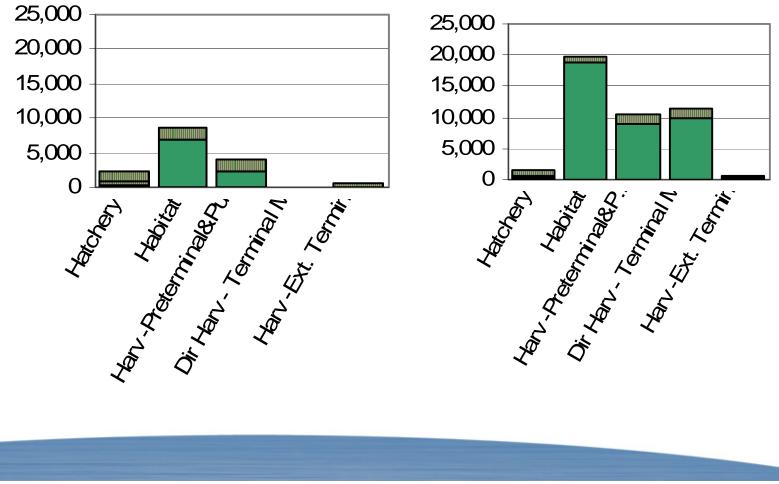


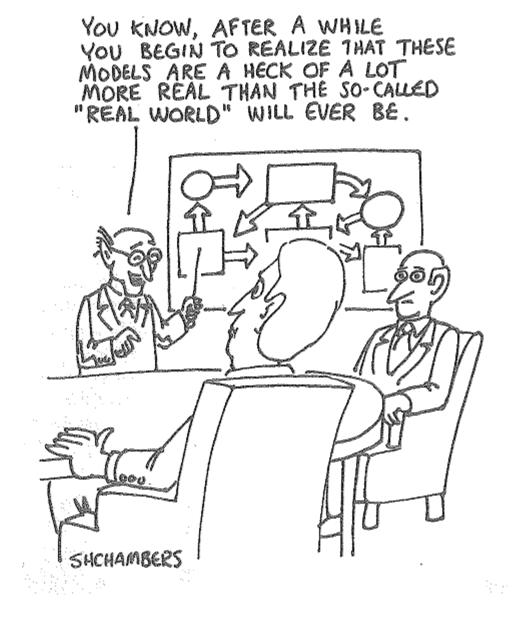


### **Realized Spawning Composition**



#### 2005 Plan and Recovery Scenarios







# **Step 4 worksheet questions**

- What has your watershed done to date to examine how the combined suites of actions across the H-sectors will impact salmon populations?
- How could AHA be useful to your watershed to refine your chosen suites of actions?
- What other technical tools might you use to examine, evaluate and select suites of actions?
- **Do you have a way to estimate** the potential impact on productivity and capacity from your combined H actions? If not, do you know where to go or whom to ask to obtain this information?
- What type of support would you need to be able to use the available technical tools?

# Hatchery, Harvest, Habitat Integration & Adaptive Management

# Step 5

Document rationale, implementation steps, expected outcomes and benchmarks.

# Step 5. Document:

- Rationale,
- implementation steps,
  - (specific complementary actions in hatcheries, harvest, and habitat),
- expected outcomes,
  - (including effects on VSP), and
- benchmarks

# Importance of Documentation

- No one trusts a black box
- Funders, citizens, H-Managers want to know
  - What you're going to do
  - What you expect to achieve
  - When you expect to achieve it
  - Why you chose this path
- Reporting to NOAA

### **Documenting the Rationale**

- Your logic train
- Document assumptions and hypotheses you made
- The information used
- How your assumptions and data led you to the strategies and actions –



## Documenting Implementation Steps (1)

- Identify the specific actions in hatcheries, harvest, and habitat that will be taken
- Indicate the certainty that the action will be taken and that it will lead to proposed outcomes
- Identify the limiting factors and threat addressed

## Documenting Implementation Steps (2)

Also indicate the:

- Priority of action
- Sequencing of the actions
- Timing of the actions
- Magnitude of the actions
- Who will implement

## Documenting Expected Outcomes

Document your hypotheses of expected outcomes from selected suites of actions

- Expected changes from the actions
- How would you know changes occurred

## **Documenting Benchmarks**

- Document measurable target to reach by a particular time to show progress toward an outcome include effects on VSP:
  - -Abundance
  - -Productivity
  - -Diversity
  - -Spatial structure



## Hatchery, Harvest, Habitat Integration & Adaptive Management

## Step Six

Build and implement a Verification, Effectiveness and Accountability system,

- ≻Monitor results,
  - Prepare annual performance reports
    - Adjust over time

## Purpose

- Provide information/transparency to decision-makers, funders and the public on how implementation of the Recovery Plan is working
- Verify that recovery strategies integrate H actions AND support cross-H accountability for implementing key actions

## Verification, Effectiveness and Accountability

Provides transparent information system that:

- Is the foundation for the adaptive implementation of the recovery plan
- Ties together the watershed and regional adaptive management programs

**Evaluation Cycle Adaptive Management** Process of: ➤ making decisions,  $\succ$  implementing them, learning from results of implementation, >and adjusting decisions as necessary.

# What do we mean by Verification?

Verification:

tracking and confirming the implementation of recovery actions in all H-sectors



# What do we mean by Effectiveness?

Effectiveness:

drawing conclusions about the effectiveness of integrated strategies in achieving outcomes and long term goals



What do we mean by Accountability?

Accountability:

- identifying where efforts/actions are working and recognizing those successes
- identifying where efforts/actions have come up short and additional support or focus is needed



V&A system has an information database, user friendly reports <u>and</u> processes for learning, evaluating and decision making.

## Elements of the System

- Rationale for the decisions chosen
- Baseline, interim and long term goals
- Short term outcomes and benchmarks
- Actions
- Tracking and Reporting of Performance across the H's



## What V&A Can Do

- Document progress
- Identify opportunities
- Identify disconnects
- Identify where additional attention (adaptation) is needed
- Create and sustain momentum
- Build credibility



# Who builds and implements the system?

- Need a collaborative approach to build the system
- We all will have a role in implementing it

## Who is the audience for the products from the system?

### The V & A system is used to inform decisions and adapt goals, strategies and actions at:

- local watershed levels
- regional ESU levels
- individual H-Managers and
- across the H's

#### what would this system look like?

how long will it take and

how much will it cost?

## What might a V&A system look like?

 We have an opportunity to adapt a tool initiated by Hatchery Scientific Review Group and is being further developed by the co-manager technical workgroup.

## Managing for Success Tool

- Transparent and accountable
- Status report at watershed and ESU level
- Web accessible



### **Tool Provides:**

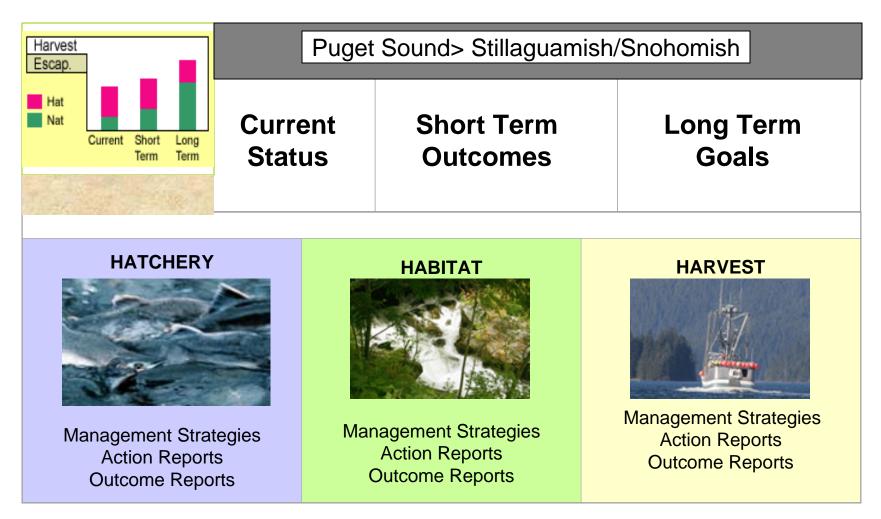
the capability to track:

- Goals for watershed
- Current population status
- Actions needed
- Importance of each action
- What it takes implement
- Progress toward goals

## Managing For Success

#### Snohomish/Skykomish Summer Chinook

Puget Sound Chinook, Listing Status: Threatened



**Nisqually Fall Chinook** Population Long term (>2020) **Base Period (1990-2000)** Short term (2010-2020) Begin developing a locally Self-supporting natural adapated natural stock while stock capable of supporting Meet harvest needs **Population Goals** meeting harvest goals. Contribute harvest. to delisting of PS Chinook ESU Habitat Stop habitat loss in mainstem and improve Support habitat protection initiatives. Stop habitat loss in mainstem and estuary and tributary function. Implement 3 improve estuary and tributary year work program. function. Strategy EDT habitat parameters and corresponding EDT habitat parameters and habitat productivity and capacity by corresponding habitat productivity and Catch and escapement nonulation component Snawning capacity by population component

Performance Measures		escapement.	capacity by population component. Spawning escapement.
Harvest Strategy	Non-selective harvest to achieve a composite fish escapement of hatchery and natural origin	Reduce harvest rate on natural stocks while selectively harvesting hatchery fish in sport fishery and at weir.	Harvest at MSY for natural stocks and meet additional harvest needs with selective harvest of hatchery component.
Performance Measures	Catch by fishery	Harvest rates, and natural vs hatchery origin composition in all fisheries	Harvest rates, and natural vs hatchery origin composition in all fisheries
Hatchery Strategy	Segregated hatchery program to support harvest.	Improve segregated broodstock (pHOS<30%) strategy with weir.	Integrated broodstock strategy with PNI=0.7
Performance Measures	Recruit per spawner for hatchery	Recruits per spawner, and hatchery vs natural origin composition on spawning grounds and in hatchery brood	Recruits per spawner, and hatchery vs natural origin composition on spawning grounds and in hatchery brood



**Report Selection** 

#### **HATCHERY REPORTS**



Goals Strategies Action Reports Outcome Reports

#### Managing For Success – Hatchery Actions

Action Name	Primary Hatchery Response	Current Phase	Total Capital
Broodstock source and timing	Underway	Proposed	
Broodstock source	Underway	Proposed	
Escapement surveys	To Do	Proposed	
Hatchery discharge compliance	To Do	Design/ Permitting	
Disease control/smolt quality	To Do	Construction	\$90,000

#### **MFS-Hatchery Report: Action Detail**

Description	Improve broodstock management to ensure that the hatchery stock remains truly integrated with the naturally spawning stock. Introduce an average of 10% naturally spawning fish into the hatchery broodstock each year for on-station releases. Sunset Falls currently appears to be the best choice for this broodstock source.	
Action Categories	<ul> <li>Conservation/Compliance</li> </ul>	
Targets Stocks	Snohomish/Skykomish Summer Chinook	
Affects Stocks		
Cost Category	Operations	
Hatchery	Intensity: 1	
Controls	Control Name: Number of NOBs in broodstock	

## How will a V&A tool be developed?

V & A work group will continue to develop the tool to meet the over-arching needs as well as each H's needs in a reporting system.

It will be part of the on-going adaptive management and monitoring plan development this year.



### **Step 6 worksheet question**

## What do you think is important to include in a V & A System?

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## **Proposed Next Steps**

### **Proposed Next Steps**

- Regional technical training
- Each watershed develop a work plan for Advancing H-Integration and AAM
  - Pathway to getting through the six steps
- Watersheds prepare to start, pullinformation together, provide background presentations
- Get started

#### Products & Timeframes

#### July-August '06

- Regional technical training
- Watershed H-I work plan developed

#### • September workshop '06

Watershed briefings on:

- Progress to date on Advancing H-Integration work plans
- Stumbling blocks and successes
- Additional assistance needed

#### Products & Timeframes (2)

#### April/May '07

 Watershed summary of H-I plan ready for review

#### • June/July '07

 Summaries revised. Goals, outcomes, actions and benchmarks in V & A system.

### **Resources Available**

Human assistance:

- Co-managers are identifying staff
  - Tribal staff, WDFW Watershed Stewards, Fishery biologists and Complex Managers
- Shared Strategy Watershed Liaisons

#### **Resources Available**

Assistance watersheds might need:

- Informational presentations
- Explanations/demos of tools
- Assistance in running tools
- Help getting everyone to participate
- Summarizing and documenting
- Other?

#### How to Communicate Your Concerns or Issues

- Shared Strategy Watershed liaison
- WDFW watershed steward
- Watershed Leads meeting
- Recovery Council Representative
- Invite an H-Integration work group member to a watershed meeting

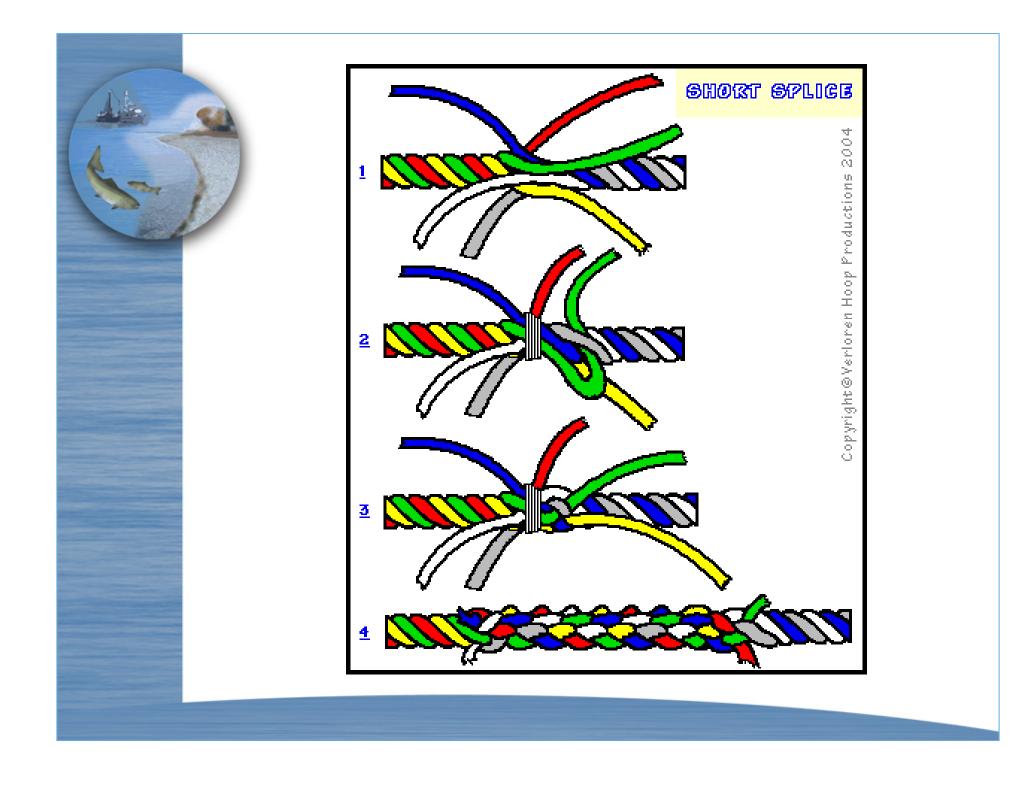
#### 2007 and Beyond

- On-going, iterative process
- Your adaptive management will drive this
  - Continue to learn, track, monitor, make decisions, address areas that aren't seeing the improvement expected/needed

# Salmon Recovery Elements are Being Woven Together

- TRT/Policy meetings
- Share Strategy work group
- Salmon recovery plan chapters
- Lead Entities
- Co-manager work
   group

- Hatchery reform and HSRG
- Harvest management plan
- H-Integration
- Adaptive management



## Do the proposed next steps make sense?

#### >WHAT else can we help you with?

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# Please give us your honest feedback...

- Does the proposed approach (i.e. the steps, suggested tools, next steps) for advancing H-Integration make sense?
- What improvements would you suggest to the approach?
- What types of general support, technical, strategic or otherwise should be made available to H-managers?

### Hatchery, Harvest, Habitat Integration & Adaptive Management

#### **Thanks for coming!**