Northwest Power and Conservation Council

September 2, 2003

MEMORANDUM

TO: Council Members

FROM: Bruce Suzumoto

SUBJECT: Artificial Production Review and Evaluation (APRE) current products and initial findings

Council staff and Lars Mobrand of Mobrand Biometrics will discuss the initial findings of the APRE process and present the latest products and documents. A final draft APRE report will be completed by the end of September. Attached are the PowerPoint presentation that will be made to the Council, an example of an APRE program report and the general outline for the basinwide APRE report. We will also discuss future implementation issues pertaining to the APRE and regional hatchery reform.

851 S.W. Sixth Avenue, Suite 1100
Portland, Oregon 97204-1348

Telephone: 503-222-5161
Toll free: 800-452-5161

Fax: 503-820-2370
Web site: www.nwcouncil.org

Northwest Power and Conservation Council's

Artificial Production Review and Evaluation (APRE)

September 10, 2003

Objectives

- Gather data and information from program managers
- Determine if program meets stated purpose and objectives
- Evaluate each program for consistency with stated goals, policy, scientific criteria
- Outline benefits/risks of each program
- Distribute results to region, subbasin planning and other processes
- Assistance and coordination with Hatchery and Genetics Management Plan (HGMP) process

Process

- Fall 2002 – 1st workshop: gather goals/objectives for each program
- Winter 2002 – contractors visit each hatchery to gather operational data
- Spring 2003
  - compiled data above into database and used to create benefit/risk analysis
  - 2nd workshop: instruct program managers on using the database

Process (continued)

- Summer and Fall 2003
  - draft HGMPs to program managers (July)
  - draft APRE program, province and basin reports (September)
  - Public comment on final drafts (October)
  - Final report to Congress

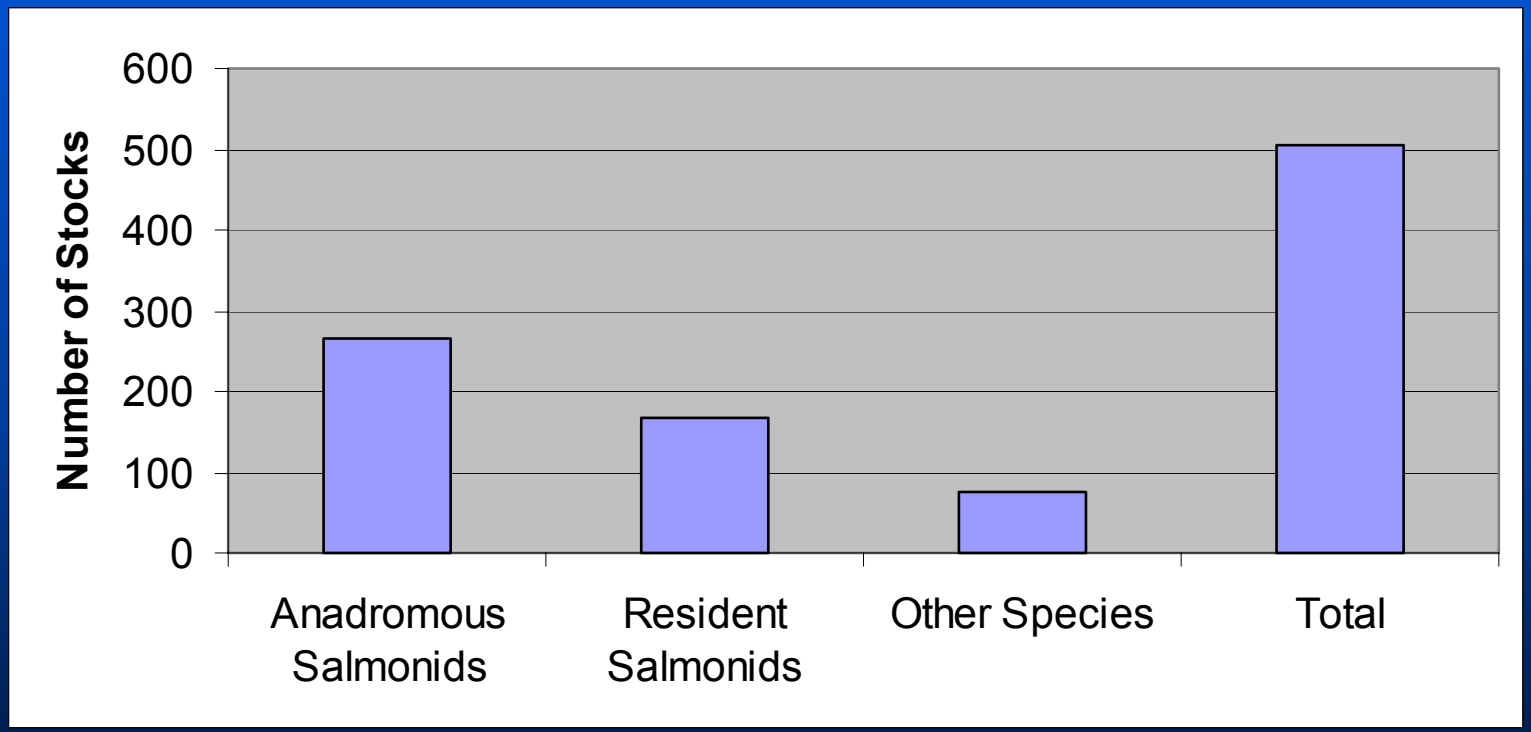
Deliverables

Deliverables	Primary users	Purpose
APRE/HGMP database	Region	Online queries for regional use, can be regularly updated
120 draft HGMPs	NOAA, Hatchery Operators	Automated draft HGMPs for use in phase 2 and 3 HGMP process
180 program reports	Subbasin planners, HGMP process	Review of individual hatchery programs in subbasin context
11 province reports	Subbasin planners	Examine how programs integrate on provincial level
Columbia River Basin report	Congress, Council	Summarize findings, help future implementation

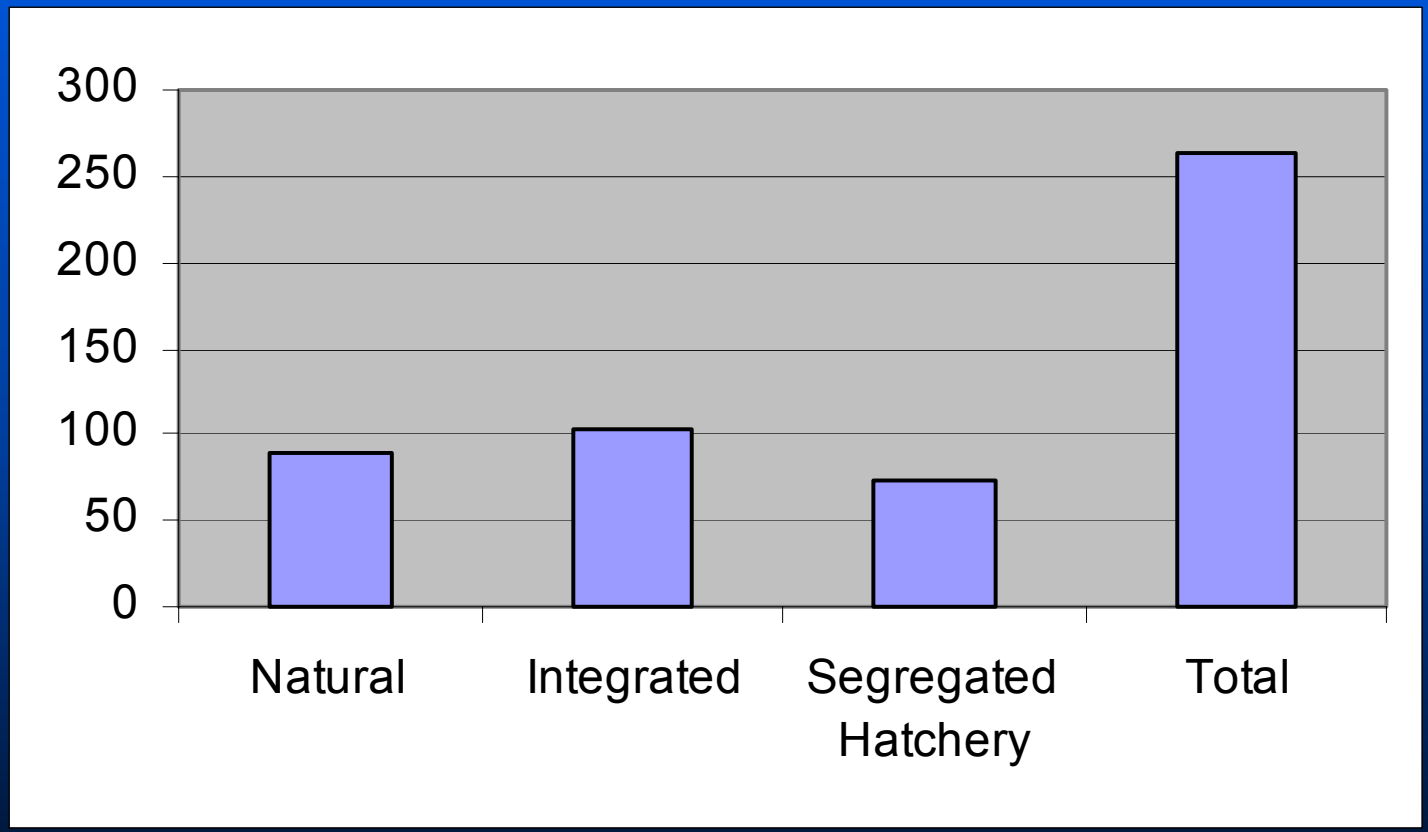
1. Hatchery Planning Database

- Stock goals
- Hatchery Program Purpose(s)
- Hatchery Program Description
  - Planned releases
  - Operational information
- Over 200 Variables
- Web-based

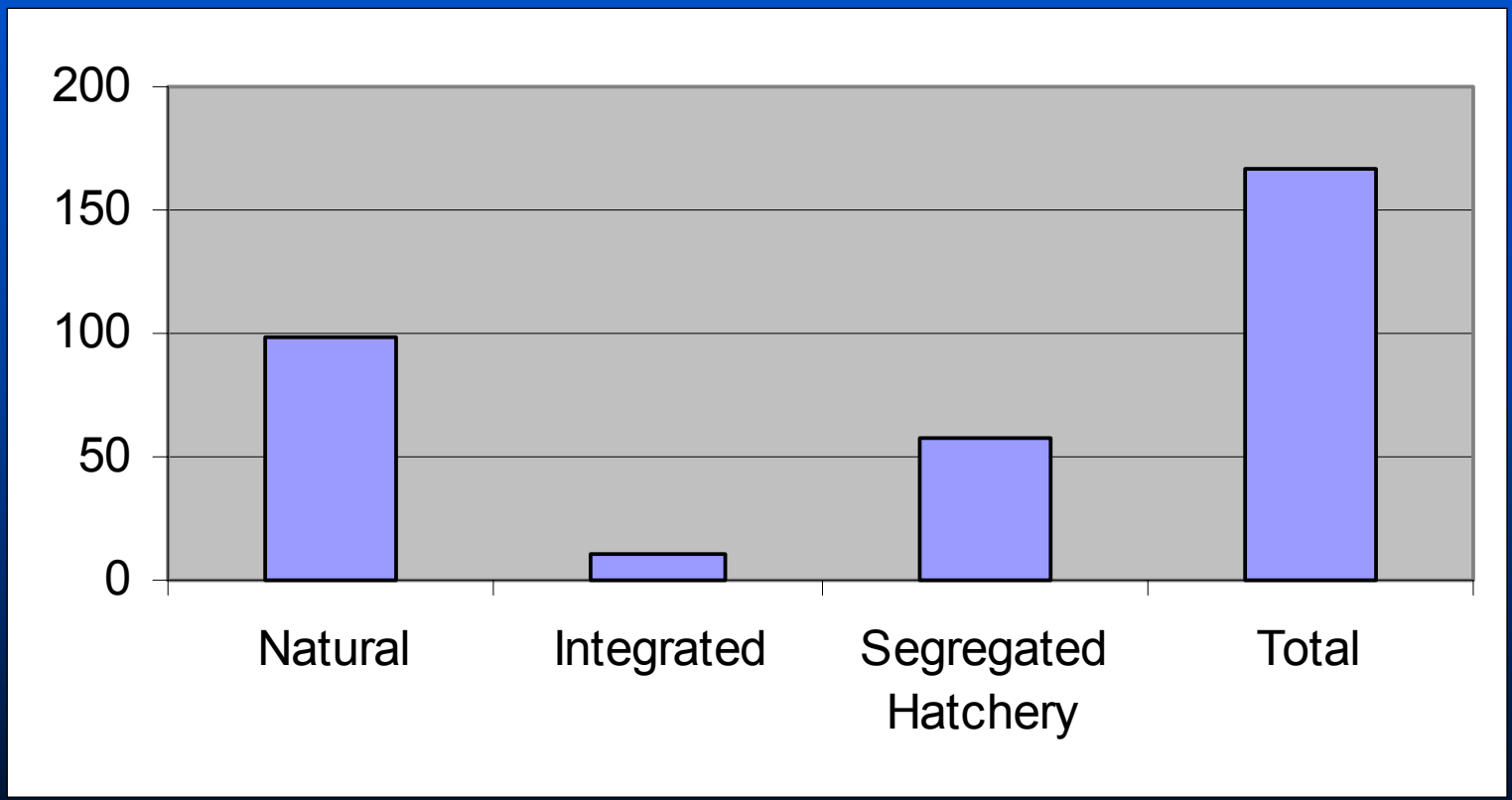
Number of Stock Identified



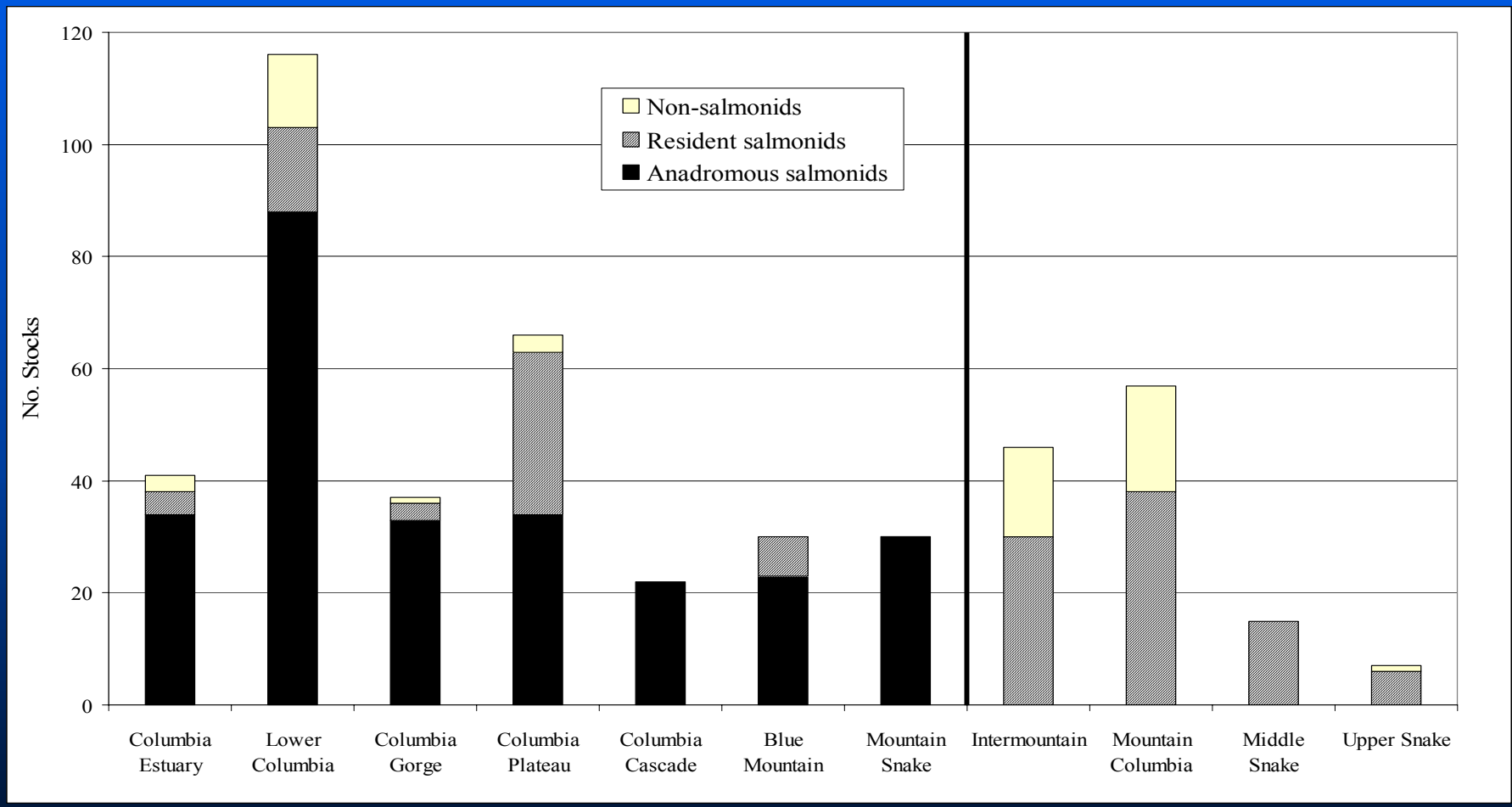
Number of Anadromous Stocks



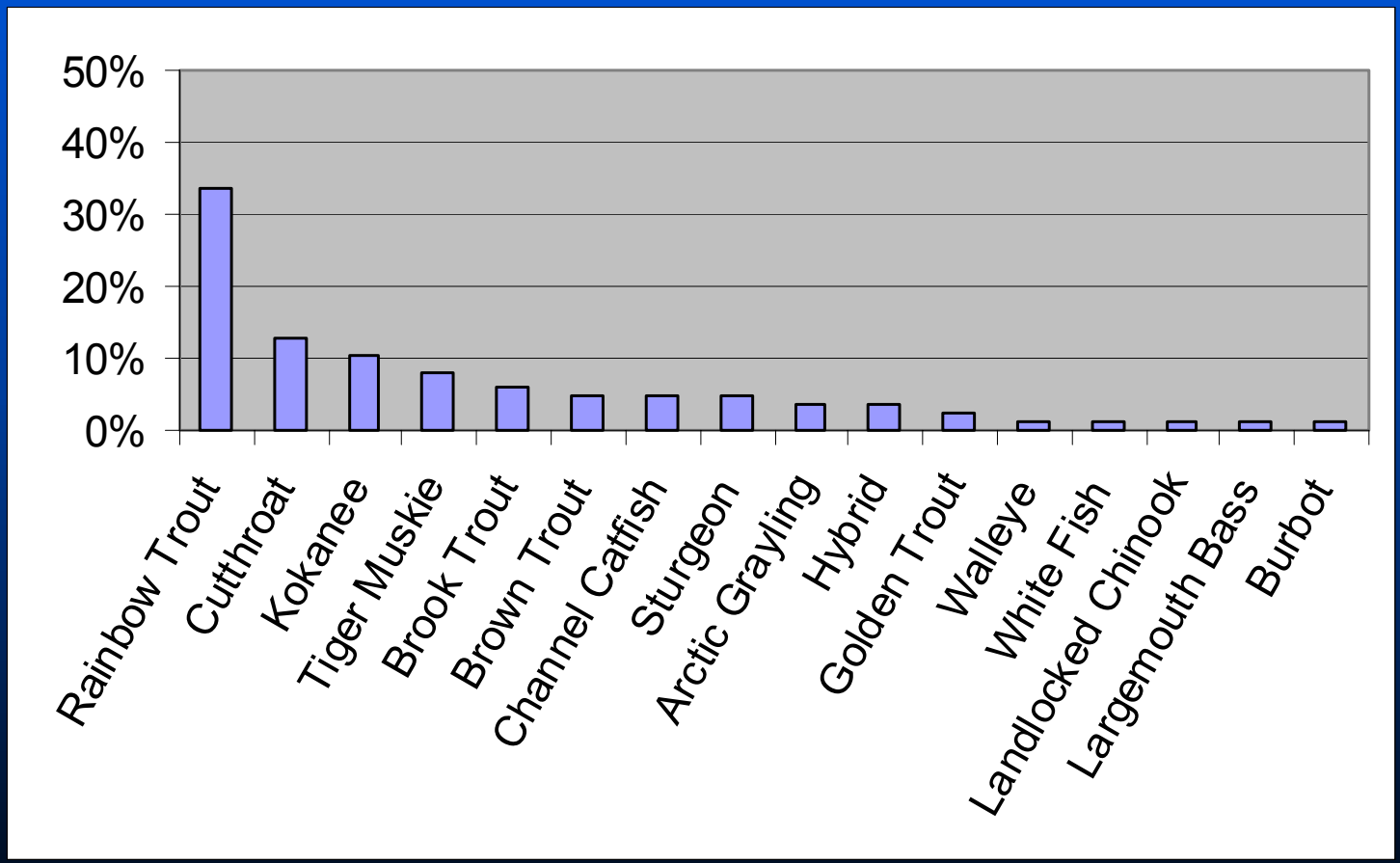
Number of Resident Stocks



Distribution of Fish Stocks



Number of Programs by Resident Species



Number of Subbasins with Natural Production only for the Species.

Species/Race	# Subbasins
Summer Steelhead	6
Winter Steelhead	3
Spring Chinook	2
Fall Chinook	10
Summer Chinook	0
Coho	1
Chum	4
Sockeye	0

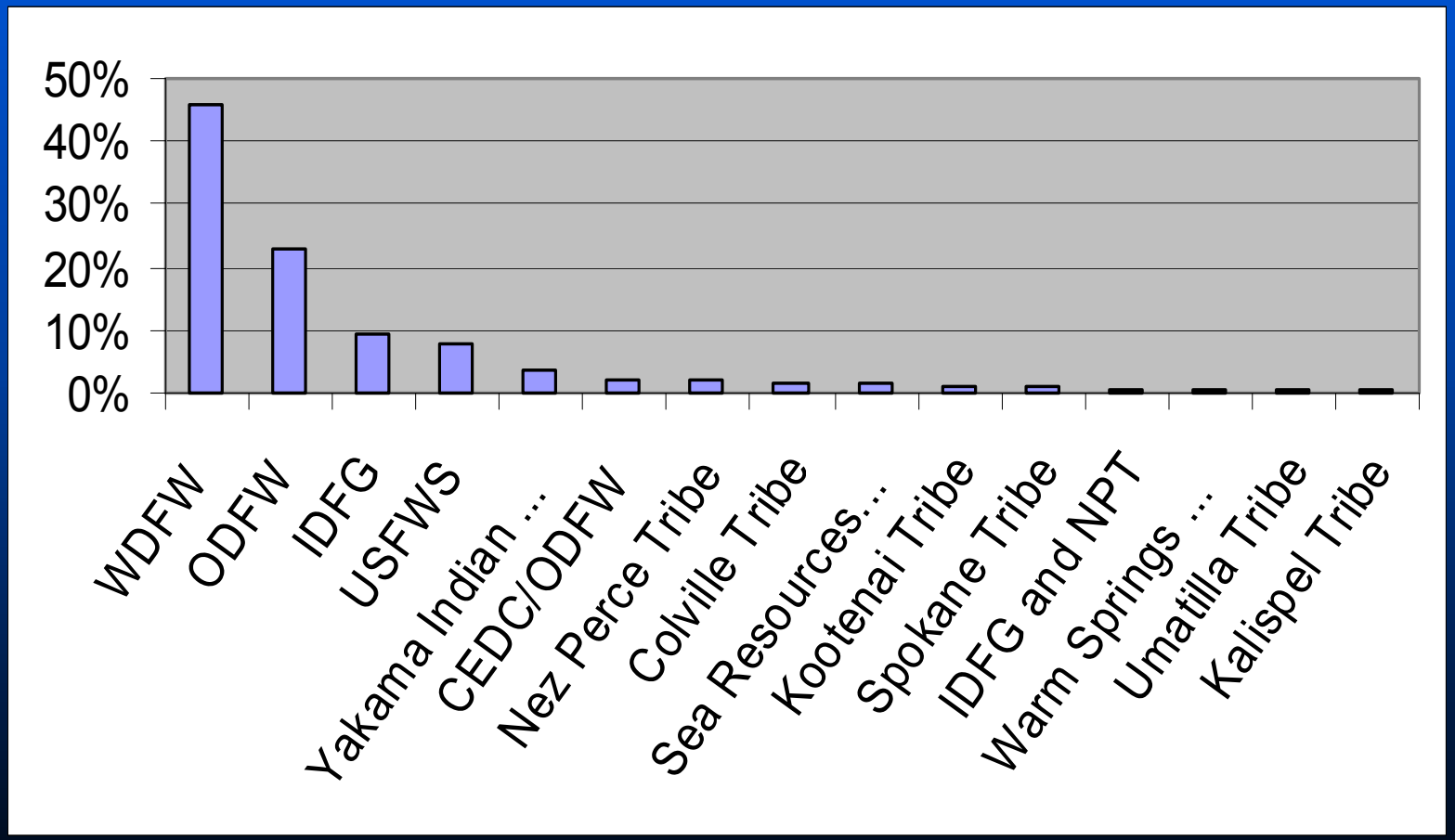
Gene flow Between Hatchery and Natural Components of Integrated Stocks

	>10% Wild in Hat?	<30% Hat in Wild?	Both Criteria
Yes	48%	34%	20%
No	40%	54%	
Unk	12%	12%	

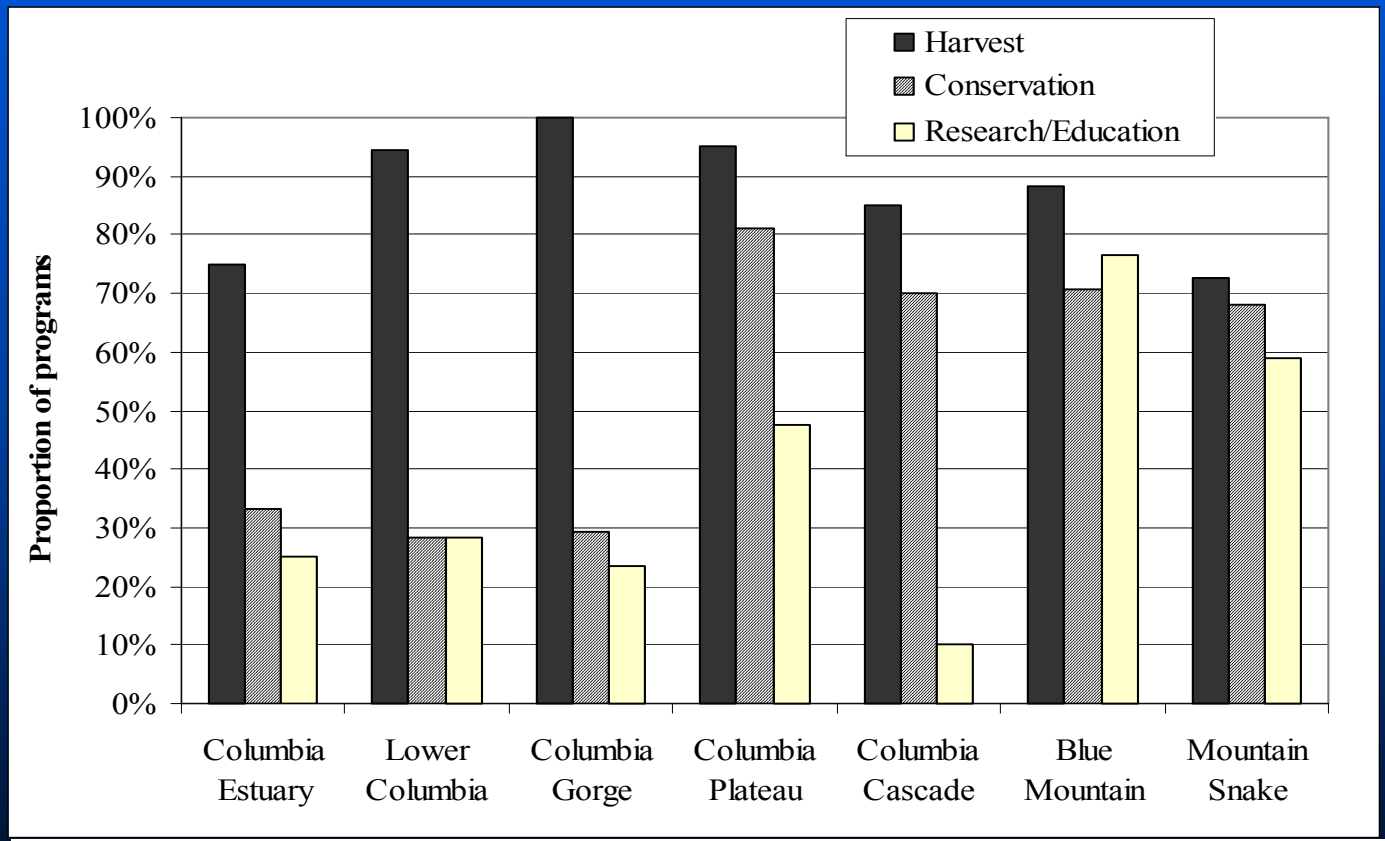
Gene flow between Segregated and Natural Stocks

% Hatchery fish in wild escapement	% of segregated programs
<5%	19%
5% - 30%	18%
>30%	30%
Unknown%	33%

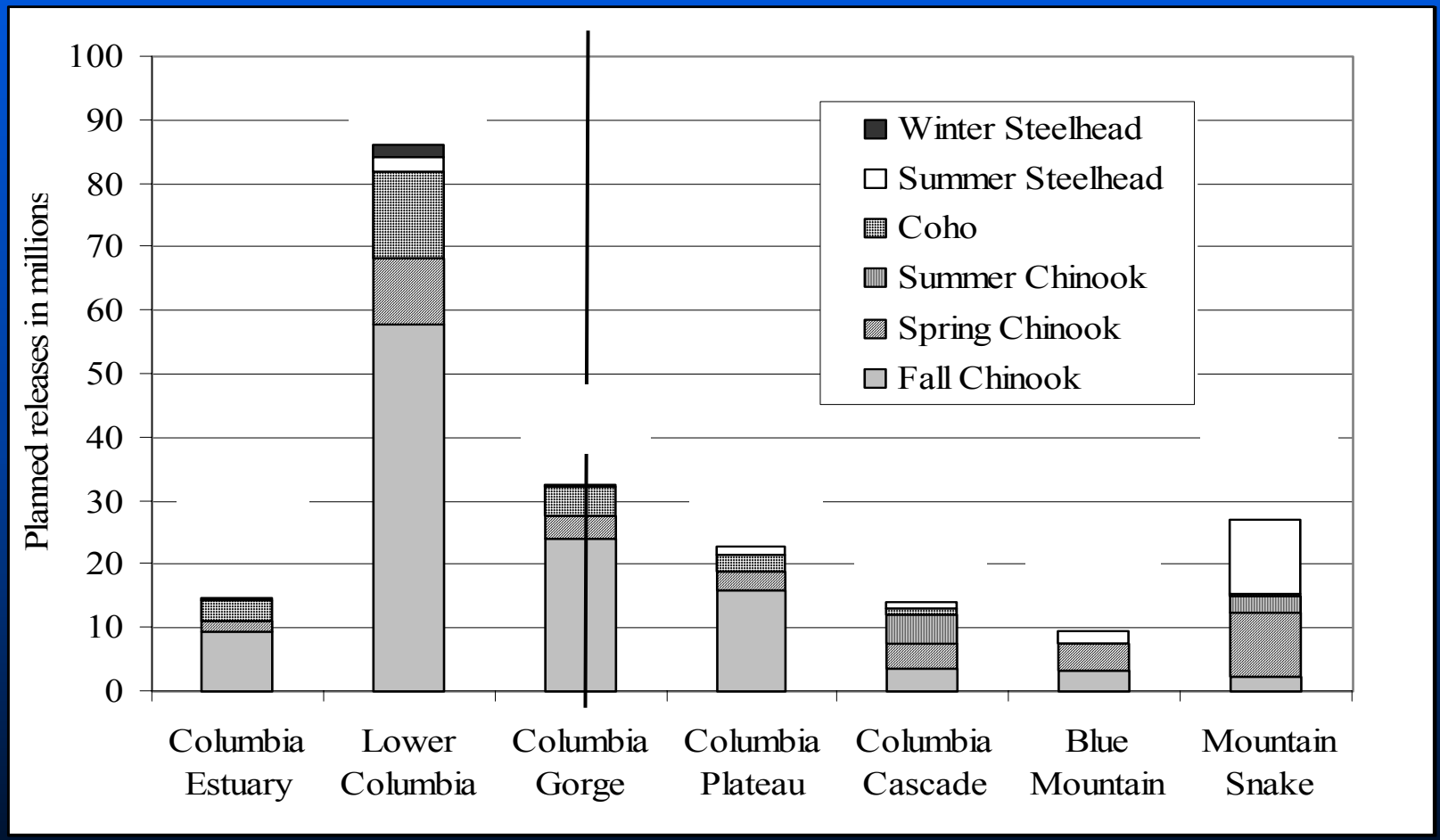
Who Operates the Hatchery Programs?



Purpose of Hatchery Programs



Distribution of Planned Releases of Anadromous Salmonids

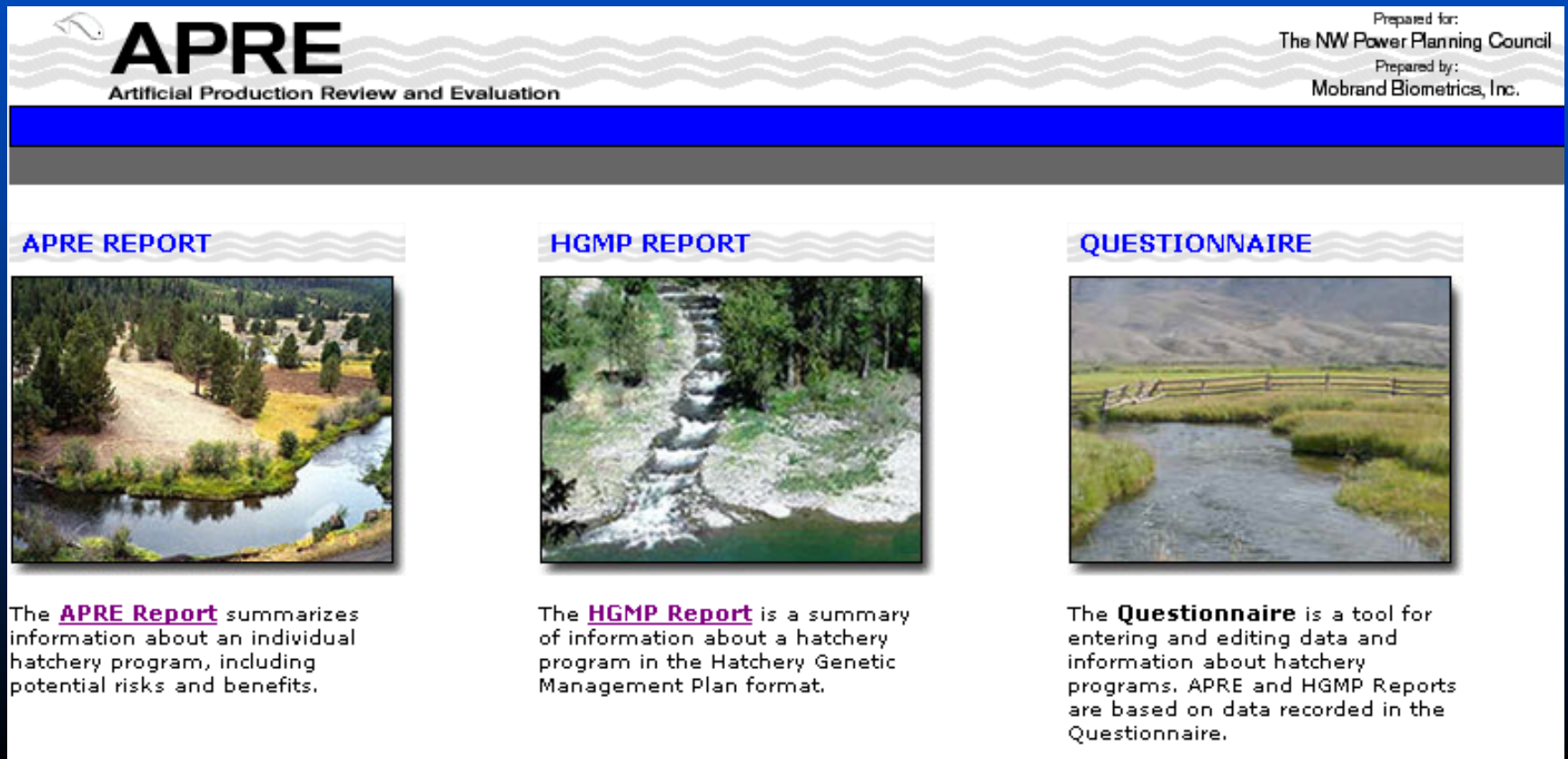


2. Hatchery Program Evaluation Report

- Web-based summary
- Tests each program against IHOT and HSRG guidelines

APRE Web Report

- Go to Website:
- http://www. APRE.INFO



3. HGMP's

- Draft Hatchery Genetics Management Plans are generated from the database

HGMP Web Report

Hatchery Program	Klickitat Spring Chinook Production Program- Klickitat Hatchery
Species or Hatchery Stock	Klickitat Spring Chinook Salmon
Agency/Operator	Washington Department of Fish and Wildlife
Watershed and Region	Klickitat River, Columbia Gorge
Date Submitted	nya
Date Last Updated	nya

Section 1: General Program Description

1.1 Name of hatchery or program.

1 Klickitat Spring Chinook Production Program- Klickitat Hatchery

1.2 Species and population (or stock) under propagation, and ESA status.

1 Klickitat Spring Chinook Salmon

ESA Status: Not listed and not a candidate for listing

1.3 Responsible organization and individuals.

Name (and title):	Ted Anderson
	Fish Hatchery Complex Manager
Agency or Tribe:	WDFW

4. Narrative Report on Hatchery Reform

- Columbia Basin Report
  - Background/Context
  - Methods
  - Results
  - Discussion
- Province Reports
  - Individual Hatchery Program Summaries

Program Report Summary

APRE Report Home	Stock Status	Hatchery Program Description	Summary of Potential Benefits and Risks	Logout/Change Subbasin/Program	Links	

1. Status of Spring Chinook in the Klickitat Subbasin

The approach and concepts used in this report are based on the framework and tools developed for the Puget Sound and Coastal Washington hatchery reform project by an independent panel of scientists, the Hatchery Scientific Review Group (HSRG). A key conclusion by the HSRG is that hatchery programs must be evaluated in the context of the status and goals for stocks, habitat and harvest in subbasin where the hatchery fish are released.

The table below summarizes the status and goals for the stocks present in the subbasin where the fish from the hatchery program that is the subject of this review are released.

The hatchery program that is the subject of this report is listed first in the table.

Stock Name	Hatchery?	ESA Status	Biological Significance			Viability			Habitat			Harvest Opportunity
				Goal			Goal			Goal		
			Now	10-15 Yrs	30-50 Yrs	Now	10-15 Yrs	30-50 Yrs	Now	10-15 Yrs	30-50 Yrs	
Selected Stock/Program												
Spring Chinook, Klickitat	Yes	Not listed and not a candidate for listing	H	H	H	H	H	H	H	H	H	Spring Chinook Harvest Detail
Additional Stock(s)/Program(s) These are additional stock/programs in the subbasin that might be affected by the hatchery program.												
Fall Chinook-Hatchery (URB) Hatchery, Klickitat	Yes	Not listed and not a candidate for listing	L	L	L	H	H	H	L	M	M	Fall Chinook-Hatchery (URB) Hatchery Harvest Detail

Summary and Conclusions

- Not all Hatchery Programs are consistent with goals for affected stocks..
- Many Hatchery Programs do not meet key operational guidelines.
- Few Hatchery Programs are monitored, evaluated and adjusted to succeed.

Next Steps

- Report to Congress
- APRE issue paper
- Plan near-term implementation
- Plan long-term implementation

Outline: Artificial Production Review and Evaluation
Basin Level Report

August 2003

I. Introduction

A. Purpose of this review

1. Congressional question.

2. Council direction.

3. Hatchery reform: Why we need it.

   a. Changing role of hatcheries

   b. Scientific questions

   c. Accountability

4. Scope of the review:

   a. What was reviewed (what questions were addressed)

   b. What wasn't reviewed (i.e. why this won't answer all questions)

B. Organization of the report.

1. Based on Council's framework described in FWP

2. Programs => Subbasins => Provinces => Basin

3. Individual programs will be discussed within context of the subbasin and province in which they occur.

4. Overall evaluation question was, "how do present operations contribute to achievement of stated goal, and what risks do present operations pose to achievement of the goal and in terms of ecological and genetic impacts?"

5. This report will summarize existing hatchery programs, report on the evaluation of individual programs and explore results of the evaluation at provincial and basin levels.

II. Background

A. History of artificial production

B. Social context

1. Social role: Conservation ethic, recreation

2. Legal

3. Economic context

4. Harvest and goals

C. Regulatory Context

1. Council guidance (FWP guidelines)

2. NMFS guidance (ESA and HGMP guidelines)

3. Legal aspects (short)

D. Biological context

1. Scientific guidance (ISAB, RP, RTTR, NRC, SRT)

2. Ecological including the ocean

3. Genetic

III. Methods

A. Project assessed hatchery operations relative to stated goals
   1. Did not critique goal
      i. Goals referred to management and habitat
      ii. Managers identified assumed goal
   2. Operations evaluated relative to HSRG guidelines
      i. HSRG Guidelines can be found at…
      ii. Guidelines were converted to questions
      iii. Questionnaire developed in consultation w/ expert
      iv. Data consists of responses of hatchery managers to the questions
   3. Project information collected and maintained on web site

B. Evaluated Benefits and Risks of Programs
   1. Benefits equal potential to contribute to achievement of goals

2. Risks equal potential to negatively impact other goals.

C. Evaluated individual hatchery programs (this may be incorporated into above but needs to be included somewhere as part of key definitions).

1. A program is a planned release of fish of a species and race at one or more locations to form or contribute to a specific salmonid population.

2. A hatchery can consist of more than one program

3. A hatchery can have programs in more than one subbasin.

4. Program fall into two categories.
    a. Segregated programs form a distinct population and are genetically isolated from surrounding populations
    b. Integrated program augment an existing naturally spawning population and are genetically and behaviorally integrated with the naturally spawning component.
        i. Integrated programs can be interim, intended to hasten rebuilding of a natural population for which past anthropogenic constraints have been eased.
        ii. Integrated programs can be permanent intended to augment natural productivity and/or capacity to overcome an anthropogenic constraint that will not be removed.

IV. Results

A. Summary of Province level results

B. How many hatchery programs?

1. How are they distributed?

2. Who runs them?

3. What species/races they produce?

4. What do they provide (returns/harvest)?

C. Evaluation

1. How do risks and benefits vary across the region?

2. What kind of risks to present operations pose?

3. Patterns across provinces

V. Discussion

A. What are the basin level goals for hatcheries?

B. What are we really trying to achieve in the Columbia Basin with hatcheries?

C. How successful are hatcheries at achieving those goals?

D. What are the major risks posed by Columbia River hatcheries?

E. How do present operations compare to those recommended by the HSRG?

VI. Conclusions

A. Clear goals

1. Hatcheries governed by two constraints that should be clearly distinguished:
    1) Goals and intent
    2) Fish culture practices

2. Hatcheries designed to achieve specific goals related to social values; operations are the means to achieve these goals.

3. Goals must be clearly articulated in order to evaluate operations.

4. Goals themselves must be evaluated through planning process.
    1) Goals guide the application of hatcheries to solve particular problems at four levels:
    2) Basin level (e.g. Fish and Wildlife Program)
    3) Province level (e.g. ESUs under the ESA)
    4) Subbasin level
    5) Individual hatchery programs

B. Scientific Rationale for actions

C. Informed decision making

1. Acknowledge change
    1) Changing social context

2) Changing scientific context

2. Detect change
    1) Monitoring and evaluation
        i. Scientific evaluation of hatcheries should focus on benefits provided by hatcheries as well as environmental and biological risks posed by hatcheries
    2) Recognize scientific advances
    3) Economic/social monitoring

3. Respond to change
    1) Hatchery managers should be accountable regarding fit between programs and goals and to develop and employ best hatchery management practices.
    2) Decision process should acknowledge responsibility to adjust programs to fit changing social/scientific template.

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