

### **Mainstem/Systemwide Project Review Process**

The Mainstem Systemwide Review Team (MSRT) has been formed to review proposals submitted for Bonneville Power Administration (Bonneville) funding for Fiscal Years (FY) 2007-2009. The Northwest Power and Conservation Council (Council) and the Columbia Basin Fish and Wildlife Authority (CBFWA) are providing staff to organize and facilitate the MSRT. The team consists of representatives from the Region's fish and wildlife managers, Bonneville, U.S. Army Corps of Engineers, Council staff, and other interested parties.

The MSRT first met on March 20, 2006 to develop the review process for proposals submitted in the Mainstem Systemwide portion of the Council's Fish and Wildlife Program (Program) for FY 2007-2009. The group identified steps for the Mainstem Systemwide review process that consisted of first identifying which Program priority each project will address and then applying a series of questions to assign a prioritization category for each project. The framework presented in Attachment 1 will be used for developing review questions and as an organizational structure for explaining how the projects in the Mainstem Systemwide portion of the Program fit together.

The first step is to categorize each proposal by placing them in one or more of the categories identified in the Program Priorities (Attachment 1) and then tying the proposals to the monitoring components or focal research themes provided with the Monitoring and Evaluation Questions and Research Critical Uncertainties (Attachment 2a and 2b). This step will help organize the proposals with similar initiatives and identify what Program level priorities are covered with the existing proposals.

CBFWA and Council staff will organize the proposals according to the program priorities framework (Attachment 1), which will be used to create the agenda for the proposal reviews. Project sponsors will be notified of the time and day their projects will be reviewed and asked to be available by phone in case there are questions with their proposals. The ISRP will be relied upon for scientific soundness questions while the MSRT review will focus on management priority and adequacy of proposals to meet management needs.

Proposal reviews will occur on April 13, 14, and 17, 2006. April 18 and 19 will be reserved in case these dates are needed to complete the reviews.

The proposals and supporting information such as one page summaries, historic spending information, and reference documents are available at the Council's website (<http://www.nwcouncil.org/fw/budget/2007/ms/Default.htm>). The MSRT will be reviewing both the Mainstem/Systemwide proposals and the Multi-province proposals.

During the reviews, The MSRT will confirm that projects address either the question 'What do we want to know?' in Attachment 2a or research critical uncertainties in Attachment 2b and apply the questions from the proposal review questions provided in

Attachment 3. Each proposal will be categorized using the prioritization categories in Attachment 4.

In summary, the project reviews will occur in the two steps described in detail above: 1) categorizing each project according to Program priorities and, 2) assigning a priority category to each proposal based on proposal review questions. The MSRT also recognizes that their process needs to incorporate and/or be responsive to the recommendations coming out of the 2004 Federal Columbia River Power System Biological Opinion Remand Process for project selection. Coordination between the Council process and the Remand Process will occur throughout the development of the recommendations.

A final MSRT recommendation, incorporating all comments received during the review, will be forwarded to the Council. Consensus on the recommendations will be sought within the MSRT, although not required to move the recommendations forward. If there are disagreements, the recommendations will be forwarded with all concerns expressed.

Meeting Schedule:

April 13, 2006  
8:30 am – 5 pm  
Columbia Basin Fish and Wildlife Authority  
Large Conference Room  
Topic: Coordination/Support/On-the-Ground Actions

April 14, 2006  
8:30 am – 5 pm  
Columbia Basin Fish and Wildlife Authority  
13<sup>th</sup> Floor Conference Room  
Topic: Monitoring and Evaluation

April 17, 2006  
8:30 am – 5 pm  
Columbia Basin Fish and Wildlife Authority  
13<sup>th</sup> Floor Conference Room  
Topic: Research

*April 18, 2006 (if needed)*  
*Columbia Basin Fish and Wildlife Authority*  
*Large Conference Room*  
*Topic: TBD*

*April 19, 2006 (if needed)*  
*Columbia Basin Fish and Wildlife Authority*  
*13<sup>th</sup> Floor Conference Room*  
*Topic: TBD*

## **Attachment 1. Program priorities for compartments within the Mainstem and Systemwide proposals for BPA funding in FY 2007-2009**

For this review cycle, the Council's 2000 Fish and Wildlife Program, 2003 Mainstem Amendment, 2005 Mainstem Subbasin Plans, the 2004 NOAA FCRPS Biological Opinion (under remand) and Updated Proposed Action, the Interior Columbia River Technical Recovery Team's population designations and viability criteria, USFWS Recovery Plans, and other biological opinions will be used as the primary guidance documents. The Northwest Power and Conservation Council (NPCC) recently approved a Research Plan and is currently developing a monitoring and evaluation guidance document for selection of monitoring projects. Also available for reference is the 2005 ISRP Retrospective Report.

### **Coordination/Support**

#### Program Support

- Support coordination of F&W managers for project selection/implementation, system operations and overall implementation of the Fish and Wildlife Program (including coordination of BPA's funding role and integration and coordination with other projects and processes that benefit Program implementation)
- Council support – ISRP & ISAB
- Coordination of monitoring and evaluation for habitat conditions and artificial production
- Coordination of Research
- Coordination of information dissemination

#### Regional Data Management

- Support mainstem passage monitoring
- Maintain habitat data relative to subbasin plans
- Maintain artificial production data
- Maintain harvest data
- Maintain data to support regional and provincial objectives
- Quality standards from the F&W Program:
  - internet based distribution system
  - reporting consistent with the F&W Program

### **Monitoring and Evaluation**

- High level indicators
- Fish and wildlife population status, trends and survival, and
  - Hydro system status & trend
  - Hydro action effectiveness
  - Habitat (mainstem & tributary) status and trend
  - Habitat (mainstem & tributary) action effectiveness
  - Hatchery status and trend

- Hatchery action effectiveness
- Harvest status and trend
- Harvest action effectiveness
- Estuary and Ocean status and trend
- Estuary action effectiveness
- Predation:
  - Predator population census
  - Predator control effectiveness
- Water/land acquisition tracking

### **Research**

- Hatcheries/Artificial Propagation
- Hydrosystem
- Tributary and Mainstem Habitat
- The Estuary
- The Ocean
- Harvest
- Population Structure and Diversity
- Effects of Climate Change on Fish and Wildlife
- Toxics
- Invasive Species
- Human Development
- Monitoring and Evaluation

### **On-the-Ground Actions**

- Water/land acquisition
- Predator control
- Mainstem habitat and water quality improvements
- Fish passage survival improvements
- Artificial production
- Harvest management

**Attachment 2a. Revised Monitoring and Evaluation Questions for Mainstem Systemwide Review**

<b>Monitoring Component</b>	<b>What do we want to know?</b>
1. Population status and trends	Does the proposed project generate information that can be used to assess population abundance, productivity, diversity, spatial structure, etc. in relation to management objectives identified in the appropriate guidance documents?
2a. Hydro system survival status and trends	Does the proposed project address direct and delayed mortality or other important characteristics influenced by the hydro system such as survival, abundance, behavior, growth, migration timing, etc?
2b. Hydro system action effectiveness	Does the proposed project identify potential limiting factors of the hydro system and/or measure the outcome of implemented hydro actions directed at improving such variables as survival (direct & delayed), abundance, behavior, water quality, etc?
2c. Hydro system uncertainty research	Does the proposed project address key uncertainties that result from the influence of the hydro system on fish? In particular, does the project address issues of delayed mortality for fish that migrate inriver or are transported?
3a. Hatchery fish population status, trends, and survival	Does the proposed project address abundance, survival, composition, contribution, straying, etc. relative to objectives identified in the appropriate guidance documents?
3b. Hatchery action effectiveness	Does the proposed project identify potential limiting hatchery culture or supplementation practices and/or measure outcomes of implemented hatchery actions?
3c. Hatchery uncertainty research	Does the proposed project address key uncertainties related to such variables as fish culture practices, in-hatchery stock management, genetic population structure, stray issues, the development of conservation strategies, fish health management, kelt reconditioning, etc?
4a. Harvest status trends	Does the proposed project measure harvest rates and other harvest variables for wild and hatchery population groups?
4b. Harvest action effectiveness	Are new selective gear types effective at harvesting?

<b>Monitoring Component</b>	<b>What do we want to know?</b>
	Are there other methods available to implement selective fisheries (time/area)?
5a. Habitat status and trends (tributary, mainstem, estuary, and ocean)	Does the proposed project address biological and physical conditions of mainstem, estuary, or tributary habitat relative to management objectives identified in the appropriate guidance documents?
5b. Habitat action effectiveness (tributary, mainstem, and estuary)	Does the proposed project identify potential limiting mainstem, estuary, or tributary habitat conditions and/or measure outcomes of implemented habitat actions?
5c. Habitat uncertainty research	Does the proposed project address key uncertainties related to measuring and evaluating habitat benefits?
6. Basinwide and province evaluation	Are the individual actions in the various subbasins and mainstem/systemwide achieving the objectives at the basin and province levels for populations and habitats?
6a. Data Management	Establish an Internet-based system to disseminate the data needed to respond to these management questions?
6b. Reporting	Does the project contribute to presenting status of populations relative to the collective projects funded by Program for the various Hs?

**Attachment 2b. Focal Themes and Critical Uncertainties from the Columbia River Research Plan (NPPC approved February 2006).**

<b>Focal Research Themes</b>	<b>Critical Uncertainties</b>
(1) Hatcheries/Artificial Production	<p><i>Conventional Hatchery Production—</i></p> <ol style="list-style-type: none"> <li>1. What is the cost to natural populations from competition, predation (direct and indirect), and disease caused by interactions with hatchery origin juveniles and from harvest in fisheries targeting hatchery-origin adults?</li> <li>2. To what extent can interactions between production-hatchery fish and naturally produced wild fish be reduced (e.g., with the goal of achieving sustainable long-term productivity and resilience of the wild component of the population by spatial or temporal partitioning of natural and artificial production at the subbasin, province, basin, and regional scale)?</li> </ol> <p><i>Supplementation—</i></p> <ol style="list-style-type: none"> <li>3. What is the magnitude of any demographic benefit to the production of natural-origin juveniles and adults from the natural spawning of hatchery-origin supplementation adults?</li> <li>4. What are the range, magnitude, and rates of change of natural spawning fitness of integrated (supplemented) populations, and how are these related to management rules, including the proportion of hatchery fish permitted on the spawning grounds, the broodstock mining rate, and the proportion of natural origin adults in the hatchery broodstock?</li> <li>5. Can the carrying capacity of freshwater habitat be accurately determined and, if so, how should this information be used to establish the goals and limitations of supplementation programs within subbasins?</li> </ol> <p><i>All Hatcheries—</i></p> <ol style="list-style-type: none"> <li>6. What is the relationship between basinwide hatchery production and the survival and growth of naturally produced fish in freshwater, estuarine, and oceanic habitats?</li> <li>7. What effect do hatchery fish have on other species in the freshwater and estuarine habitats into which they are released?</li> </ol>
(2) Hydrosystem	<ol style="list-style-type: none"> <li>1. What is the relationship between levels of flow and survival of juvenile and adult fish through the Columbia Basin hydrosystem? Do changes in spill and other flow manipulations significantly affect water quality, smolt travel rate, and survival during migration? How do effects vary among species, life-history stages, and migration timings? What is the role of hydrodynamic features other than mid-channel velocity in fish migration? What is the relationship between ratios of transport and in-river return rates and measurements of juvenile survival (D values)?</li> <li>2. Under what conditions is delayed mortality related to a fishes downstream migration experience and the magnitude of that delayed hydrosystem mortality?</li> <li>3. What are the effects of multiple dam passages, transportation, and spill operations on adult fish migration behavior, straying, and pre-spawn mortality, and juvenile-to-adult survival rates?</li> <li>4. What is the effect of hydrosystem flow stabilization, flow characteristics, and channel features on anadromous and resident fish species and stocks? What are the ecological effects of hydrosystem operations on downstream mainstem, estuarine, and plume habitats and on populations of fish and wildlife?</li> <li>5. What are the optimal temperatures and water quality regimes for fish survival in tributary and mainstem reaches affected by dams, and are there options for hydrosystem operations that would enable these</li> </ol>

Focal Research Themes	Critical Uncertainties
	optimal water quality characteristics to be achieved? What would be the effects of such changes in operations and environment on fish, shoreline and riparian habitat, and wildlife?
(3) Tributary and Mainstem Habitat	<ol style="list-style-type: none"> <li>1. To what extent do tributary habitat restoration actions affect the survival, productivity, distribution, and abundance of native fish populations?</li> <li>2. Are the current procedures being used to identify limiting habitat factors accurate?</li> <li>3. What are the impacts of hydrosystem operations on mainstem habitats, including the freshwater tidal realm from Bonneville Dam to the salt wedge? How might hydrosystem operations be altered to recover mainstem habitats?</li> <li>4. What pattern and amount of habitat protection and restoration is needed to ensure long-term viability of fish and wildlife populations in the face of natural environmental variation as well as likely human impacts on habitat in the future?</li> </ol>
(4) The Estuary	<ol style="list-style-type: none"> <li>1. What is the significance to fish survival, production, and life-history diversities of habitat degradation or restoration in the estuary as compared with impacts to other habitats in the basin? How does this partitioning of effects vary among species and life-history types?</li> <li>2. What are the highest priority estuarine habitat types and ecological functions for protection and restoration (e.g., what are most important habitats in the estuary for restoring and maintaining life-history diversities of subyearling Chinook and chum salmon, and how effective were past projects in restoring nursery/feeding areas)?</li> <li>3. What specific factors affect survival and migration of species and life-history types of fish through the estuary, and how is the timing of ocean entry related to subsequent survival?</li> </ol>
(5) The Ocean	<ol style="list-style-type: none"> <li>1. Can stock-specific data on ocean abundance, distribution, density-dependent growth and survival, and migration of salmonids, both hatchery and wild, be used to evaluate and adjust marine fishery interceptions, harvest, and hatchery production in order to optimize harvests and ecological benefits within the Columbia River Basin?</li> <li>2. Can monitoring of ocean conditions and abundance of salmon and steelhead during their first weeks or months at sea improve our ability to predict inter-annual fluctuations in the production of Columbia Basin Evolutionarily Significant Units (ESUs) or populations to enable appropriate changes to harvest levels?</li> <li>3. How can inter-annual and inter-decadal changes in ocean conditions be incorporated into management decisions relating to hydrosystem operations, the numbers and timing of hatchery releases, and harvest levels to enhance survival rates, diversity, and viability of ESA-listed salmonids?</li> <li>4. What are the effects of commercial and sport fishing on ocean food webs?</li> </ol>

Focal Research Themes	Critical Uncertainties
(6) Harvest	<p>1. What are the effects of fishery interceptions and harvest in mixed-stock areas, such as the ocean and mainstem Columbia, on the abundance, productivity, and viability of ESUs or populations, and how can fishery interceptions and harvests of ESUs or populations, both hatchery and wild, best be managed to minimize the effects of harvest on the abundance, productivity, and viability of those ESUs and populations?</p> <p>2. What new harvest and escapement strategies can be employed to improve harvest opportunities and ecological benefits within the Columbia Basin while minimizing negative effects on ESUs or populations of concern? Can genetic techniques be used to quantify impacts on wild or ESA-listed stocks in ocean fisheries?</p> <p>3. How can the multiple ecological benefits that salmon provide to the watersheds where they spawn (e.g., provision of a food resource for wildlife and a nutrient source for streams and riparian areas) be incorporated effectively into procedures for establishing escapement goals?</p>
(7) Population Structure and Diversity	<p>1. What approaches to population recovery and habitat restoration are most effective in regaining meta-population structure and diversity that will increase viability of fish and wildlife in the Columbia River Basin?</p> <p>2. How do artificial production and supplementation impact the maintenance or restoration of an ecologically functional metapopulation structure?</p> <p>3. What is the relationship between genetic diversity and ecological and evolutionary performance, and to what extent does the loss of stock diversity reduce the fitness, and hence survival rate and resilience, of remaining populations?</p> <p>4. What are the differential effects of flow augmentation, transportation, and summer spill on “ocean type vs. reservoir type” fall Chinook?</p>
(8) Effects of Climate Change on Fish and Wildlife	<p>1. Can integrated ecological monitoring be used to determine how climate change simultaneously affects fish and wildlife and the freshwater, estuarine, ocean, and terrestrial habitats and ecosystems that sustain them?</p> <p>2. Can indices of climate change be used to better understand and predict interannual and interdecadal changes in production, abundance, diversity, and distribution of Columbia Basin fish and wildlife?</p> <p>3. What long-term changes are predicted in the Columbia River Basin and the northeast Pacific Ocean, how will they affect the fishes and wildlife in the region, and what actions can ameliorate increased water temperatures, decreased summer river flows, and other ecosystem changes?</p>
(9) Toxics	<p>1. What is the distribution and concentration of toxics, including emerging contaminants, in the Columbia River Basin, and what are/have been their trends over time?</p> <p>2. How do toxic substances, alone and in combination, affect fish and wildlife distribution and abundance, survival, and productivity?</p>
(10) Invasive Species	<p>1. What is the current distribution and abundance of invasive and deliberately introduced nonnative species (e.g., the baseline condition), and how is this distribution related to existing habitat conditions (e.g., flow and temperature regimes, human development, restoration actions)?</p> <p>2. To what extent do (or will) invasive and nonnative species significantly affect the potential recovery of native fish and wildlife species in the Columbia River Basin?</p> <p>3. What are the primary pathways of introduction of invasive and nonnative species, and what methods could limit new introductions or mitigate the effects of currently established invasives?</p>

<b>Focal Research Themes</b>	<b>Critical Uncertainties</b>
(11) Human Development	<ol style="list-style-type: none"> <li>1. What changes in human population density, distribution, and economic activity are expected over the next 20 years? 50 years?</li> <li>2. How might the projected changes under different development scenarios affect land use patterns, protection and restoration efforts, habitats, and fish and wildlife populations?</li> </ol>
(12) Monitoring and Evaluation	<ol style="list-style-type: none"> <li>1. What are the range, magnitude, and rates of change of natural spawning fitness of integrated (supplemented) populations, and how are these related to management rules, including the proportion of hatchery fish permitted on the spawning grounds, the broodstock mining rate, and the proportion of natural-origin adults in the hatchery broodstock?</li> <li>2. Can a common probabilistic (statistical) site selection procedure for population and habitat status and trend monitoring be developed cooperatively?</li> <li>3. Can a scientifically credible trend monitoring procedure based on remote sensing, photography, and data layers in a GIS format be developed?</li> <li>4. Can empirical (e.g., regression) models for prediction of current abundance or presence/absence of focal species concurrent with the collection of data on status and trends of wildlife and fish populations and habitat be developed?</li> </ol>

**Attachment 3. Revised Proposal Review Questions for the Mainstem Systemwide Review Team**

<b>Proposal Review Questions</b>	
1. Are tasks in this proposal called for in a guidance document*?	<b>ID Doc?</b>
2. Are the objectives clearly defined with measurable outcomes and tasks?	<b>Y or N</b>
3. Does the project address an urgent requirement (or management question) or threat to population maintenance and/or habitat protection for a focal species (i.e., related to threatened, endangered or sensitive species)?	<b>Y or N</b>
4. Will the project provide data critical for in-season, annual and/or longer term management decisions?	<b>How will the data be used?</b>
5. Are the resources proposed (staff, equipment, materials) appropriate to achieve the objectives and time frame milestones?	<b>Y or N</b>
6. Does the proposal demonstrate that the project uses appropriate scientifically valid strategies or techniques and sound principles (best available science)?	<b>Y or N</b>
7. Are there explicit plans for how the information, technology, etc. from this project will be disseminated or used (particularly to support management activities)?	<b>Y or N</b>
8. What is the expected duration of this project?	<b># Years?</b>
9. Would a stranded investment be created if the project were not funded?	<b>Y or N</b>
10. Are there components of the project that could be reduced, deferred or eliminated?	<b>ID Work Elements</b>

\*Guidance Documents include:

For this review cycle, the Council’s 2000 Fish and Wildlife Program, 2003 Mainstem Amendment, 2005 Mainstem Subbasin Plans, the 2004 NOAA FCRPS Biological Opinion (under remand) and Updated Proposed Action, the Interior Columbia River Technical Recovery Team’s population designations and viability criteria, USFWS Recovery Plans, and other biological opinions will be used as the primary guidance documents. The Northwest Power and Conservation Council (NPCC) recently approved a Research Plan and is currently developing a monitoring and evaluation guidance document for selection of monitoring projects. Also available for reference is the 2005 ISRP Retrospective Report.

**Attachment 4. Revised Mainstem Systemwide Review Team (MSRT) prioritization categories for FY 2007-2009 proposal reviews.**

- Core Program - These projects are integral to the infrastructure and/or information needs of the F&W Program in the Columbia River Basin for planning, evaluation, and management of the fish and wildlife resources. For on-the-ground efforts, these projects should be necessary for the protection, survival, or recovery of a species. Explicit 2004 UPA projects should be included in this category.
- High Priority - These projects or tasks within a project are high priority within the Program that are not addressed by Core Program projects. The project addresses a specific need within an appropriate guidance document.\*
- Recommended Actions - These are good projects that cannot demonstrate a significant loss by not being funded this year. These projects should be funded, but under a limited budget, they could be delayed temporarily without significant loss.
- Do not fund - These projects are either technically inadequate or do not address a need within an appropriate guidance document.\* These projects may be inappropriate for BPA funding.

\*Appropriate Guidance Documents include:

For this review cycle, the Council's 2000 Fish and Wildlife Program, 2003 Mainstem Amendment, 2005 Mainstem Subbasin Plans, the 2004 NOAA FCRPS Biological Opinion (under remand) and Updated Proposed Action, the Interior Columbia River Technical Recovery Team's population designations and viability criteria, USFWS Recovery Plans, and other biological opinions will be used as the primary guidance documents. The Northwest Power and Conservation Council (NPCC) recently approved a Research Plan and is currently developing a monitoring and evaluation guidance document for selection of monitoring projects. Also available for reference is the 2005 ISRP Retrospective Report.

**Attachment 5. FY 2007-2009 Mainstem and Systemwide Proposals Sorted by Program Priority and Monitoring Component**

Proposal Number	Title	Sponsor	Program Priority	Monitoring Component/Focal Theme
200711700	Comprehensive Assessment of Coho Salmon Restoration Efforts in the Mid-Columbia and Mid-Snake River Basins	Columbia River Inter-Tribal Fish Commission (CRITFC)	Coordination/Support	(2a) 1
199601900	Technical Management Team (TMT)	University of Washington	Coordination/Support	(2a) 2
199008000	Columbia Basin Pit-Tag Information System.	Pacific States Marine Fisheries Commission (PSMFC)	Coordination/Support	(2a) 2, 3
200723800	Providing Services to Assist Record Keeping of Over the Bank Sales in Zone 6 Tribal Fisheries	Steven Vigg & Company	Coordination/Support	(2a) 4
199706000	Focus Watershed Coordinator - Nez Perce Tribe	Nez Perce Tribe	Coordination/Support	(2a) 5
199803100	Implement Wy-Kan-Ush-Mi Wa-Kis	Columbia River Inter-Tribal Fish Commission (CRITFC)	Coordination/Support	(2a) 5

<b>Proposal Number</b>	<b>Title</b>	<b>Sponsor</b>	<b>Program Priority</b>	<b>Monitoring Component/Focal Theme</b>
200718300	Restoration of Historical Salmonid Habitat in South West Idaho	Southwest Idaho RC&D	Coordination/Support	(2a) 5
198810804	StreamNet (CIS/NED)	Pacific States Marine Fisheries Commission (PSMFC)	Coordination/Support	(2a) 6
198906201	Annual Work Plan CBFWA	Columbia Basin Fish & Wildlife Authority (CBFWA)	Coordination/Support	(2a) 6
199600500	ISAB	Northwest Power and Conservation Council	Coordination/Support	(2a) 6
199800401	Columbia Basin Bulletin	Intermountain Communications	Coordination/Support	(2a) 6
200303600	CBFWA Collaborative Systemwide Monitoring and Evaluation Program	Columbia Basin Fish & Wildlife Authority (CBFWA)	Coordination/Support	(2a) 6

Proposal Number	Title	Sponsor	Program Priority	Monitoring Component/Focal Theme
200307200	Habitat and Biodiversity Information System For Columbia River Basin	Northwest Habitat Institute	Coordination/Support	(2a) 6
200400200	PNAMP Funding	US Geological Survey (USGS) - Cook	Coordination/Support	(2a) 6
200700900	A Spatially Explicit & Web-accessible Database for Managing the Impacts of Expanding Colonial Waterbird Populations on Juvenile Salmonids (Oncorhynchus spp.) in the Columbia River Basin	Northwest Fisheries Science Center	Coordination/Support	(2a) 6
200702500	Project Compliance Monitoring	XLSolutions	Coordination/Support	(2a) 6
200704700	Hydrography Spatial Data Enhancement Project - WDFW & WDNR Operational Data Updates and Integration to the PNW Hydrography Clearinghouse for the WA Columbia Basin	Interagency Committee (IAC)	Coordination/Support	(2a) 6
200710600	Spokane Tribe Fish and Wildlife Planning and Coordination	Spokane Tribe	Coordination/Support	(2a) 6

<b>Proposal Number</b>	<b>Title</b>	<b>Sponsor</b>	<b>Program Priority</b>	<b>Monitoring Component/Focal Theme</b>
200710800	Regional Coordination for Upper Columbia United Tribes	Upper Columbia United Tribes	Coordination/Support	(2a) 6
200716200	Kalispel Tribe Fish and Wildlife Coordination	Kalispel Tribe	Coordination/Support	(2a) 6
200720000	Idaho Subbasin Planning and Comprehensive Wildlife Conservation Strategy (CWCS) Data Distribution System	Idaho Department of Fish & Game	Coordination/Support	(2a) 6
200725400	StreamNet Support and Services for Conservation and Recovery Data Needs	Pacific States Marine Fisheries Commission (PSMFC)	Coordination/Support	(2a) 6
200728000	Columbia River Basin Journal	Intermountain Communications	Coordination/Support	(2a) 6
200728700	Delivering Reliable Fish Passage Information for Hydrosystem Management	Pacific Northwest National Laboratory	Coordination/Support	(2a) 6
200730000	Fish Passage Technical Services Project	Columbia River Inter-Tribal Fish Commission (CRITFC)	Coordination/Support	(2a) 6
200731300	Expanded Acquisition and Display of Fish (Initially Anadromous Salmonids) Harvest Data in the StreamNet Database	Pacific States Marine Fisheries Commission (PSMFC)	Coordination/Support	(2a) 6

<b>Proposal Number</b>	<b>Title</b>	<b>Sponsor</b>	<b>Program Priority</b>	<b>Monitoring Component/Focal Theme</b>
200731400	Regional Consolidation of Habitat Restoration Project Information From Multiple Funding Sources with Dissemination Through the StreamNet Website	Pacific States Marine Fisheries Commission (PSMFC)	Coordination/Support	(2a) 6
200732100	Data Management for System Operations	Columbia Basin Fish & Wildlife Authority (CBFWA)	Coordination/Support	(2a) 6
200732600	Monitoring of juvenile and adult salmonid survival through the Federal Columbia River Power System	Washington Department of Fish and Wildlife (WDFW)	Coordination/Support	(2a) 6
200732700	Compilation of Location-Specific Hatchery Release Data in Consistent Format Across Agencies by StreamNet	Pacific States Marine Fisheries Commission (PSMFC)	Coordination/Support	(2a) 6
200735200	Feasibility Study and Implementation of a System-wide Conservation Enforcement Web-Based Data Center	Steven Vigg & Company	Coordination/Support	(2a) 6
200738800	Fish Passage Data System (Key Functions Previously Performed by the Fish Passage Center)	Pacific States Marine Fisheries Commission (PSMFC)	Coordination/Support	(2a) 6
200700100	Aquatic survey protocol comparison.	US Forest Service - National Headquarters	Coordination/Support	(2b) 3

Proposal Number	Title	Sponsor	Program Priority	Monitoring Component/Focal Theme
199405400	Migratory Patterns, Structure, Abundance and Status of Bull Trout Populations in Subbasins of the Columbia Gorge, Columbia Plateau and Blue Mountain Provinces	Oregon Department of Fish & Wildlife (ODFW)	Monitoring and Evaluation	(2a) 1
199900301	Evaluate Spawning of Fall Chinook and Chum Salmon Just Below the Four Lowermost Mainstem Dams	Oregon Department of Fish & Wildlife (ODFW)	Monitoring and Evaluation	(2a) 1
200701400	Stock specific run timing and upstream migration mortality of adult Chinook and sockeye salmon and steelhead through PIT tagging and genetic analyses at Bonneville Dam.	Columbia River Inter-Tribal Fish Commission (CRITFC)	Monitoring and Evaluation	(2a) 1
200707800	Characterizing the Geographic Distribution of Freshwater Mussels in the Columbia Basin Using Museum Collection Data.	Washington Department of Fish and Wildlife (WDFW)	Monitoring and Evaluation	(2a) 1
200708900	Monitoring Invasive Species in the mainstem Columbia River: the development of a design to monitor the status and trends and provide for the early detection of invasive species	US Geological Survey (USGS) - Cook	Monitoring and Evaluation	(2a) 1
200714600	Bull Trout Population Status Monitoring in the Snake River Basin of Southeast Washington	Washington Department of Fish and Wildlife (WDFW)	Monitoring and Evaluation	(2a) 1

Proposal Number	Title	Sponsor	Program Priority	Monitoring Component/Focal Theme
200716500	Relative abundance, distribution, and population structure of lampreys in the Columbia River Basin	Columbia River Research Laboratory	Monitoring and Evaluation	(2a) 1
200722300	Genetic characteristics and movement patterns of bull trout populations between Chief Joseph and McNary Dams, within the Columbia Cascade and Columbia Plateau Provinces	US Fish & Wildlife Service (USFWS)	Monitoring and Evaluation	(2a) 1
200725300	Monitoring of Adult Abundance and Spatial Distribution for Snake River Spring/Summer Chinook Salmon ESU Populations	Nez Perce Tribe / Idaho Department of Fish and Game	Monitoring and Evaluation	(2a) 1
200725800	Development of reliable ESU-specific estimates of escapement, harvest, and straying for adult anadromous salmonids migrating through the Federal Columbia River Power System.	University of Idaho	Monitoring and Evaluation	(2a) 1
200728100	Washington Salmonid Abundance and Productivity Monitoring Framework	Washington Department of Fish and Wildlife (WDFW)	Monitoring and Evaluation	(2a) 1
200735300	Quantitative and effective analysis of Columbia River Chinook salmon ( <i>Oncorhynchus tshawytscha</i> ) and steelhead ( <i>O. mykiss</i> ) population viability.	Columbia River Inter-Tribal Fish Commission (CRITFC)	Monitoring and Evaluation	(2a) 1
200500200	Operation of the Lower Granite Dam Adult Trap	Northwest Fisheries Science Center	Monitoring and Evaluation	(2a) 1, 3

<b>Proposal Number</b>	<b>Title</b>	<b>Sponsor</b>	<b>Program Priority</b>	<b>Monitoring Component/Focal Theme</b>
198910700	Statistical Support For Salmonid Survival Studies	University of Washington	Monitoring and Evaluation	(2a) 2
199105100	M&E Statistical Support For Life-Cycle Studies	University of Washington	Monitoring and Evaluation	(2a) 2
199302900	Survival Estimates for the Passage of Juvenile Salmonids Through Snake and Columbia River Dams and Reservoirs	Northwest Fisheries Science Center	Monitoring and Evaluation	(2a) 2
199602000	Pit Tagging Spring/Summer Chin	Columbia River Fisheries Program Office	Monitoring and Evaluation	(2a) 2
199602100	Gas Bubble Disease Research & Monitoring of Juvenile Salmonids	Columbia River Research Laboratory	Monitoring and Evaluation	(2a) 2
200203000	Develop Progeny Marker for Salmonids to Evaluate Supplementation	Confederated Tribes of the Umatilla Indian Reservation	Monitoring and Evaluation	(2a) 2
200203200	Snake River fall Chinook salmon life history investigations	US Geological Survey (USGS) - Cook	Monitoring and Evaluation	(2a) 2
200703300	Monitor sub adult and adult bull trout passage through Lower Granite, Little Goose and Lower Monumental juvenile bypass facilities.	US Fish & Wildlife Service (USFWS)	Monitoring and Evaluation	(2a) 2

<b>Proposal Number</b>	<b>Title</b>	<b>Sponsor</b>	<b>Program Priority</b>	<b>Monitoring Component/Focal Theme</b>
198712700	Smolt Monitoring By Non-Feder	Pacific States Marine Fisheries Commission (PSMFC)	Monitoring and Evaluation	(2a) 2, 3
198201301	Coded-Wire Tag Recovery	Pacific States Marine Fisheries Commission (PSMFC)	Monitoring and Evaluation	(2a) 3, 4, 1
198201302	Annual Stock Assessment - Coded Wire Tag Program (ODFW)	Oregon Department of Fish & Wildlife (ODFW)	Monitoring and Evaluation	(2a) 3, 4, 1
198201303	Coded Wire Tag - USFWS	US Fish & Wildlife Service (USFWS)	Monitoring and Evaluation	(2a) 3, 4, 1
198201304	Coded Wire Tag - WDFW	Washington Department of Fish and Wildlife (WDFW)	Monitoring and Evaluation	(2a) 3, 4, 1
200206000	Nez Perce Harvest Monitoring	Nez Perce Tribe	Monitoring and Evaluation	(2a) 4

Proposal Number	Title	Sponsor	Program Priority	Monitoring Component/Focal Theme
200301700	Integrated Status and Effectiveness Monitoring Program (ISEMP): The design and evaluation of monitoring tools for salmon populations and habitat in the Interior Columbia River Basin	Northwest Fisheries Science Center	Monitoring and Evaluation	(2a) 5
200600600	Habitat Evaluation Procedures (HEP)	Columbia Basin Fish & Wildlife Authority (CBFWA)	Monitoring and Evaluation	(2a) 5
200717600	A Freshwater Mussel Watch for Biomonitoring in the Columbia River Basin	Confederated Tribes of the Umatilla Indian Reservation	Monitoring and Evaluation	(2a) 5
200726700	Probabilistic Monitoring of the Status and Trends of Habitat, Water Quality, and Fish Presence in the Washington Portion of the Columbia River Basin	Interagency Committee (IAC)	Monitoring and Evaluation	(2a) 5
198605000	White Sturgeon Mitigation and Restoration in the Columbia and Snake Rivers Upstream from Bonneville Dam	Oregon Department of Fish & Wildlife (ODFW)	On-the-Ground Action	(2a) 1
199606700	Manchester Spring Chinook Captive Broodstock Project	National Oceanic & Atmospheric Administration (NOAA)	On-the-Ground Action	(2a) 3
199703800	Listed Stock Chinook Salmon Gamete Preservation	Nez Perce Tribe	On-the-Ground Action	(2a) 3

Proposal Number	Title	Sponsor	Program Priority	Monitoring Component/Focal Theme
200715500	Develop a Master Plan for a Rearing Facility to Enhance Selected Populations of White Sturgeon in the Columbia River Basin	Columbia River Inter-Tribal Fish Commission (CRITFC)	On-the-Ground Action	(2a) 3
199007700	Dev Of Systemwide Predator Control for Northern Pikeminnows.	Pacific States Marine Fisheries Commission (PSMFC)	On-the-Ground Action	(2a) 5
199702400	Avian Predation on Juvenile Salmonids in the Lower Columbia River	Oregon State University	On-the-Ground Action	(2a) 5
200201301	Water Entry (Rpa 151) NWPPC	National Fish & Wildlife Foundation	On-the-Ground Action	(2a) 5
198909600	Genetic Monitoring of Snake River Chinook Salmon and Steelhead	Northwest Fisheries Science Center	Research	(2b) 1
199305600	Research to advance hatchery reform, including captive broodstocks	Northwest Fisheries Science Center	Research	(2b) 1

Proposal Number	Title	Sponsor	Program Priority	Monitoring Component/Focal Theme
200001700	Recondition Wild Steelhead Kelt	Columbia River Inter-Tribal Fish Commission (CRITFC)	Research	(2b) 1
200203100	Growth modulation in salmon supplementation	National Oceanic & Atmospheric Administration (NOAA)	Research	(2b) 1
200305000	Eval Of Reprod Of Steelhead	University of Washington	Research	(2b) 1
200305400	Repro Of Steelhead In Hood River	Oregon State University	Research	(2b) 1
200306000	Evaluating relative reproductive success of wild and hatchery origin Snake River fall Chinook spawners upstream of Lower Granite Dam	Washington Department of Fish and Wildlife (WDFW)	Research	(2b) 1
200306200	Evaluate the Relative Reproductive Success of Reconditioned Kelt Steelhead	Columbia River Inter-Tribal Fish Commission (CRITFC)	Research	(2b) 1
200711000	Differences in Functional Genes Between Hatchery and Wild Chinook Salmon	University of Idaho - Aquaculture Research Institute	Research	(2b) 1

<b>Proposal Number</b>	<b>Title</b>	<b>Sponsor</b>	<b>Program Priority</b>	<b>Monitoring Component/Focal Theme</b>
200716000	Evaluation of spawning success in Pacific salmon using electromyogram telemetry	Pacific Northwest National Laboratory	Research	(2b) 1
200717700	Protecting wild steelhead populations by minimizing the behavioral differences between hatchery and wild populations.	Northwest Fisheries Science Center	Research	(2b) 1
200722700	Rapid DNA Profiling of Hatchery and Wild Salmon Stocks with Single Nucleotide Polymorphism (SNP) Profiling	Pacific Northwest National Laboratory	Research	(2b) 1
200729400	Control of BKD by Inactivation of the Renibacterium salmoninarum Sortase Enzyme as an Alternative to Antibiotics	Northwest Fisheries Science Center	Research	(2b) 1
200737900	Surveying Jobs that Depend on the Existence of Lower Snake River Reservoirs	bluefish.org	Research	(2b) 11
200738000	Keeping Irrigators Whole in the Event of Reservoir Removal	bluefish.org	Research	(2b) 11
200738300	Keeping Commodity Shippers Whole in the Event of Reservoir Removal	bluefish.org	Research	(2b) 11

Proposal Number	Title	Sponsor	Program Priority	Monitoring Component/Focal Theme
200738400	Reducing the Cost of Reservoir Removal	bluefish.org	Research	(2b) 11
200738600	Estimating Bonneville Power Administration Revenue Effects in the Event of Reservoir Removal	bluefish.org	Research	(2b) 11
200100300	Adult Pit Detector Installatio	Pacific States Marine Fisheries Commission (PSMFC)	Research	(2b) 12
200719800	Next Steps in Subbasin Planning: Umatilla Pilot Project	Confederated Tribes of the Umatilla Indian Reservation	Research	(2b) 12
200721600	Pacific Northwest Aquatic Monitoring Partnership-Fish Population Monitoring (FPM)--RME Design and Protocols. Programmatic and Standardized Work Products for PNW and the Columbia Basin	Pacific Northwest Aquatic Monitoring Partnership (PNAMP)	Research	(2b) 12
200735800	Estimating the detection efficiency of snorkeling for detecting anadromous salmonid parr	US Forest Service (USFS) - Rocky Mt Research Station	Research	(2b) 12

<b>Proposal Number</b>	<b>Title</b>	<b>Sponsor</b>	<b>Program Priority</b>	<b>Monitoring Component/Focal Theme</b>
198331900	New Marking & Monitoring Tech	National Oceanic & Atmospheric Administration (NOAA)	Research	(2b) 2
199102900	Research, monitoring, and evaluation of emerging issues and measures to recover the Snake River fall Chinook salmon ESU	US Fish & Wildlife Service (USFWS)	Research	(2b) 2
200202700	Forecasting Hydrosystem Operations to Benefit Anadromous Fish Migration	US Department of Energy (DOE)	Research	(2b) 2
200304100	Evaluate Delayed (Extra) Mortality Associated with Passage of Yearling Chinook Salmon through Snake River Dams	Northwest Fisheries Science Center	Research	(2b) 2
200714400	Evaluation of water temperature exposure in the Columbia River hydrosystem on reproductive success of adult and juvenile Chinook salmon and steelhead	University of Idaho	Research	(2b) 2
200729700	Effect of Elevated Water Temperature and Gas Supersaturation on Bull Trout Reproduction and Growth.	Abernathy Fish Tech. Center	Research	(2b) 2
200733600	Effects of short-term flow fluctuations on salmon migration	Oak Ridge National Laboratory	Research	(2b) 2

<b>Proposal Number</b>	<b>Title</b>	<b>Sponsor</b>	<b>Program Priority</b>	<b>Monitoring Component/Focal Theme</b>
200736400	Determining the effects of load following on reservoir hydraulics and migration behavior of juvenile salmonids.	Columbia River Research Laboratory	Research	(2b) 2
200737400	Investigating Juvenile Salmonid Mortality Associated with Lock Flushing	bluefish.org	Research	(2b) 2
200737700	Cooler Temperatures for Federally Controlled Reservoirs	bluefish.org	Research	(2b) 2
200737800	Investigating Reservoir Sediment Concerns of a Restored Free-Flowing Lower Snake River	bluefish.org	Research	(2b) 2
200738500	Investigating Flood Control Benefits and Flooding Risks of Federally Controlled Lower Snake Dams	bluefish.org	Research	(2b) 2
200303800	Evaluate Restoration Potential of Snake River Fall Chinook Salmon Spawning Habitat	Pacific Northwest National Laboratory	Research	(2b) 3
200713100	Screening diversions for conservation of fish populations in the Columbia River Basin: entrainment losses, prioritization, and the efficacy of alternative technology designs	Columbia River Research Laboratory	Research	(2b) 3

<b>Proposal Number</b>	<b>Title</b>	<b>Sponsor</b>	<b>Program Priority</b>	<b>Monitoring Component/Focal Theme</b>
200713600	Beavers as stream restorationists? Determining Systemwide status and trends in beaver impoundments in tributary streams, and the relationships between beaver impoundment and salmonids.	University of Idaho	Research	(2b) 3
200715100	Nutrient Enhancement Business Plan	Lower Columbia Fish Enhancement Group	Research	(2b) 3
200718000	Evaluating and prioritizing restoration of riparian habitat for improving in-stream conditions for anadromous salmonids in the Columbia River basin.	US Forest Service (USFS) - Pacific Northwest Research Station	Research	(2b) 3
200725200	Multi-scale assessment of hyporheic flow, temperature and fish distribution in Columbia River Tributaries	Confederated Tribes of the Umatilla Indian Reservation	Research	(2b) 3
200725600	Physical and Biological Testing of a Flow Velocity Enhancement System	Natural Solutions	Research	(2b) 3
200726200	Enhanced Landscape Classification to Improve Assessment of Conservation Restoration and Mitigation Projects	Pacific Northwest National Laboratory	Research	(2b) 3

Proposal Number	Title	Sponsor	Program Priority	Monitoring Component/Focal Theme
200301000	Historic Habitat Opportunities and Food-Web Linkages of Juvenile Salmon in the Columbia River Estuary and Their Implications for Managing River Flows and Restoring Estuarine Habitat	National Oceanic & Atmospheric Administration (NOAA)	Research	(2b) 4
199801400	Ocean Survival Of Salmonids	National Oceanic & Atmospheric Administration (NOAA)	Research	(2b) 5
200300900	Canada-Usa Shelf Salmon Survival Study	Canada Department Of Fisheries & Oceans	Research	(2b) 5
200311400	Acoustic Tracking For Survival	Kintama Research	Research	(2b) 5
200709000	Effects of the marine environment on the growth and survival of Columbia Basin spring Chinook and sockeye salmon stocks.	Columbia River Inter-Tribal Fish Commission (CRITFC)	Research	(2b) 5
200706300	Use of drift nets to monitor production and limiting factors in recruitment of larval Pacific lamprey	Oregon State University	Research	(2b) 6
200710700	What was old is new again: evaluate the pound net and beach seine as innovative live capture selective harvest gears	Washington Department of Fish and Wildlife (WDFW)	Research	(2b) 6

<b>Proposal Number</b>	<b>Title</b>	<b>Sponsor</b>	<b>Program Priority</b>	<b>Monitoring Component/Focal Theme</b>
200723000	Selective Gear Demonstration Project: Reef Net Fishing Gear for Lower Columbia River Commercial Salmon Fishery	Washington Sea Grant Program	Research	(2b) 6
200724900	Evaluation of Live Capture, Selective Fishing Gear	Colville Confederated Tribes	Research	(2b) 6
199902000	Analyze Chinook Salmon Spatial and Temporal Dynamics and Persistence	US Forest Service (USFS) - Rocky Mt Research Station	Research	(2b) 7
200702200	Characterizing stress responses in lampreys: assessments based on cDNA microarrays	Columbia River Research Laboratory	Research	(2b) 7
200713300	Systemwide distribution of genetic variation within and among populations of the white sturgeon ( <i>Acipenser transmontanus</i> )	University of California at Davis	Research	(2b) 7
200714800	Monitoring and Models for Restoration and Adaptive Management of White Sturgeon in the Columbia River Basin	US Geological Survey (USGS) - Cook	Research	(2b) 7
200716800	Using otolith microstructure and microchemistry to delineate growth patterns and spatial structure of Snake River Fall Chinook salmon	National Oceanic & Atmospheric Administration (NOAA)	Research	(2b) 7

Proposal Number	Title	Sponsor	Program Priority	Monitoring Component/Focal Theme
200717500	DNA typing to identify native inland Oncorhynchus mykiss	Washington State University	Research	(2b) 7
200718700	Use of Mainstem Habitats by Juvenile Pacific Lamprey (Lampetra tridentata)	Pacific Northwest National Laboratory	Research	(2b) 7
200721300	Assessing Recruitment Failure Across White Sturgeon Populations: Differences in Prey Availability and Physical Habitat Among Areas with Consistent, Inconsistent, and no Annual Recruitment to Age-1	US Geological Survey (USGS) - Cook	Research	(2b) 7
200727500	Impact of American shad in the Columbia River	Columbia River Research Laboratory	Research	(2b) 7
200723600	Strategic Adaptation of the Federal Columbia River Power System to Climate Variability and Change	Portland State University	Research	(2b) 8
200719700	Evaluating the sublethal impacts of current use pesticides on the environmental health of salmonids in the Columbia River Basin.	Northwest Fisheries Science Center	Research	(2b) 9

H:\WORK\FY07-09MainstemSystemwideReview\MSRTprocess(Apr7finaldraft).doc