FUNDING FOR SALMON RECOVERY IN WASHINGTON STATE

Prepared by Dennis Canty, Evergreen Funding Consultants
for the Governor's Salmon Recovery Office and the
Council of Regional Salmon Recovery Organizations

March 2011

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TABLE OF CONTENTS

INTRODUCTION

This report is the culmination of an eleven-month project undertaken by Evergreen Funding Consultants on contract to the Washington State Governor's Salmon Recovery Office (GSRO). The majority of funding for the project was provided by the regional salmon recovery organizations in the state. The focus of the project has been to review the funding strategy for salmon recovery that has evolved since the first listings of Washington State salmon stocks under the Endangered Species Act in the late 1990's and the more recent development of recovery plans. Assumptions were made over time about the costs of salmon recovery, the funding and fund sources available for recovery, and the need to address gaps in funding, all of which were reviewed in this project.

While the project was funded by the Governor's Salmon Recovery Office and the salmon recovery regions, the recommendations within this report reflect the opinions of Evergreen Funding Consultants alone.

The project was conducted in close collaboration with staff of the GSRO and the directors of the seven salmon recovery regions in Washington. The contributions of Phil Miller, Miles Batchelder, Scott Brewer, Joe Ryan, Jeff Breckel, Alex Conley, Julie Morgan, and Steve Martin were particularly important and appreciated. In addition, the commitment of the regional recovery organizations — groups of local officials, business leaders, tribal representatives, and other local leaders who volunteer a great deal of time and energy to the recovery effort — must be acknowledged. Finally, the analysis of costs is based in large part on research by Antonia Jindrich and Christine Grant, and the development of recommendations was assisted by Jim Fox, formerly of the Washington Recreation and Conservation Office and now a consultant.

The schedule and budget for the project precluded a definitive treatment of costs, funding sources, and gaps, and it is unclear whether a much more precise analysis is practical regardless of the time and money available. Many of the variables and differences in the scope and nature of the salmon recovery plans remain. This is inevitable given the uniqueness of each salmon recovery region and the inherent nature of plans and strategies founded on the principles of adaptive management, in which recommendations are refined based on an evolving understanding of priorities and effectiveness. These circumstances and principles should not be viewed as a weakness of the recovery plans or this project.

The most creative and innovative aspects of the project came in the end — as they do in this report — where the next steps for a state and regional funding strategy are addressed. The recovery plans have a considerable price tag, well in excess of the current availability of funding, and short-term prospects for significant new funding are discouraging. A good deal of ingenuity and fortitude will be needed to continue pushing for fuller funding of the plans. This report is intended to provide useful guidance for this effort.

THE COSTS OF SALMON RECOVERY

The focus of this section is to estimate the costs of salmon recovery at the regional level. **Using the approach and information described in this section, the estimated statewide cost of the habitat-related elements of salmon recovery at the regional level for the period 2010-2019 is estimated at $5.5 billion, with $4.7 billion in capital costs and nearly $800 million in non-capital costs.**

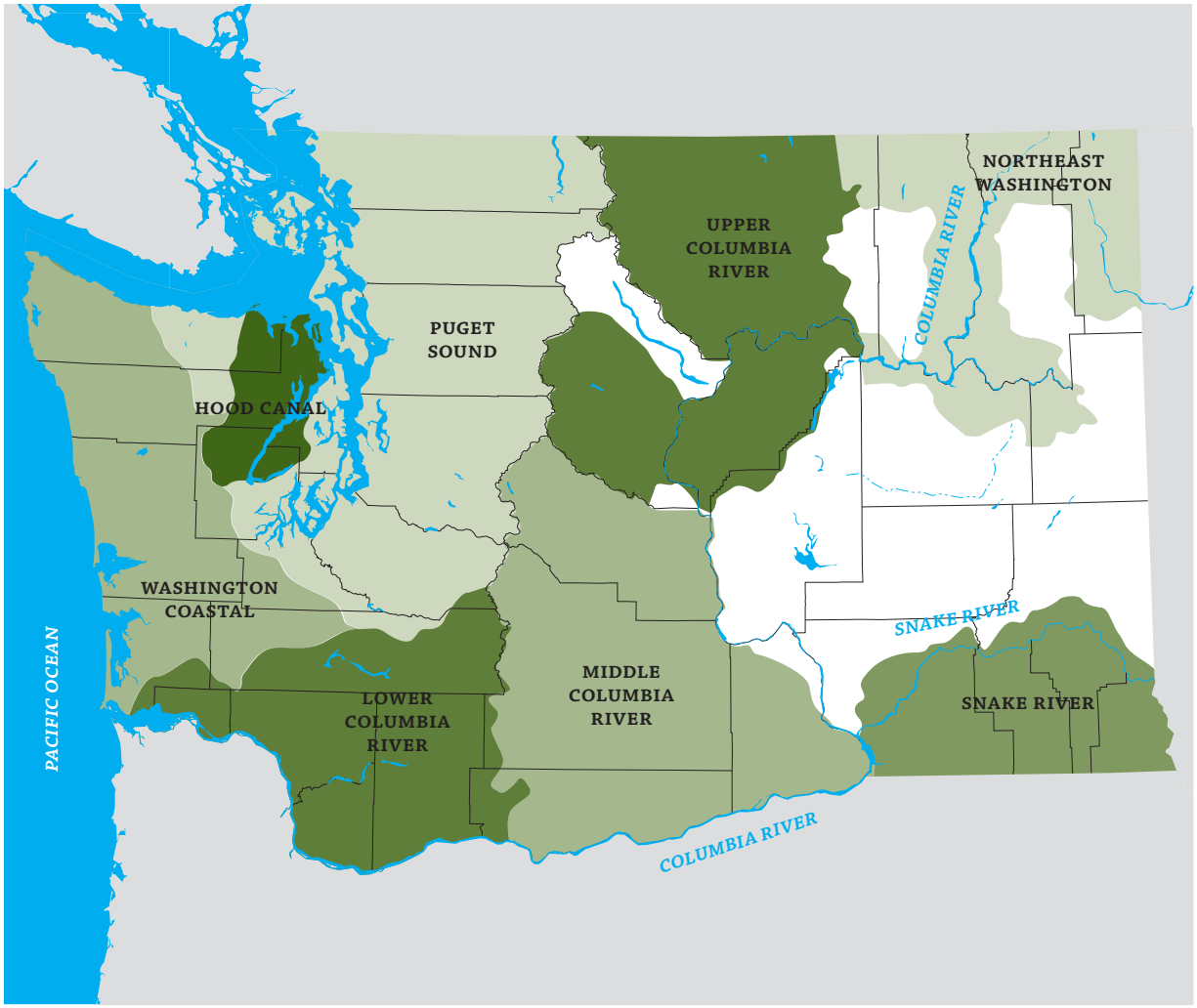
The cost estimates are based principally on published sources, particularly the regional recovery plans compiled over the last five years in each of seven salmon-bearing regions of Washington. Figure 1 shows these regions.

The estimates capture costs for habitat restoration and other capital projects for salmon habitat, as well as non-capital actions that will be undertaken by the regional recovery organization, watershed leaders, Indian tribes, participating agencies and organizations, and landowners to fulfill commitments in the regional recovery plans.

It is important to note that there are costs related to hatchery and harvest improvements that are not captured in these cost estimates that are nonetheless important to salmon recovery. These costs were not included because the regional plans vary greatly in their treatment of these recovery activities and information on comprehensive cost estimates for these activities has generally not been compiled on a regional or statewide scale. This results in unworkable differences in comparing cost estimates other than for the limited Washington Department of Fish and Wildlife (WDFW) cost estimates for the Lower Columbia region shown in Appendix C.

Note that there are other activities that can support salmon recovery in addition to other purposes, such as routine local government permitting and land use regulation, state water quality permitting, and land acquisition for general open space or recreational purposes. These activities are not included in the cost estimates because the purpose of these activities is so much broader than salmon recovery. It is generally impractical to ascribe a portion of these costs to the recovery effort unless actions have been specifically called for in a recovery plan. Likewise, the analysis does not include secondary costs, such as the value of hydropower generation foregone due to salmon-related dam operations or the changes in the value of property along salmon-bearing rivers.

FIGURE 1:
WASHINGTON STATE SALMON RECOVERY REGIONS



FINDINGS ON COSTS

COSTS BY CATEGORY AND REGION

Table 1 shows the cost estimates by capital and non-capital category for each of the seven salmon recovery regions in Washington State. Note that there were many gaps in cost information across the regions that required estimates to be derived from other regions or other sources. This is likely to limit both the precision and the accuracy of this cost estimate, and further work would be needed to improve cost information. This is particularly the case with estimates related to instream flows, water quality improvements, and monitoring, which are largely based on derived information. The methods for deriving costs are described in Appendix A and Appendix B of this report. Appendix A also includes the methodology for estimating costs and important caveats on the cost estimate.[1]

1 Note also that costs for Puget Sound are for salmon recovery only. Total costs for ecosystem restoration in this basin are apt to be significantly higher.

TABLE 1:
ESTIMATED COSTS BY CATEGORY AND REGION ($ MILLIONS)

	PUGET SOUND	COAST	HOOD CANAL	LOWER COLUMBIA	MIDDLE COLUMBIA	SNAKE	UPPER COLUMBIA	STATE-WIDE
HABITAT RESTORATION	$1,005	$284	$132	$675	$127	$68	$378	$2,669
LAND AND EASEMENT ACQUISITION	$156	$123	$62	$167	$93	$25	$144	$770
PASSAGE BARRIER RETROFITS	$160	$40	$1	$116	$86	$39	$70	$511
INSTREAM FLOW ENHANCEMENTS	$50	Unk	Unk	$62	$79	$50	$114	$355
WATER QUALITY IMPROVEMENTS	$95	$80	$33	$120	$26	$25	$28	$407
TOTAL CAPITAL	**$1,467**	**$526**	**$228**	**$1,139**	**$411**	**$207**	**$734**	**$4,712**
PROGRAM OPERATIONS	$40	$23	$5	$10	$8	$8	$32	$126
MONITORING, STUDIES, AND ASSESSMENTS	$116	$70	$18	$96	$98	$28	$108	$533
OUREACH AND EDUCATION	$42	$2	$1	$6	$3	$2	$18	$74
DEVELOPMENT OF REGULATIONS	$44	$11	$1	$6	$4	$2	$6	$74
TOTAL NON-CAPITAL	**$242**	**$95**	**$24**	**$118**	**$113**	**$41**	**$164**	**$796**

DISTRIBUTION AMONG REGIONS AND CATEGORIES

The distribution of estimated capital and non-capital costs among regions is shown in Figures 2 and 3 below.

FIGURE 2:
CAPITAL COST BY REGION (TOTAL $4.7 BILLION)

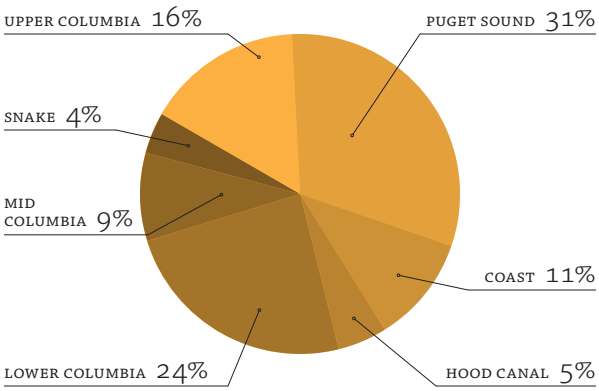
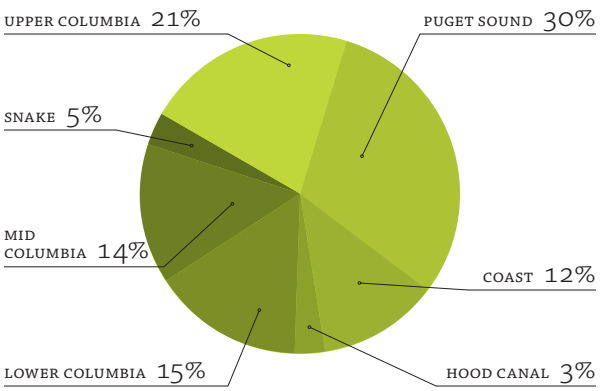


FIGURE 2:
NON-CAPITAL COST BY REGION (TOTAL $796 MILLION)



Unsurprisingly, costs are correlated with the geographic size and human population of regions, both major drivers of the number and complexity of restoration projects. Figures 4 and 5 indicate the breakdown by percentage for capital and non-capital cost categories.

FIGURE 4:
CAPITAL COST BY CATEGORY (TOTAL $4.7 BILLION)

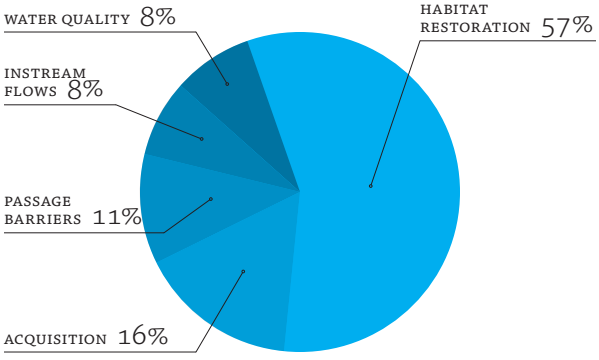
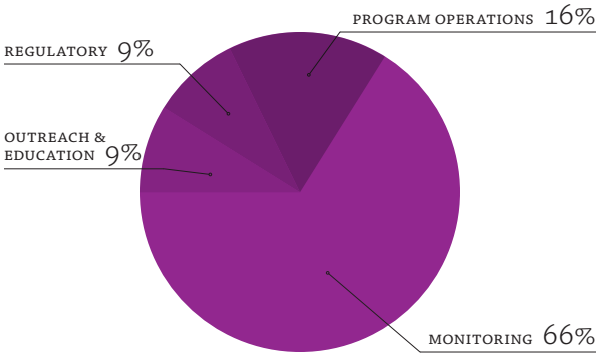


FIGURE 5:
NON-CAPITAL COST BY CATEGORY (TOTAL $796 MILLION)



The distribution of capital costs is unsurprising given the strong emphasis of the recovery plans on habitat restoration. The large fraction of non-capital costs related to monitoring, studies, and assessments seems high when viewed separately, but seems more reasonable when considered as 11% of total estimated capital costs.

FUNDING SOURCES AVAILABLE FOR SALMON RECOVERY

FUNDING SOURCES USED

The regional directors for six of the seven salmon recovery regions[1] were asked to identify funding sources that have been available for implementation of the recovery plan for the last three years (2007-2009). **They identified approximately $120 million in annual salmon funding distributed from the following sources** (listed in rough order of magnitude).

Bonneville Power Administration (BPA):
This source includes funding provided by BPA through the Northwest Power and Conservation Council's Columbia River Basin Fish and Wildlife Program and a portion of funding for the implementation of the Fish Accords, agreements between BPA and individual states and tribes for sustained funding of specific salmonid recovery actions. This source is estimated at $27 million annually.

Local Government Sources:
This category includes a wide variety of sources available to local governments, including general funds, special taxes (such as the Real Estate Excise Tax and the Conservation Futures Tax), and utility fees for water, wastewater, and stormwater services. This source is estimated at $27 million annually.

1 Information on funding sources and gaps in the Washington Coast region was judged to be too preliminary to include in this analysis.

Salmon Recovery Funding Board (SRFB):
This source is a mix of state and federal funding that is appropriated to the SRFB for distribution as grants for salmon recovery activities. This source is estimated at $23 million annually.

Puget Sound Acquisition and Restoration (PSAR) Grants:
This funding has been provided to the Puget Sound Partnership (PSP) and the Recreation and Conservation Office (RCO) for distribution to Puget Sound acquisition and restoration projects. This source is estimated at $16 million annually.

Other Federal Sources:
This category includes a wide range of funding programs, including the US Fish and Wildlife Service's (USFWS) endangered species grants, National Oceanic and Atmospheric Administration (NOAA) community salmon grant programs, some US Environmental Protection Agency (EPA) water quality grants, and a variety of smaller federal programs. This source is estimated at $15 million annually.

Other State Sources:
This category includes some water quality and instream flow grants from the Washington Department of Ecology (Ecology) plus a variety of smaller sources from the Washington State Conservation Commission, WA Departments of Natural Resources (DNR), and Fish and Wildlife (WDFW). This source is estimated at $10 million annually.

Private and Other Sources:
This source is estimated at $5 million annually.

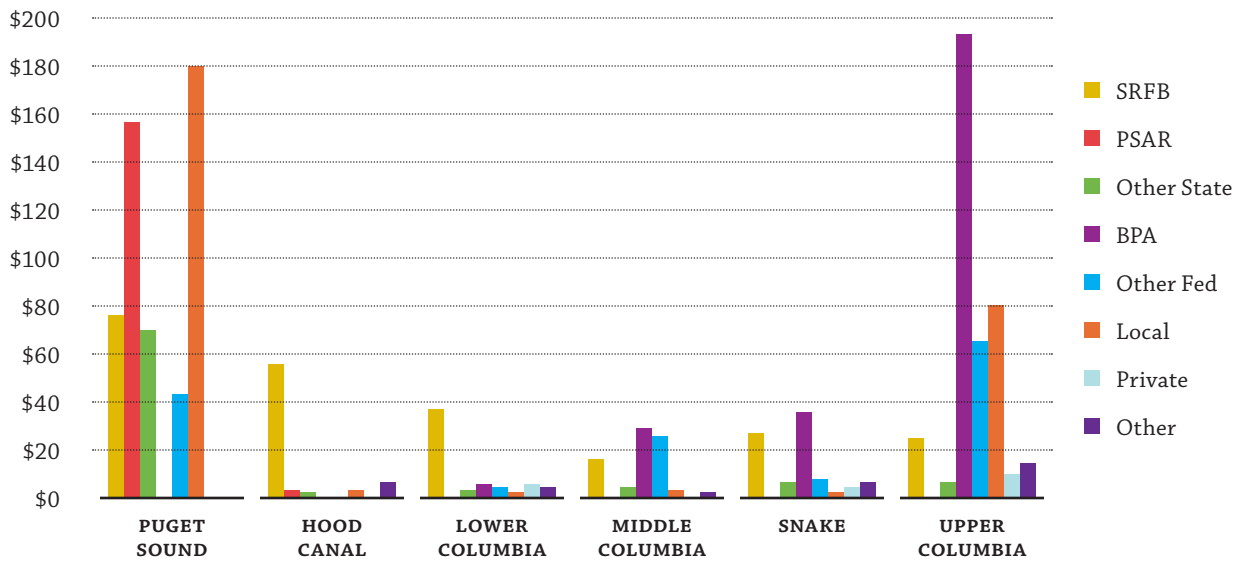
The following figure projects the amount of funding by source for the next ten years if these sources and amounts were maintained for the ten-year period (2010-19).

Note the very significant differences among the regions in the mix of funding sources projected in coming years. The Middle Columbia, Snake, and especially the Upper Columbia have had success in working with BPA to invest in their recovery efforts, while the western regions have relied principally on the SRFB grants, augmented in the case of Puget Sound by a sizable amount of funding from the PSAR program. The high level of local government funding in Puget Sound is probably due in part to a more thorough analysis of local costs in this region's recovery plan, although it may also be explained by the large number and tax base of local governments in this region.

This difference among the regions is particularly significant in terms of the projected dependability of future funding. Much of the BPA funding comes in multi-year commitments (especially the portion committed via the Fish Accords), whereas the SRFB, PSAR, and many other sources of funding come from annual or biennial appropriations and are far more vulnerable to budget cutbacks.

It is also worth noting that the assumption used to forecast the availability of funding — the maintenance of recent funding levels over the upcoming decade — seems very optimistic in the budget climate of early 2011. A reduction in current spending levels would obviously magnify the gaps in funding.

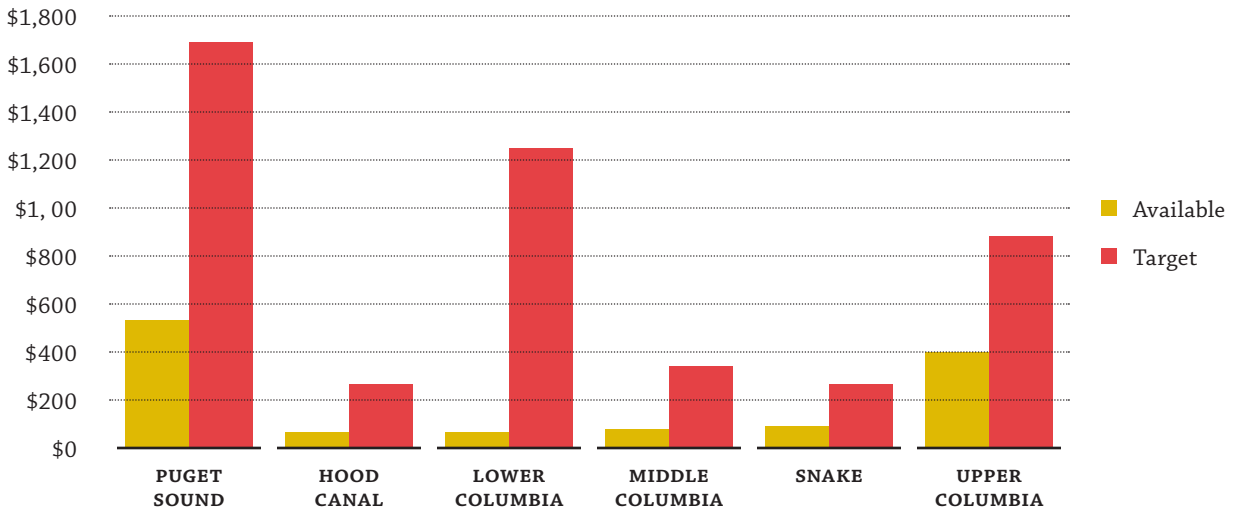
FIGURE 6:
PROJECTED FUNDING BY SOURCE ($ MILLIONS)



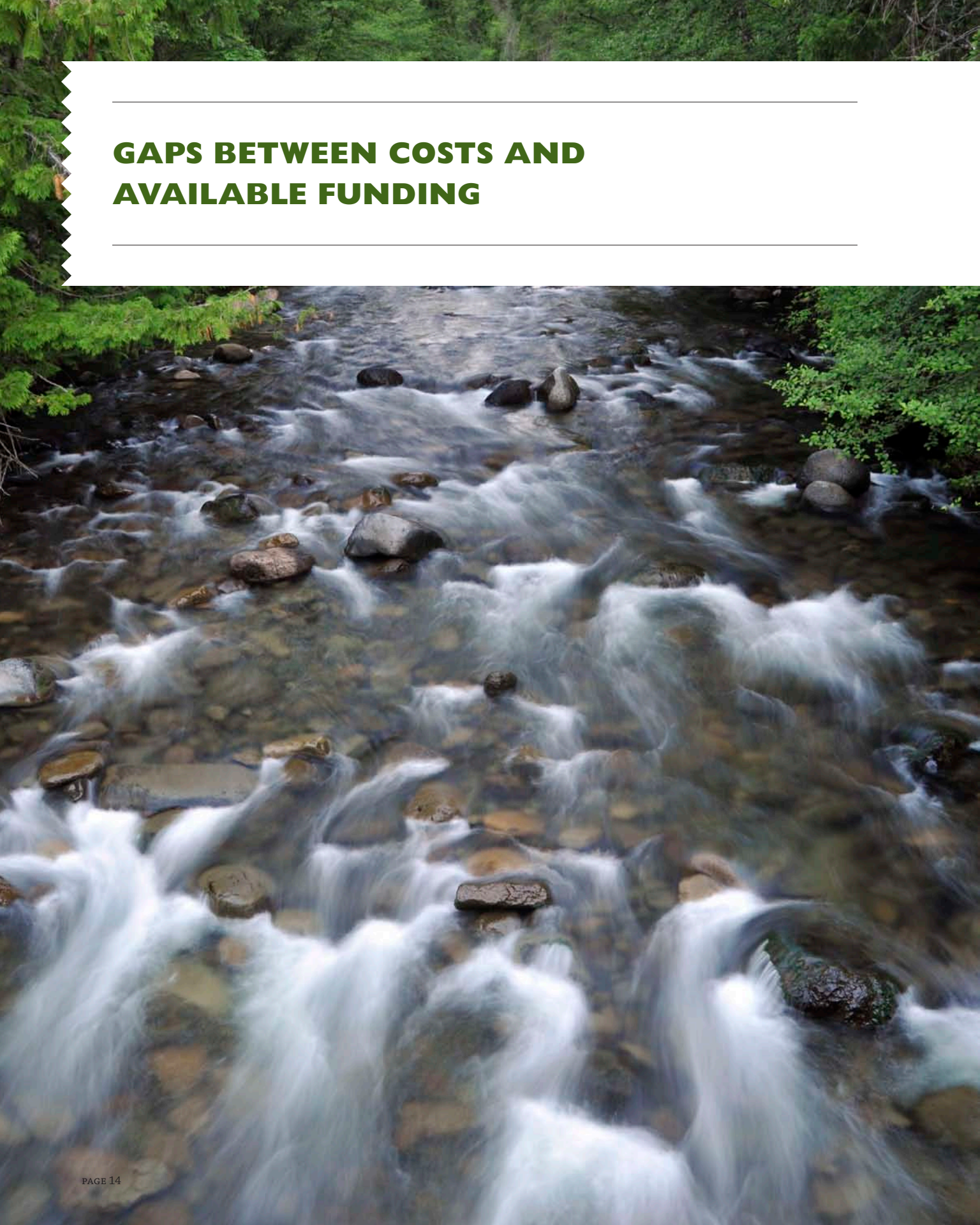
ADEQUACY OF FUNDING

The following figure compares the projected availability of funding versus the funding target or total cost of plan implementation, both for the entire 2010-2019 period. Projections range from 4% in the Lower Columbia region to 45% in the Upper Columbia region, with most regions predicting that current sources, if maintained, would meet 25% to 35% of total funding needs. The statewide average is 28%. **This indicates that current sources, if maintained for the coming ten years, would be sufficient to support approximately one-fourth of the capital and non-capital actions recommended in the regional recovery plans.**

FIGURE 7:
FUNDING AVAILABLE VS. TARGET ($ MILLIONS)



GAPS BETWEEN COSTS AND AVAILABLE FUNDING



EXTENT AND NATURE OF GAPS

Comparing costs and funding levels for the 2010-2019 period, a very considerable gap exists between the projected level of funding available — $1.2 billion — and the estimated costs of implementing the regional recovery plans — $5.5 billion.

The funding gap is particularly large for certain actions. The following figures illustrate the total gap by category for capital and non-capital needs.

While the pie charts are of equal size, the total of the capital gap (at $2.8 billion) is far greater than that of the non-capital gap (at $370 million). As the charts indicate, the categories with the largest gaps are habitat restoration on the capital side and monitoring on the non-capital side. Keep in mind that these gaps represent the difference between estimated costs and forecasted funding sources. The supporting information on the habitat restoration gap is far more complete and dependable than that for the monitoring category, where much of the cost information was extrapolated from a few regions that had dependable cost estimates (see Appendix B for a more detailed explanation).

FIGURE 8:
GAPS IN CAPITAL (% OF $2.8 BILLION)

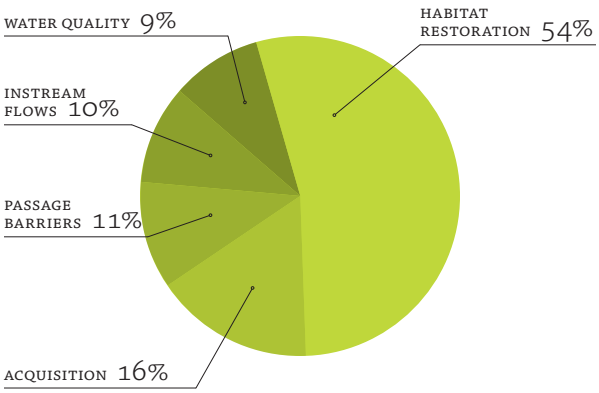
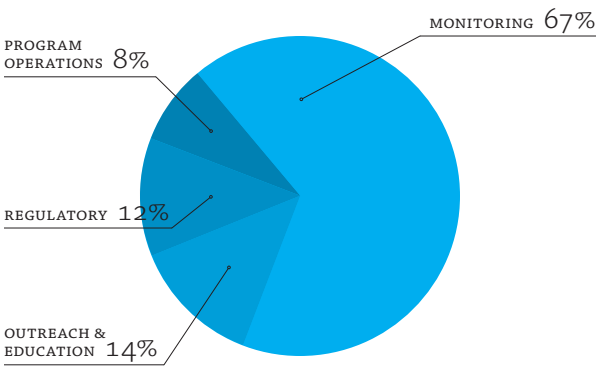


FIGURE 9:
GAPS IN NON-CAPITAL (% OF $370 MLLION)



The following charts show gaps in capital and non-capital funding by region, with the actual extent of each gap shown in millions of dollars for the 2010-2019 ten-year period. Note again the difference in scale between the capital and non-capital gaps. In figure 10, the gap for Puget Sound habitat need is off the chart at $680 million. In figure 11, the Puget Sound and Lower Columbia gaps for monitoring are $110 million and $91 million respectively. The same caveats about monitoring costs mentioned in the last section apply, in that gaps are based on extrapolated costs and are thought to be less reliable.

Several things are worth noting. First, with a single exception the largest gaps for each region are in the areas of habitat restoration and monitoring, mirroring the statewide gaps (see figure 8). Second, the size of the gaps in those areas are driven in part by the high estimated costs of these activities in the Puget Sound and Lower Columbia plans. Third, the gaps in several of the capital categories are very substantial, ranging from a ten-year statewide shortfall of $245 million for water quality projects to a gap of $1.5 billion for habitat restoration.

REGIONAL DISCUSSIONS OF FUNDING GAPS

The costs, funding sources, and gaps in each of the seven salmon recovery regions were profiled in reports that are found in Appendix D. These reports were used to stimulate discussions in each of the recovery regions in the late summer and fall of 2010.

Regional leaders and staff were asked to identify funding gaps that were particularly important to address to keep the implementation of the recovery plans on track. In response, most of the groups mentioned monitoring and staffing to prepare and implement projects as top concerns. Other priority gaps included funding for maintenance of restored sites, passage barriers, predator control, and floodplain restoration.

In further discussion, many of the groups suggested that a priority be placed on protecting the funding sources that are currently available for salmon recovery. Many ideas for new funding sources were discussed, with no clear consensus emerging. In general, the groups appear to be strongly committed to the recovery effort, unusually diverse, well-connected to influential local leaders, and encouraged with the progress to date on the salmon recovery plans.

FIGURE 10:
GAPS IN CAPITAL NEEDS ($ MLLIONS)

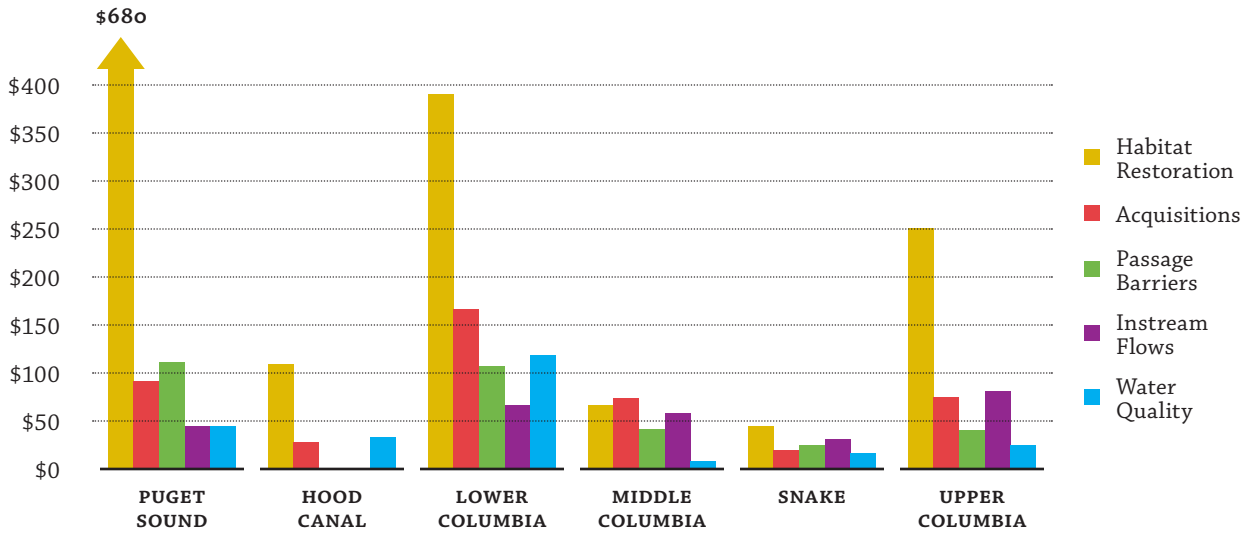
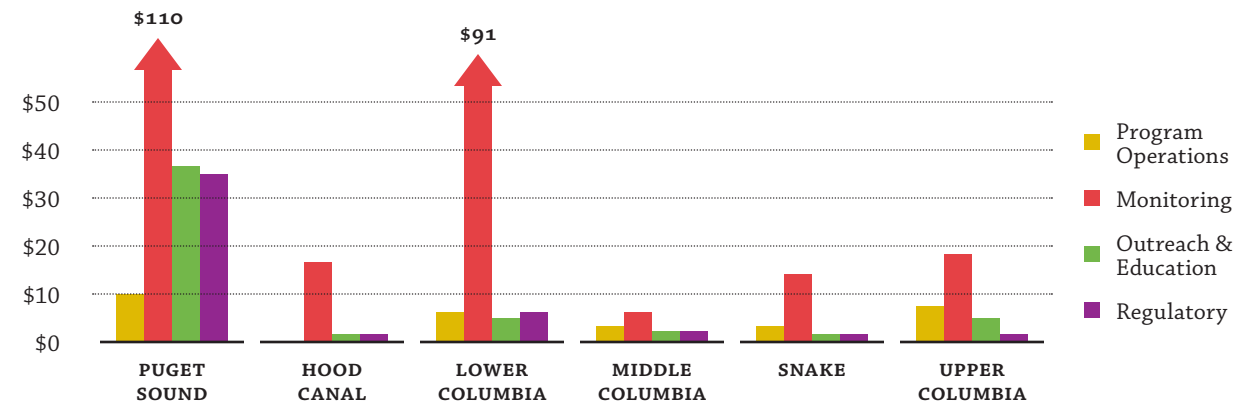


FIGURE 11:
GAPS IN NON-CAPITAL NEEDS ($ MLLIONS)



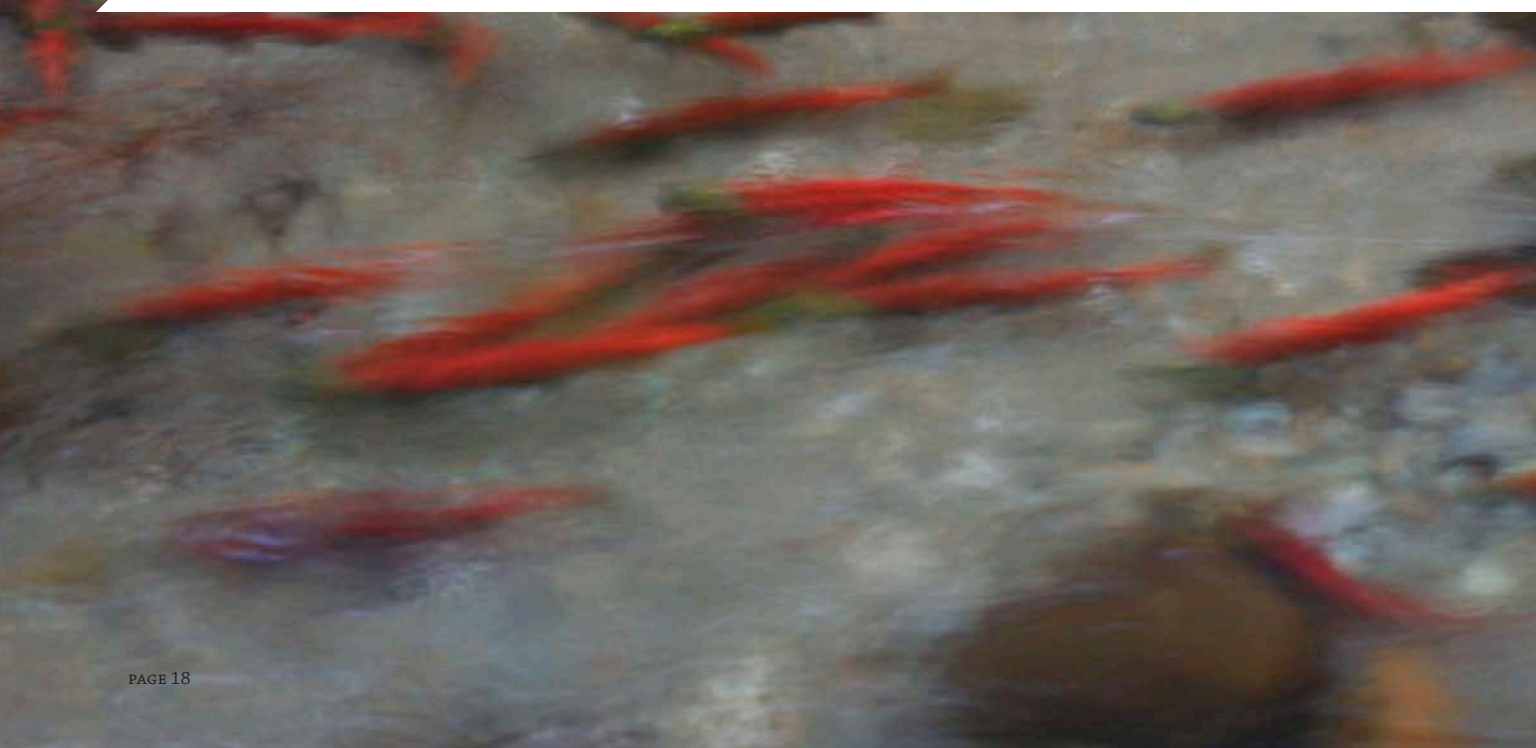
RECOMMENDATIONS FOR CONSIDERATION ON POTENTIAL FUNDING SOURCES

When faced with the shortfalls in funding that have been identified in this analysis, there appear to be three reasonable options: adjust the scope of the recovery plans downward to correspond with the availability of funds, delay implementation of the plans, or attempt to raise the funding necessary to meet the full scope and timeframe of the recovery plans. The reasonable conclusion from the regional discussions is that regional salmon recovery leaders would prefer to raise the funding necessary, if at all possible, rather than resorting to significant delays or adjustments to the plans.

As this report is being written, the Washington State Legislature is facing a major budget deficit for the 2011-2013 biennium — more than $5 billion on a $32 billion budget. Many programs are facing substantial cuts or elimination. The impacts on salmon funding are unresolved, but natural resource programs are likely to bear their share, if not more than their share, of cuts.

At the same time, Congress is grappling with the national debt and rallying behind substantial budget cuts in discretionary programs such as salmon recovery.

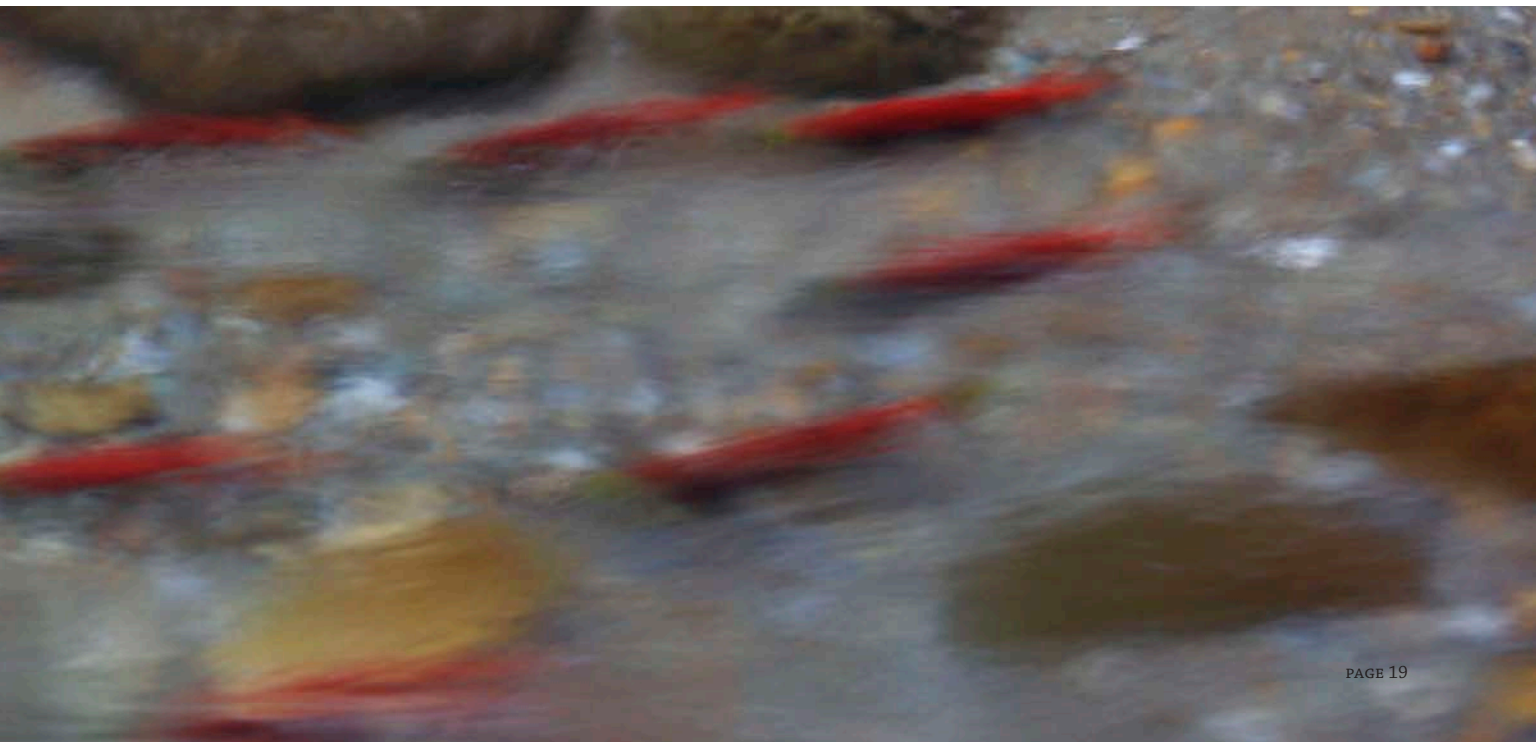
For the last thirteen years — since the first Congressional appropriations to the Washington salmon recovery effort in fiscal year 1998 — the strong support of Congress and the state legislature has allowed salmon recovery leaders to envision and achieve an ever-broader, ever-deeper funding base for



salmon recovery. This period of prosperity has also allowed salmon recovery leaders to concentrate most of their attention on developing and beginning to implement an ambitious long-term strategy for rebuilding salmon populations.

Unfortunately, the long-term commitment to the recovery effort has never been matched with a long-term commitment in federal and state funding. The early successes of the salmon recovery effort have been funded principally through annual federal and state appropriations, sources that are very vulnerable to the type of economic and political shifts that we are currently experiencing.

As we enter a period of austerity, a retrenchment in salmon recovery funding seems inevitable. What remains uncertain is how large the setback is going to be and how long it will last. This will depend to a great extent on how well salmon recovery leaders react to these new circumstances. Immediately, the challenge will be to maintain existing funding sources and avoid crippling cuts. If current sources can be secured, the long-term challenge is to create a strategy for new funding that provides the dependability and scale of funding needed to fully implement the salmon recovery plans.



MAINTAINING EXISTING FUNDING

RECOMMENDATION 1:

Use the existing capacity among salmon recovery lead entities, the regional recovery groups, and the Governor's Salmon Recovery Office to maintain existing federal and state fund sources by:

1. Keeping their state and federal elected officials and staff informed on salmon recovery activities and successes in their areas.
2. Coordinating briefings and preparation of educational materials for use with state and federal elected officials.
3. Using the existing capacity of jurisdictions and organizations involved in lead entity and regional recovery organizations to support salmon recovery funding.
4. Integrating these responsibilities into the deliverables in GSRO contracts to support lead entities and regional recovery groups.

RECOMMENDATION 2:

The Council of Regions should upgrade their capacity to participate in state and federal budget processes by:

1. Tracking legislation and budget actions during legislative and Congressional budget processes.
2. Coordinating the preparation of informational materials for state and federal elected officials during legislative and Congressional budget processes.
3. Developing alliances between the salmon recovery community and other environmental coalitions, including the Environmental Priorities Coalition and the Washington Wildlife and Recreation Coalition.
4. Seeking endorsement for salmon funding needs in the annual budget priorities of the Environmental Priorities Coalition.
5. Considering retaining a coordinator to assist with these efforts.

There is much that salmon recovery leaders can do within their existing capacity, especially making sure their elected representatives and staffs are informed about the successes of the salmon recovery effort. Many of the regions have capacity to provide information and to stay informed about state and federal budget processes, and a commitment to share and coordinate information and resources would benefit all the regions in the short term.

In the longer term, salmon recovery leaders should consider building alliances with other conservation leaders to advance salmon recovery needs. The successes achieved by the Environmental Priorities Coalition and the Washington Wildlife and Recreation Coalition illustrate the benefits of powerful alliances. Efforts to secure an endorsement for salmon funding needs in the annual environmental priorities process would be a good first step in building a stronger coalition behind salmon recovery.

There are constraints on lobbying with public funds that must be respected. Responding to inquiries from legislators, providing educational materials, and coordinating with other organizations on priorities are allowed and should be encouraged. Initiating contact with legislators on pending bills, including budget bills, cannot be paid for with state funds except in special circumstances that are explained more fully in the relevant legislation, RCW 42.17A.635 and OMB Circulars A-87 and A-122. Salmon recovery leaders may need to seek more specific legal advice on allowable activities.

These recommendations place a great deal of responsibility for budget advocacy on the salmon recovery regions and their organization, the Council of Regions. There are several reasons for this. First, the regional organizations are broadly representative of local governments, Indian tribes, conservation organizations, and public agencies active in their regions, an unusually diverse and bipartisan constituency. Second, the regions have existing capacity in the form of professional, credible regional directors. Third, with the exception of the Puget Sound region that is coordinated by the Puget Sound Partnership, a state agency, the regions have an arms-length relationship to state government that allows them to pursue funding requests independently.

BROADENING PUBLIC AWARENESS AND SUPPORT

RECOMMENDATION 3:

The Council of Regions and Governor's Salmon Recovery Office should pursue a targeted communications strategy to broaden public awareness and support of salmon recovery by:

1. Using the full range of modern communication strategies, including e-news, blogs, twitter feeds, and conventional news media, to communicate with the public about salmon recovery activities.
2. Defining success in measurable and easily communicated terms, such as progress at implementing a series of improvements ("fourth of five passage barriers removed") or in solving an obvious problem ("increasing fall streamflows by 40%").
3. Emphasizing the human dimension of salmon recovery including the traditions of salmon fishing, community work on restoration, salmon education in the classroom, and other human interest messages.
4. Linking salmon recovery to other issues that have broad public appeal, particularly water quality, drinking water supply, and Puget Sound cleanup.

Salmon recovery continues to enjoy broad public support, but additional funding for the salmon recovery effort will require a more strategic approach to communicating the results of the recovery effort and the need for additional funding. There is some great work being done (particularly websites such as the Skagit Watershed Council's site and e-newsletters like the Stilly-Snohomish Fisheries Enhancement Group's Watershed Review), but much of the communications on salmon recovery are directed toward a technical audience. It may be useful to consider models such as the Puget Sound Partnership's diverse media strategy, which uses a wide range of outlets and simple messages to communicate about this large and complex cleanup program.

The communications strategy should also link salmon recovery with environmental issues that may generate greater public interest. Polling results typically identify drinking water supply and water quality as the preeminent environmental issues for the American public, with species loss generally being further down the list. Given the widespread environmental impacts of salmon recovery projects, it is appropriate to talk about other benefits that can broaden public appeal.

RECOMMENDATION 4:

The Council of Regions and Governor's Salmon Recovery Office should emphasize the economic benefits of salmon recovery by:

1. Compiling and summarizing economic studies on the economic benefits of habitat restoration projects, including job creation and other economic multipliers, with case studies illustrating the importance of restoration projects to local and regional economies.
2. Compiling information on the economic returns of salmon spending to date.
3. Ensuring that all communications on the costs of salmon recovery also discuss the direct and indirect benefits to the economy.

Too often, discussions of spending on salmon recovery are confined to costs and neglect the widespread economic benefits of the recovery effort. These include the direct impacts of restoration spending on local economies, where the labor-intensive nature of restoration work combined with demand for local materials and services result in very significant benefits. In addition, spending on salmon recovery may have substantial indirect benefits by reducing costs of flood control, water quality treatment, and other utility services. Finally, the preservation of open space and cleanup of disturbed sites accomplished through salmon recovery projects can contribute significantly to a community's quality of life and influence a wide range of employment, trade, and other economic factors. Further analysis is needed to substantiate these benefits, and messages on economic benefits should be integrated into communications on the salmon recovery effort.

USING EXISTING SOURCES MORE EFFECTIVELY

RECOMMENDATION 5:

The Governor's Salmon Recovery Office and salmon recovery leaders should consider ways to increase incentives and limit liability for conservation actions by private landowners by:

1. Exploring and supporting significant roles for urban and rural landowners in recovery of salmon populations.
2. Evaluating the use and effectiveness of existing incentive programs to encourage landowner conservation actions.
3. Identifying circumstances in which incentives may provide high quality conservation actions on private lands at a lower cost than projects by public agencies on public land.
4. Considering changes in project selection criteria for state and federal funding sources to favor small grants for landowner incentives.
5. Developing an approach and proposal to limit future liability for landowners who participate in voluntary fish and wildlife habitat conservation projects.

Most of the current funding sources used for salmon recovery allocate funding through relatively large project grants to public agencies, Indian tribes, and nonprofit organizations. Some agencies such as the US Department of Agriculture offer small grants for landowner incentive projects, but funding is limited and criteria rarely favor salmon recovery to the extent desirable. As programs such as the Tenmile Creek restoration effort in Whatcom County indicate, small incentive payments are a very cost-effective way to stimulate voluntary conservation actions. In the early days of salmon recovery in this state, there was more attention to incentive programs (particularly to the use of the USDA Conservation Reserve Enhancement Program). It would be useful to take another look at incentives and their potential role, to the point of considering where they may be a more cost-effective alternative to larger public projects and worth emphasizing in selection criteria for funding sources. It would also be worthwhile to consider measures to limit landowner liability for habitat projects on their land; otherwise liability concerns may be a major impediment to landowner support for habitat projects.

RECOMMENDATION 6:

The Governor's Salmon Recovery Office should seek to improve coordination among salmon recovery fund sources by:

1. Convening a small group of project coordinators and implementers to identify problems in coordinating multiple funding sources and ways to address them.
2. Convening representatives of the major state and federal grant programs to discuss synchronizing project eligibility criteria, grant cycle timing, match requirements, landowner agreement and conservation easement design, monitoring and reporting requirements, and reimbursement processes.

Interviews with salmon recovery program and project managers indicate that a substantial amount of time is spent courting multiple funders for given projects, with much time spent on the administrative processes of preparing proposals and contract documents. Additional emphasis should be given to simplifying the applicant's and grantee's experience with multiple funding sources.

SUSTAINABLE LONG-TERM FUNDING

As indicated previously in this report, the biggest problem with the salmon funding strategy to date has not been the availability of money for projects, which has been substantial, but the dependability of that funding. With most funding coming from annually appropriated sources, the recovery effort is very vulnerable to downturns in the economy. If funding is lost in down economic cycles, it will be difficult to recover as the economy rebounds.

Looking ahead, it would be desirable if funding sources used in the future had the following characteristics:

- Be dependable and less subject to short-term economic cycles and changes in political climate that effect many current sources;
- Be of sufficient magnitude to make a substantial contribution to one or more funding gaps, i.e. in general, capital sources that can raise at least $10 million annually and non-capital sources that can raise at least $1 million annually;
- Include an adjustment with inflation;
- Be flexible in relation to adaptive management of salmon recovery plans and priorities over time;
- Coordinate easily with other public and private funding sources; and
- Broaden support through strategic partnerships with other advocates for ecosystem health and restoration.

The following three recommendations are ideas to help accomplish these goals.

RECOMMENDATION 7:

The Governor's Salmon Recovery Office and Council of Regions should investigate the use of environmental markets to provide sustainable funding for implementation of salmon projects by:

1. Tracking development of habitat, wetland, water quality, and carbon markets in Washington and elsewhere in the Northwest.
2. Exploring ways to produce and market environmental credits from salmon recovery project sites.
3. Meeting with local representatives from Washington State Department of Transportation, local road departments, local and regional utilities, and other potential buyers to discuss credit availability from salmon project sites.
4. Finance and implement pilot projects to demonstrate market viability.
5. Over time, develop policies and practices for standardizing the environmental marketplace.

Every development and redevelopment project of substance will trigger federal, state, and local requirements for environmental mitigation, and most utility functions are periodically subject to new and more stringent compliance responsibilities. These create an ongoing demand for projects to offset impacts to habitat, wetlands, instream flows, water quality, and carbon sequestration. Several regions of the state are experimenting with environmental or ecosystem services markets to supply these projects in a cost-effective way. Salmon recovery partners should be tracking these efforts and exploring ways to use salmon recovery projects to fulfill this demand for environmental restoration.

The early opportunities are likely to come from meeting the mitigation and compliance needs of individual major projects, such as highway construction or development of new powerline corridors. However, it will ultimately be far more efficient and predictable if transactions are managed under statewide methods and procedures that are approved by regulators. Salmon recovery leaders are in an excellent position to help initiate an environmental marketplace, having the most robust and widely approved scientific basis for identifying and prioritizing restoration sites, as well as the proven ability to coordinate delivery of high quality restoration work at a reasonable price.

RECOMMENDATION 8:

The Governor's Salmon Recovery Office and Council of Regions should explore a "green infrastructure" approach to funding restoration of natural structures and processes, including those necessary for salmon recovery, by:

1. Describing and quantifying the suite of utilitarian functions (flood management, water quality improvement, aquifer recharge) of large-scale floodplain restoration.
2. Coordinating with other stakeholders in large-scale environmental initiatives such as nonpoint pollution control, water supply, stormwater treatment, floodplain management, and allied issues that are utilizing or may utilize "green infrastructure" approaches to funding.
3. Pursuing pilot projects for use of a "green infrastructure" approach to address a specific and high-priority public concern (such as Green River flood control).
4. If results are promising, identifying legislative, policy, and procedural changes that could initiate "green infrastructure" financing of restoration projects.

The large-scale restoration of floodplains proposed in the salmon recovery plans has many benefits beyond salmon recovery, including reduction in nonpoint water pollution, flood control, improvements in stormwater quality and quantity, and aquifer recharge. Many of these services are currently provided by public utilities at significant cost to their ratepayers. This provides an opportunity for a strong avoided-cost argument for restoration of "green infrastructure" in lieu of conventional capital improvements. This argument may support utility financing of a broad suite of floodplain restoration actions. Utility financing provides significant benefits — bonding capacity, a broad rate base, ability to raise significant funding with modest fees, and dependability — that are hard to replicate in other finance approaches. It may be difficult to initiate this approach if it is limited to salmon recovery interest groups. Signals are strong that the stormwater and flood control solutions under consideration in the Puget Sound region may be evolving this direction and may provide helpful momentum.

RECOMMENDATION 9:

As the economy rebounds, the Council of Regions should collaborate in an effort to reconsider dedicated state revenues for salmon recovery by:

1. Revisiting recommendations for dedicated revenues developed for Shared Strategy and Puget Sound Partnership funding strategies.
2. Requesting a Washington Department of Revenue analysis of potential funding sources.
3. Consulting with state legislators and agency managers about the viability of potential funding sources.
4. Developing a coalition to support the most viable funding recommendations.
5. Being informed about and participating in any legislative and public initiatives for new dedicated revenues.

Regardless of the success of the other long-term initiatives described above, there will probably continue to be a substantial gap between the costs of salmon recovery and the funding sources available for the effort. Previous Shared Strategy and Puget Sound Partnership analyses, undertaken by Evergreen Funding Consultants and collaborators, provide a systematic assessment of revenue options for salmon recovery, including options available under existing state authorities and those requiring new authorization. The list of potential revenue sources from the PSP analysis is available from Evergreen Funding Consultants. It would be useful to reconsider these recommendations as a beginning for the slow process of developing and building support for a funding proposal that includes substantial new dedicated revenues for salmon recovery.

APPENDIX A: DERIVATION OF COST ESTIMATES

Cost estimates by region and category are shown in Table 2 in this Appendix. This is the source of information in Table 1 in the body of this report. In Table 2, estimates based directly on the recovery plans or revisions by the regional directors are shown in black, while those derived by Evergreen Funding Consultants staff are shown in cyan text. The process for deriving estimates is explained in the following section and in Appendix B. All costs are in thousands of 2010 dollars.

TABLE 2:
COST ESTIMATES FOR THE REGIONAL SALMON RECOVERY PLANS

	REGIONS	PUGET SOUND	WASHINGTON COAST		HOOD CANAL
	SUB-REGIONS	PUGET SOUND	LAKE OZETTE	WASHINGTON COAST	HOOD CANAL
HABITAT RESTORATION	Marine and estuary restoration	$304.6	$0.0	Unk $36.0	$78.9
	Floodplain restoration	$445.6	$27.0	Unk $123.4	$26.4
	Channel reconstruction	$54.6	$7.4		$11.3
	Tributary restoration	$148.1 $200.0	$4.0 $0.8	Unk $85.0	$3.1 $15.0
	Fencing and riparian planting				
	Habitat Restoration Total:	**$952.9** **$1,004.8**	**$39.1**	**Unk** **$244.4**	**$119.7** **$131.6**
LAND AND EASEMENT ACQUISITION	Land and easement costs	$156.1	$25.0	Unk $97.8	$62.2
	Land and easement acquisition Total:	**$156.1**	**$25.0**	**Unk** **$97.8**	**$62.2**
PASSAGE BARRIER RETROFITS	Culvert and stream crossing retrofits	$6.6 $115.4	Unk $39.7	Unk	$0.8
	Dam retrofits and removal	$45.0	Unk	Unk	Unk
	Passage Barrier Retrofits Total:	**$51.6** **$160.4**	**Unk**	**Unk** **$39.7**	**$0.8**
INSTREAM FLOW ENHANCEMENTS	Irrigation efficiencies	$25.0	Unk	Unk	Unk
	Water storage	Unk	Unk	Unk	Unk
	Water rights acquisition	$25.0	Unk	Unk	Unk
	Instream Flow Enhancements Total:	**$50.0**	**Unk**	**Unk**	**Unk**
WATER QUALITY IMPROVEMENTS	Road repair and decommissioning	$3.2 $95.4	Unk $80.2	Unk	$33.3
	Stormwater management	Unk	Unk	Unk	Unk
	Implementation of TMDL's	Unk	Unk	Unk	Unk
	Water Quality Improvements Total:	**$3.2** **$95.4**	**Unk** **$80.2**	**Unk**	**$33.3**
TOTAL CAPITAL	Sub-Totals by Sub-Region	$1,213.8 $1,466.7	$64.1	Unk $462.1	$216.0 $227.9
	Totals by Region	**$1,213.8** **$1,466.7**	**$64.1** **$526.2**		**$216.0** **$227.9**
	PROGRAM OPERATIONS	$40.2	$4.0	Unk $18.9	$4.6
	MONITORING, STUDIES, AND ASSESSMENTS	$104.7 $116.0	$2.0 $4.2	Unk $65.4	$0.8 $17.8
	OUTREACH AND EDUCATION	$39.0 $42.2	$0.3	Unk $1.8	$0.9
	DEVELOPMENT AND ENFORCEMENT OF REGULATIONS	$43.6	Unk $0.1	Unk $10.6	$1.0
	Total Non-Capital by Sub-Region	$227.5 $242.0	$6.3 $8.6	Unk $86.1	$7.3 $24.3
	Total Non-Capital by Region	**$227.5** **$242.0**	**$6.3** **$94.7**		**$7.3** **$24.3**

Costs in black are per regional estimates
Costs in cyan are derived using procedures described in the accompanying report

LOWER COLUMBIA		MID-COLUMBIA		SNAKE	UPPER COLUMBIA	
LOWER COLUMBIA	WHITE SALMON	YAKIMA	GMU	SNAKE	UPPER COLUMBIA	ALL REGIONS
$250.0	N/A	N/A	N/A	N/A		
$123.0	Unk	$49.0	$13.5	$39.4		
$123.0	$7.8	$10.1	$29.0	$22.4	$378.0	
$88.0	Unk	$10.1	$0.6			
$82.0	$1.4	$10.1	$5.0	$6.6		
$666.0	**$9.3**	**$79.3**	**$48.1**	**$68.4**	**$378.0**	**$2,360.7**
						$2,668.9
Unk	$0.5	$88.0	$5.2	$25.0	$144.0	
$166.4						
Unk	**$0.5**	**$88.0**	**$5.2**	**$25.0**	**$144.0**	**$506.05**
$166.4						$770.3
Unk	$2.1	Unk	$15.2	$34.6		
$89.6		$15.3			$70.0	
Unk	$24.0	$55.6	Unk	$4.0		
Unk	**$26.1**	**$55.6**	**$15.2**	**$38.6**	**$70.0**	**$257.9**
$89.6		$70.9				$511.3
$10.0	$7.0	$74.0	Unk			
$44.5	Unk	Unk	Unk	$50.0	$114.0	
Unk	Unk	$5.0	Unk			
$54.5	**$7.0**	**$79.0**	**Unk**	**$50.0**	**$114.0**	**$354.5**
Unk	$3.0	Unk	$6.3	$12.0		
$68.7		$11.3			$28.0	
Unk	Unk	Unk	Unk	$12.8		
$46.0	$2.2	$8.0	$0.1	Unk		
$46.0	**$5.2**	**$8.0**	**$6.4**	**$24.8**	**$28.0**	**$154.9**
$114.7		$19.3				$374.0
$766.5	**$48.1**	**$309.9**	**$74.9**	**$206.8**	**$734.0**	**$3,634.1**
$1,091.2		$336.5				$4,712.3
$814.6		**$384.8**		**$206.8**	**$734.0**	**$3,634.1**
$1,139.3		**$411.4**				**$4,712.3**
$7.3	Unk	$4.8	Unk	$8.0	$32.0	$100.9
$9.6	$0.8	$7.1	$0.5			$125.7
Unk	$4.6	$12.0	$31.4	$28.0	$108.0	$291.5
$91.1		$66.3				$532.8
Unk	$0.1	$2.7	Unk	$2.2	$18.0	$63.2
$5.6		$3.1	$0.1			$74.0
Unk	Unk	$1.2	$0.1	$2.3	$6.0	$54.2
$5.4	$0.4	$4.0	$0.3			$73.7
$7.3	**$4.7**	**$20.7**	**$31.5**	**$40.5**	**$164.0**	**$509.8**
$111.7	$5.9	$80.5	$32.3			$795.9
$12.0		**$52.2**		**$40.5**	**$164.0**	**$509.8**
$117.6		**$112.8**				**$795.9**

Unk means unkown

N/A: not applicable, included in Lower Columbia estimate

METHODOLOGY

The project began when staff of the Governor's Salmon Recovery Office (GSRO) contacted the regional recovery organization leaders to request cost information. The regional recovery leaders were asked to use information from the latest version of their recovery plan and organize it in the following categories:

1. Non-Capital Costs
   A. Program operations (management, coordination, reporting)
   B. Monitoring, studies and assessments
   C. Outreach and education
   D. Development and enforcement of regulations specific and vital to salmon recovery, such as changes in regulations required to implement salmon recovery plans
2. Capital Costs
   A. Habitat Restoration
      - Marine and estuary habitat restoration
      - Floodplain restoration
      - Channel reconstruction and enhancement
      - Tributary reconstruction and enhancement
      - Fencing and riparian planting
   B. Land and Easement Acquisition
   C. Passage Barrier Removal or Retrofit
      - Culvert removals or retrofits
      - Dam retrofits
   D. Instream Flow Enhancement
      - Irrigation efficiencies
      - Water storage
   E. Water Quality Improvement
      - Road repair and decommissioning
      - Other water quality improvements

Within these categories, the group was asked to include costs for actions needed to recover all species that are the focus of the recovery plan (which may include listed and non-listed populations) and include existing and new costs for all public sector and tribal participants for a ten-year period. The group was asked to exclude costs for projects that may be beneficial to salmon recovery but are not specific to implementation of the recovery plans. GSRO staff simultaneously queried selected state agencies (i.e. RCO, WDFW, Ecology) on costs of their state-level activities.

After information was collected from most of the regions, staff of Evergreen Funding Consultants converted the estimates into a ten-year timeframe and filled cost gaps by using information from regions that had cost estimates in these areas. The criteria and methods for deriving costs are explained in the discussion of each cost category in Appendix B.

The principal technique used to derive costs was to compare the region without a specific cost estimate to other regions with reliable cost estimates for that category. The comparison was often based on variables thought to be most responsible for differences among costs. For instance, the cost of passage barrier removal is likely to be a function of stream mileage and road mileage in the region, and by comparing these variables between two regions, one of which has a reliable cost estimate, a reasonable estimate of passage barrier removal costs can be derived for the other. Wherever possible, several regions with cost estimates were compared to ensure that the variables used were acceptable predictors of cost. The variables used in each cost category are explained in Appendix B.

For the most part, estimates were derived only where information was missing. However, there are some circumstances where estimates were derived to address regional cost estimates that were clear outliers. For instance, one very populous region had an estimate for culvert and stream crossing retrofits of $6.6 million, far lower than predicted in comparison with other regions. In these cases, both the regional and derived estimates are noted in Table 2.

CAVEATS ON COSTS

The most important caveat about costs is that the regional recovery plans vary in emphasis and comprehensiveness as well as in the process for assembly of project lists and the planning horizon. This accounts for significant gaps in project lists for some sub-categories in each of the regions. As a general rule, the process for deriving costs explained in the preceding paragraph is expected to be less accurate and reliable than estimates developed in the regional plans, and this adds significant uncertainty to categories where estimates are largely derived, including tributary restoration, culvert and stream crossing retrofits, water quality improvements, monitoring, and development and enforcement of regulations.

The plans also vary in duration and period, and converting all cost estimates to the ten-year, 2010-19 standard required considerable extrapolation that likely effects the accuracy of the estimates. All cost estimates are in constant dollars as of the date of their development, with some estimates probably deserving adjustment now (being up to four years old) and all needing adjustment in the future to address inflation.

Restoration techniques are often new and continue to be refined and therefore lack the long-term track record that would help standardize cost estimation methods. Imprecision in individual project cost estimates may be an issue but is likely to be reduced in averages and aggregate estimates.

APPENDIX B: COST ESTIMATES BY CATEGORY

Cost information was collected and evaluated in five categories, including 13 sub-categories, of capital costs and four categories of non-capital costs. Costs were tallied across regions in Table 2 to develop the estimated cost by subcategory. However, note that Upper Columbia information is not divided by subcategory and is therefore not included in most tallies. Following are findings about the cost information in each subcategory.

MARINE AND ESTUARY RESTORATION

Estimated Cost: $669 million

Completeness: Good[1] in original regional estimates, with costs for two-thirds of WA coastal areas; very good with derived estimates.

Likely accuracy: Good for original and derived estimates; likely to be accurate at the time of collection, but could perhaps be improved upon by subsequent Puget Sound Nearshore Ecosystem Restoration Program (PSNERP) work and other studies.

Costs among the regions in this category are highly variable as expected. The Puget Sound region has considerably more marine shoreline than Hood Canal (2,027 versus 252 miles) and much more development, so the relationship between their costs ($305 million vs. $79 million) seems appropriate. The Washington Coast, being far less developed, is estimated at $36 million for the 591 miles of shoreline. Columbia River estuary costs have been estimated in other sources at around $500 million, and, pending more rigorous analysis, half of this total has been attributed to the Lower Columbia region.

1 The terms excellent, very good, good, fair, and poor are relative terms used throughout this Appendix based on a qualitative assessment of the dependability of cost information as judged by the author.

FLOODPLAIN RESTORATION AND MAINSTEM CHANNEL RECONSTRUCTION

Estimated Cost: $1.10 billion (plus an unspecified portion of Upper Columbia habitat restoration total costs that were not allocated to sub-categories by the region).

Completeness: Very good in original regional cost estimates; fully complete with derived estimates.

Likely accuracy: Very good in original and derived estimates; costs of these actions are well known and most regions have needs and costs well defined.

These categories were combined in the analysis. The disparity between Puget Sound and the other regions looks big initially, but Puget Sound (at $500 million) has more miles of streams and rivers than other regions as well as far more urbanization in large-river floodplains and along river channels. It seems sensible that the urban/urbanizing Lower Columbia has the second highest costs estimate (at $246 million), with the rest of the regional estimates within a reasonable range. The Coast region is similar to the Lower Columbia in stream miles and size, but is estimated at half the Lower Columbia costs due to the lower density development pattern in the region. The entire $62 million in Snake costs for all restoration categories except fencing and riparian planting was included in this category.

TRIBUTARY RESTORATION, FENCING, AND RIPARIAN PLANTING

Estimated Cost: $509 million (plus an unspecified portion of Upper Columbia habitat restoration total costs that were not allocated to sub-categories by the region).

Completeness: Very good in original regional cost estimates; fully complete with derived estimates.

Likely accuracy: Good for original and derived estimates; existing cost estimates are quite variable but project costs are well-known and standardized.

These categories have been combined for the analysis. The Lower Columbia number is larger than average, but the plan is up-to-date and of high quality and the high stream density and degree of urbanization can justify the estimate. This line of reasoning indicates that Puget Sound and Hood Canal estimates are probably low and should be more on the order of $200-240 million for Puget Sound and $15-20 million for Hood Canal based on stream miles and development density; the lower end of these ranges were used in the all-regions estimate. The Coast region is similar to the Lower Columbia in stream miles and size, but is estimated at half the Lower Columbia costs due to the lower density development pattern in the region.

LAND AND EASEMENT ACQUISITION

Estimated Cost: $770 million.

Completeness: Good in original regional estimates, with most regions reporting; fully complete with derived estimates.

Likely accuracy: Poor to fair in original estimates due to high variability; fair in derived estimates with remaining concerns over lack of correlation with restoration costs.

These costs are highly variable among the regions for reasons that are not immediately clear, but probably have to do with the extent of public ownership and the preferences and policies of the political leadership in the region. There is a poor correlation with restoration costs, with land and easement acquisition ranging from 6% to 110% of restoration costs among the regions. Two regions are missing data in this category (Lower Columbia and the Coast regions). Assuming that acquisition costs are 40% of total capital costs for each, the all-regions estimate includes $166 million for Lower Columbia and $98 million for the Coast region. The 40% estimate is based on the prior cost estimation experience of the consultant for rural restoration projects in the Puget Sound and Upper Columbia regions and in other Pacific Northwest river basins.

CULVERT AND STREAM CROSSING RETROFITS

Estimated Cost: $313 million (plus an unspecified portion of Upper Columbia passage barrier total costs that were not allocated to sub-categories by the region).

Completeness: Fair in original regional estimates, with data missing for several regions; fully complete with derived estimates.

Likely accuracy: Poor to fair for original regional cost estimates due to high variability and poor correlation to road and stream density; good for derived estimates due to data consistency and stronger correlations.

This is one of the more challenging categories to estimate because the existing cost estimates are so variable. Excepting the Puget Sound estimate, which is extremely low given the number of retrofits likely in the region, the remaining estimates indicate a cost of about $2K/stream mile, with probably half that total in areas with fairly low road density, such as the Coast, Mid-Columbia, Upper Columbia, and Snake, and twice that in the Puget Sound and Lower Columbia regions, areas with high road densities. Applying these amounts to stream miles yields the all-regions estimate.

DAM RETROFITS AND REMOVAL

This category was not tallied across the regions due to the high costs of individual projects and the inconsistency of available data.

INSTREAM FLOW ENHANCEMENTS

Estimated Cost: $355 million.

Completeness: Fair to good in original estimates, with data available for the majority of flow-limited regions but not otherwise; unchanged in derived estimates (few costs derived).

Likely accuracy: Fair to good for original estimates.

This category includes irrigation efficiencies, water storage, and water rights acquisitions. While several regions have little or no costs in these categories, there are estimates in the regions that include most of the flow-limited watersheds in the state: Upper Columbia, Mid-Columbia, Snake, and, to a lesser extent, Lower Columbia. The total water storage estimate in this category is unreliable because projects are few in number but very high in cost and difficult to apportion in costs and benefits to salmon recovery.

ROAD REPAIR AND DECOMMISSIONING

Estimated Cost: $310 million (plus an unspecified portion of Upper Columbia water quality total costs that were not allocated to sub-categories by the region).

Completeness: Fair to good in original regional estimates, with data available for most regions; fully complete in derived estimates.

Likely accuracy: Fair in original estimates due to high variability among regions; good in derived estimates due to consistent data sources and strong correlations.

These costs are likely to be correlated to the abundance of older timber roads on state and federal forestland. Using Department of Natural Resources (DNR) data on forest road mileage per WRIA and the available WRIA and regional cost estimates, the average cost of road repair and decommissioning is estimated at $5k/road mile. This was multiplied by total forest road mileage per region to calculate the estimates in the spreadsheet. This is a rough estimate given the range of circumstances in Washington forestlands, but is reasonably sufficient for this analysis.

STORMWATER MANAGEMENT

Only the Snake region has an estimate in this subcategory, and stormwater issues and investments in the Snake region do not appear to be representative of the entire state. Therefore, no statewide tally was compiled in this category.

IMPLEMENTATION OF TMDL'S

This category was not derived or tallied across all regions due to the high costs of individual projects and the inconsistency of available data. The estimates included are associated with TMDL plans that have specific costs and benefits attributable to salmon recovery.

PROGRAM OPERATIONS

Estimated Cost: $126 million.

Completeness: Good for original regional cost estimates, with data available from most regions; fully complete with derived estimates.

Likely accuracy: Fair for original estimates due to variability; very good for derived estimates due to apparently strong correlations.

The revised estimates in the spreadsheet are the larger of two numbers: the original estimate from the regional recovery plan and a calculated cost based on number of local government jurisdictions in the region. The complexity and cost of program operations, which involves extensive coordination among agencies, tribes, and organizations, appears to be strongly correlated with the number of jurisdictions involved. An average cost of approximately $250K/jurisdiction for the ten-year period was calculated based on regions with existing cost estimates (with the exception of the Upper Columbia) and applied to the others based on the number of jurisdictions. The Upper Columbia data was excluded from this calculation because the per-jurisdiction cost was substantially higher than the average, but the entire Upper Columbia estimate was included in the total estimated cost of all regions.

MONITORING, STUDIES AND ASSESSMENTS

Estimated Cost: $533 million.

Completeness: Good for original regional cost estimates, with data available from most regions; fully complete with derived estimates.

Likely accuracy: Fair for original estimates due to significant data gaps; good for derived estimates with some uncertainty about the strength of correlations.

Because several of the regions lacked estimates in this category and the existing estimates seemed unusually variable, the revised estimates were derived based on two factors — the size of the region and the extent of the capital program – that appear to have a direct bearing on monitoring, study, and assessment costs. The extent of the capital program is justified given the requirements for implementation and effectiveness monitoring associated with most capital funding sources. The size of the region is an important factor in the costs of status and trends monitoring. Average costs per square mile of regional area and per million dollars in capital costs were calculated from those regions with cost estimates and applied to all regions. The two results were averaged for a derived cost in each category and the larger of this number and the original regional estimate was used as the cost estimate. This is the category with the largest discrepancy between the original regional estimates and the derived estimates, but the outcome – at roughly 11% of total capital expenditures – seems reasonable based on the author's prior experience with large-scale restoration programs.

OUTREACH AND EDUCATION

Estimated Cost: $74 million.

Completeness: Good for original regional cost estimates, with data available from most regions; fully complete with derived estimates.

Likely accuracy: Fair for original estimates due to significant data gaps; very good for derived estimates due to confidence in correlations.

Data on these costs were sparse and a per capita estimate (approximately $10/regional resident) was derived from the regions with cost estimates and applied to all regions, with the larger of this number and the original regional cost estimate used in regions with both. The Lake Ozette and Upper Columbia data were excluded from the calculation of the per capita estimate due to the very low population of the Ozette subregion and the higher-than-average per-person costs in the Upper Columbia, but the entire Upper Columbia estimate was included in the total estimated cost of all regions.

DEVELOPMENT AND ENFORCEMENT OF REGULATIONS SPECIFIC TO SALMON RECOVERY

Estimated Cost: $74 million.

Completeness: Fair for original regional cost estimates due to substantial data gaps; fully complete with derived estimates.

Likely accuracy: Fair for original estimates due to significant data gaps; very good for derived estimates due to confidence in correlations.

These regulations, for example, may include changes to critical areas ordinances or shoreline plans required to implement the salmon recovery plan. This category also had large gaps in data and the revised estimates were extrapolated from the existing information using a per-jurisdiction estimate multiplied by the number of jurisdictions in each region, with the reasoning that each jurisdiction will have its own regulations and the number of jurisdictions in each region will have a direct bearing on the regional cost. There is unexpectedly high variability among per-jurisdiction costs in regions with estimates, so this category deserves a further consideration as additional data becomes available.

APPENDIX C: STATE AGENCY COSTS

As mentioned in the report and Appendix A, selected state agencies were queried about their costs associated with the salmon recovery effort. As of June 2010, they reported the following costs and funding for the 2009-2011 biennium:

RCO/GSRO NON-CAPITAL OPERATIONS PROGRAM DETAILS

PROGRAM	2-YEAR COSTS	2-YEAR FUNDING
Salmon Project Grant Management	$3,349,000	$3,349,000
Salmon Recovery Program Support and Administration	$312,316	$312,316
Governor's Salmon Office	$832,870	$832,870
Lead Entity Administration	$191,004	$191,004
Habitat Work Schedule System	$1,400,000	$1,400,000
Totals	**$6,085,190**	**$6,085,190**

WDFW (HABITAT) NON-CAPITAL OPERATIONS PROGRAM DETAILS

PROGRAM	2-YEAR COSTS	2-YEAR FUNDING
Area Biologist Tech Support	$8,586,111	$7,040,611
Senior Biologist Tech Support	$105,200	$0
Senior Science Tech Support	$120,400	$0
Fish Passage Science Support	$217,900	$0
GIS Information Support	$146,600	$0
Environmental Engineering	$674,167	$269,667
PHS/GMA Biology/Planning	$737,200	$552,900
Indirect @ 21.78%	$2,305,974	$1,710,374
Totals	**$12,893,552**	**$9,573,552**

ECOLOGY NON-CAPITAL OPERATIONS PROGRAM DETAILS

PROGRAM	2-YEAR COSTS	2-YEAR FUNDING
Stream Flow Monitoring	$1,325,000	$1,325,000
Salmon Index Monitoring	$1,202,113	$1,202,113
Forest and Fish	$3,031,478	$3,031,478
Buffer Effectiveness Study	$1,348,004	$1,348,004
Tech/Fin Assist Local Flood Mgt	$681,390	$681,390
Tech/Fin Assist Watershed Plans	$1,809,000	$1,809,000
Shoreline Partner with Local Gov	$2,697,473	$2,697,473
Aquatic Weeds/Pesticides/Dairy	$258,395	$258,395
Monitoring & Compliance	$350,000	$350,000
Instream Flow Setting	$1,825,000	$1,825,000
Water Right Acquisition	$545,000	$545,000
Metering Water Resources	$899,382	$899,382
Totals	**$15,972,235**	**$15,972,235**

If these costs are projected to be incurred at a constant rate through the next ten year period (i.e. equivalent to five biennia), total costs would be approximately $175 million for state agency non-capital actions (split $30.4 million for RCO/GSRO, $64.5 million for WDFW, and $79.8 million for Ecology). Note that WDFW funding in relation to costs for their capacity for operations that support salmon habitat restoration and protection was reduced for the current 2-year period (i.e. as of June 2010) by $3,320,000. If that reduction in WDFW capacity is continued through the next ten years it would represent a gap in funding for this capacity of $16.6 million.

WDFW was also able to provide estimates for capital and non-capital (i.e. operating) costs related to hatchery management in the Lower Columbia region. On the capital side, considerable investment is needed in hatchery capital upgrades and retrofits. An initial estimate by WDFW for the Lower Columbia region yielded a ten-year cost estimate of $36.0 million. WDFW non-capital costs in the lower Columbia region are estimated at $47.7 million for the 10-year period. These costs do not include the expenses of related harvest management improvements. Funding is available from a variety of sources to initiate much of this work. However, funding throughout the ten-year period is uncertain. This information, limited though it is to only WDFW hatchery management needs in one region, illustrates that hatchery and harvest improvements needed to achieve salmon recovery goals also represent significant costs and funding needs.

APPENDIX D:
REGIONAL COSTS, FUNDING SOURCES, AND GAPS

PUGET SOUND

COSTS

The total capital costs[1] of the Puget Sound salmon recovery plan are estimated at $1.5 billion over the next ten years. Noncapital costs[2] are estimated at $242 million. Figures 1 and 2 show the distribution of capital and noncapital costs over the major categories of recommended actions in the plan.

As a point of reference, the capital costs of the Puget Sound region are compared to those in other regions in the following chart. The total capital costs among all regions are estimated at $4.7 billion. Total non-capital costs among the regions are estimated at $800 million, with a majority in the monitoring, studies, and assessments category.

FIGURE 1:
CAPITAL COST BY CATEGORY

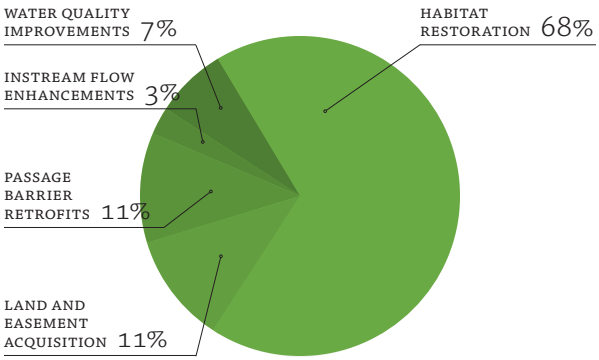


FIGURE 2:
NON-CAPITAL COST BY CATEGORY

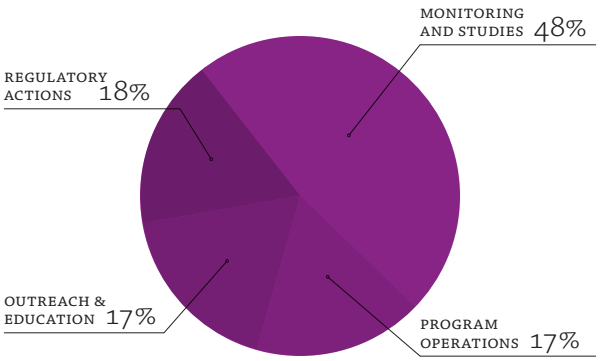
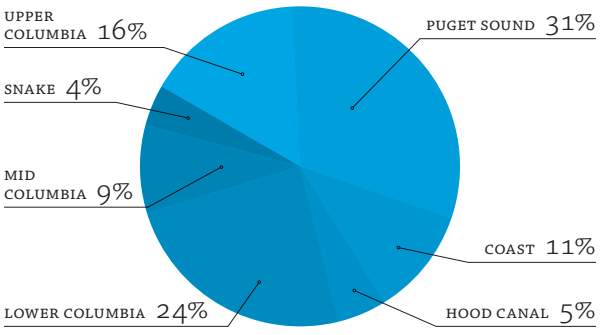


FIGURE 3:
CAPITAL COSTS BY RECOVERY REGION



1 Capital costs include construction and related costs (land acquisition, design, construction management, etc) for physical projects, as well as land acquisition for conservation purposes.

2 Noncapital costs include program management, administration, staffing, and consulting, generally on an ongoing basis.

CURRENT AVAILABILITY OF FUNDING

Regional staff were asked to identify funding sources and amounts used to support capital and non-capital spending in the last three years, as well as to project funding levels if these sources were maintained over the coming ten years.

Puget Sound regional staff indicate that recent funding levels are approximately $48 million per year for capital needs and $5 million for non-capital needs. If maintained for the coming ten years, these sources and amounts would contribute nearly $530 million to implementation of the recovery plan.

A wide range of funding sources have been used to fund projects and programs in the past three years. The major funding sources are shown in Figures 4 and 5 below.

FIGURE 4:
SOURCES FOR FUNDED CAPITAL ACTIVITIES

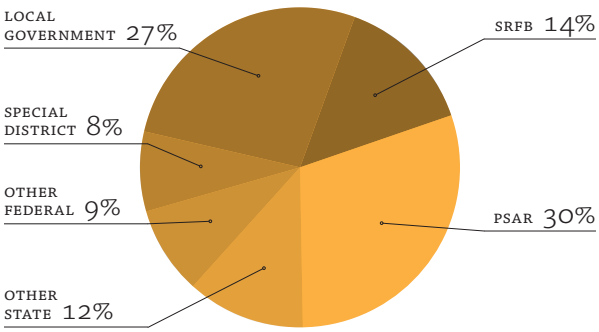
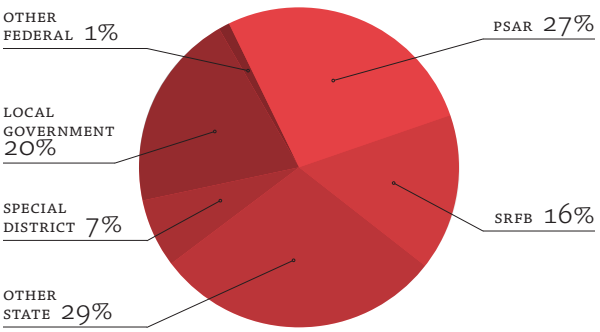


FIGURE 5:
SOURCES FOR FUNDED NON-CAPITAL ACTIVITIES



SRFB is a combination of state and federal funding provided as grants through the state Salmon Recovery Funding Board. PSAR is an acronym for the Puget Sound Acquisition and Restoration Fund, a special regional fund created by the state legislature in the 2009 legislative session. The other federal category includes funding from EPA, US Fish and Wildlife Service, and other sources.

GAPS IN FUNDING

While the current funding commitment to the Puget Sound salmon recovery plan is impressive, funding levels are sufficient to support less than one-third of the costs proposed in the plan. If current funding levels are maintained, the total gap in funding for the capital costs of implementing the plan is projected at $980 million, with another $194 million gap in funding needed for non-capital costs.

The figures below illustrate the projected funded/unfunded split by capital and noncapital categories. These indicate significant across-the-board gaps in all capital and noncapital categories.

Note that few of the current funding sources were cited as insecure[3] by regional staff.

3 Insecure costs are those identified by regional staff as either one-time or very undependable in source or amount available.

FIGURE 6:
FUNDED/UNFUNDED SPLIT FOR CAPITAL CATEGORIES ($ MILLIONS)

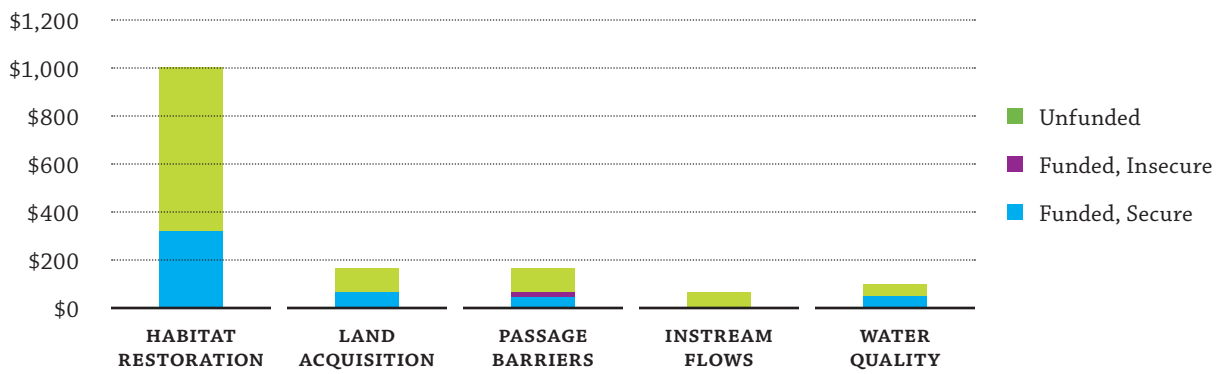
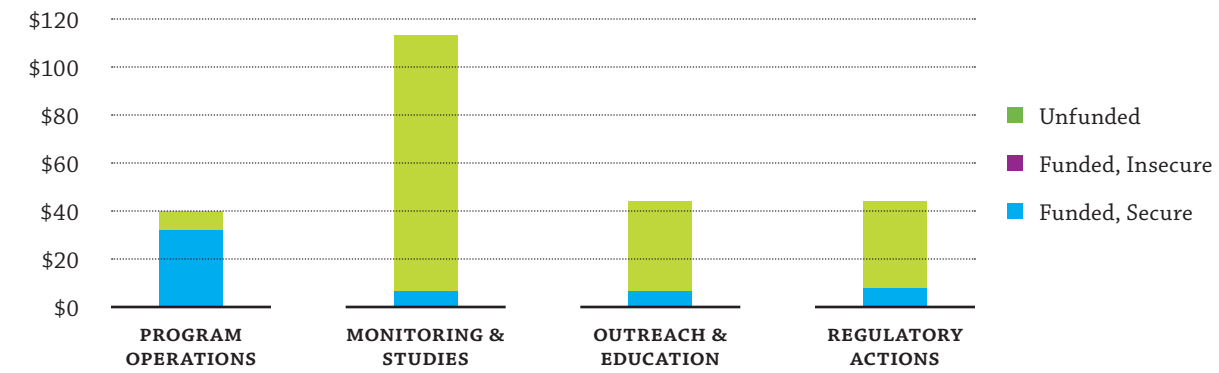


FIGURE 7:
FUNDED/UNFUNDED SPLIT FOR NON-CAPITAL CATEGORIES ($ MILLIONS)



The following figures illustrate how the funding gap is distributed among the capital and non-capital categories based on information provided by the regional staff on the funded/unfunded split in each category.

FIGURE 8:
GAPS BY CAPITAL CATEGORY

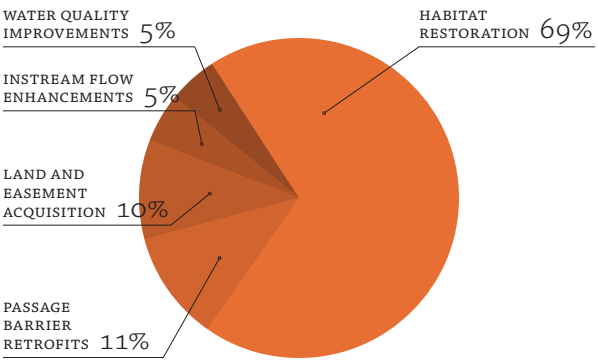
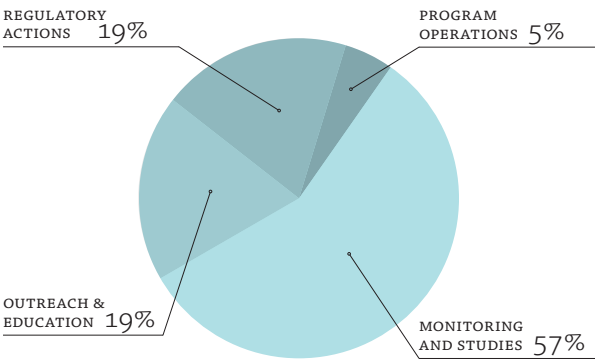


FIGURE 9:
GAPS BY NON-CAPITAL CATEGORY



WASHINGTON COAST

COSTS

There is no comprehensive source of cost information for projects and programs in the Washington Coast recovery region and all costs cited here are based on extrapolation from other regions with verifiable cost information. Using these methods, the total capital costs[4] of the Coast salmon recovery plan are preliminarily estimated at roughly $525 million over the next ten years[5]. Non-capital costs are estimated at approximately $100 million.

Figures 1 and 2 show the assumed distribution of capital and non-capital costs over the major categories of recommended actions in the plan. Again, this information is extrapolated from other regions, and the actual distribution of costs may be found to be quite different once further cost analyses are completed.

As a point of reference, the estimated capital costs of the Coast region are compared to those in other regions in the following chart. The total capital costs among all regions are estimated at $4.7 billion. Total non-capital costs among the regions are estimated at $800 million, with a majority in the monitoring, studies, and assessments category.

FIGURE 1:
CAPITAL COST BY CATEGORY

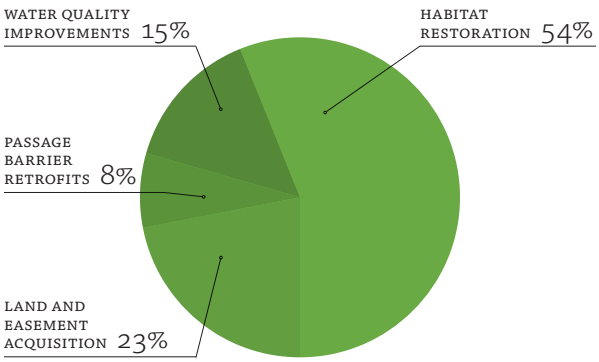


FIGURE 2:
NON-CAPITAL COST BY CATEGORY

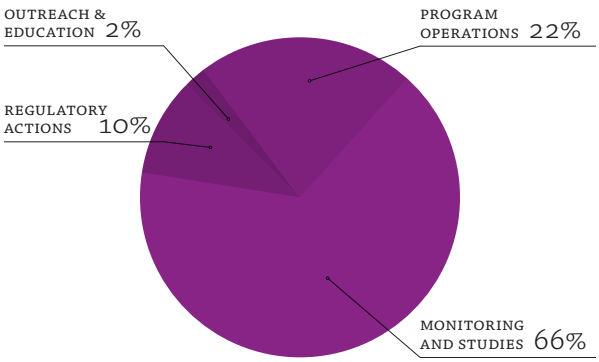
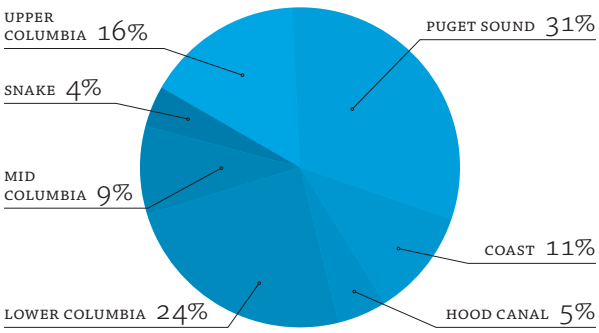


FIGURE 3:
CAPITAL COSTS BY RECOVERY REGION



4 Capital costs include construction and related costs (land acquisition, design, construction management, etc) for physical projects, as well as land acquisition for conservation purposes. Non-capital costs include program management, administration, staffing, and consulting, generally on an ongoing basis.

5 The ten-year period was selected to represent a medium-term forecast; recovery actions are likely to be needed over a longer term.

CURRENT AVAILABILITY OF FUNDING

Regional staff were asked to identify funding sources and amounts used to support capital and non-capital spending in the last three years, as well as to project funding levels if these sources were maintained over the coming ten years.

Based on a preliminary analysis, Coast region staff estimate that recent funding levels are approximately $6.5 million per year for capital needs and $2 million for non-capital needs. If maintained for the coming ten years, these sources and amounts would contribute nearly $85 million to implementation of the recovery plan.

Based on this initial analysis, a wide range of funding sources have been used to fund projects and programs in the past three years. The major funding sources are shown in Figures 4 and 5 below.

FIGURE 4:
SOURCES FOR FUNDED CAPITAL ACTIVITIES

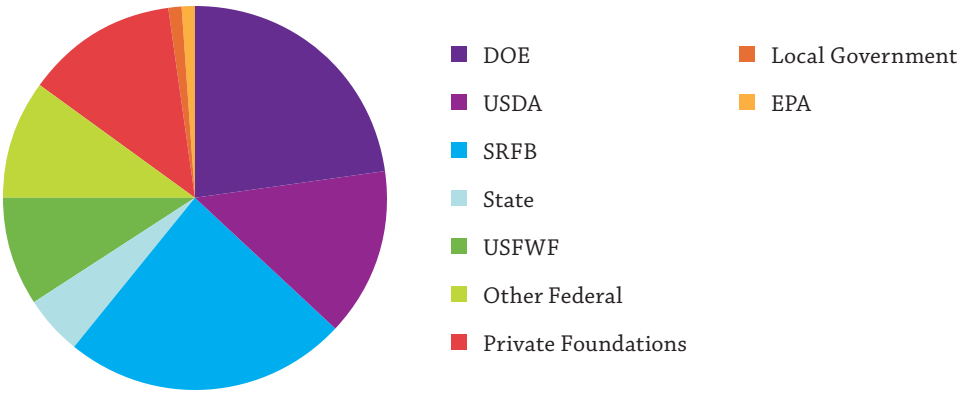
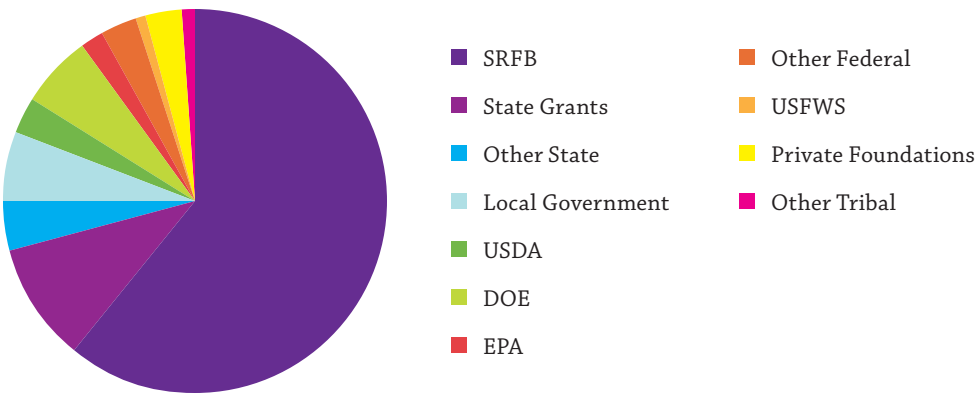


FIGURE 5:
SOURCES FOR FUNDED NON-CAPITAL ACTIVITIES



GAPS IN FUNDING

Assuming that the very preliminary information on costs and funding sources developed in this analysis is in the ballpark, there is likely to be a significant shortfall in funding needed for salmon restoration in the Coast region. The preliminary estimate of the gap is $460 million in capital costs and $70 million in non-capital costs.

The following figures illustrate how the funding gap is assumed to be distributed among the capital and non-capital categories based on information provided by the regional staff on the funded/unfunded split in each category.

FIGURE 6:
GAPS BY CAPITAL CATEGORY

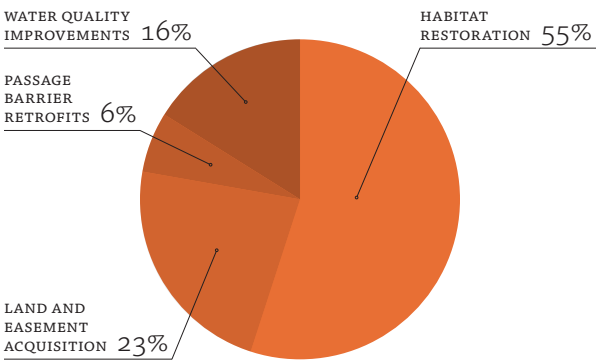
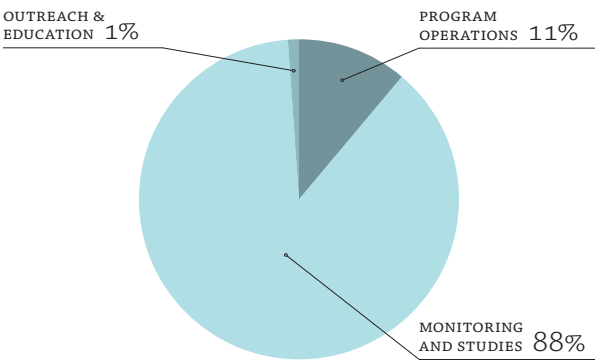


FIGURE 7:
GAPS BY NON-CAPITAL CATEGORY



PRIORITIES FOR THE FUTURE

A meeting to discuss this funding characterization was held on October 14 in Quinault. Attendees included Key McMurry (WRIA 24), Rich Osborne (WRIA 20), Katie Krueger (Quileute Tribe), Lee Napier (WRIA 22), James Schroeder (The Nature Conservancy), Steve Allison (Hoh Tribe), Dave Bingaman (Quinault Indian Nation), Nancy Eldridge (Quinault Indian Nation), Miles Batchelder (WCSSP), and Dennis Canty (Evergreen Funding Consultants). Following are the conclusions from this meeting.

COSTS

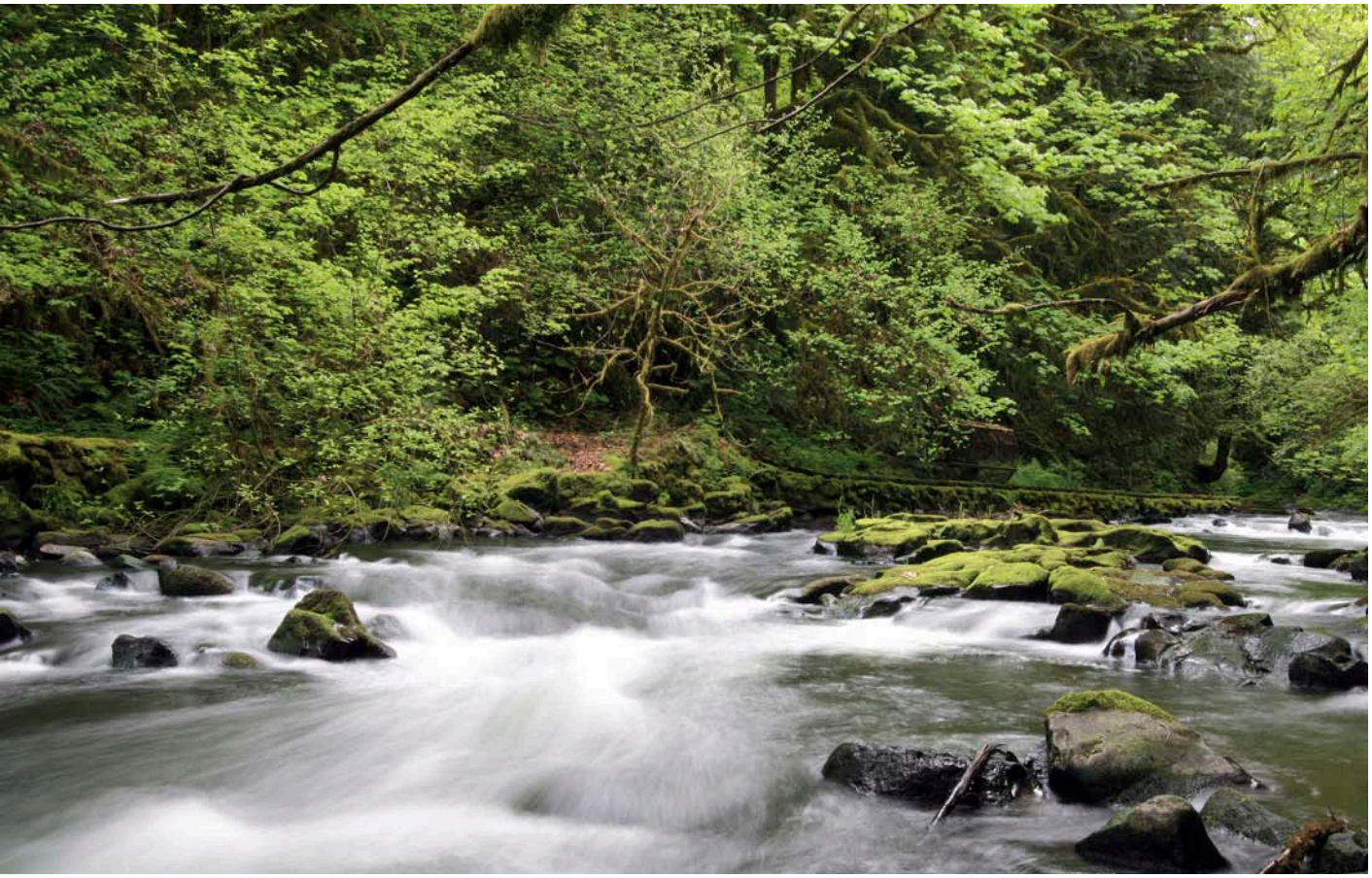
The group expressed discomfort with the cost estimation methods, indicating that comparisons with other regions are likely to over-estimate some costs and under-estimate others, and some participants recommended further cost analysis to improve the estimates. Others recommended more consideration of cost-effectiveness, suggesting that actions in the Coast region provided more "bang for the buck" than those in more developed regions of the state.

MAINTAINING EXISTING SOURCES

The group indicated that the analysis of funding sources is incomplete and probably under-estimates tribal and other contributions. Participants discussed the very diverse sources of funding used to date for actions in the Coast region, as well as the year-to-year variability among the sources. The group noted that several sources had disappeared over the last few years, and also expressed concerns about the difficulties in navigating the SRFB process and its exclusion of indirect costs. Specific concern was also expressed about the sustainability of funding through the Washington Wildlife and Recreation Program for land and easement acquisition.

ADDITIONAL FUNDING NEEDS

The group discussed several immediate needs for funding, with a strong focus on funding needed for habitat restoration. The discussion focused on the large scale of restoration projects, with many in the multi-million-dollar range and few sources available for such projects. High project costs are reportedly compounded by the widespread degradation of habitat associated with historic land use, the very energetic hydrology of coastal rivers, and by the "golden toilet seat" standards employed by certain public agencies. The group suggested that aggregation of small funding sources for large projects is especially challenging and time-consuming.



OTHER FUNDING NEEDS DISCUSSED BY THE GROUP INCLUDED:

Monitoring and Evaluation: Concern was expressed about the difficulty in demonstrating the effectiveness of salmon recovery efforts due to shortfalls in funding of monitoring and evaluation efforts. Particular interest was expressed in sources that would allow longer-term monitoring.

Staffing to Prepare and Manage Projects: Several members of the group expressed concerns that the rate of project implementation is inhibited by staff availability for planning, project development, and other tasks in advance of project funding. The absence of funding for indirect costs is particularly problematic with tribal projects.

Operations and Maintenance: Strong concern was expressed about the ability to maintain habitat restoration and other projects over time given the absence of funding available for this need. It was suggested that land trust stewardship endowments be looked at as a model.

Instream Flows: Interest was expressed in funding for flow analyses as well as for projects to mitigate the impacts of low flows, such as enhanced floodplain storage and channel modifications.

POTENTIAL NEW SOURCES

The group expressed very strong interest in sources that would allow larger awards to large-scale restoration projects, and discussed rotating access to a large-project fund among the regions so that every seven years funding would be predictably available. The group expressed support for a dedicated endowment for maintenance of restored sites and for monitoring and evaluation.

HOOD CANAL

COSTS

The total capital costs[6] of the Hood Canal salmon recovery plan are estimated at $228 million over the next ten years. Non-capital costs are estimated at $24 million. Figures 1 and 2 show the distribution of capital and non-capital costs over the major categories of recommended actions in the plan. Note that costs for the instream flow category of capital projects are currently unknown.

As a point of reference, the capital costs of the Hood Canal region are compared to those in other regions in the following chart. The total capital costs among all regions are estimated at $4.7 billion. Total non-capital costs among the regions are estimated at $800 million, with a majority in the monitoring, studies, and assessments category.

FIGURE 1:
CAPITAL COST BY CATEGORY

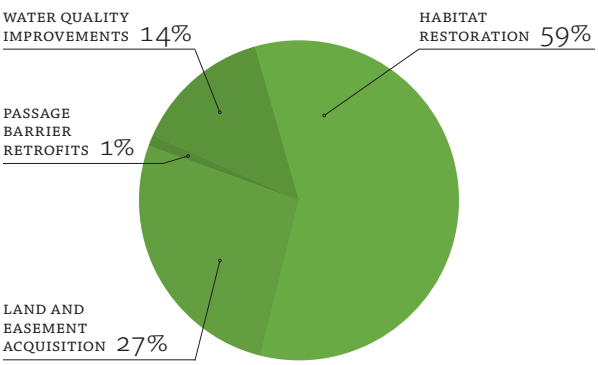


FIGURE 2:
NON-CAPITAL COST BY CATEGORY

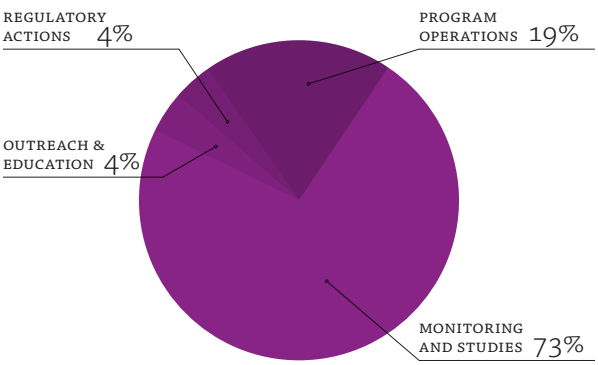
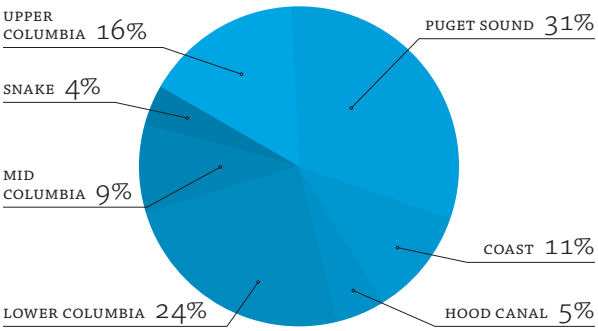


FIGURE 3:
CAPITAL COSTS BY RECOVERY REGION



6 Capital costs include construction and related costs (land acquisition, design, construction management, etc) for physical projects, as well as land acquisition for conservation purposes. Non-capital costs include program management, administration, staffing, and consulting, generally on an ongoing basis.

CURRENT AVAILABILITY OF FUNDING

Regional staff were asked to identify funding sources and amounts used to support capital and non-capital spending in the last three years, as well as to project funding levels if these sources were maintained over the coming ten years.

Hood Canal staff indicate that recent funding levels are approximately $6 million per year for capital needs and $0.6 million for non-capital needs. If maintained for the coming ten years, these sources and amounts would contribute nearly $70 million to implementation of the recovery plan.

A wide range of funding sources have been used to fund projects and programs in the past three years. The major funding sources are shown in Figures 4 and 5 below.

FIGURE 4:
SOURCES FOR FUNDED CAPITAL ACTIVITIES

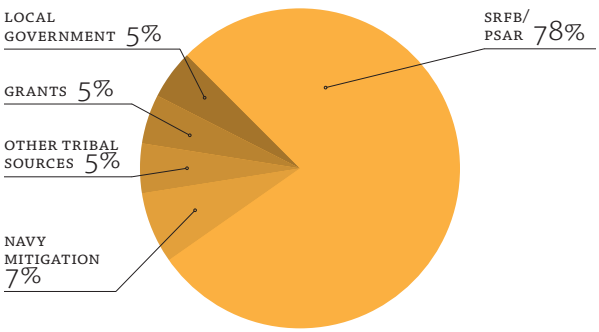
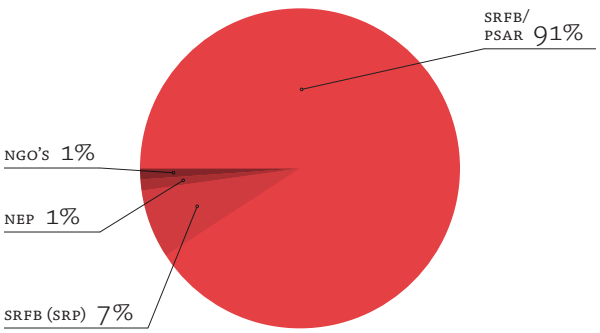


FIGURE 5:
SOURCES FOR FUNDED NON-CAPITAL ACTIVITIES



GAPS IN FUNDING

While the current funding commitment to the Hood Canal salmon recovery plan is impressive, funding levels are sufficient to support only about one-quarter of the costs proposed in the plan. If current funding levels are maintained, the total gap in funding for the capital costs of implementing the plan is projected at $167 million, with another $18 million gap in funding needed for noncapital costs.

The figures below illustrate the projected funded/unfunded split capital and noncapital categories. These indicate across-the-board gaps in all categories.

Note that none of the current funding sources were cited as insecure[7] by regional staff.

7 Insecure costs are those identified by regional staff as either one-time or very undependable in source or amount available.

FIGURE 6:
FUNDED/UNFUNDED SPLIT FOR CAPITAL CATEGORIES ($ MILLIONS)

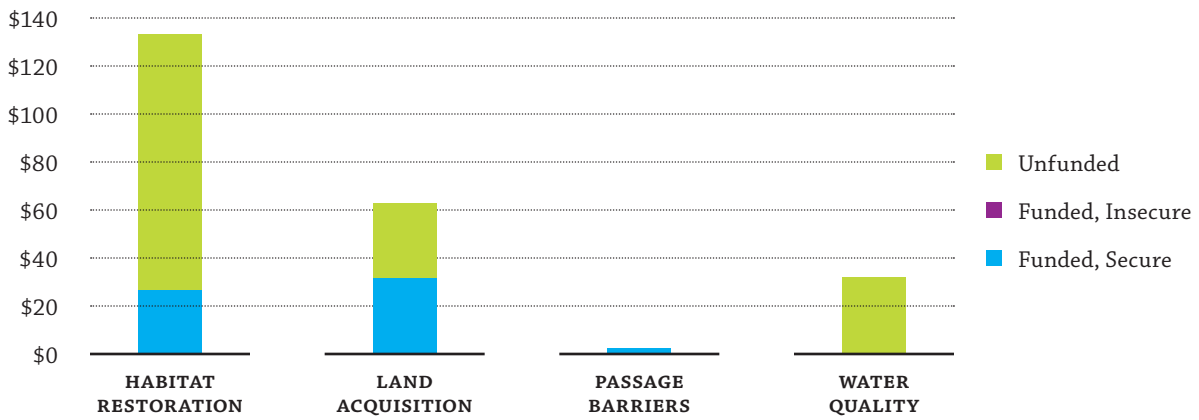
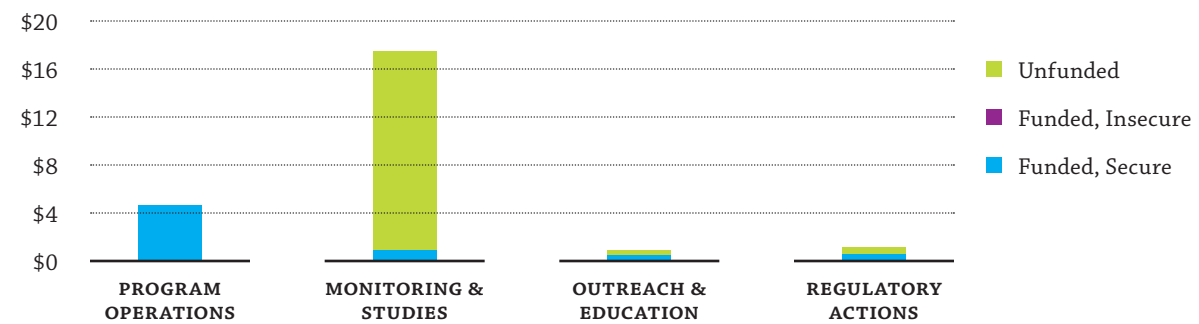


FIGURE 7:
FUNDED/UNFUNDED SPLIT FOR NON-CAPITAL CATEGORIES ($ MILLIONS)



The following figures illustrate how the funding gap is distributed among the capital and non-capital categories based on information provided by the regional staff on the funded/unfunded split in each category. Note that no funding gaps were reported in the passage barrier or program operations categories and neither costs nor gaps were reported for instream flow projects.

FIGURE 8:
GAPS BY CAPITAL CATEGORY

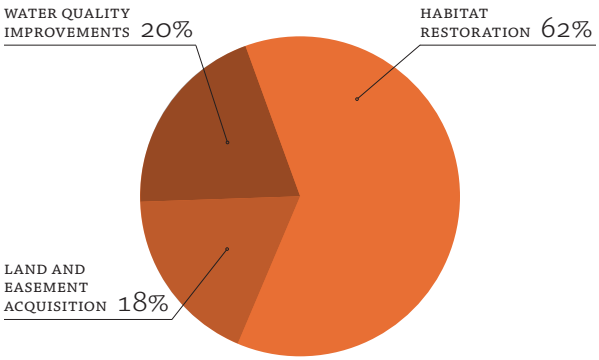
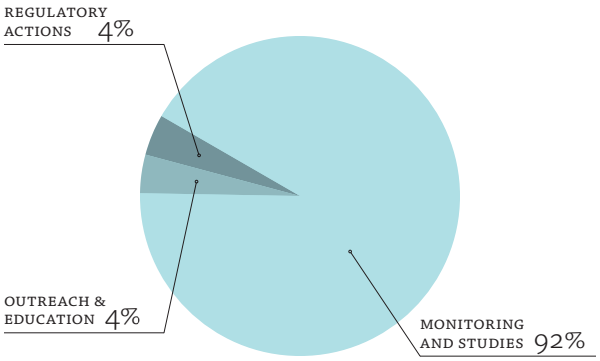


FIGURE 9:
GAPS BY NON-CAPITAL CATEGORY



LOWER COLUMBIA

COSTS

The total capital costs[8] of the Lower Columbia salmon recovery plan are estimated at $1.14 billion over the next ten years. Non-capital costs[9] are estimated at $118 million. Figures 1 and 2 show the distribution of capital and non-capital costs over the major categories of recommended actions in the plan.

Costs in the monitoring category were derived from other regions and need confirmation through further analysis.

As a point of reference, the capital costs of the Lower Columbia region are compared to those in other regions in the following chart. The total capital costs among all regions are estimated at $4.7 billion. Total non-capital costs among the regions are estimated at $800 million, with a majority in the monitoring, studies, and assessments category.

FIGURE 1:
CAPITAL COST BY CATEGORY

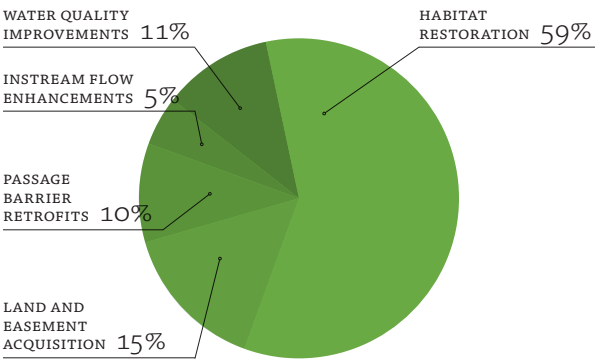


FIGURE 2:
NON-CAPITAL COST BY CATEGORY

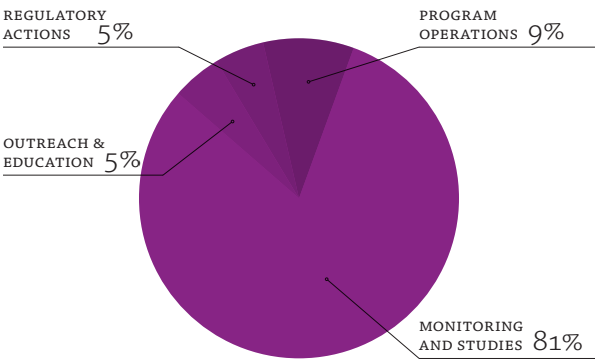
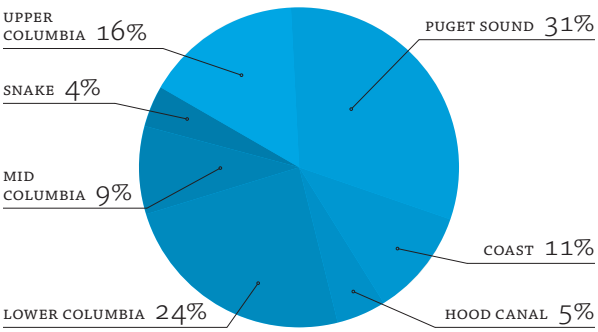


FIGURE 3:
CAPITAL COSTS BY RECOVERY REGION



8 Capital costs include construction and related costs (land acquisition, design, construction management, etc) for physical projects, as well as land acquisition for conservation purposes.

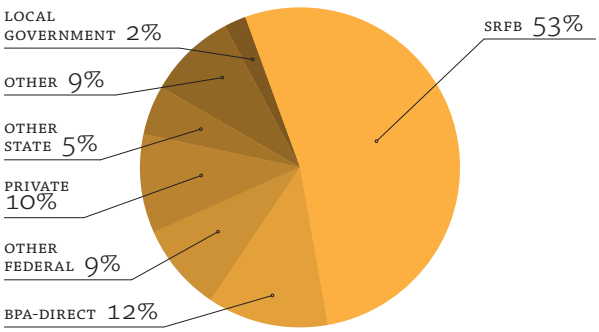
9 Non-capital costs include program management, administration, staffing, and consulting, generally on an ongoing basis.

CURRENT AVAILABILITY OF FUNDING[10]

Regional staff were asked to characterize the availability of funding for capital and noncapital costs during the last three years and indicate the percentage of total costs that would be funded if recent funding levels were maintained over the coming ten year period.

According to this information, the leadership of the Lower Columbia salmon recovery effort has successfully raised more than $5 million per year in the last three years for the capital costs of the plan, and would be expected to raise more than $53 million over the next ten years.

FIGURE 4:
SOURCES FOR FUNDED CAPITAL ACTIVITIES



A wide range of funding sources have been used to fund capital work in the past three years. The major funding sources are shown in Figure 4 below.

SRFB is a combination of state and federal funding provided as grants through the state Salmon Recovery Funding Board. The other federal category includes funding from EPA, US Fish and Wildlife Service, BPA, and other sources. The other category is the accumulation from small sources spread among the categories.

Funding for non-capital costs has come almost exclusively from the Salmon Recovery Funding Board, which accounts for 87% of funding raised in the last three years.

10 Funding sources for the $250 million in estuary costs included in the cost total were unknown at the time this report was prepared. Therefore, none of these sources are reflected in this analysis, and the funding gap identified counts none of this $250 million.

GAPS IN FUNDING

While the current funding commitment to the Lower Columbia salmon recovery plan is substantial, this funding level would support less than one-tenth of the capital costs proposed in the plan. If current funding levels are maintained, the total gap in funding for the capital costs of implementing the plan is projected at $835 million, with another $108 million gap in funding for non-capital costs.

Note that these figures and the following analysis do not include $250 million in estuary restoration costs for which funding information is currently unavailable.

The figures below illustrate the projected funded/unfunded split by capital and noncapital categories. These indicate across-the-board shortfalls in funding.

Note the very small fractions of current funding that are cited as insecure[11]. Regional staff view most current sources as secure and dependable for the time being.

11 Insecure costs are those identified by regional staff as either one-time or very undependable in source or amount available.

FIGURE 5:
FUNDED/UNFUNDED SPLIT FOR CAPITAL CATEGORIES ($ MILLIONS)

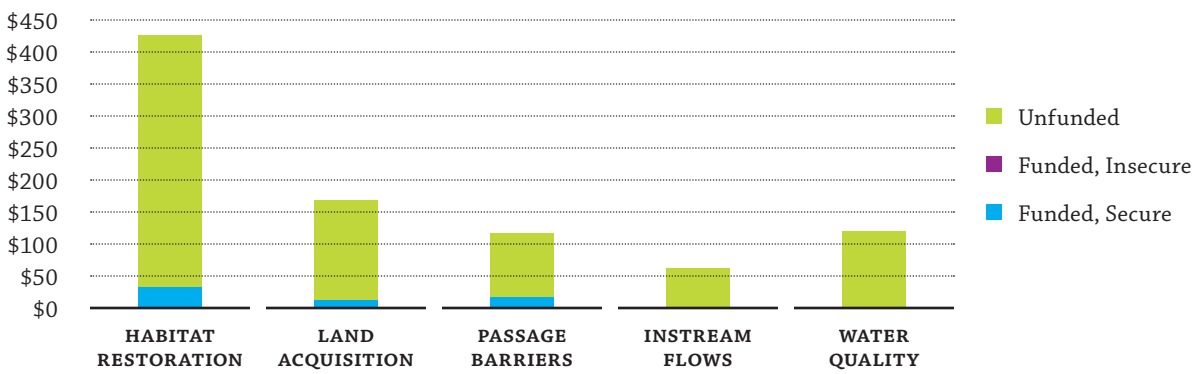
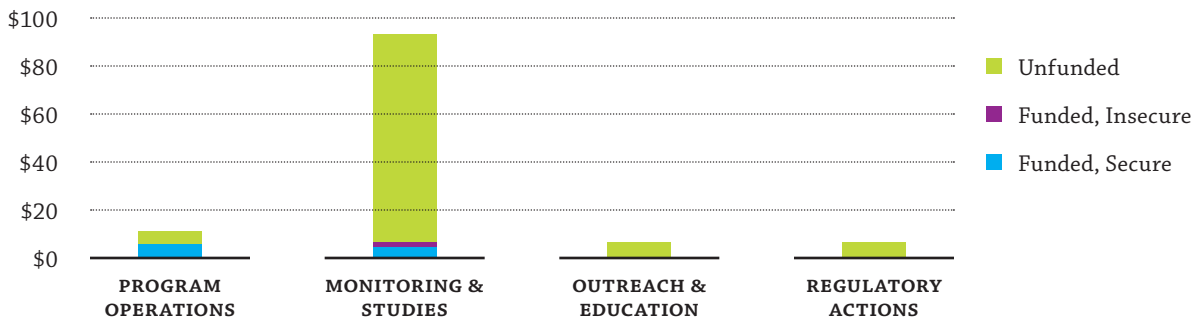


FIGURE 6:
FUNDED/UNFUNDED SPLIT FOR NON-CAPITAL CATEGORIES ($ MILLIONS)



The following figures illustrate how the funding gap is distributed among the capital and non-capital categories based on information provided by the regional staff on the funded/unfunded split in each category.

FIGURE 7:
GAPS BY CAPITAL CATEGORY

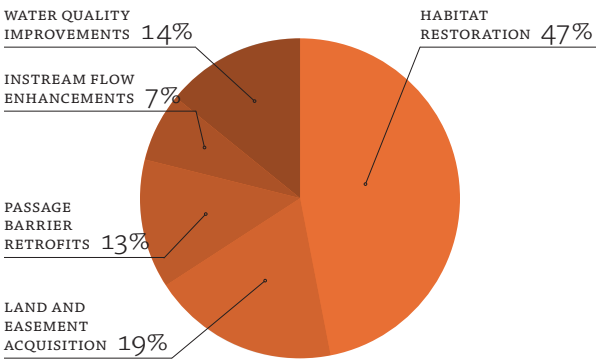
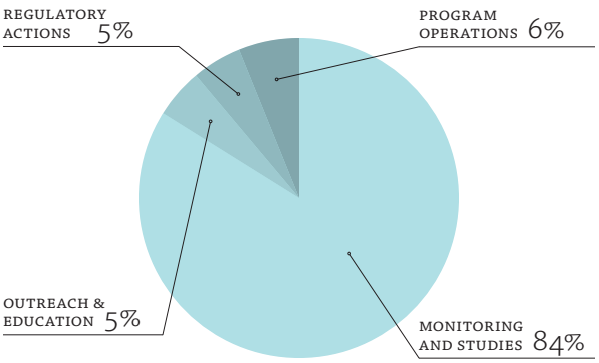


FIGURE 8:
GAPS BY NON-CAPITAL CATEGORY



PRIORITIES FOR THE FUTURE

A meeting to discuss this funding characterization was held on September 17 in Longview. Attendees included: Taylor Aalvik (Cowlitz Indian Tribe), Harry Barber (Lower Columbia Fish Enhancement Group and SRFB), Bill Dygert (Clark County citizen, former LCFRB member), Pat Lee (Clark County Legacy Lands), Tom Linde (LCFRB Chairman – Skamania County Citizen), Irene Martin (LCFRB – Wahkiakum County Citizen), Dennis Weber (LCFRB – Cities Representative), Jeff Breckel (LCFRB Staff), Bernadette Graham Hudson (LCFRB Staff), and Dennis Canty (Evergreen Funding Consultants). Following are the conclusions from this meeting.

MAINTAINING EXISTING SOURCES

The group expressed great concern about the ability to maintain existing funding sources in the face of widespread state budget cutbacks. Concerns were expressed about the particular difficulties of maintaining funding in the Lower Columbia region posed by lack of access to BPA funding and absence of a high public profile.

ADDITIONAL FUNDING NEEDS

The participants expressed a strong interest in using the recovery plan to identify priorities and avoiding a reprioritization of actions. Mr. Breckel discussed how priorities and costs could be refined using NOAA's threat categories and other recovery impacts information in the plan, and there was widespread interest expressed in developing a funding strategy using this information.

IN THE MEANTIME, THE GROUP DISCUSSED SEVERAL IMMEDIATE NEEDS FOR FUNDING, INCLUDING:

Monitoring: Concern was expressed about the difficulty in demonstrating the effectiveness of salmon recovery efforts. Strong interest was expressed in coordinating existing monitoring programs and potentially redirecting funding to more effective monitoring actions.

Enforcement: The group discussed the need for increased enforcement at many levels, including fishing regulations, timber harvest regulations, and other regulatory enforcement.

Predation Control: Participants expressed interest in additional funding to control predation on salmon in the estuary. The NOAA estuary strategy was recommended as the definitive document on funding needs.

Passage Barriers: The high visibility and popularity of passage barrier projects was suggested as a reason to emphasize this category through additional funding.

POTENTIAL NEW SOURCES

There was considerable discussion of new sources that could diversify the funding streams, with particular interest expressed in developing a new non-profit organization as a means of raising foundation and major donor funds. The group expressed strong interest in large-scale funding opportunities, including use of mitigation funding and water quality funding associated with permitting of utility operations. The participants were interested in hearing more about potential sources as the project continues.

YAKIMA BASIN OF THE MIDDLE COLUMBIA REGION

COSTS

The total capital costs[12] of the Yakima Basin portion of the Middle Columbia salmon recovery plan[13] are estimated at $310 million over the next ten years. Non-capital costs[14] are estimated at $21 million. Figures 1 and 2 show the distribution of capital and non-capital costs in the plan.

Costs in the passage barrier, road repair and decommissioning, and monitoring category were derived from other regions and need confirmation through further analysis.

As a point of reference, the capital costs of the Middle Columbia region are compared to those in other regions in the following chart. The total capital costs among all regions are estimated at $4.7 billion. Total non-capital costs among the regions are estimated at $800 million, with a majority in the monitoring, studies, and assessments category.

FIGURE 1:
CAPITAL COST BY CATEGORY

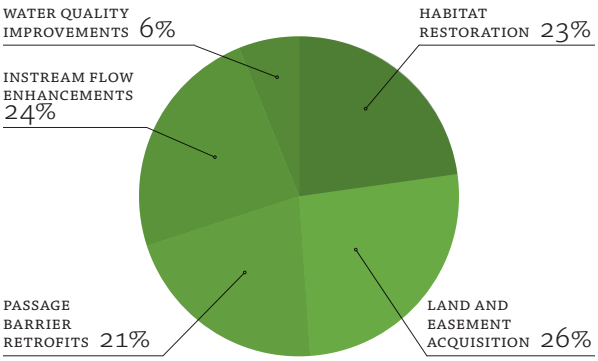


FIGURE 2:
NON-CAPITAL COST BY CATEGORY

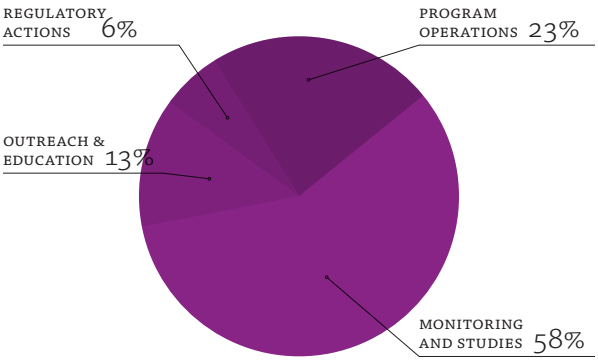
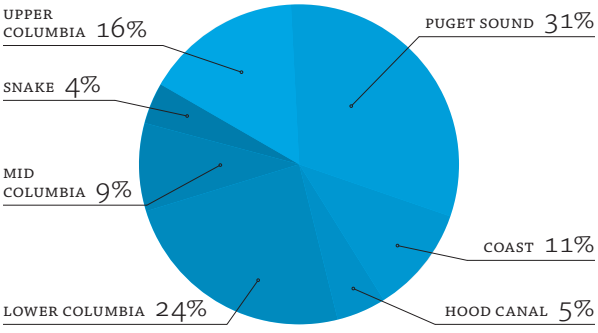


FIGURE 3:
CAPITAL COSTS BY RECOVERY REGION



12 Capital costs include construction and related costs (land acquisition, design, construction management, etc) for physical projects, as well as land acquisition for conservation purposes.

13 Costs and funding sources associated with the Gorge Management Unit are excluded from this analysis.

14 Non-capital costs include program management, administration, staffing, and consulting, generally on an ongoing basis.

CURRENT AVAILABILITY OF FUNDING

Regional staff were asked to identify funding sources and amounts used to support capital and non-capital spending in the last three years, as well as to project funding levels if these sources were maintained over the coming ten years.

Yakima Basin staff indicate that recent funding levels are approximately $7 million per year for capital needs and $1.2 million for non-capital needs. If maintained for the coming ten years, these sources and amounts would contribute approximately $82 million to implementation of the recovery plan.

A wide range of funding sources have been used to fund projects and programs in the past three years. The major funding sources are shown in Figures 4 and 5 below.

FIGURE 4:
SOURCES FOR FUNDED CAPITAL ACTIVITIES

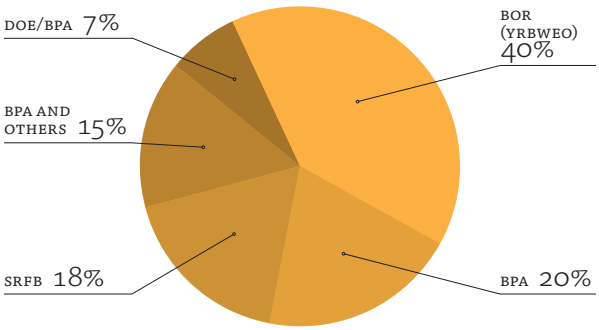
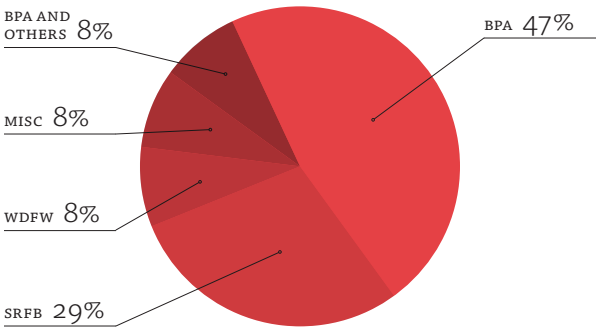


FIGURE 5:
SOURCES FOR FUNDED NON-CAPITAL ACTIVITIES



GAPS IN FUNDING

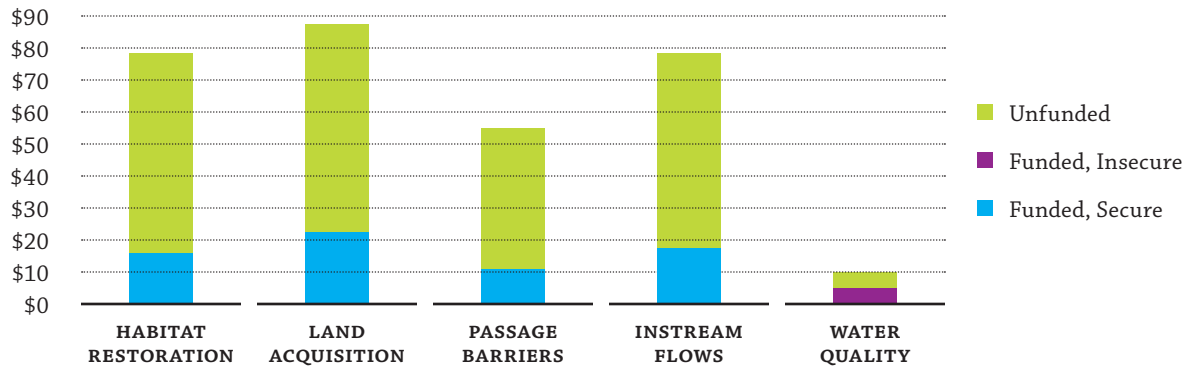
While the current funding commitment to the Yakima Basin portion of the Middle Columbia salmon recovery plan is substantial, this funding level would support only about one-quarter of the costs proposed in the plan. If current funding levels are maintained, the total gap in funding for the capital costs of implementing the plan is projected at $238 million, with another $9 million gap in funding for non-capital costs.

The figures below illustrate the projected funded/unfunded split by capital and noncapital categories. These indicate across-the-board shortfalls in capital funding, but smaller gaps on the non-capital side.

Note the very small fractions of current funding that are cited as insecure[15]. Regional staff view most current sources as secure and dependable for the time being.

15 Insecure costs are those identified by regional staff as either one-time or very undependable in source or amount available.

FIGURE 6:
FUNDED/UNFUNDED SPLIT FOR CAPITAL CATEGORIES ($ MILLIONS)



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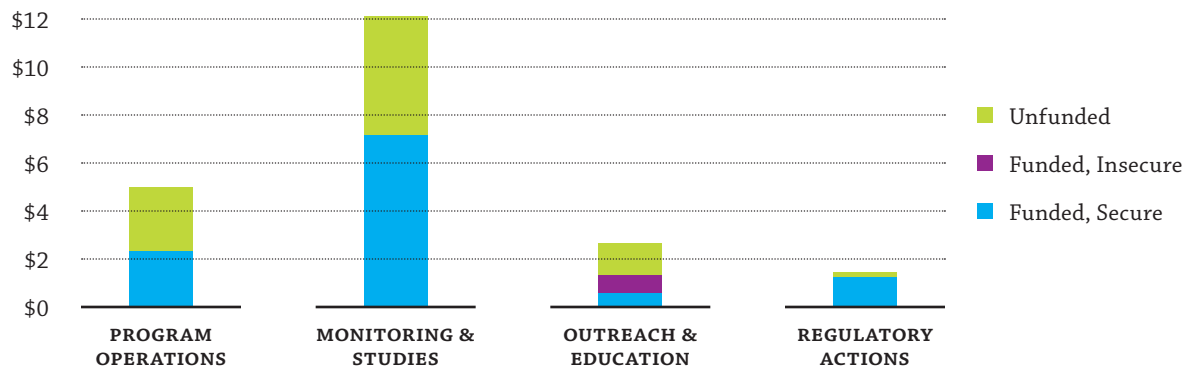


The following figures illustrate how the funding gap is distributed among the capital and non-capital categories based on information provided by the regional staff on the funded/unfunded split in each category.

FIGURE 8:
GAPS BY CAPITAL CATEGORY

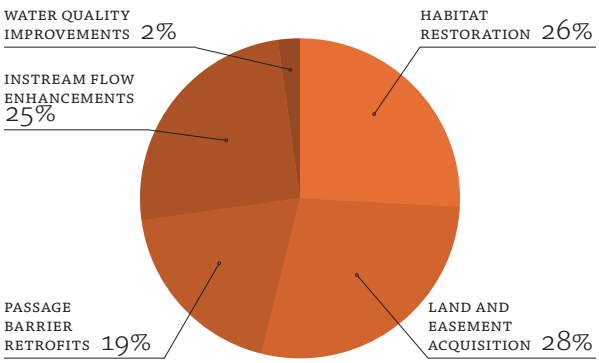
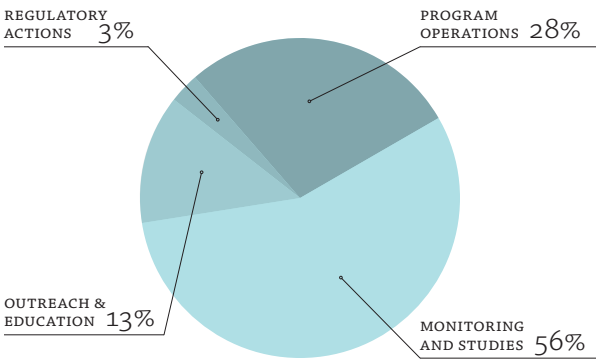


FIGURE 9:
GAPS BY NON-CAPITAL CATEGORY



PRIORITIES FOR THE FUTURE

A meeting to discuss this funding characterization was held on September 23 in Yakima. Attendees included Mike Leita (Yakima County Commission), Alex Conley (YBFWRB staff), Bill Sharp (Yakama Nation), and Dennis Canty (Evergreen Funding Consultants). Following are the conclusions from this meeting.

MAINTAINING EXISTING SOURCES

The group acknowledged their unusual position of having dedicated BPA and Bureau of Reclamation funding for implementation of the recovery plan. Participants were fairly confident that most current funding sources will be maintained for the foreseeable future.

ADDITIONAL FUNDING NEEDS

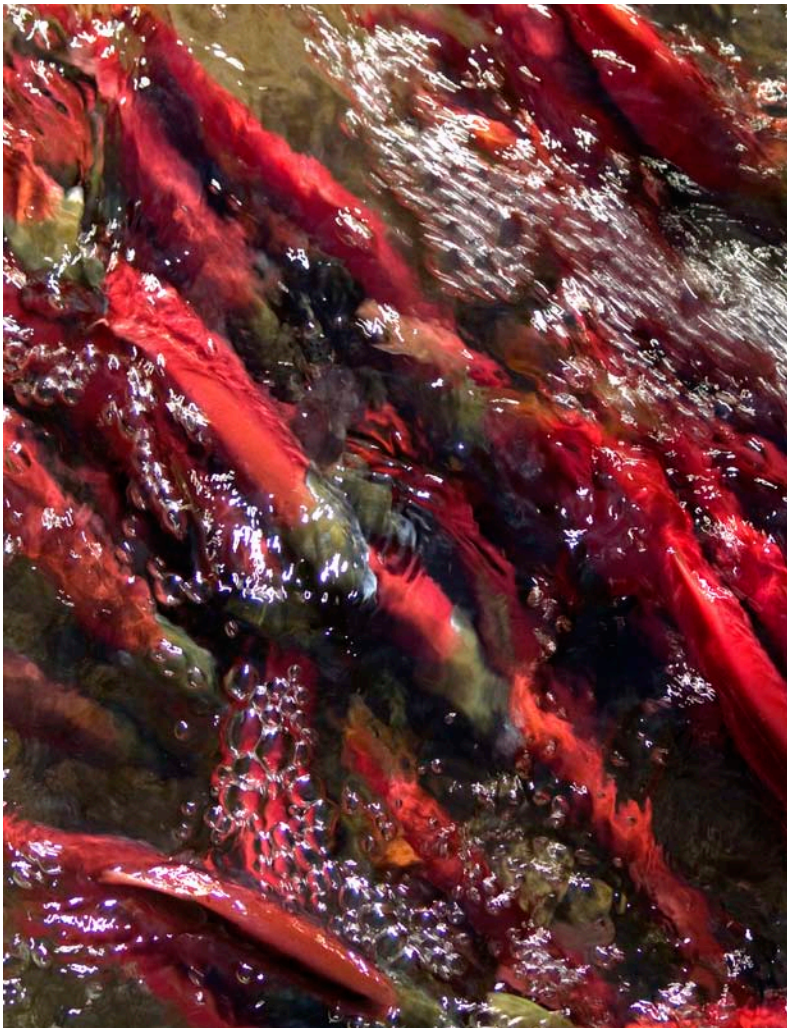
The group discussed several immediate needs for funding, including:

Floodplain Restoration: The group expressed strong interest in funding of floodplain restoration projects, including levee setbacks, tributary and side channel reconnections, and riparian zone restoration. There was particular interest in restoration in the Gap-to-Gap reach of the Yakima River.

Storage Dam Passage: The group cited their interest in increased funding for several large-scale restoration projects needed at storage dams in the upper watershed (Keechelus, Kachess, Cle Elum, and Rimrock). These are reportedly very costly (>$5 million per project).

Other Passage Barriers: The group is interested in additional funding for smaller-scale passage barrier projects on tributaries, particularly in the Wilson, Taneum, and Wenas Creek systems.

Staffing to Implement Projects: Several members of the group expressed concerns that the rate of project implementation is inhibited by staff availability for planning, project development, and other implementation tasks.



POTENTIAL NEW SOURCES

The participants expressed optimism about supporting additional projects with funding provided through the Yakima River Basin Water Enhancement Project, a complex Congressionally authorized water storage/instream flow/fish passage project currently underway under the leadership of the Bureau of Reclamation and the Washington Department of Ecology.

SNAKE RIVER

COSTS

The total capital costs[16] of the Snake salmon recovery plan are estimated at $207 million over the next ten years. Non-capital costs are estimated at $40 million. Figures 1 and 2 show the distribution of capital and non-capital costs over the major categories of recommended actions in the plan.

As a point of reference, the capital costs of the Snake region are compared to those in other regions in the following chart. The total capital costs among all regions are estimated at $4.7 billion. Total non-capital costs among the regions are estimated at $800 million, with a majority in the monitoring, studies, and assessments category.

FIGURE 1:
CAPITAL COST BY CATEGORY

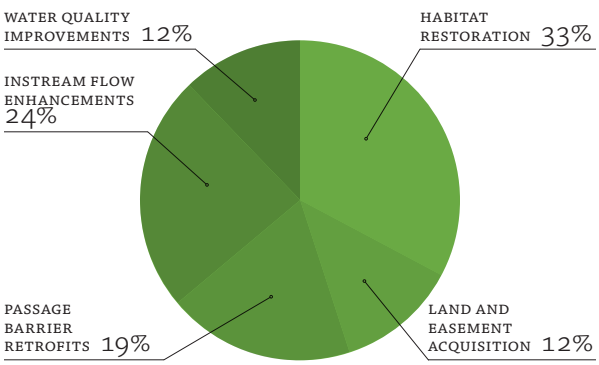


FIGURE 2:
NON-CAPITAL COST BY CATEGORY

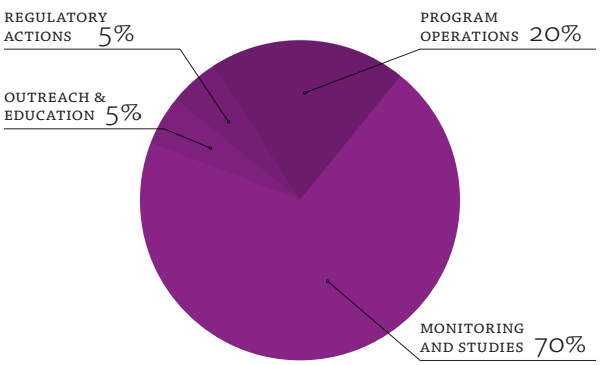
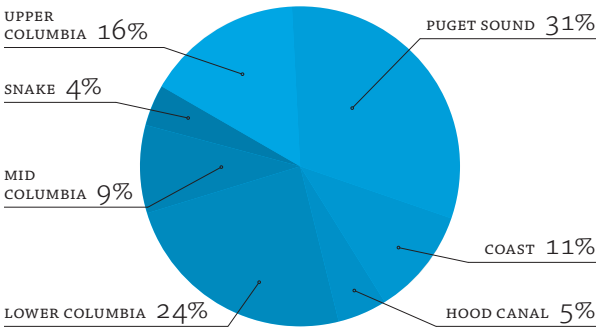


FIGURE 3:
CAPITAL COSTS BY RECOVERY REGION



16 Capital costs include construction and related costs (land acquisition, design, construction management, etc) for physical projects, as well as land acquisition for conservation purposes. Non-capital costs include program management, administration, staffing, and consulting, generally on an ongoing basis.

CURRENT AVAILABILITY OF FUNDING

Regional staff were asked to identify funding sources and amounts used to support capital and non-capital spending in the last three years, as well as to project funding levels if these sources were maintained over the coming ten years.

Snake regional staff indicate that recent funding levels are approximately $6 million per year for capital expenses/costs and $2 million for non-capital expenses/costs. If maintained for the coming ten years, these sources and amounts would contribute nearly $90 million to implementation of the recovery plan.

A wide range of funding sources have been used to fund projects and programs in the past three years. The major funding sources are shown in Figures 4 and 5 below.

FIGURE 4:
SOURCES FOR FUNDED CAPITAL ACTIVITIES

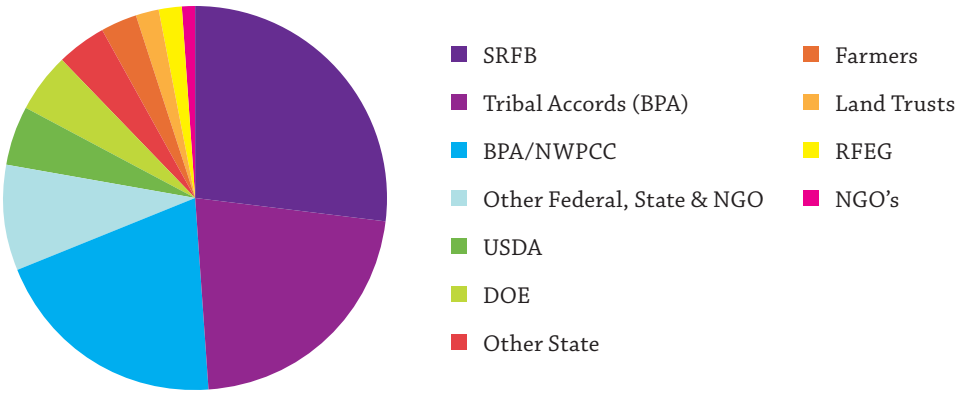
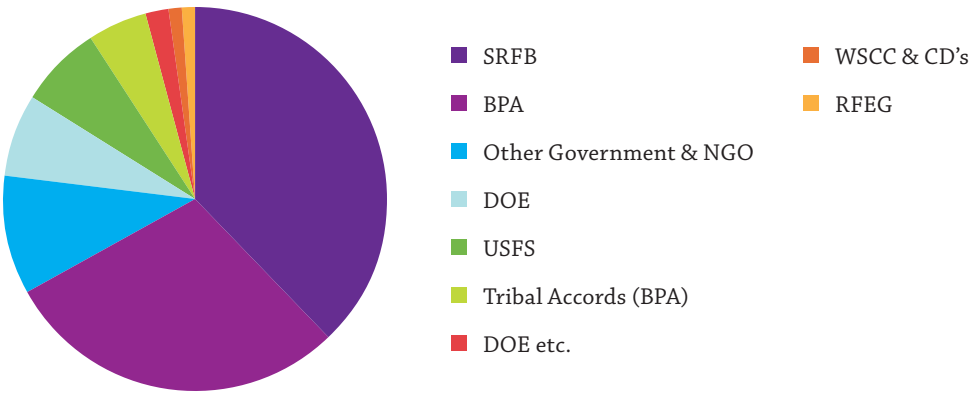


FIGURE 5:
SOURCES FOR FUNDED NON-CAPITAL ACTIVITIES



GAPS IN FUNDING

While the current funding commitment to the Snake salmon recovery plan is impressive, funding levels are sufficient to support only about one-third of the costs proposed in the plan. If current funding levels are maintained, the total gap in funding for the capital costs of implementing the plan is projected at $142 million, with another $18 million gap in funding needed for non-capital costs.

The figures below illustrate the projected funded/unfunded split by capital and noncapital categories. These indicate across-the-board gaps in all categories but somewhat larger gaps for capital projects.

Note that none of the sources are classified as insecure, meaning one-time or extremely undependable. Regional staff indicate that the same sources of funding are likely to be available in coming years (except for DOE funding) but the amount of funding per source is apt to vary year-to-year.

FIGURE 6:
FUNDED/UNFUNDED SPLIT FOR CAPITAL CATEGORIES ($ MILLIONS)

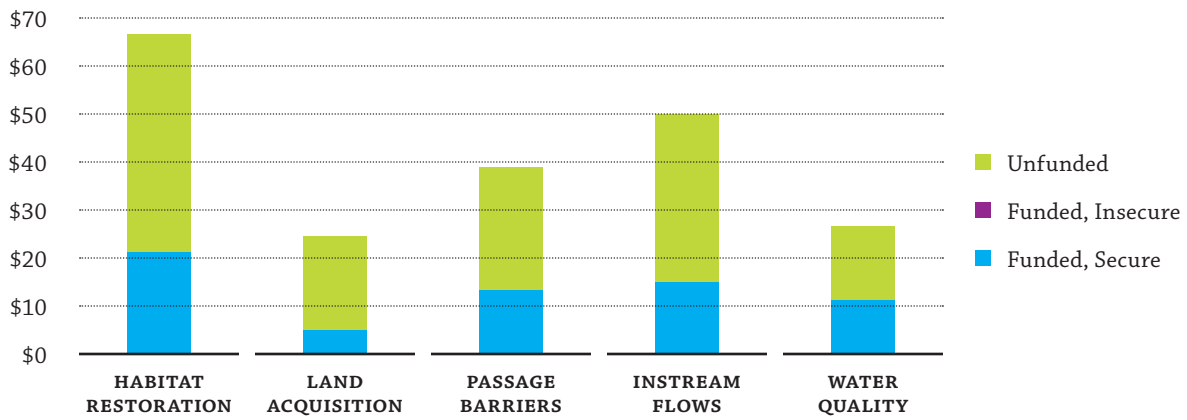
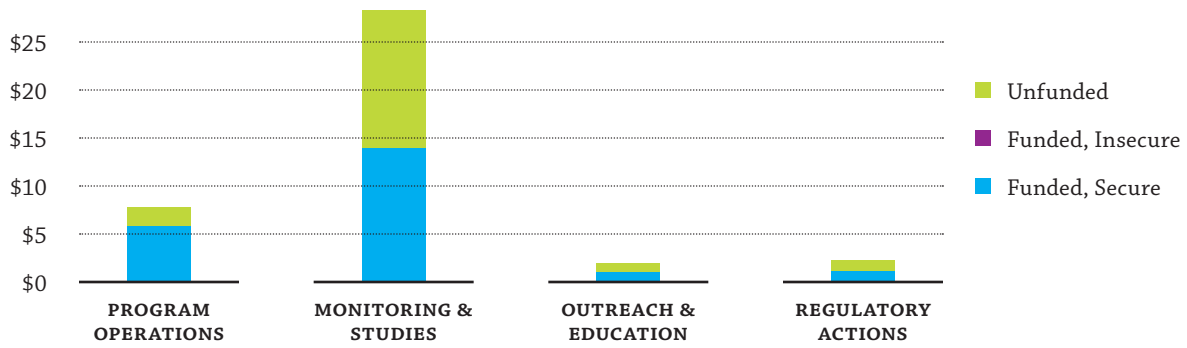


FIGURE 7:
FUNDED/UNFUNDED SPLIT FOR NON-CAPITAL CATEGORIES ($ MILLIONS)



The following figures illustrate how the funding gap is distributed among the capital and non-capital categories based on information provided by the regional staff on the funded/unfunded split in each category.

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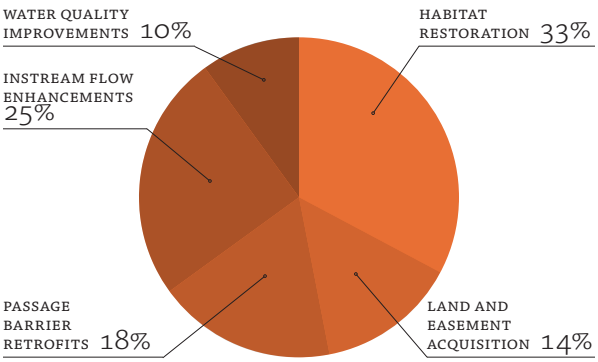
GAPS BY CAPITAL CATEGORY



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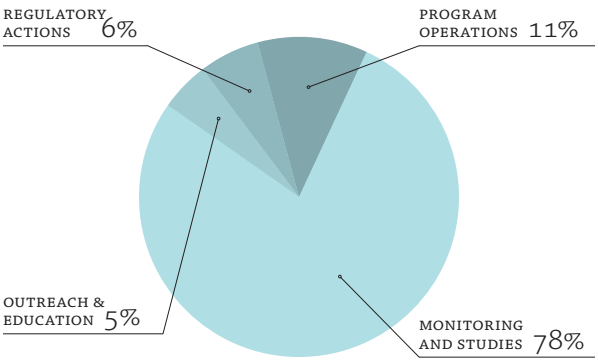


PRIORITIES FOR THE FUTURE

A meeting to discuss this funding characterization was held on September 29 in Olympia. Attendees included Del Groat (Chairman, SRSRB), Dave Karl (WDFW), (Steve Martin (SRSRB staff), Kris Buelow (SRSRB staff), Phil Miller (GSRO), and Dennis Canty (Evergreen Funding Consultants). Following are the conclusions from this meeting.

MAINTAINING EXISTING SOURCES

The group discussed the unusually diverse mix of funding sources used to date to implement the recovery plan, suggesting that they are a good indication of the strong support of partners and their commitment to the plan. With regard to the reliability of sources, participants expressed some concern with the USDA sources (particularly CREP and CRP), DOE watershed planning, and with funding of state agency staffing, but were confident about continuation of BPA and federal funding.

ADDITIONAL FUNDING NEEDS

The group discussed several immediate needs for funding, including:

Staffing to Implement Projects: The group cited their concerns about the availability of senior staff to manage major projects, which is slowing the implementation of the recovery plan. Participants cited the sophisticated skills needed to build partnerships and leverage funding, and suggested that this may be a limiting factor not just in the Snake region but statewide.

Monitoring: Participants expressed concerns about shortcomings in monitoring, and particularly the usefulness of monitoring information to evaluate progress on recovery plan implementation and to support on-the-ground restoration. While the funding spent on monitoring may be an issue, the group emphasized their concern about how existing monitoring funds are spent.

Floodplain Restoration: The group expressed strong support for additional funding for floodplain restoration in agricultural areas, particularly for dike and levee retrofits, side channel reconnections, and conservation easements or land acquisition in support of these projects. This work is reportedly a mix of smaller discrete projects (average size around $700,000) and a major systemic restoration program on Mill Creek (totals $15 million).

POTENTIAL NEW SOURCES

The discussion on new sources focused on needs at two scales, the large systemic restoration projects like the Mill Creek proposal and the many incremental restoration actions that have been majority of work to date. For the large projects, the group expressed interest in Corps of Engineers programs, WSDOT mitigation, and FEMA floodplain mitigation, with the latter programs also potentially available to smaller projects. Participants also suggested that Asotin Creek would be a strong candidate for funding under the Salmon Stronghold program should it be established and funded.

UPPER COLUMBIA

COSTS

The total capital costs[17] of the Upper Columbia salmon recovery plan are estimated at $734 million over the next ten years. Non-capital costs[18] are estimated at $164 million. Figures 1 and 2 show the distribution of capital and non-capital costs over the major categories of recommended actions in the plan.

As a point of reference, the capital costs of the Upper Columbia region are compared to those in other regions in the following chart. The total capital costs among all regions are estimated at $4.7 billion. Total non-capital costs among the regions are estimated at $800 million, with a majority in the monitoring, studies, and assessments category.

FIGURE 1:
CAPITAL COST BY CATEGORY

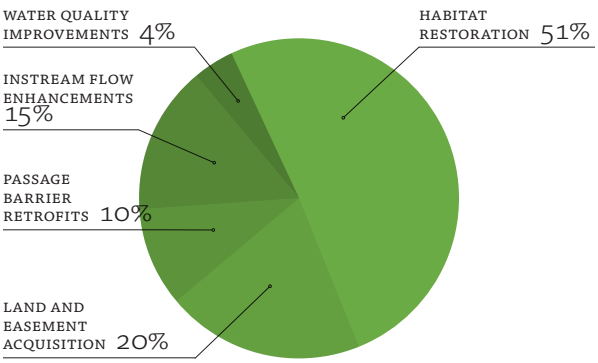


FIGURE 2:
NON-CAPITAL COST BY CATEGORY

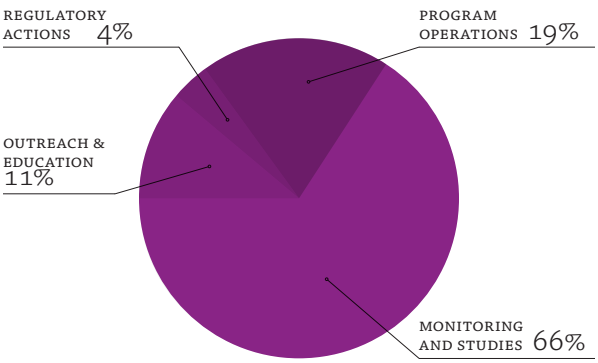
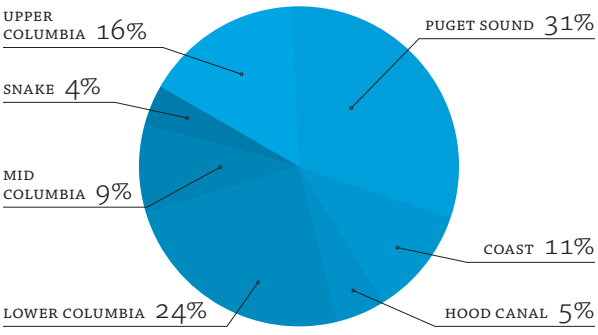


FIGURE 3:
CAPITAL COSTS BY RECOVERY REGION



17 Capital costs include construction and related costs (land acquisition, design, construction management, etc) for physical projects, as well as land acquisition for conservation purposes.

18 Non-capital costs include program management, administration, staffing, and consulting, generally on an ongoing basis.

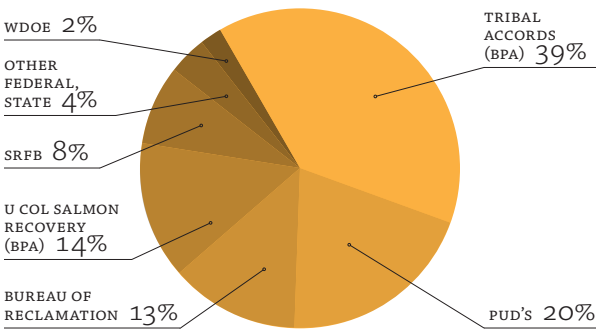
CURRENT AVAILABILITY OF FUNDING

Regional staff were asked to identify funding sources and amounts used to support capital and non-capital spending in the last three years, as well as to project funding levels if these sources were maintained over the coming ten years.

Upper Columbia staff indicate that recent funding levels are approximately $25 million per year for capital needs and $14 million for non-capital needs. If maintained for the coming ten years, these sources and amounts would contribute nearly $400 million to implementation of the recovery plan.

A wide range of funding sources have been used to fund projects and programs in the past three years. The major funding sources are shown in Figures 4 and 5 below.

FIGURE 4:
SOURCES FOR FUNDED CAPITAL ACTIVITIES



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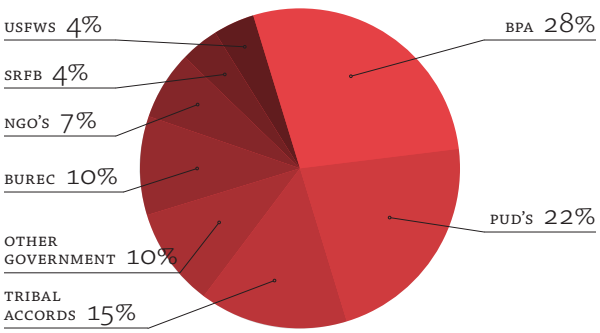


GAPS IN FUNDING

While the current funding commitment to the Upper Columbia salmon recovery plan is impressive, funding levels are sufficient to support less than half the costs proposed in the plan. If current funding levels are maintained, the total gap in funding for the capital costs of implementing the plan is projected at $480 million, with another $26 million gap in funding needed for non-capital costs.

The figures below illustrate the projected funded/unfunded split by capital and noncapital categories. These indicate gaps for all cost categories, with somewhat larger gaps for capital projects.

Note that none of the current funding sources were cited as insecure[19] by regional staff. Sources used for the Upper Columbia recovery effort are unusually secure by statewide standards.

19 Insecure costs are those identified by regional staff as either one-time or very undependable in source or amount available.

FIGURE 6:
FUNDED/UNFUNDED SPLIT FOR CAPITAL CATEGORIES ($ MILLIONS)

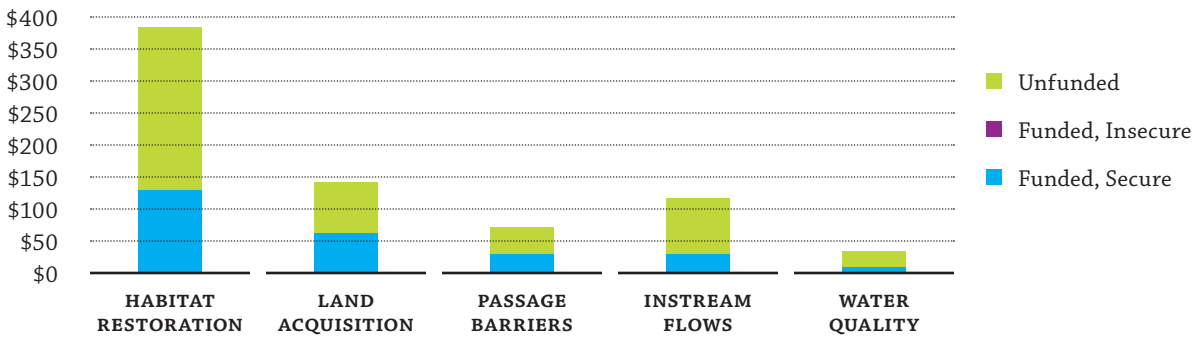
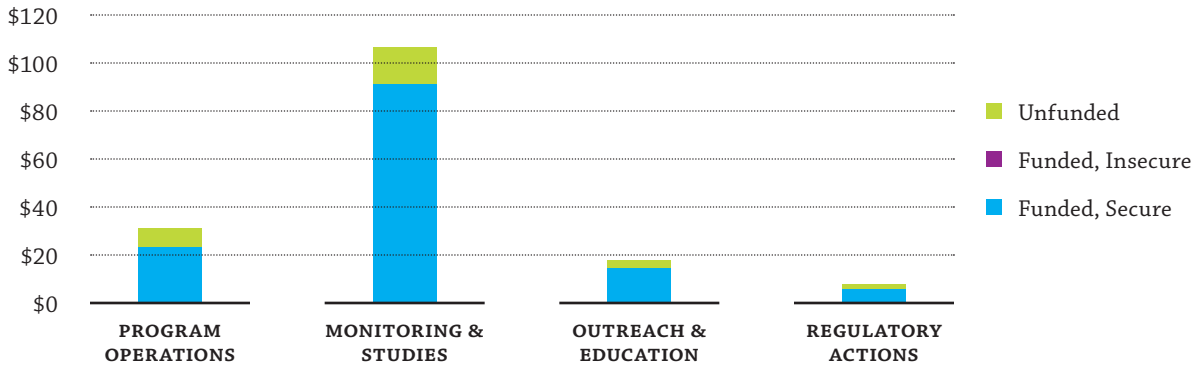


FIGURE 7:
FUNDED/UNFUNDED SPLIT FOR NON-CAPITAL CATEGORIES ($ MILLIONS)



The following figures illustrate how the funding gap is distributed among the capital and non-capital categories based on information provided by the regional staff on the funded/unfunded split in each category.

FIGURE 8:
GAPS BY CAPITAL CATEGORY

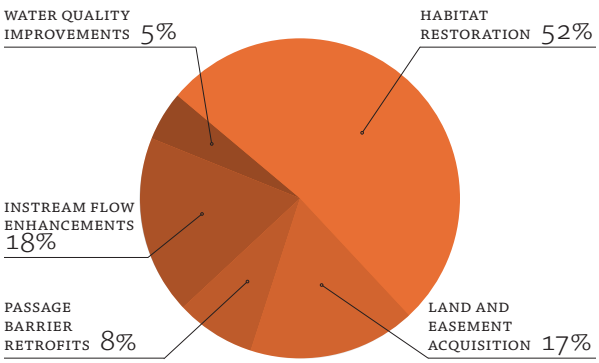
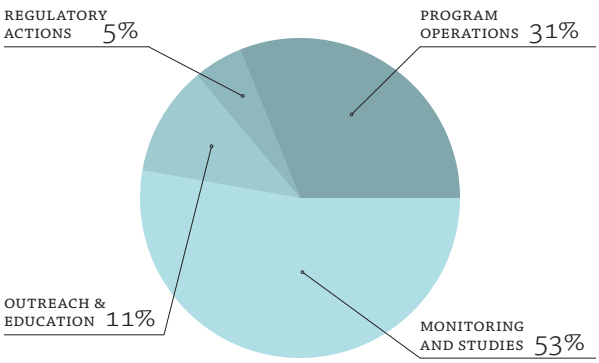


FIGURE 9:
GAPS BY NON-CAPITAL CATEGORY



PRIORITIES FOR THE FUTURE

A meeting to discuss this funding characterization was held on September 23 in Chelan. Attendees included Ron Walter (Chelan County), Mary Hunt (Douglas County), Bud Hover (Okanogan County), Bill Towey (Colville Confederated Tribes), Lee Carlson (Yakama Nation), Mike Kaputa (Chelan County), Char Schumacher (Okanogan County), Steve Kolk (Bureau of Reclamation), Jason Lundgren (Upper Columbia RFEG), Julie Grialou (Methow Conservancy), Casey Baldwin (WDFW), Ken Bevis (WDFW), Julie Morgan (UCSRB), Derek Van Marter (UCSRB), Barbara Carrillo (UCSRB), Mike Cochran (UCSRB), James White (UCSRB), and Dennis Canty (Evergreen Funding Consultants). Following are the conclusions from this meeting.

COSTS

The group expressed concerns that costs associated with operations and maintenance of restoration and protection sites, project design and planning, effectively communicating M&E, and regulatory responsibilities may be underestimated. There was also interest expressed in presenting the benefits of spending and particularly the widespread and multiple economic benefits of local restoration spending.

MAINTAINING EXISTING SOURCES

The group acknowledged their unusual position of having dedicated BPA funding for the next seven years as a result of the Fish Accords and other funding commitments associated with mitigation of hydropower impacts. Participants were fairly confident that most current funding sources will be maintained for the foreseeable future, although there were some concerns expressed about the group's dependency on BPA funding or any one source of funding.

ADDITIONAL FUNDING NEEDS

The group discussed several immediate needs for funding, including:

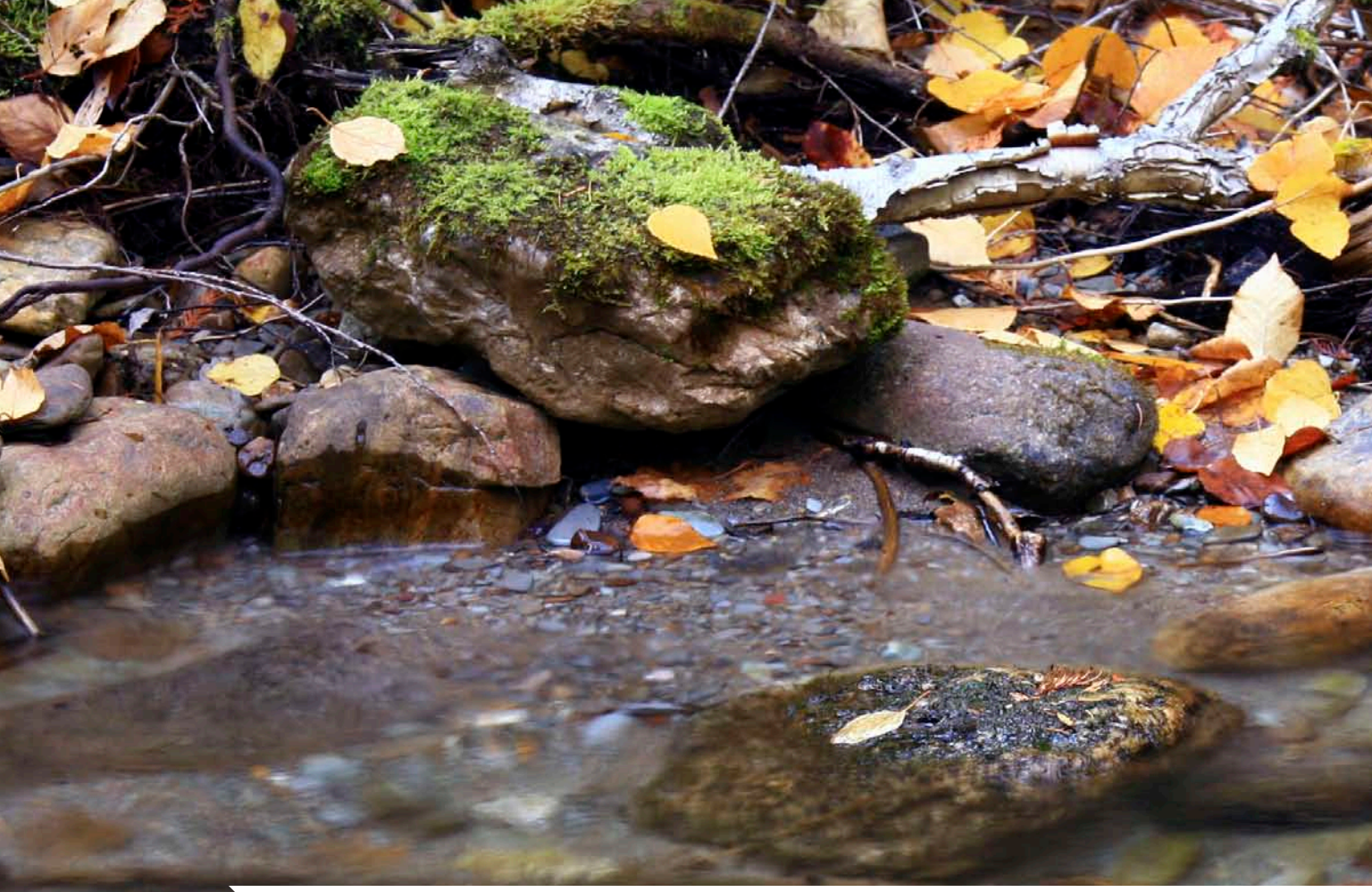
Operations and Maintenance: Strong concern was expressed about the ability to maintain habitat protection and restoration projects over time given the absence of funding available for this need. Participants cited reluctance among project funders to pay for O&M due to less immediately apparent results and expressed grave concern over traditional options such as property tax levies for O&M. In addition, participants wanted options for addressing the liability for failure and damage associated with projects.

Monitoring, Evaluation, and Reporting: Concern was expressed about the difficulty in demonstrating the effectiveness of salmon recovery efforts and applying adaptive management steps due to shortfalls in funding of monitoring and evaluation efforts. Key M&E gaps remain to track all the VSP criteria. In addition, the group expressed an interest in increased funding for reporting on monitoring results.

Staffing to Prepare Projects: Several members of the group expressed concerns that the rate of project implementation is inhibited by staff availability for planning, project development, design, and other tasks in advance of project funding.

POTENTIAL NEW SOURCES

There was considerable discussion of new sources to address operations and maintenance needs. The group was interested in the potential of an O&M endowment fund, and support was expressed for gathering information on replacement, maintenance, and stewardship intervals and costs to support budget requests to BPA and other major funders. In addition, the group expressed strong interest in improving the flexibility of current funding streams to allow the implementation



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