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November 1, 2007

DECISION MEMORANDUM

TO: Council members

FROM: Stacy Horton, Washington State Council staff
Mark Fritsch, project implementation manager

SUBJECT: Lake Roosevelt Kokanee Program Review

PROPOSED ACTION: The Council finds that the suite of Lake Roosevelt projects related to kokanee production has adequately addressed the conditions placed on it as part of the funding recommendation associated with Fiscal Years 2007 - 2009.

SIGNIFICANCE: Confirm the recommended expense budgets for the projects identified in the table below for Fiscal Years 2008 and 2009. Include confirmation of the Fiscal Year 2008 and 2009 operating budget for the Banks Lake Project (2001-028-00) at \$263,595 per fiscal year.

BUDGETARY/ECONOMIC IMPACTS

Project #	Project Title	Sponsor	Budget		Proposed Action
			FY 2008	FY 2009	
1991-046-00	<i>Spokane Tribal Hatchery</i>	ST	\$640,280	\$670,720	Conditions Addressed
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1995-011-00	<i>Chief Joseph Kokanee Enhancement</i>	CCT	\$508,693	\$512,871 ¹	Step Review
2001-028-00	<i>Banks Lake Fishery Evaluation Project</i>	WDFW	\$263,595	\$263,595	Fundable

¹ The Bonneville implementation plan shows \$387,340. Bonneville will confirm this budget adjustment through BOG.

BACKGROUND

In making its final Fiscal Year 2007 - 2009 project funding recommendations to Bonneville at its October 2006 meeting, the Council provided comments on certain projects as a condition of funding. These comments generally addressed concerns raised by the ISRP (ISRP document 2006-6). A suite of Lake Roosevelt projects related to kokanee production received ISRP recommendations of “fundable in part.” In the Council’s October decision document the Council stated:

Kokanee production -- Spokane Tribal Hatchery (199104600); Sherman Creek Hatchery (199104700); Chief Joseph Kokanee Enhancement (199501100); Ford Hatchery (200102900) (all in the Intermountain Province); and Banks Lake Fishery Evaluation Project (200102800; Columbia Plateau Province). The ISRP rated a number of these production projects as “fundable in part,” raising concerns about the level and methods for ongoing and proposed kokanee production. Responsive to the ISRP’s concerns, yet seeking to continue consideration of kokanee production as a priority in the Intermountain plan, the Council’s funding recommendation requires the project sponsors to hold a review workshop on kokanee production with the ISRP as soon as practical. The Council recommends that the funding for the kokanee production elements continue in FY 2007. The Council will revisit the funding recommendation for FY 2008 and 2009 following the workshop. In addition, the artificial production elements of the Chief Joseph Kokanee Enhancement project proposal trigger the Council’s step review process.

In addition to this programmatic language, the Council provided project-specific language in the comment field associated with the recommended budgets for the projects.

- Spokane Tribal Hatchery (1991-046-00): *ISRP fund in part: funding continues but part of funding contingent on outcome of a workshop with the ISRP to address ISRP concerns. Intermountain Province Oversight Committee reduced by \$100,000 FY07, result of housing cost reduction.*
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² In effect, the Council delayed its funding recommendation for this project, and Bonneville provided funds in FY 2007 (\$134,064) for project closeout and final report writing.

On February 9, 2007, the Council received Bonneville's implementation plan for the Fish and Wildlife Program during Fiscal Years 2007 - 2009. As part of this decision, Bonneville requested that the project funding also be contingent on favorable ISRP reviews and recommendations.

Currently the Spokane Tribal, Sherman Creek and Ford hatcheries operate in conjunction with each other to annually produce approximately 750,000 rainbow trout and 4.3 million kokanee fry, and 475,000 kokanee yearlings for release into Lake Roosevelt. In addition, the hatcheries produce 1 million kokanee fry and 300,000 kokanee fingerlings for Banks Lake. The following is a general summary of the production and objectives associated with the suite of five projects.

- Spokane Tribal Hatchery (1991-046-00): This project addresses the operation and maintenance of the Spokane Tribal Hatchery, operated by the Spokane Tribe, to produce kokanee and rainbow trout for release into Lake Roosevelt and Banks Lake. This hatchery produces approximately 2.9 million kokanee fry/fingerlings for release in Lake Roosevelt and Banks Lake, 500,000 kokanee yearlings/post-smolts for release into Lake Roosevelt and 750,000 rainbow trout fingerlings for transfer to the Lake Roosevelt net pens. In addition, 300,000 fingerlings are released into Banks Lake. Kokanee egg sources include eyed egg allotments from the Lake Whatcom and B.C. Meadow Creek kokanee programs. Rainbow trout triploid eggs from the Washington Department Fish and Wildlife Spokane Trout Hatchery are used for the rainbow trout program. Kokanee fry releases are thermal otolith marked while 100% of kokanee and rainbow yearlings releases are adipose fin clipped.
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In order to meet a requirement of the Council's Fiscal Year 2007 - 2009 funding recommendations, the Lake Roosevelt Kokanee Workshop was held on May 2 and 3, 2007. Participants in the workshop included representatives from the ISRP, Spokane Tribe, Colville Confederated Tribes, Washington Department of Fish and Wildlife, Bonneville, Eastern Washington University, and the Council staff. The workshop included both site visits and sponsor presentations. In addition to the workshop, the Council asked the ISRP to clarify some unresolved issues:

- Will the Lake Roosevelt and the Banks Lake kokanee programs benefit fish and wildlife?
- Are the different kokanee projects based on sound science principles? What alternatives could be considered?
- Are the objectives associated with the kokanee program in Lake Roosevelt and Banks Lake clearly defined with adequate provisions for monitoring and evaluation of results? What is the timeline for expecting results?

ANALYSIS

On July 18, 2007, the Council received the final review from the ISRP (ISRP document 2007-10) for the Lake Roosevelt Kokanee Program. Their Summary Finding states:

The ISRP concludes that there is no scientific justification to continue artificial production of kokanee for stocking Lake Roosevelt or programs to develop and support naturally produced kokanee. However, the ISRP believes that if it could be conclusively demonstrated that the entrainment problem was controlled or significantly reduced, if the walleye population was significantly reduced and managed, and if drawdown levels were reduced or managed, then artificial production and/or support of natural production of kokanee could be re-initiated. As stated in our final FY 2007-09 recommendations, the kokanee production for experimental stocking in Banks Lake (where the aforementioned limiting factors are less severe) is justified.

Staff meetings conducted with the Spokane Tribe and the Colville Confederated Tribes in September and October indicate a strong commitment to continue the kokanee program and develop subsistence and sport fisheries. Restoration strategies for kokanee by each of the tribes are quite different. The Spokane Tribe is using artificial production to develop a put-and-take fishery with a self-sustaining egg source. The Colville Confederated Tribes are working to restore natural runs of kokanee. Washington Department of Fish and Wildlife is supportive of both efforts, and an active participant in the Lake Roosevelt kokanee program.

Of the three outstanding obstacles identified by the ISRP (entrainment, spring operations, and predation) two are related to ongoing hydropower-related impacts, and the managers are working to resolve the third.

1. Entrainment has seen significant financial resource investments.
 - a. Considerable financial resources were committed to evaluating entrainment of kokanee through Grand Coulee Dam. The Chief Joseph Kokanee Enhancement Project (1995-011-00) began in 1995 with the intent of protecting and enhancing natural origin kokanee in Lake Roosevelt and Rufus

Woods. In 1997 the project shifted its focus towards the strobe light efficacy tests. It was determined in 2005 that strobe lights were not a good method for deterring fish from entering the third powerhouse at Grand Coulee Dam, and the project ended. The Council invested roughly \$5 million conducting hydroacoustic assessments and strobe light testing.

2. Reservoir operations will require a program amendment.
 - a. Significant spring drawdowns of Lake Roosevelt were identified by the ISRP as having a “severe impact on kokanee spawning and natural production in the lower reaches of tributaries.” Flood control is currently shifted from Dworshak and Brownlee to Lake Roosevelt in the spring, exacerbating this situation. Operational changes would need to be proposed and determined as part of the amendment process.
3. Predation is an ongoing and coordinated effort by the three fish and wildlife managers with authority on Lake Roosevelt.
 - a. Predation is currently being addressed through liberalization of fishing regulations, and the managers plan to continue to address predation in the future. Daily walleye bag limits have been changed from five to eight fish, and targeted toward fish in the size ranges known to predate most heavily on hatchery-origin kokanee. This regulation has been in effect since 2006. Resolving this issue will require ongoing effort by the three managers.

The ISRP further identified some additional needs for the kokanee program. The ISRP states:

The kokanee component of the Lake Roosevelt projects has yet to establish explicit post-release biological objectives. Further, the projects have yet to establish a timeline and decision path to determine when to continue or discontinue the efforts to produce a kokanee fishery using artificial production.

Given the serious concerns raised by the ISRP, the cultural issues raised by the tribes, and the need for additional information, staff requested that the tribes provide a decision tree to identify objectives, timelines and decision points. Because the ISRP was favorable to the Banks Lake proposal on an experimental basis, Washington Department of Fish and Wildlife was also asked to provide a decision tree for the Banks Lake project. Those decision trees are attached (see Attachments 1, 2 and 3).

Staff met with the Spokane Tribe, Colville Confederated Tribes, Washington Department of Fish and Wildlife, and the Bonneville Power Administration on October 25th to clarify information contained in the decision trees. The following points received considerable discussion at that meeting:

- The put-and-take fishery at Fort Spokane is successful. The yearling release strategy is doing very well. The managers would like to explore modification of the fishing regulations to further target this kokanee population. Changes to the bag limit will require coordination and further discussion to ensure that the natural-origin kokanee are protected.
- Experiments are underway to determine the best strategy to develop an egg source for the artificial production program aimed at addressing entrainment issues in Lake Roosevelt. The Spokane Tribe has been successful using these types of strategies with

their rainbow trout artificial production program and believe they can address kokanee entrainment following similar logic. Ongoing release strategies are testing fry-v-yearling (1+ fish) releases. Fry plants have only two years of data. Completion of this experimental strategy will require an additional two years. Yearling releases have only taken place for one year. They require three additional years of evaluation. Thousands of kokanee have returned to Hawk Creek this year, indicating that the yearling release strategy looks successful. The 2007 kokanee return runs have been among the highest observed in the history of the program. The tribe would like the opportunity to examine the data from this year and determine if it can be replicated annually. This program continues to build upon a knowledge base gained from prior tests of release strategies that have been adaptively modified to test their success.

- The egg source for kokanee production currently comes from either Lake Whatcom stock, or from Meadow Creek stock. The Lake Whatcom stock will soon be unavailable, and Meadow Creek stock availability is highly variable. The managers would like to develop a local egg source. A genetics study is underway and due in 2009 that will provide information about the wild kokanee origin in Lake Roosevelt. If experiments at Banks Lake are successful, a potential egg source could develop there as well.
- The Spokane Tribal Hatchery received an Investigational New Animal Drug (INAD) permit to treat BKD this year. The fish health response has been very positive.
- Traditional ceremonial and subsistence salmon sources - like the Entiat - no longer exist, placing additional pressure to restore the Lake Roosevelt kokanee fishery. Kokanee is the only salmon available to the Spokane Tribe of Indians due to the blocks at Grand Coulee and Chief Joseph dams. The Spokane Tribe is unwilling to abandon their remaining access to salmon while there are still alternatives that may prove successful in Lake Roosevelt.
- Predation is currently being addressed through liberalization of fishing regulations, and the managers plan to continue to address predation in the future. Daily walleye bag limits have been changed from five to eight fish, and targeted toward fish in the size ranges known to predate most heavily on hatchery-origin kokanee. This regulation has been in effect since 2006.

STAFF RECOMMENDATION

Allow the completion of experiments currently underway to investigate release strategies for kokanee through Fiscal Year 2009 for the Spokane Tribal Hatchery (1991-046-00) and the Sherman Creek Hatchery (1991-047-00). The budget impact is zero.

Allow the Colville Confederated Tribes to begin the Three-Step Process for the artificial production activities associated with natural-origin kokanee restoration work through the Chief Joseph Kokanee Enhancement Project (1995-011-00). Because some tasks cannot begin until the Three-Step process is completed, reallocated funds³ from the current budget to begin that process. The reallocated budget for the Three-Step process is \$85,000 in Fiscal Year 2008 and 2009 (see Attachment 2). It is anticipated that the step submittal will be received by the Council

³ As part of the Fiscal Year 2007 - 2009 proposal associated with project 1995-011-00, work elements 1d, 1e and 1f addressed feasibility and design of kokanee spawning channels @ \$220,000 over the three fiscal years. These work elements are being deferred and are dependant on the outcome of the anticipated step review.

in the first quarter of Fiscal Year 2009. This constitutes a scope change, since the step review was not a work element identified in the project proposal as reviewed.

Fund the Banks Lake proposal consistent with the decision tree, budget and tasks as provided through Fiscal Year 2009. For, Fiscal Year 2008 and Fiscal Year 2009, fund the Banks Lake Project (2001-028-00) for \$263,595. Because production of kokanee for Banks Lake is tied to the Ford Hatchery (2001-029-00) and Spokane Tribal Hatchery (1991-046-00) on Lake Roosevelt, consider moving the Banks Lake project into the Intermountain Province for future project reviews and funding consideration.

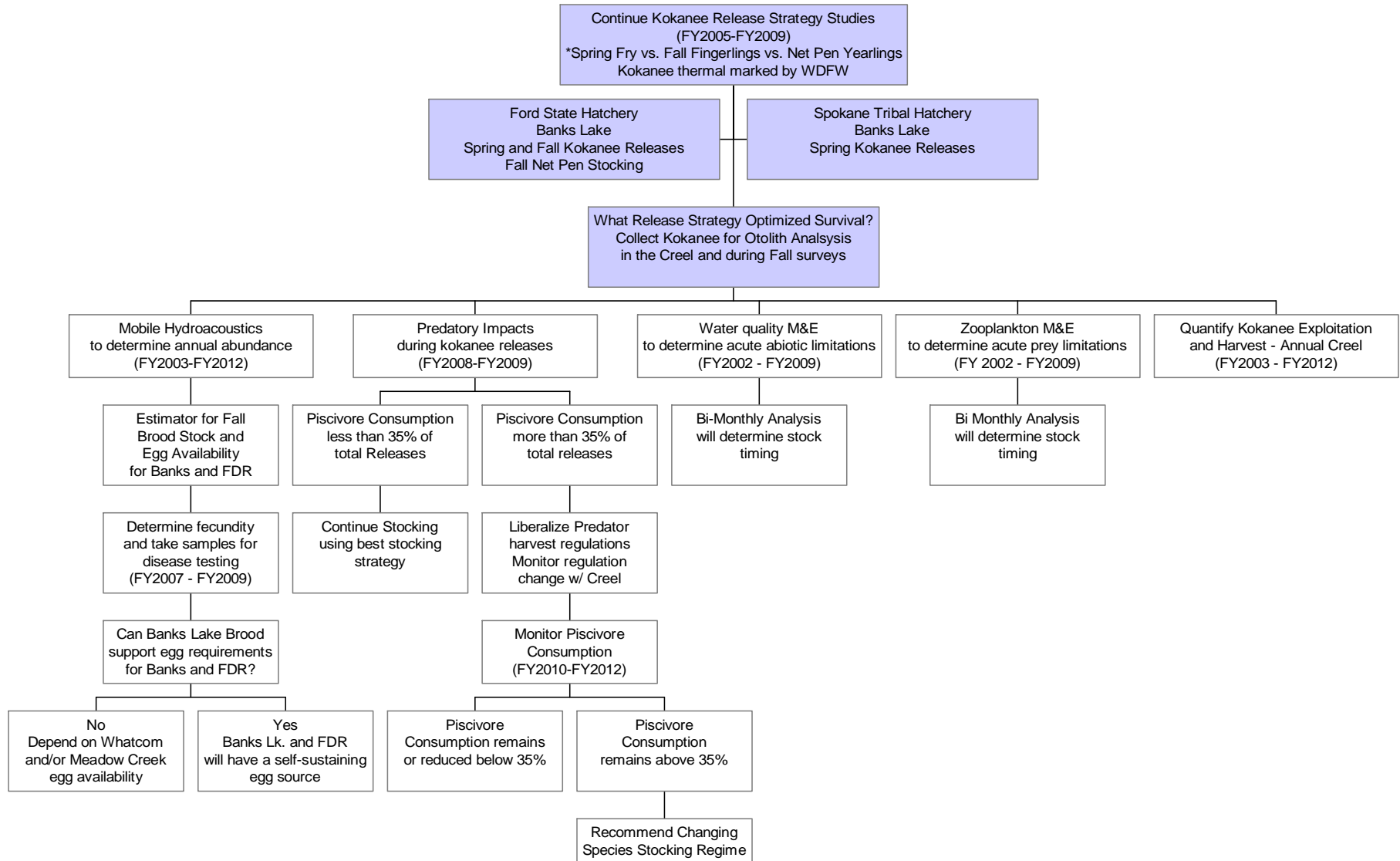
Require that the Spokane Tribe, Colville Confederated Tribes, and Washington Department of Fish and Wildlife finalize their joint guidance document for review by the ISRP and Council by September 2008. The managers should develop a coordinated and scientifically justifiable approach as part of the guidance document. Production goals and objectives must include standards for survival, harvest, and escapement, and not just pounds of fish produced and released from a hatchery.

Attachment 1: Annual Budget for Fiscal Year 2008 through Fiscal Year 2009, and decision tree for Banks Lake Fishery Evaluation Project (2001-028-00).

Work Element (Tasks)	Work Element Description	Cost
Manage and Administer Projects	Accrual and metric reporting and SOW and budget development	\$12,000
Produce Annual Report	Produce annual report	\$20,000
Produce Status Report	Submission of status reports	\$5,000
Collect/Generate/Validate Field and Lab Data	Collect bi-weekly water quality and zooplankton	\$18,000
Collect/Generate/Validate Field and Lab Data	Walleye diet collection during kokanee releases	\$15,000
Collect/Generate/Validate Field and Lab Data	Summer Hydroacoustic survey and netting	\$3,500
Mark/Tag Animals	Kokanee thermal marking and fin clipping	\$5,000
Analyze/Interpret Data	Water quality and zooplankton analysis	\$15,000
Analyze/Interpret Data	Walleye diet analysis and bioenergetics modeling	\$35,000
Analyze/Interpret Data	Analyze hydroacoustic survey data	\$11,000
Analyze/Interpret Data	Kokanee thermal mark identification	\$6,500
Analyze/Interpret Data	Analyze creel data	\$8,000
Analyze/Interpret Data	Kokanee exploitation	\$3,250
Remove or Relocate Non-predaceous Animals	Creel survey	\$45,000
Produce Plan	Banks Lake Kokanee Brood Stock and Guiding Plan	\$2,500
TOTAL including 28.74% overhead		\$263,595

Banks Lake Kokanee Project Decision Tree – Project # 2001-028-00

Decision Tree - FY2007- FY2009 Funding Cycle Tasks (1) Research/Monitoring/Evaluation



Attachment 2: Costs associated with master plan and decision tree for the proposed artificial production associated with Chief Joseph Kokanee Enhancement Project (1995-011-00).

<u>Work Element</u>	<u>Work Element Description</u>	<u>Cost</u>
Produce Master Plan	Develop/construct master plan for artificial production. (FY 08-09)	\$75,000
Manage and Administer Master Plan Development	Administration and coordination of master plan. (FY08-09)	\$10,000
Total		\$85,000

Decision Tree for Chief Joseph Kokanee Enhancement Project FY 07-09 (1995-011-00)

Objective 2
Restore current kokanee stocks using artificial production.

**Develop master plan as part of the
Three-step process.**

Note: artificial production to include areas
outside San Poil River but within the
boundary of this project.

This portion of the
decision tree will be
expanded with the
completion of the
master plan.

Were outplants successful as
identified in Master Plan?

Yes

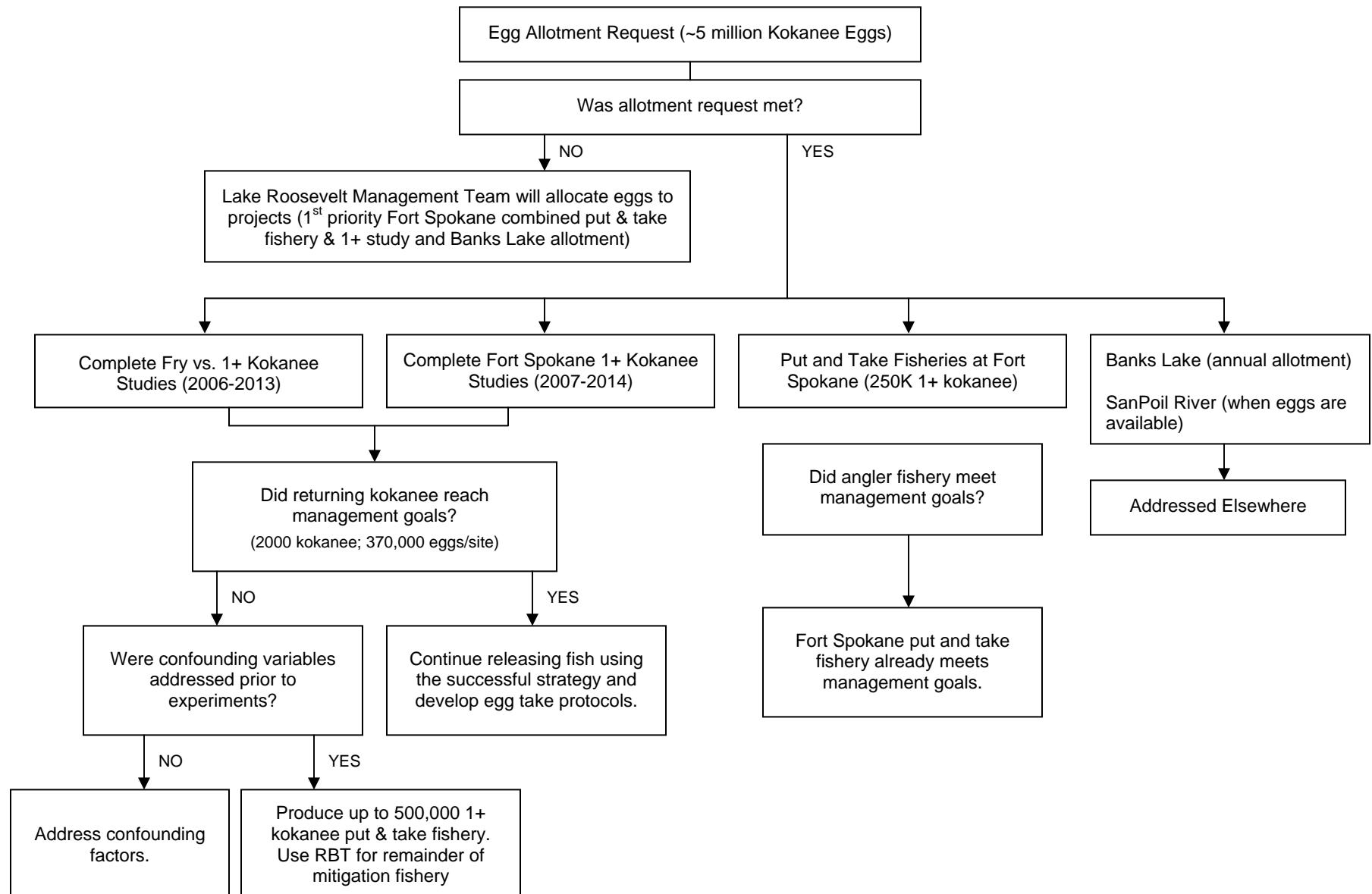
No

Continue with
monitoring and
hatchery
outplants.

Shift focus to
objective 3
(habitat
improvements)

Attachment 3: Decision Tree for Lake Roosevelt Kokanee Artificial Production Program.

Spokane Tribal Hatchery (1991-046-00), Sherman Creek Hatchery (1991-047-00) and Ford Hatchery (2001-029-00)



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The ISRP further identified some additional needs for the kokanee program. The ISRP states:

The kokanee component of the Lake Roosevelt projects has yet to establish explicit post-release biological objectives. Further, the projects have yet to establish a timeline and decision path to determine when to continue or discontinue the efforts to produce a kokanee fishery using artificial production.

Given the serious concerns raised by the ISRP, the cultural issues raised by the tribes, and the need for additional information, staff requested that the tribes provide a decision tree to identify objectives, timelines and decision points. Because the ISRP was favorable to the Banks Lake proposal on an experimental basis, Washington Department of Fish and Wildlife was also asked to provide a decision tree for the Banks Lake project. Those decision trees are attached (see Attachments 1, 2 and 3).

Staff met with the Spokane Tribe, Colville Confederated Tribes, Washington Department of Fish and Wildlife, and the Bonneville Power Administration on October 25th to clarify information contained in the decision trees. The following points received considerable discussion at that meeting:

- The put-and-take fishery at Fort Spokane is successful. The yearling release strategy is doing very well. The managers would like to explore modification of the fishing regulations to further target this kokanee population. Changes to the bag limit will require coordination and further discussion to ensure that the natural-origin kokanee are protected.
- Experiments are underway to determine the best strategy to develop an egg source for the artificial production program aimed at addressing entrainment issues in Lake Roosevelt. The Spokane Tribe has been successful using these types of strategies with

their rainbow trout artificial production program and believe they can address kokanee entrainment following similar logic. Ongoing release strategies are testing fry-v-yearling (1+ fish) releases. Fry plants have only two years of data. Completion of this experimental strategy will require an additional two years. Yearling releases have only taken place for one year. They require three additional years of evaluation. Thousands of kokanee have returned to Hawk Creek this year, indicating that the yearling release strategy looks successful. The 2007 kokanee return runs have been among the highest observed in the history of the program. The tribe would like the opportunity to examine the data from this year and determine if it can be replicated annually. This program continues to build upon a knowledge base gained from prior tests of release strategies that have been adaptively modified to test their success.

- The egg source for kokanee production currently comes from either Lake Whatcom stock, or from Meadow Creek stock. The Lake Whatcom stock will soon be unavailable, and Meadow Creek stock availability is highly variable. The managers would like to develop a local egg source. A genetics study is underway and due in 2009 that will provide information about the wild kokanee origin in Lake Roosevelt. If experiments at Banks Lake are successful, a potential egg source could develop there as well.
- The Spokane Tribal Hatchery received an Investigational New Animal Drug (INAD) permit to treat BKD this year. The fish health response has been very positive.
- Traditional ceremonial and subsistence salmon sources - like the Entiat - no longer exist, placing additional pressure to restore the Lake Roosevelt kokanee fishery. Kokanee is the only salmon available to the Spokane Tribe of Indians due to the blocks at Grand Coulee and Chief Joseph dams. The Spokane Tribe is unwilling to abandon their remaining access to salmon while there are still alternatives that may prove successful in Lake Roosevelt.
- Predation is currently being addressed through liberalization of fishing regulations, and the managers plan to continue to address predation in the future. Daily walleye bag limits have been changed from five to eight fish, and targeted toward fish in the size ranges known to predate most heavily on hatchery-origin kokanee. This regulation has been in effect since 2006.

STAFF RECOMMENDATION

Allow the completion of experiments currently underway to investigate release strategies for kokanee through Fiscal Year 2009 for the Spokane Tribal Hatchery (1991-046-00) and the Sherman Creek Hatchery (1991-047-00). The budget impact is zero.

Allow the Colville Confederated Tribes to begin the Three-Step Process for the artificial production activities associated with natural-origin kokanee restoration work through the Chief Joseph Kokanee Enhancement Project (1995-011-00). Because some tasks cannot begin until the Three-Step process is completed, reallocated funds³ from the current budget to begin that process. The reallocated budget for the Three-Step process is \$85,000 in Fiscal Year 2008 and 2009 (see Attachment 2). It is anticipated that the step submittal will be received by the Council

³ As part of the Fiscal Year 2007 - 2009 proposal associated with project 1995-011-00, work elements 1d, 1e and 1f addressed feasibility and design of kokanee spawning channels @ \$220,000 over the three fiscal years. These work elements are being deferred and are dependant on the outcome of the anticipated step review.

in the first quarter of Fiscal Year 2009. This constitutes a scope change, since the step review was not a work element identified in the project proposal as reviewed.

Fund the Banks Lake proposal consistent with the decision tree, budget and tasks as provided through Fiscal Year 2009. For, Fiscal Year 2008 and Fiscal Year 2009, fund the Banks Lake Project (2001-028-00) for \$263,595. Because production of kokanee for Banks Lake is tied to the Ford Hatchery (2001-029-00) and Spokane Tribal Hatchery (1991-046-00) on Lake Roosevelt, consider moving the Banks Lake project into the Intermountain Province for future project reviews and funding consideration.

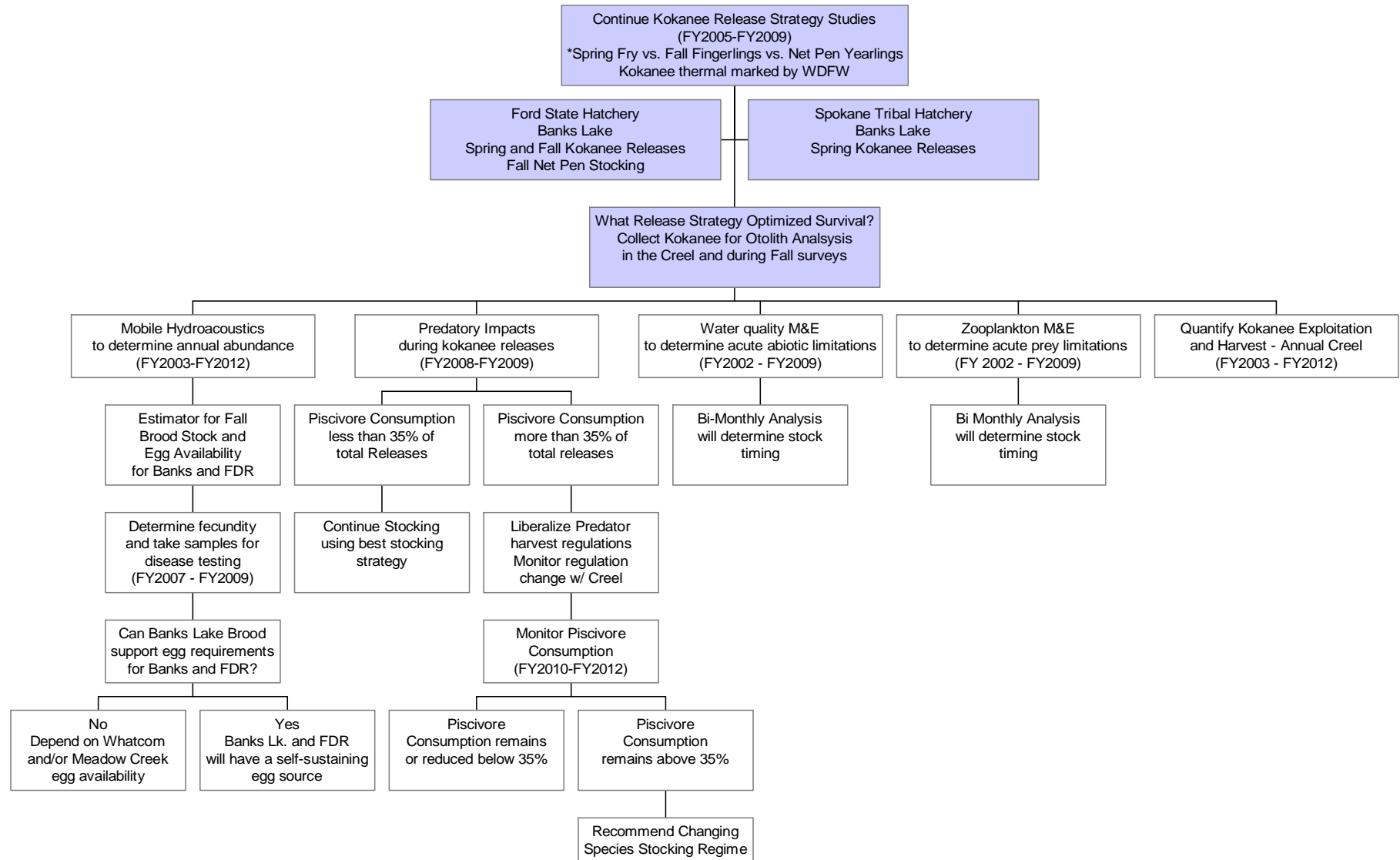
Require that the Spokane Tribe, Colville Confederated Tribes, and Washington Department of Fish and Wildlife finalize their joint guidance document for review by the ISRP and Council by September 2008. The managers should develop a coordinated and scientifically justifiable approach as part of the guidance document. Production goals and objectives must include standards for survival, harvest, and escapement, and not just pounds of fish produced and released from a hatchery.

Attachment 1: Annual Budget for Fiscal Year 2008 through Fiscal Year 2009, and decision tree for Banks Lake Fishery Evaluation Project (2001-028-00).

Work Element (Tasks)	Work Element Description	Cost
Manage and Administer Projects	Accrual and metric reporting and SOW and budget development	\$12,000
Produce Annual Report	Produce annual report	\$20,000
Produce Status Report	Submission of status reports	\$5,000
Collect/Generate/Validate Field and Lab Data	Collect bi-weekly water quality and zooplankton	\$18,000
Collect/Generate/Validate Field and Lab Data	Walleye diet collection during kokanee releases	\$15,000
Collect/Generate/Validate Field and Lab Data	Summer Hydroacoustic survey and netting	\$3,500
Mark/Tag Animals	Kokanee thermal marking and fin clipping	\$5,000
Analyze/Interpret Data	Water quality and zooplankton analysis	\$15,000
Analyze/Interpret Data	Walleye diet analysis and bioenergetics modeling	\$35,000
Analyze/Interpret Data	Analyze hydroacoustic survey data	\$11,000
Analyze/Interpret Data	Kokanee thermal mark identification	\$6,500
Analyze/Interpret Data	Analyze creel data	\$8,000
Analyze/Interpret Data	Kokanee exploitation	\$3,250
Remove or Relocate Non-predaceous Animals	Creel survey	\$45,000
Produce Plan	Banks Lake Kokanee Brood Stock and Guiding Plan	\$2,500
TOTAL including 28.74% overhead		\$263,595

Banks Lake Kokanee Project Decision Tree – Project # 2001-028-00

Decision Tree - FY2007- FY2009 Funding Cycle Tasks (1) Research/Monitoring/Evaluation



Attachment 2: Costs associated with master plan and decision tree for the proposed artificial production associated with Chief Joseph Kokanee Enhancement Project (1995-011-00).

<u>Work Element</u>	<u>Work Element Description</u>	<u>Cost</u>
Produce Master Plan	Develop/construct master plan for artificial production. (FY 08-09)	\$75,000
Manage and Administer Master Plan Development	Administration and coordination of master plan. (FY08-09)	\$10,000
Total		\$85,000

Decision Tree for Chief Joseph Kokanee Enhancement Project FY 07-09 (1995-011-00)

Objective 2
Restore current kokanee stocks using artificial production.

**Develop master plan as part of the
Three-step process.**

Note: artificial production to include areas
outside San Poil River but within the
boundary of this project.

This portion of the
decision tree will be
expanded with the
completion of the
master plan.

Were outplants successful as
identified in Master Plan?

Yes

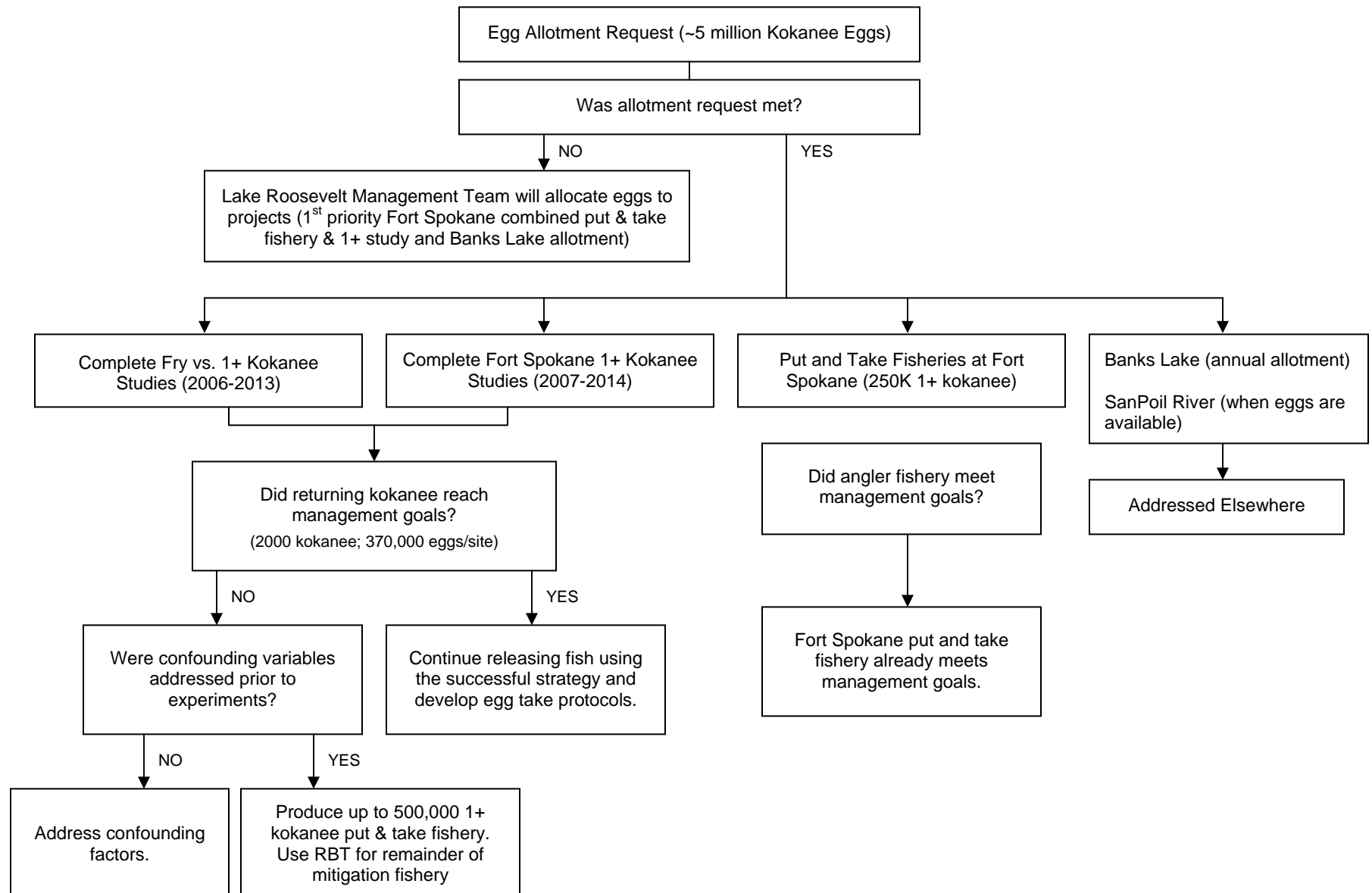
No

Continue with
monitoring and
hatchery
outplants.

Shift focus to
objective 3
(habitat
improvements)

Attachment 3: Decision Tree for Lake Roosevelt Kokanee Artificial Production Program.

Spokane Tribal Hatchery (1991-046-00), Sherman Creek Hatchery (1991-047-00) and Ford Hatchery (2001-029-00)



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