CONTRACT FOR PERSONAL SERVICES
BETWEEN
THE STATE OF WASHINGTON
RECREATION AND CONSERVATION OFFICE
AND
ECO LOGICAL RESEARCH INC.

This Contract is made and entered into by and between the state of Washington, Recreation and Conservation Office hereinafter referred to as the "Agency", and the below named firm, hereinafter referred to as "Contractor,"

Eco Logical Research Inc.
PO Box 706
Providence, UT 84332

PURPOSE

This project is a continuation of the Asotin Creek multi-year Intensively Monitored Watershed (IMW) project. The project focuses on three tributaries to the Asotin Creek in Southeast Washington. The tributaries are: Charley Creek, North Fork Asotin Creek, and South Fork Asotin Creek. The purpose of the project is to link salmon and steelhead responses to specific mechanisms related to habitat restoration. The fundamental approach is to treat restoration as an experiment and concentrate a large restoration effort in order to increase the likelihood of detecting a population increase.

This type of project will increase the understanding of what restoration activities are most effective, demonstrate how changes in habitat influence survival of various life stages of salmon and steelhead, determine what magnitude of restoration is required to cause a significant population response, and ultimately provide information to better evaluate the efficacy of habitat restoration. The restoration effort is focused on summer run steelhead habitat. The funds for this grant award will focus on continuing the IMW effort in the Asotin watershed, a sub-basin in the Snake River salmon recovery region. This phase will include:

1. Continue baseline monitoring on up to 12 fish sites and 18 habitat sites as per the Asotin experimental design,
2. Coordination of restoration implementation based on the Asotin Restoration Plan (Wheaton et al. 2012) and approval of the plan and revisions by the Regional Technical Team,
3. Monitoring a wide variety of response variables (e.g., temperature, discharge, PIT tag arrays).

SCOPE OF WORK

A. Exhibit A, attached hereto and incorporated by reference, contains the General Terms and Conditions governing work to be performed under this contract, the nature of the working relationship between the Agency and the Contractor, and specific obligations of both parties.

B. The CONTRACTOR will provide services and staff, and otherwise do all things necessary for or incidental to the performance of work, as set forth below, and as included in the

AGENCY'S Request for Proposals, attached as Exhibit B, and the Contractor's Proposal dated October 10, 2011, attached as Exhibit C. The Contractor's proposal represents the scope of work and budget to fully implement the IMW. Due to insufficient funding to fully implement the IMW program as proposed, this contract reflects a scope of work and budget for the minimum level of service to complete the basic scope of the IMW program with the intent that additional funding to fully implement the program as proposed will be pursued but is not guaranteed at this time. If additional funds become available, a formal amendment will need to be negotiated.

The CONTRACTOR shall produce the following written reports or other written documents (deliverables) by the dates indicated below. All written reports required under this contract must be delivered to the Agency Project Manager.

The minimum deliverables to be submitted as part of this contract are as follows:

- Monthly progress reports including but not limited to accomplishments, recommendations and challenges.
- Annual progress report due September 30 of each year.
- A work plan covering the performance period is due at the time of contract signing.

PERIOD OF PERFORMANCE

Subject to other contract provisions, the period of performance under this contract will be from **October 1, 2014,** or date of execution, whichever is later, through **September 30, 2015**, contingent upon funding. The Agency reserves the option to extend this contract for up to four (4) additional one-year periods.

COMPENSATION

Total compensation payable to Contractor for satisfactory performance of the work under this contract shall not exceed **One Hundred Seventy One Thousand Two Hundred Twelve Dollars ($171,212).**

Contractor's compensation for services rendered shall be based on the rates attached as Exhibit D. Rates are inclusive of fringe and indirect.

Expenses

Contractor shall receive reimbursement for travel and other expenses as identified below or as authorized in advance by the Agency as reimbursable, which is included in the contract total above.

Such expenses may include transportation, lodging and subsistence necessary during periods of required travel. Contractor shall receive reimbursement for travel expenses at current state travel reimbursement rates.

BILLING PROCEDURES AND PAYMENT

Agency will pay Contractor upon receipt of properly completed invoices, which shall be submitted to the Contract Manager not more often than monthly. The invoices shall describe and document to the Agency's satisfaction a description of the work performed, the progress of the project, and fees. To receive reimbursement, Contractor must provide a detailed breakdown of authorized expenses, identifying what was expended and when. A receipt must accompany any single expenses in the amount of $50.00 or more in order to receive reimbursement.

Payment shall be considered timely if made by the Agency within thirty (30) days after receipt of properly completed invoices. Payment shall be sent to the address designated by the Contractor.

The Agency may, in its sole discretion, terminate the contract or withhold payments claimed by the Contractor for services rendered if the Contractor fails to satisfactorily comply with any term or condition of this contract.

No payments in advance or in anticipation of services or supplies to be provided under this contract shall be made by the Agency.

CONTRACT MANAGEMENT

The Contract Manager for each of the parties shall be the contact person for all communications and billings regarding the performance of this Contract.

CONTRACTOR Project Manager	AGENCY Project Manager
Nicolaas Bouwes Eco Logical Research Inc. PO Box 706 Providence, UT 84332 (435) 760-0771 nbouwes@gmail.com	Keith Dublanica Governor's Salmon Recovery Office/ Recreation and Conservation Office PO Box 40917 Olympia, WA 98504-0917 360-902-2242 keith.dublanica@gsro.wa.gov

INSURANCE

The Contractor shall provide insurance coverage as set out in this section (or as set forth in the Request for Proposals No. psc10-004). The intent of the required insurance is to protect the state should there be any claims, suits, actions, costs, damages or expenses arising from any negligent or intentional act or omission of the Contractor or subcontract, or agents of either, while performing under the terms of this contract.

The Contractor shall provide insurance coverage which shall be maintained in full force and effect during the term of this Contract, as follows:

1. Commercial General Liability Insurance Policy – Provide a Commercial General Liability Insurance Policy, including contractual liability, in adequate quantity to protect against legal liability arising out of contract activity but no less than $1,000,000 per occurrence. Additionally, the Contractor is responsible for ensuring that any subcontractors provide adequate insurance coverage for the activities arising out of subcontracts.
2. Automobile Liability – In the event that services delivered pursuant to this contract involve the use of vehicles, either owned or un-owned by the Contractor, automobile liability insurance shall be required. The minimum limit for automobile liability is:

   $1,000,000 per occurrence, using a Combined Single Limit for bodily injury and property damage.
3. The insurance required shall be issued by an insurance company/ies authorized to do business within the state of Washington, and shall name the state of Washington, its agents and employees as additional insureds under the insurance policy/ies. All policies shall be

primary to any other valid and collectable insurance. Contractor shall instruct the insurers to give Agency 30 days advance notice of any insurance cancellation.

Contractor shall submit to Agency within fifteen (15) days of the contract effective date, a certificate of insurance which outlines the coverage and limits defined in the Insurance section. Contractor shall submit renewal certificates as appropriate during the term of the contract.

ASSURANCES

Agency and the Contractor agree that all activity pursuant to this contract will be in accordance with all the applicable current federal, state and local laws, rules, and regulations.

ORDER OF PRECEDENCE

Each of the exhibits listed below is by this reference hereby incorporated into this contract. In the event of an inconsistency in this contract, the inconsistency shall be resolved by giving precedence in the following order:

- Applicable federal and state of Washington statutes and regulations
- Special Terms and Conditions as contained in this basic contract instrument
- Exhibit A -- General Terms and Conditions
- Exhibit B -- Request for Proposals psc10-004
- Exhibit C -- Contractor's Proposal dated on or before October 10, 2011
- Exhibit D -- Contractor's rates, as of October 1, 2014
- Any other provision, term or material incorporated herein by reference or otherwise incorporated.

ENTIRE AGREEMENT

This contract including referenced exhibits represents all the terms and conditions agreed upon by the parties. No other statements or representations, written or oral, shall be deemed a part hereof.

CONFORMANCE

If any provision of this contract violates any statute or rule of law of the state of Washington, it is considered modified to conform to that statute or rule of law.

APPROVAL

This contract shall be subject to the written approval of the Agency's authorized representative and shall not be binding until so approved. The contract may be altered, amended, or waived only by a written amendment executed by both parties.

THIS CONTRACT, consisting of four pages and four attachments, Exhibits A, B, C and D, is executed by the persons signing below who warrant that they have the authority to execute the contract.

ECO LOGICAL RESEARCH INC.	**RECREATION AND CONSERVATION OFFICE**
Signature	Signature
PRESIDENT — Title	Deputy Director — Title
SEPT 25, 2014 — Date	9/30/14 — Date

GENERAL TERMS AND CONDITIONS

DEFINITIONS
As used throughout this contract, the following terms shall have the meaning set forth below:

A. "AGENCY" shall mean the Recreation and Conservation Office of the State of Washington, any division, section, office, unit or other entity of the AGENCY, or any of the officers or other officials lawfully representing that AGENCY.

B. "AGENT" shall mean the Director, and/or the delegate authorized in writing to act on the Director's behalf.

C. "CONTRACTOR" shall mean that firm, provider, organization, individual or other entity performing service(s) under this contract, and shall include all employees of the CONTRACTOR.

D. "SUBCONTRACTOR" shall mean one not in the employment of the CONTRACTOR, who is performing all or part of those services under this contract under a separate contract with the CONTRACTOR. The terms "SUBCONTRACTOR" and "SUBCONTRACTORS" means SUBCONTRACTOR(s) in any tier.

ACCESS TO DATA
In compliance with RCW 39.29.080, the CONTRACTOR shall provide access to data generated under this contract to AGENCY, the Joint Legislative Audit and Review Committee, and the State Auditor at no additional cost. This includes access to all information that supports the findings, conclusions, and recommendations of the CONTRACTOR'S reports, including computer models and methodology for those models.

ADVANCE PAYMENTS PROHIBITED
No payments in advance of or in anticipation of goods or services to be provided under this contract shall be made by the AGENCY.

AMENDMENTS
This contract may be amended by mutual agreement of the parties. Such amendments shall not be binding unless they are in writing and signed by personnel authorized to bind each of the parties.

AMERICANS WITH DISABILITIES ACT (ADA) OF 1990, PUBLIC LAW 101-336, also referred to as the "ADA" 28 CFR Part 35
The CONTRACTOR must comply with the ADA, which provides comprehensive civil rights protection to individuals with disabilities in the areas of employment, public accommodations, state and local government services, and telecommunications.

ASSIGNMENT
Neither this contract, nor any claim arising under this contract, shall be transferred or assigned by the CONTRACTOR without prior written consent of the AGENCY.

ATTORNEYS' FEES
In the event of litigation or other action brought to enforce contract terms, each party agrees to bear its own attorney fees and costs.

CONFIDENTIALITY/SAFEGUARDING OF INFORMATION
The CONTRACTOR shall not use or disclose any information concerning the AGENCY, or information that may be classified as confidential, for any purpose not directly connected with the administration of this contract, except with prior written consent of the AGENCY, or as may be required by law.

CONFLICT OF INTEREST
Notwithstanding any determination by the Executive Ethics Board or other tribunal, the AGENCY may, in its sole discretion, by written notice to the CONTRACTOR terminate this contract if it is found after due notice and examination by the AGENT that there is a violation of the Ethics in Public Service Act, Chapter 42.52 RCW; or any similar statute involving the CONTRACTOR in the procurement of, or performance under this contract.

In the event this contract is terminated as provided above, the AGENCY shall be entitled to pursue the same remedies against the CONTRACTOR as it could pursue in the event of a breach of the contract by the CONTRACTOR. The rights and remedies of the AGENCY provided for in this clause shall not be exclusive and are in addition to any other rights and remedies provided by law. The existence of facts upon which the AGENT makes any determination under this clause shall be an issue and may be reviewed as provided in the "Disputes" clause of this contract.

COPYRIGHT PROVISIONS
Unless otherwise provided, all materials produced under this contract shall be considered "works for hire" as defined by the U.S. Copyright Act and shall be owned by the AGENCY. The AGENCY shall be considered the author of such materials. In the event the materials are not considered "works for hire" under the U.S. Copyright laws, CONTRACTOR hereby irrevocably assigns all right, title, and interest in materials, including all intellectual property rights, to the AGENCY effective from the moment of creation of such materials.

Materials means all items in any format and includes, but is not limited to, data, reports, documents, pamphlets, advertisements, books, magazines, surveys, studies, computer programs, films, tapes, and/or sound reproductions. Ownership includes the right to copyright, patent, register and the ability to transfer these rights.

For materials that are delivered under the contract, but that incorporate pre-existing materials not produced under the contract, CONTRACTOR hereby grants to the AGENCY a nonexclusive, royalty-free, irrevocable license (with rights to sublicense others) in such materials to translate, reproduce, distribute, prepare derivative works, publicly perform, and publicly display. The CONTRACTOR warrants and represents that CONTRACTOR has all rights and permissions, including intellectual property rights, moral rights and rights of publicity, necessary to grant such a license to the AGENCY.

The CONTRACTOR shall exert all reasonable effort to advise the AGENCY, at the time of delivery of materials furnished under this contract, of all known or potential invasions of privacy contained therein and of any portion of such document that was not produced in the performance of this contract.

The AGENCY shall receive prompt written notice of each notice or claim of infringement received by the CONTRACTOR with respect to any data delivered under this contract. The AGENCY shall have the right to modify or remove any restrictive markings placed upon the data by the CONTRACTOR.

COVENANT AGAINST CONTINGENT FEES
The CONTRACTOR warrants that no person or selling agent has been employed or retained to solicit or secure this contract upon an agreement or understanding for a commission, percentage, brokerage or contingent fee, excepting bona fide employees or bona fide established agents maintained by the CONTRACTOR for securing business.

The AGENCY shall have the right, in the event of breach of this clause by the CONTRACTOR, to annul this contract without liability or, in its discretion, to deduct from the contract price or consideration or recover by other means the full amount of such commission, percentage, brokerage or contingent fee.

DISALLOWED COSTS
The Contractor is responsible for any audit exceptions or disallowed costs incurred by its own organization or that of its Subcontractors.

DISPUTES
Except as otherwise provided in this contract, when a dispute arises between the parties and it cannot be resolved by direct negotiation, either party may request a dispute hearing with AGENT.

1. The request for a dispute hearing must:
   - Be in writing;
   - State the disputed issue(s);
   - State the relative positions of the parties;
   - State the CONTRACTOR'S name, address, and contract number; and
   - Be mailed to the AGENT and the other party's (respondent's) contract manager within 3 working calendar days after the parties agree that they cannot resolve the dispute.
2. The respondent shall send a written answer to the requester's statement to both the agent and the requester within 5 working calendar days.
3. The AGENT shall review the written statements and reply in writing to both parties within 10 working days. The AGENT may extend this period if necessary by notifying the parties.
4. The parties agree that this dispute process shall precede any action in a judicial or quasi-judicial tribunal.

Nothing in this contract shall be construed to limit the parties' choice of a mutually acceptable alternate dispute resolution method in addition to the dispute resolution procedure outlined above.

DUPLICATE PAYMENT
The AGENCY shall not pay the CONTRACTOR, if the CONTRACTOR has charged or will charge the State of Washington or any other party under any other contract or agreement, for the same services or expenses.

GOVERNING LAW
This contract shall be construed and interpreted in accordance with the laws of the State of Washington, and the venue of any action brought hereunder shall be in the Superior Court for Thurston County.

INDEMNIFICATION
The CONTRACTOR shall defend, indemnify, and hold the STATE and its officers and employees harmless from all claims, demands, or suits at law or equity arising in whole or in part from the actual or alleged acts, errors, omissions or negligence of, or the breach of any obligation under this AGREEMENT by, the CONTRACTOR or the CONTRACTOR'S agents, employees, sub consultants, subcontractors or vendors, of any tier, or any other persons for whom the CONTRACTOR may be legally liable.

Provided that nothing herein shall require a CONTRACTOR to defend or indemnify the STATE against and hold harmless the STATE from claims, demands or suits based solely upon the negligence of, or breach of any obligation under this AGREEMENT by the STATE, its agents, officers, employees, sub consultants, subcontractors or vendors, of any tier, or any other persons for whom the STATE may be legally liable.

Provided further that if the claims or suits are caused by or result from the concurrent negligence of (a) the CONTRACTOR or the CONTRACTOR'S agents, employees, sub consultants, subcontractors or vendors, of any tier, or any other persons for whom the CONTRACTOR is legally liable, and (b) the STATE, its agents, officers, employees, sub consultants, subcontractors and or vendors, of any tier, or any other persons for whom the STATE may be legally liable, the indemnity obligation shall be valid and enforceable only to the extent of the CONTRACTOR'S negligence or the negligence of the CONTRACTOR'S agents, employees, sub consultants, subcontractors or vendors, of any tier, or any other persons for whom the CONTRACTOR may be legally liable.

This provision shall be included in any agreement between CONTRACTOR and any sub consultant, subcontractor and vendor, of any tier.

The CONTRACTOR shall also defend, indemnify, and hold the STATE and its officers and employees harmless from all claims, demands, or suits at law or equity arising in whole or in part from the alleged patent or copyright infringement or other allegedly improper appropriation or use of trade secrets, patents, proprietary information, know-how, copyright rights or inventions by the CONTRACTOR or the CONTRACTOR'S agents, employees, sub consultants, subcontractors or vendors, of any tier, or any other persons for whom the CONTRACTOR may be legally liable, in performance of the Work under this AGREEMENT or arising out of any use in connection with the AGREEMENT of methods, processes, designs, information or other items furnished or communicated to STATE, its agents, officers and employees pursuant to the AGREEMENT; provided that this indemnity shall not apply to any alleged patent or copyright infringement or other allegedly improper appropriation or use of trade secrets, patents, proprietary information, know-how, copyright rights or inventions resulting from STATE's, its agents', officers' and employees' failure to comply with specific written instructions regarding use provided to STATE, its agents, officers and employees by the CONTRACTOR, its agents, employees, sub consultants, subcontractors or vendors, of any tier, or any other persons for whom the CONTRACTOR may be legally liable.

The CONTRACTOR specifically assumes potential liability for actions brought by the CONTRACTOR'S own employees or its agents against the STATE and, solely for the purpose of this indemnification and defense, the CONTRACTOR specifically waives any immunity under the state industrial insurance law, Title 51 RCW.

The AGENCY is included within the term STATE, as are all other agencies, departments, boards, or other entities of state government.

This provision was the result of mutual negotiation between the parties.

INDEPENDENT CAPACITY OF THE CONTRACTOR
The parties intend that an independent contractor relationship will be created by this contract. The CONTRACTOR and his or her employees or agents performing under this contract are not employees or agents of the AGENCY. The CONTRACTOR will not hold himself/herself out as or claim to be an officer or employee of the AGENCY or of the State of Washington by reason hereof, nor will the CONTRACTOR make any claim of right, privilege or benefit that would accrue to such employee under law. Conduct and control of the work will be solely with the CONTRACTOR.

INDUSTRIAL INSURANCE COVERAGE
The CONTRACTOR shall comply with the provisions of Title 51 RCW, Industrial Insurance. If the CONTRACTOR fails to provide industrial insurance coverage or fails to pay premiums or penalties on behalf of its employees, as may be required by law, AGENCY may collect from the CONTRACTOR the full amount payable to the Industrial Insurance accident fund. The AGENCY may deduct the amount owed by the CONTRACTOR to the accident fund from the amount payable to the CONTRACTOR by the AGENCY under this contract, and transmit the deducted amount to the Department of Labor and Industries, (L&I) Division of Insurance Services. This provision does not waive any of L&I's rights to collect from the CONTRACTOR.

LICENSING, ACCREDITATION AND REGISTRATION
The CONTRACTOR shall comply with all applicable local, state, and federal licensing, accreditation and registration requirements/standards, necessary for the performance of this contract.

LIMITATION OF AUTHORITY
Only the AGENT or AGENT'S delegate by writing (delegation to be made prior to action) shall have the express, implied, or apparent authority to alter, amend, modify, or waive any clause or condition of this contract. Furthermore, any alteration, amendment, modification, or waiver or any clause or condition of this contract is not effective or binding unless made in writing and signed by the AGENT.

NONCOMPLIANCE WITH NONDISCRIMINATION LAWS
In the event of the CONTRACTOR'S non-compliance or refusal to comply with any nondiscrimination law, regulation, or policy, this contract may be rescinded, canceled or terminated in whole or in part, and the CONTRACTOR may be declared ineligible for further contracts with the AGENCY. The CONTRACTOR

shall, however, be given a reasonable time in which to cure this noncompliance. Any dispute may be resolved in accordance with the "Disputes" procedure set forth herein.

NONDISCRIMINATION
During the performance of this contract, the CONTRACTOR shall comply with all federal and state nondiscrimination laws, regulations and policies.

PRIVACY
Personal information including, but not limited to, "Protected Health Information," collected, used, or acquired in connection with this contract shall be protected against unauthorized use, disclosure, modification or loss. CONTRACTOR shall ensure its directors, officers, employees, subcontractors or agents use personal information solely for the purposes of accomplishing the services set forth herein. CONTRACTOR and its subcontractors agree not to release, divulge, publish, transfer, sell or otherwise make known to unauthorized persons personal information without the express written consent of the agency or as otherwise required by law.

Any breach of this provision may result in termination of the contract and the demand for return of all personal information. The CONTRACTOR agrees to indemnify and hold harmless the AGENCY for any damages related to the CONTRACTOR'S unauthorized use of personal information.

PUBLICITY
The CONTRACTOR agrees to submit to the AGENCY all advertising and publicity matters relating to this contract wherein the AGENCY'S name is mentioned or language used from which the connection of the AGENCY'S name may, in the AGENCY'S judgment, be inferred or implied. The CONTRACTOR agrees not to publish or use such advertising and publicity matters without the prior written consent of the AGENCY.

RECORDS MAINTENANCE
The CONTRACTOR shall maintain books, records, documents, data and other evidence relating to this contract and performance of the services described herein, including but not limited to accounting procedures and practices that sufficiently and properly reflect all direct and indirect costs of any nature expended in the performance of this contract.

CONTRACTOR shall retain such records for a period of six years following the date of final payment. At no additional cost, these records, including materials generated under the contract, shall be subject at all reasonable times to inspection, review or audit by the AGENCY, personnel duly authorized by the AGENCY, the Office of the State Auditor, and federal and state officials so authorized by law, regulation or agreement.

If any litigation, claim or audit is started before the expiration of the six (6) year period, the records shall be retained until all litigation, claims, or audit findings involving the records have been resolved.

REGISTRATION WITH DEPARTMENT OF REVENUE
The CONTRACTOR shall complete registration with the Washington State Department of Revenue and be responsible for payment of all taxes due on payments made under this contract.

RIGHT OF INSPECTION
The CONTRACTOR shall provide right of access to its facilities to the AGENCY, or any of its officers, or to any other authorized agent or official of the state of Washington or the federal government, at all reasonable times, in order to monitor and evaluate performance, compliance, and/or quality assurance under this contract.

SAVINGS
In the event funding from state, federal, or other sources is withdrawn, reduced, or limited in any way after the effective date of this contract and prior to normal completion, the AGENCY may terminate the contract under the "Termination for Convenience" clause, without the ten-day notice requirement, subject to renegotiation at the AGENCY'S discretion under those new funding limitations and conditions.

SEVERABILITY
The provisions of this contract are intended to be severable. If any term or provision is illegal or invalid for any reason whatsoever, such illegality or invalidity shall not affect the validity of the remainder of the contract.

SITE SECURITY
While on AGENCY premises, CONTRACTOR, its agents, employees, or subcontractors shall conform in all respects with physical, fire or other security policies or regulations.

SUBCONTRACTING
Neither the CONTRACTOR nor any SUBCONTRACTOR shall enter into subcontracts for any of the work contemplated under this contract without obtaining prior written approval of the AGENCY. In no event shall the existence of the subcontract operate to release or reduce the liability of the contractor to the Department for any breach in the performance of the contractor's duties. This clause does not include contracts of employment between the contractor and personnel assigned to work under this contract.

Additionally, the CONTRACTOR is responsible for ensuring that all terms, conditions, assurances and certifications set forth in this agreement are carried forward to any subcontracts. CONTRACTOR and its subcontractors agree not to release, divulge, publish, transfer, sell or otherwise make known to unauthorized persons personal information without the express written consent of the agency or as provided by law.

TAXES
All payments accrued because of payroll taxes, unemployment contributions, any other taxes, insurance or other expenses for the CONTRACTOR or its staff shall be the sole responsibility of the CONTRACTOR.

TERMINATION FOR CAUSE
In the event the AGENCY determines the CONTRACTOR has failed to comply with the conditions of this contract in a timely manner, the AGENCY has the right to suspend or terminate this contract. Before suspending or terminating the contract, the AGENCY shall notify the CONTRACTOR in writing of the need to take corrective action. If corrective action is not taken within 30 calendar days, the contract may be terminated or suspended.

In the event of termination or suspension, the CONTRACTOR shall be liable for damages as authorized by law including, but not limited to, any cost difference between the original contract and the replacement or cover contract and all administrative costs directly related to the replacement contract, e.g., cost of the competitive bidding, mailing, advertising and staff time.

The AGENCY reserves the right to suspend all or part of the contract, withhold further payments, or prohibit the CONTRACTOR from incurring additional obligations of funds during investigation of the alleged compliance breach and pending corrective action by the CONTRACTOR or a decision by the AGENCY to terminate the contract. A termination shall be deemed a "Termination for Convenience" if it is determined that the CONTRACTOR: (1) was not in default; or (2) failure to perform was outside of his or her control, fault or negligence.

The rights and remedies of the AGENCY provided in this contract are not exclusive and are, in addition to any other rights and remedies, provided by law.

TERMINATION FOR CONVENIENCE
Except as otherwise provided in this contract, the AGENCY may, by 10 calendar days written notice, beginning on the second day after the mailing, terminate this contract, in whole or in part. If this contract is so terminated, the AGENCY shall be liable only for payment required under the terms of this contract for services rendered or goods delivered prior to the effective date of termination.

TERMINATION PROCEDURES
Upon termination of this contract, the AGENCY, in addition to any other rights provided in this contract, may require the CONTRACTOR to deliver to the AGENCY any property specifically produced or acquired

for the performance of such part of this contract as has been terminated. The provisions of the "Treatment of Assets" clause shall apply in such property transfer.

The AGENCY shall pay to the CONTRACTOR the agreed upon price, if separately stated, for completed work and services accepted by the AGENCY, and the amount agreed upon by the CONTRACTOR and the AGENCY for (i) completed work and services for which no separate price is stated, (ii) partially completed work and services, (iii) other property or services that are accepted by the AGENCY, and (iv) the protection and preservation of property, unless the termination is for default, in which case the AGENT shall determine the extent of the liability of the AGENCY. Failure to agree with such determination shall be a dispute within the meaning of the "Disputes" clause of this contract. The AGENCY may withhold from any amounts due the CONTRACTOR such sum as the AGENT determines to be necessary to protect the AGENCY against potential loss or liability.

The rights and remedies of the AGENCY provided in this section shall not be exclusive and are in addition to any other rights and remedies provided by law or under this contract.

After receipt of a notice of termination, and except as otherwise directed by the AGENT, the CONTRACTOR shall:

1. Stop work under the contract on the date, and to the extent specified, in the notice;
2. Place no further orders or subcontracts for materials, services, or facilities except as may be necessary for completion of such portion of the work under the contract that is not terminated;
3. Assign to the AGENCY, in the manner, at the times, and to the extent directed by the AGENT, all of the rights, title, and interest of the CONTRACTOR under the orders and subcontracts so terminated, in which case the AGENCY has the right, at its discretion, to settle or pay any or all claims arising out of the termination of such orders and subcontracts;
4. Settle all outstanding liabilities and all claims arising out of such termination of orders and subcontracts, with the approval or ratification of the AGENT to the extent AGENT may require, which approval or ratification shall be final for all the purposes of this clause;
5. Transfer title to the AGENCY and deliver in the manner, at the times, and to the extent directed by the AGENT any property which, if the contract had been completed, would have been required to be furnished to the AGENCY;
6. Complete performance of such part of the work as shall not have been terminated by the AGENT; and
7. Take such action as may be necessary, or as the AGENT may direct, for the protection and preservation of the property related to this contract, which is in the possession of the CONTRACTOR and in which the AGENCY has or may acquire an interest.

TREATMENT OF ASSETS

A. Title to all property furnished by the AGENCY shall remain in the AGENCY. Title to all property furnished by the CONTRACTOR, for the cost of which the CONTRACTOR is entitled to be reimbursed as a direct item of cost under this contract, shall pass to and vest in the AGENCY upon delivery of such property by the CONTRACTOR. Title to other property, the cost of which is reimbursable to the CONTRACTOR under this contract, shall pass to and vest in the AGENCY upon (i) issuance for use of such property in the performance of this contract, or (ii) commencement of use of such property in the performance of this contract, or (iii) reimbursement of the cost thereof by the AGENCY in whole or in part, whichever first occurs.

B. Any property of the AGENCY furnished to the CONTRACTOR shall, unless otherwise provided herein or approved by the AGENCY, be used only for the performance of this contract.

C. The CONTRACTOR shall be responsible for any loss or damage to property of the AGENCY that results from the negligence of the CONTRACTOR or which results from the failure on the part of the CONTRACTOR to maintain and administer that property in accordance with sound management practices.

D. If any AGENCY property is lost, destroyed or damaged, the CONTRACTOR shall immediately notify the AGENCY and shall take all reasonable steps to protect the property from further damage.

E. The CONTRACTOR shall surrender to the AGENCY all property of the AGENCY prior to settlement upon completion, termination or cancellation of this contract

F. All reference to the CONTRACTOR under this clause shall also include CONTRACTOR'S employees, agents or SUBCONTRACTORS.

U.S. DEPARTMENT OF TREASURY, OFFICE OF FOREIGN ASSETS CONTROL

The agency complies with U.S. Department of the Treasury, Office of Foreign Assets Control (OFAC) payment rules. OFAC prohibits financial transactions with individuals or organizations, which have been placed on the OFAC Specially Designated Nationals (SDN) and Blocked Persons sanctions list located at http://www.treasury.gov/resource-center/sanctions/SDN-List/Pages/default.aspx. Compliance with OFAC payment rules ensures that the agency does not conduct business with individuals or organizations that have been determined to be supporters of terrorism and international drug dealing or that pose other dangers to the United States.

Prior to making payment to individuals or organizations, the agency will download the current OFAC SDN file and compare it to agency and statewide vendor files. In the event of a positive match, the agency reserves the right to: (1) make a determination of "reasonability" before taking the positive match to a higher authority, (2) seek assistance from the Washington State Office of the State Treasurer (OST) for advanced assistance in resolving the positive match, (3) comply with an OFAC investigation, if required, and/or (4) if the positive match is substantiated, notify the contractor in writing and terminate the contract according to the Termination for Convenience provision without making payment. The agency will not be liable for any late payment fees or missed discounts that are the result of time required to address the issue of an OFAC match.

WAIVER

Waiver of any default or breach shall not be deemed a waiver of any subsequent default or breach. Any waiver shall not be construed to be a modification of the terms of this contract unless stated to be such in writing and signed by authorized representative of the AGENCY.

EXHIBIT B

Walla Walla Community College
Request for Proposals (RFP)
RFP NO. (Phase 2) psc10-004

PROJECT TITLE:
Intensively Monitored Watershed Project Implementation

PROPOSAL DUE DATE:
October 14, 2011 at 4 pm local time in Walla Walla, Washington.

EXPECTED TIME PERIOD FOR CONTRACT:
November 1, 2011 through October 2019 contingent upon funding with time extension likely.

CONSULTANT ELIGIBILITY: This procurement is open to those consultants that satisfy the minimum qualifications stated herein and that are available for work in Washington State.

CONTENTS OF THE REQUEST FOR PROPOSALS:

1. INTRODUCTION

1.1 PURPOSE AND BACKGROUND

Walla Walla Community College, hereafter called "AGENCY", is initiating this Request for Proposals (RFP) to solicit proposals from firms interested in implementing a project:

Implement the Intensively Monitored Watershed Project in the Asotin Watershed.

The first phase of the project began in 2008, resulting in completion of an experimental design, 3-years of baseline data (habitat and fish) collection, and the first year of habitat restoration. The second phase, which this request is seeking proposal to implement, is to continue implementation of the experimental design which includes data collection, data analysis, reporting, and stakeholder involvement. To the extent funding is available habitat restoration projects consistent with the experimental design may be required in phase II. Phase II is anticipated to last up to 8 years contingent upon available funding. It is anticipated that an average annual budget for Phase II will be approximately $300,000.

Funding for this project is provided by the National Marine Fisheries Service typically on a federal fiscal year. Funding for November 1, 2011 through September 30, 2012 is not yet secure but is expected to be approximately $190,000 with possibility of additional funding if available during this time period.

The goal at the end of Phase II is to be able to answer the question "are habitat restoration treatments effective at improving steelhead productivity?".

1.2 OBJECTIVE

Implement the experimental design and work plan to determine the effectiveness of watershed restoration treatments identified in the project report: Monitoring the Effectiveness of Salmon Habitat Restoration in Washington's Portion of the Columbia River Basin Using Intensively Monitored Watersheds available by contacting Steve Martin at 509-382-4115. As a brief overview, work addressed in this contract will support technical and stakeholder coordination, IMW treatment implementation, field data collection, data management and analysis, and reporting. Refer to the Project report referenced above for more information.

1.3 MINIMUM QUALIFICATIONS

The Consultant must be licensed to do business in the state of Washington. The Consultant must be familiar with the Asotin Watershed and have experience with watershed monitoring protocols, programs, data management, analysis, and field data collection.

1.4 PERIOD OF PERFORMANCE

The period of performance of any contract resulting from this RFP is tentatively scheduled to begin on or about November 1, 2011 and to end on September 30, 2019 contingent upon funding but may be extended. Amendments extending the period of performance, if any, shall be at the sole discretion of the AGENCY.

1.6 DEFINITIONS

Definitions for the purposes of this RFP include:

- **Agency**. Walla Walla Community College that is issuing this RFP.

- **Consultant**. Individual or company submitting a proposal in order to attain a contract with the AGENCY.

- **Contractor**. Individual or company whose proposal has been accepted by the AGENCY and is awarded a fully executed, written contract.

- **Proposal**. A formal offer submitted in response to this solicitation.

- **Request for Proposal (RFP)**. Formal procurement document in which a service or need is identified but no specific method to achieve it has been chosen. The purpose of an RFP is to permit the consultant community to suggest various approaches to meet the need at a given price.

2. GENERAL INFORMATION FOR CONSULTANTS

2.1 RFP COORDINATOR

The RFP Coordinator is the sole point of contact in the AGENCY for this procurement. All communication between the Consultant and the AGENCY upon receipt of this RFP shall be with the RFP Coordinator, as follows:

Name: Gary Boone
Address: 500 Tausick Way
City, State, Zip Code: Walla Walla, WA 99362
Phone Number: (509) 527-4280
Fax Number: (509) 527-4533
E-Mail Address: gary.boone@wwcc.edu

Any other communication will be considered unofficial and non-binding on the AGENCY. Consultants are to rely on written statements issued by the RFP Coordinator. Communication directed to parties other than the RFP Coordinator may result in disqualification of the Consultant.

2.2 ESTIMATED SCHEDULE OF PROCUREMENT ACTIVITIES

- Issue Request for Proposals, Sept 23, 2011; closes October 14, 2011

- Questions/Answers October 17 through October 21,2011

- Proposals due, October 14, 2011, 4pm

- Announce. Apparent Successful Contractor and send notification via fax or e-mail to unsuccessful applicants, October 28, 2011

- Begin contract work,approx November 1, 2011 or after signed contract has been completed, whichever is later

The AGENCY reserves the right to revise the above schedule.

2.3 SUBMISSION OF PROPOSALS

Proposals may be submitted in hard copy or electronically. Proposals may not be transmitted via facsimile.

If submitting the proposal in hard copy, the following information is applicable. Consultants are required to submit one (1) copy of their proposal, it must have original signatures. The proposal, whether mailed or hand delivered, must be received by the AGENCY no later than 4:00 p.m. local time in Walla Walla, Washington, on October 14, 2011 to the RFP Coordinator at the address noted in Section 2.1. The envelope should be clearly marked to the attention of the RFP Coordinator, who is the AGENCY's sole point of contact for this procurement.

Consultants mailing proposals should allow normal mail delivery time to ensure timely receipt of their proposals by the RFP Coordinator. Consultants hand delivering proposals should allow time for traffic congestion. Consults assume the risk for the method of delivery chosen. The AGENCY assumes no responsibility for delays caused by any delivery service.

If submitting the proposal electronically, the following information is applicable. Proposals being submitted electronically must be submitted as an attachment to an e-mail to RFP Coordinator. Proposals must arrive by 4:00 p.m. local time in Walla Walla, Washington on October 14, 2011. Attachments to e-mail shall be on Microsoft Word software or PDF. Consultants submitting proposals via e-mail shall also send copies of the cover submittal letter and the certifications and assurances from with original signatures to the RFP Coordinator. The AGENCY does not assume responsibility for any problems in the e-mail.

Late proposals will not be accepted and will be automatically disqualified from further consideration.

The proposals must respond to the procurement requirements. Do not respond by referring to material presented elsewhere. The proposal must be complete and must stand on its own merits.
Failure to respond to any portion of the procurement document may result in rejection of the proposal as non-responsive. All proposals and any accompanying documentation become the property of the AGENCY and will not be returned.

2.4 PROPRIETARY INFORMATION/PUBLIC DISCLOSURE
Materials submitted in response to this competitive procurement shall become the property of the AGENCY. All proposals received shall remain confidential until the contract, if any, resulting from this RFP, is signed by the President of the AGENCY and the apparent successful Contractor; thereafter, the proposals shall be deemed public records as defined in RCW 42.17.250 to 42.17.340, Public Records.

Any information in the proposal that the Consultant desires to claim as proprietary and exempt from disclosure under the provisions of RCW 42.17.250 to 42.17.340 must be clearly designated. The page must be identified and the particular exception from disclosure upon which the Consultant is making the claim. Each page claimed to be exempt from disclosure must be clearly identified by the word, Confidential, printed on the lower right hand corner of the page.

The AGENCY will consider a Consultant's request for exemption from disclosure; however, the AGENCY will make a decision predicated upon Chapter 42.17 RCW and Chapter 143-06 of the Washington Administrative Code. Marking the entire proposal exempt from disclosure will not be honored. The Consultant must be reasonable in designating information as confidential. If any information is marked as proprietary in the proposal, such information will not be made available until the affected proposer has been given an opportunity to seek a court injunction against the requested disclosure.

A charge will be made for copying and shipping, as outlined in RCW 42.17.300. No fee shall be charged for inspection of contract files, but twenty-four (24) hours notice to the RFP Coordinator is required. All requests for information should be directed to the RFP Coordinator.

2.5 REVISIONS TO THE RFP

In the event it becomes necessary to revise any part of this RFP, addenda will be provided via email or in hardcopy to all who were sent the RFP.

The AGENCY also reserves the right to cancel or to reissue the RFP in whole or in part, prior to execution of a contract.

2.6 MINORITY & WOMEN-OWNED BUSINESS PARTICIPATION

In accordance with the legislative findings and policies set forth in Chapter 39.19 RCW, the state of Washington encourages participation in all of its contracts by firms certified by the Office of Minority and Women's Business Enterprises (OMWBE). Participation may be either on a direct basis in response to this solicitation or on a subcontractor basis. However, no preference will be included in the evaluation of proposals, no minimum level of MWBE participation shall be required as a condition for receiving an award, and proposals will not be rejected or considered non-responsive on that basis. Any affirmative action requirements set forth in federal regulations or statutes included or referenced in the contract documents will apply. The established annual procurement participation goals for MBE are 10 percent and for WBE, 4percent, for this type of project. These goals are voluntary. Bidders may contact OMWBE at 360/753-9693 to obtain information on certified firms.

2.7 ACCEPTANCE PERIOD

Proposals must provide 30 days for acceptance by AGENCY from the due date for receipt of proposals.

2.8 RESPONSIVENESS

All proposals will be reviewed by the RFP Coordinator to determine compliance with administrative requirements and instructions specified in this RFP. The Consultant is specifically notified that failure to comply with any part of the RFP may result in rejection of the proposal as non-responsive. The AGENCY also reserves the right, however, at its sole discretion to waive minor administrative irregularities.

2.9 MOST FAVORABLE TERMS

The AGENCY reserves the right to make an award without further discussion of the proposal submitted. Therefore, the proposal should be submitted initially on the most favorable terms that the Consultant can propose. There will be no best and final offer procedure. The AGENCY does reserve the right to contact a Consultant for clarification of its proposal during the evaluation process. In addition, if the Consultant is selected as the apparent successful contractor, the AGENCY reserves the right to enter into contract negotiations with the apparent successful contractor, which may include discussion regarding the terms of the proposal. Contract negotiations may result in incorporation of some or all of the Consultant's proposal. The Consultant should be prepared to accept this RFP for incorporation into a contract resulting from this RFP. It is also understood that the proposal will become part of the official procurement file.

2.10 CONTRACT AND GENERAL TERMS & CONDITIONS

The apparent successful contractor will be expected to enter into a contract prepared by WWCC (Fiscal agent for SRSRB. In no event is a Consultant to submit its own standard contract terms and conditions in response to this solicitation. The Consultant may submit exceptions as allowed in the Certifications and Assurances section, Exhibit A to this solicitation. The AGENCY will review requested exceptions and accept or reject the same at its sole discretion.

2.11 COSTS TO PROPOSE

The AGENCY will not be liable for any costs incurred by the Consultant in preparation of a proposal submitted in response to this RFP, in conduct of a presentation, or any other activities related to responding to this RFP.

2.12 NO OBLIGATION TO CONTRACT
This RFP does not obligate the AGENCY to contract for services specified herein.

2.13 REJECTION OF PROPOSALS
The AGENCY reserves the right at its sole discretion to reject any and all proposals received without penalty and not to issue a contract as a result of this RFP.

2.14 COMMITMENT OF FUNDS
The President of the AGENCY or his delegate are the only individuals who may legally commit the AGENCY to the expenditures of funds for a contract resulting from this RFP. No cost chargeable to the proposed contract may be incurred before receipt of a fully executed contract, unless approved by the President of the agency.

2.15 PAYMENT
The AGENCY prefers to utilize check payments in its transactions.

2.16 INSURANCE COVERAGE
The Contractor is to furnish the AGENCY with a certificate(s) of insurance executed by a duly authorized representative of each insurer, showing compliance with the insurance requirements set forth below.

The Contractor shall, at its own expense, obtain and keep in force insurance coverage that shall be maintained in full force and effect during the term of the contract. The Contractor shall furnish evidence in the form of a Certificate of Insurance that insurance shall be provided, and a copy shall be forwarded to the Agency within fifteen (15) days of the contract effective date.

Liability Insurance
1) Commercial General Liability Insurance: Contractor shall maintain general liability (CGL) insurance and, if necessary, commercial umbrella insurance, with a limit of not less than $1,000,000 per each occurrence. If CGL insurance contains aggregate limits, the General Aggregate limit shall be at least twice the "each occurrence" limit. CGL insurance shall have products-completed operations aggregate limit of at least two times the "each occurrence" limit. CGL insurance shall be written on ISO occurrence from CG 00 01 (or a substitute form providing equivalent coverage). All insurance shall cover liability assumed under an insured contract (including the tort liability of another assumed in a business contract), and contain separation of insured's (cross liability) condition.

Additionally, the Contractor is responsible for ensuring that any subcontractors provide adequate insurance coverage for the activities arising out of subcontracts.

2) Business Auto Policy: As applicable, the Contractor shall maintain business auto liability and, if necessary, commercial umbrella liability insurance with a limit not less than $1,000,000 per accident. Such insurance shall cover liability arising out of "Any Auto". Business auto coverage shall be written on ISO form CA 00 01, 1990 or later edition, or substitute liability form providing equivalent coverage.

Employers Liability ("Stop Gap") Insurance

In addition, the Contractor shall buy employers liability insurance and, if necessary, commercial umbrella liability insurance with limits not less than $1,000,000 each accident for bodily injury by accident or $1,000,000 each employee for bodily injury by disease.

Additional Provisions
Above insurance policy shall include the following provisions:

1. **Additional Insured.** Walla Walla Community College, its elected and appointed officials, agents and employees shall be named as an additional insured on all general liability, excess, umbrella and property insurance policies. All insurance provided in compliance with this contract shall be primary as to any other insurance or self-insurance programs afforded to or maintained by the State.
2. **Cancellation**. Walla Walla Community College shall be provided written notice before cancellation or non-renewal of any insurance referred to therein, in accord with the following specifications. Insurers subject to 48.18 RCW (Admitted and Regulation by the Insurance Commissioner): The insurer shall give the State 45 days advance notice of cancellation or nonrenewal. If cancellation is due to non-payment of premium, the State shall be given 10 days advance notice of cancellation. Insurers subject to 48.15 RCW (Surplus lines): The State shall be given 20 days advance notice of cancellation. If cancellation is due to non-payment of premium, the State shall be given 10 days advance notice of cancellation.

3. **Identification**. Policy must reference the State's contract number and the agency name.
4. **Insurance Carrier Rating**. All insurance and bonds should be issued by companies admitted to do business within the state of Washington and have a rating of A-, Class VII or better in the most recently published edition of Best's Reports. Any exception shall be reviewed and approved by Walla Walla Community College Risk Manager or the Risk Manager for the state of Washington, before the contract is accepted or work may begin. If an insurer is not admitted, all insurance policies and procedures for issuing the insurance policies must comply with Chapter 48.15 RCW and 284-15 WAC.

5. **Excess Coverage**. By requiring insurance herein, the State does not represent that coverage and limits will be adequate to protect Contractor and such coverage and limits shall not limit Contractor's liability under the indemnities and reimbursements granted to the State in this contract.

Worker's Compensation Coverage
The Contractor will at all times comply with all applicable workers' compensation, occupational disease, and occupational health and safety laws, statutes, and regulations to the full extent applicable. The AGENCY will not be held responsive in any way for claims filed by the Contractor or their employees for services performed under the terms of this contract.

3. PROPOSAL CONTENTS
Proposals must be submitted on eight and one-half by eleven (8 1/2 x 11) inch paper with tabs separating the major sections of the proposal. The four major sections of the proposal are to be submitted in the order noted below:

1. Signed or Certified Letter of Submittal, including signed Certifications and Assurances (Exhibit A to this RFP).
2. Technical Proposal.
3. Management Proposal.
4. Cost Proposal.

Proposals must provide information in the same order as presented in this document with the same headings. This will not only be helpful to the evaluators of the proposal, but should assist the Consultant in preparing a thorough response.

Items in this section marked, mandatory, must be included as part of the proposal for the proposal to be considered responsive; however, these items are not scored. Items marked, scored, are those that are awarded points as part of the evaluation conducted by the evaluation team.

3.1 LETTER OF SUBMITTAL (MANDATORY)

The Letter of Submittal and the attached Certifications and Assurances form (Exhibit A to this RFP) must be signed and dated by a person authorized to legally bind the Consultant to a contractual relationship, e.g., the President or Executive Director if a corporation, the managing partner if a partnership, or the proprietor if a sole proprietorship. Along with introductory remarks, the Letter of Submittal is to include by attachment the following information about the Consultant and any proposed subcontractors:

1. Name, address, principal place of business, telephone number, and fax number/e-mail address of legal entity or individual with whom contract would be written.

2. Name, address, and telephone number of each principal officer (President, Vice President, Treasurer, Chairperson of the Board of Directors, etc.).

3. Legal status of the Consultant (sole proprietorship, partnership, corporation, etc.) and the year the entity was organized to do business as the entity now substantially exists.

4. Federal Employer Tax Identification number or Social Security number and the Washington Uniform Business Identification (UBI) number issued by the state of Washington Department of Revenue.

5. Location of the facility from which the Consultant would operate.

6. Identify any State employees or former State employees employed or on the firm's governing board as of the date of the proposal. Include their position and responsibilities within the Consultant's organization. If following a review of this information, it is determined by the AGENCY that a conflict of interest exists, the Consultant may be disqualified from further consideration for the award of a contract.

3.2 TECHNICAL PROPOSAL (SCORED/MANDATORY)

The Technical Proposal must contain a comprehensive description of services including the following elements:

A. Project Approach/Methodology. Include a complete description of the Consultant's proposed approach and methodology for the project. This section should convey Consultant's understanding of the proposed project.

B. Work Plan. Include all project requirements and the proposed tasks, services, activities, etc. necessary to accomplish the scope of the project defined in this RFP. This section of the technical proposal must contain sufficient detail to convey to members of the evaluation team the Consultant's knowledge of the subjects and skills necessary to successfully complete the project. Include any required involvement of AGENCY staff. The Consultant may also present any creative approaches that might be appropriate and may provide any pertinent supporting documentation.

C. Project Schedule. Include a project schedule indicating when the elements of the work will be completed and when deliverables, if any, will be provided.

C.1 References. Please provide names, email addresses and phones numbers of previous employers or companies you have contracted with on similar projects. Award will be based on cost estimate, references and your work plan/ approach.

D. Deliverables. Fully describe deliverables to be submitted under the proposed contract.

E. Outcomes and Performance Measurement. Describe the impacts/outcomes the consultants propose to achieve as a result of the delivery of these services including how these outcomes would be monitored, measured and reported to the state agency.

3.3 MANAGEMENT PROPOSAL

A. Project Management (SCORED/MANDATORY)
1. **Project Team Structure/Internal Controls.** Provide a description of the proposed project team structure and internal controls to be used during the course of the project, including any subcontractors. Include who within the firm will have prime responsibility and final authority for the work.

2. **Staff Qualifications/Experience**. Identify staff, including subcontractors, who will be assigned to the potential contract, indicating the responsibilities and qualifications of such personnel, and include the amount of time each will be assigned to the project. Provide résumés for the named staff, which include information on the individual's particular skills related to this project, education, experience, significant accomplishments and any other pertinent information. The Consultant must commit that staff identified in its proposal will actually perform the assigned work. Any staff substitution must have the prior approval of the AGENCY.

B. Experience of the Consultant (SCORED/MANDATORY)
1. Indicate the experience the Consultant and any subcontractors have in the following areas: The Consultant must be licensed to do business in the state of Washington. The Consultant must be familiar with the Asotin Watershed and have experience with watershed monitoring protocols, programs, data management, analysis, and field data collection.

2. Indicate other relevant experience that indicates the qualifications of the Consultant, and any subcontractors, for the performance of the potential contract.
C. Related Information (MANDATORY)
1. If the Consultant or any subcontractor contracted with the state of Washington during the past 24 months, indicate the name of the agency, the contract number and project description and/or other information available to identify the contract.

2. If the Consultant's staff or subcontractor's staff was an employee of the state of Washington during the past 24 months, or is currently a Washington State employee, identify the individual by name, the agency previously or currently employed by, job title or position held and separation date.

3. If the Consultant has had a contract terminated for default in the last five years, describe such incident. Termination for default is defined as notice to stop performance due to the Consultant's non-performance

or poor performance and the issue of performance was either (a) not litigated due to inaction on the part of the Proposer, or (b) litigated and such litigation determined that the Proposer was in default.

4. Submit full details of the terms for default including the other party's name, address, and phone number. Present the Consultant's position on the matter. The AGENCY will evaluate the facts and may, at its sole discretion, reject the proposal on the grounds of the past experience. If no such termination for default has been experienced by the Consultant in the past five years, so indicate.

D. OMWBE Certification (Optional)
Include proof of certification issued by the Washington State Office of Minority and Women-Owned Business if certified minority-owned firm and/or women-owned firm(s) will be participating on this project.

3.4 COST PROPOSAL
The evaluation process is designed to award this procurement not necessarily to the Consultant of least cost, but rather to the Consultant whose proposal best meets the requirements of this RFP. However, Consultants are encouraged to submit proposals that are consistent with State government efforts to conserve state resources.

4. EVALUATION AND CONTRACT AWARD
ALL MANDATORY REQUIREMENTS MUST BE MET IN ORDER TO BE EVALUATED.

4.1 EVALUATION PROCEDURE
Responsive proposals will be evaluated strictly in accordance with the requirements stated in this solicitation and any addenda issued. The evaluation of proposals shall be accomplished by an evaluation team, to be designated by the AGENCY, which will determine the ranking of the proposals.

AGENCY, at its sole discretion, may elect to select the top-scoring firms as finalists for an oral presentation.

4.2 CLARIFICATION OF PROPOSAL
The RFP Coordinator may contact the Consultant for clarification of any portion of the Consultant's proposal.

4.3 EVALUATION WEIGHTING AND SCORING
The following weighting and points will be assigned to the proposal for evaluation purposes:

- Technical Proposal (50% or 50 points)
  - Project Approach/Methodology (20 point maximum)
  - Quality of Work Plan (10 point maximum)
  - Project Schedule (5 point maximum)
  - Project Deliverables (15 point maximum)

- Management Proposal (50% or 50 points)
  - Project Team Structure/Internal Controls (5 points maximum)
  - Staff Qualifications/Experience (10 points maximum)
  - Experience of the Consultant relevant to project (35 points maximum)

GRAND TOTAL FOR WRITTEN PROPOSAL (100 points)

4.4 NOTIFICATION TO PROPOSERS
Firms whose proposals have not been selected for further negotiation or award will be notified via fax or by e-mail.

4.5 DEBRIEFING OF UNSUCCESSFUL PROPOSERS
Upon request, a debriefing conference will be scheduled with an unsuccessful Proposer. The request for a debriefing conference must be received by the RFP Coordinator within three (3) business days after the Notification of Unsuccessful Consultant letter is faxed/e-mailed to the Consultant. The debriefing must be held within three (3) business days of the request.

Discussion will be limited to a critique of the requesting Consultant's proposal. Comparisons between proposals or evaluations of the other proposals will not be allowed. Debriefing conferences may be conducted in person or on the telephone and will be scheduled for a maximum of one hour.

4.6 PROTEST PROCEDURE
This procedure is available to Consultants who submitted a response to this solicitation document and who have participated in a debriefing conference. Upon completing the debriefing conference, the Consultant is allowed three (3) business days to file a protest of the acquisition with the RFP Coordinator. Protests may be submitted by facsimile, but should be followed by the original document.

Consultants protesting this procurement shall follow the procedures described below. Protests that do not follow these procedures shall not be considered. This protest procedure constitutes the sole administrative remedy available to Consultants under this procurement.

All protests must be in writing and signed by the protesting party or an authorized Agent. The protest must state the grounds for the protest with specific facts and complete statements of the action(s) being protested. A description of the relief or corrective action being requested should also be included. All protests shall be addressed to the RFP Coordinator.

Only protests stipulating an issue of fact concerning the following subjects shall be considered:
- A matter of bias, discrimination or conflict of interest on the part of the evaluator.
- Errors in computing the score.
- Non-compliance with procedures described in the procurement document or AGENCY policy.

Protests not based on procedural matters will not be considered. Protests will be rejected as without merit if they address issues such as: 1) an evaluator's professional judgment on the quality of a proposal, or 2) AGENCY'S assessment of its own and/or other agencies needs or requirements.

Upon receipt of a protest, a protest review will be held by the AGENCY. The AGENCY President or an employee delegated by the President who was not involved in the procurement will consider the record and all available facts and issue a decision within five business days of receipt of the protest.

If additional time is required, the protesting party will be notified of the delay. In the event a protest may affect the interest of another Consultant that submitted a proposal, such Consultant will be given an opportunity to submit its views and any relevant information on the protest to the RFP Coordinator.

The final determination of the protest shall:
- Find the protest lacking in merit and uphold the AGENCY's action; or
- Find only technical or harmless errors in the AGENCY's acquisition process and determine the AGENCY to be in substantial compliance and reject the protest; or
- Find merit in the protest and provide the AGENCY options which may include:
  - Correct the errors and re-evaluate all proposals, and/or,

- Reissue the solicitation document and begin a new process, or
- Make other findings and determine other courses of action as appropriate.

If the AGENCY determines that the protest is without merit, the AGENCY will enter into a contract with the apparently successful contractor. If the protest is determined to have merit, one of the alternatives noted in the preceding paragraph will be taken.

5. RFP EXHIBITS
Exhibit A. Certifications and Assurances

EXHIBIT A. to RFP NO. 10-004 (phase 2)
CERTIFICATIONS AND ASSURANCES
I/we make the following certifications and assurances as a required element of the proposal to which it is attached, understanding that the truthfulness of the facts affirmed here and the continuing compliance with these requirements are conditions precedent to the award or continuation of the related contract(s):

1. I/we declare that all answers and statements made in the proposal are true and correct.

2. The prices and/or cost data have been determined independently, without consultation, communication, or agreement with others for the purpose of restricting competition. However,
I/we may freely join with other persons or organizations for the purpose of presenting a single proposal.

3. The attached proposal is a firm offer for a period of 30 days following receipt, and it may be accepted by the AGENCY without further negotiation (except where obviously required by lack of certainty in key terms) . (Award will be made no earlier than Oct 28 and no later than 30 days after proposal deadline).

4. In preparing this proposal, I/we have not been assisted by any current or former employee of the state of Washington whose duties relate (or did relate) to this proposal or prospective contract, and who was assisting in other than his or her official, public capacity. (Any exceptions to these assurances are described in full detail on a separate page and attached to this document.)

5. I/we understand that the AGENCY will not reimburse me/us for any costs incurred in the preparation of this proposal. All proposals become the property of the AGENCY, and I/we claim no proprietary right to the ideas, writings, items, or samples, unless so stated in this proposal.

6. Unless otherwise required by law, the prices and/or cost data which have been submitted have not been knowingly disclosed by the Proposer and will not knowingly be disclosed by him/her prior to opening, directly or indirectly to any other Proposer or to any competitor.

7. I/we agree that submission of the attached proposal constitutes acceptance of the solicitation contents and the attached sample contract and general terms and conditions. If there are any exceptions to these terms, I/we have described those exceptions in detail on a page attached to this document.

8. No attempt has been made or will be made by the Proposer to induce any other person or firm to submit or not to submit a proposal for the purpose of restricting competition.

9. I/we grant the AGENCY the right to contact references and others, who may have pertinent information regarding the Proposer's prior experience and ability to perform the services contemplated in this procurement.

Note: If submitted electronically, include the following:

On behalf of the firm submitting this proposal, my name below attests to the accuracy of the above statements.

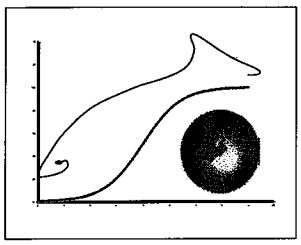
_____

Signature of Proposer

_____

Title Date

EXHIBIT C



ECO LOGICAL
RESEARCH, Inc.

Eco Logical Research, Inc.
Nick Bouwes, Ph.D.
Environmental Consultant
456 South 100 West
Providence, UT, 84332
phone/fax: (435) 760-0771
email: nbouwes@gmail.com

October 10th, 2011

Gary Boone, RFP Coordinator
Walla Walla Community College
500 Tausick Way, Walla Walla, WA 99362

Dear Mr. Boone

Please accept this letter of submittal on behalf of Eco Logical Research Inc. (ELR) as part of my company's proposal submission for the *Intensively Monitored Watershed Project Implementation in Asotin Watershed* requested by the Walla Walla Community College. I am the president of ELR and the above address, telephone, and email information is the current contact information for the company. There are no other principal officers in my company.

The legal status of ELR is a forprofit corporation, incorporated in 2005. Our Federal Employer Tax Identification number is 20-2544953 and our Uniform Business Identification issued by the state of Washington is 602 795 500. We have an office in Providence, Utah and on the campus of Utah State University. Reid Camp is a former temporary employee of the Washington State Department of Fish and Wildlife and is now a full-time Field Biologist of Eco Logical Research Inc.

Please accept our attached Exhibit A - Certifications and Assurances (1 page) and our proposal - ***Intensively Monitored Watershed Project Implementation in Asotin Watershed: PROPOSAL*** as described in the Walla Community College RFP and thank you for the opportunity to bid on this project.

Sincerely,

Nick Bouwes

EXHIBIT A. to RFP NO. CERTIFICATIONS AND ASSURANCES

I/we make the following certifications and assurances as a required element of the proposal to which it is attached, understanding that the truthfulness of the facts affirmed here and the continuing compliance with these requirements are conditions precedent to the award or continuation of the related contract(s):

1. I/we declare that all answers and statements made in the proposal are true and correct.
2. The prices and/or cost data have been determined independently, without consultation, communication, or agreement with others for the purpose of restricting competition. However, I/we may freely join with other persons or organizations for the purpose of presenting a single proposal.
3. The attached proposal is a firm offer for a period of 30 days following receipt, and it may be accepted by the AGENCY without further negotiation (except where obviously required by lack of certainty in key terms) at any time within the 30-day period.
4. In preparing this proposal, I/we have not been assisted by any current or former employee of the state of Washington whose duties relate (or did relate) to this proposal or prospective contract, and who was assisting in other than his or her official, public capacity. (Any exceptions to these assurances are described in full detail on a separate page and attached to this document.)
5. I/we understand that the AGENCY will not reimburse me/us for any costs incurred in the preparation of this proposal. All proposals become the property of the AGENCY, and I/we claim no proprietary right to the ideas, writings, items, or samples, unless so stated in this proposal.
6. Unless otherwise required by law, the prices and/or cost data which have been submitted have not been knowingly disclosed by the Proposer and will not knowingly be disclosed by him/her prior to opening, directly or indirectly to any other Proposer or to any competitor.
7. I/we agree that submission of the attached proposal constitutes acceptance of the solicitation contents and the attached sample contract and general terms and conditions. If there are any exceptions to these terms, I/we have described those exceptions in detail on a page attached to this document.
8. No attempt has been made or will be made by the Proposer to induce any other person or firm to submit or not to submit a proposal for the purpose of restricting competition.
9. I/we grant the AGENCY the right to contact references and others, who may have pertinent information regarding the Proposer's prior experience and ability to perform the services contemplated in this procurement.

Note: If submitted electronically, include the following: On behalf of the firm submitting this proposal, my name below attests to the accuracy of the above statements.

Signature of Proposer

President,
Title

October 10, 2011
Date Signed

Intensively Monitored Watershed Project Implementation in Asotin Watershed:

PROPOSAL

Submitted to:

Gary Boone, RFP Coordinator
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Submitted by:

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Submitted: Ocotber 10th, 2011

Due: October 14th, 2011

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Intensively Monitored Watershed Project Implementation in Asotin Watershed: PROPOSAL

Submitted By

Eco Logical Research, Inc.

SUMMARY

The Walla Walla Community College has received funds to implement the restoration and monitoring phase of the Intensively Monitored Watershed (IMW) Project in the Asotin Creek watershed in the Snake River Salmon Recovery Region of southeast Washington. Eco Logical Research Inc. (ELR) has worked at developing IMW projects for the Snake River Salmon Recovery Board (SRSRB),the Integrated Status and Effectiveness Monitoring Project (ISEMP), Oregon Watershed Enhancement Board (OWEB), and the Collaborative System-wide Monitoring and Evaluation Program (CSMEP), as well as developing other components of Research, Monitoring, and Evaluation programs (RME) throughout the Pacific Northwest. Of significant relevance to this proposal request, ELR has developed and implemented an IMW design for the Asotin Creek in southeast Washington and Bridge Creek in the John Day Basin in central Oregon and thus has both the local knowledge and extensive background in the development and implementation of this and similar IMWs to undertake the effort described in the request for proposal (RFP).

Eco Logical Research Inc. proposes to use the following outline to implement the experimental and monitoring design for an IMW study in Asotin Creek:

1. Project Management and Coordination
    - Technical and Stakeholder Coordination
    - Landowner and Community Outreach
    - Budget and Equipment Management
2. Implementation Asotin IMW Design
    - Experimental Design
    - Monitoring Design
    - Restoration Design
3. Data Management, Reporting and Deliverables
    - Data Management
    - Mapping and Spatial Analysis
    - Data Analysis and Synthesis

To provide these services on an annual basis from November 2012 to October 2019 we estimate the costs to be ***$300,000*** per year with annual services to be provided by the Washington Department of Fish and Wildlife of approximately $55,000 in a separate contract. However, we will work with the

contract monitor to manage the project with the funding available. Implementation of the stream restoration will be covered by other funding sources.

INTRODUCTION

Nearly 100 million dollars per year are spent on stream restoration projects in the Pacific Northwest in an effort to reverse declines in many salmonid stocks (Bernhardt et al. 2005, Roni et al. 2010). Recent reviews of many restoration projects have highlighted concerns over the lack of measureable effects of restoration activities, especially regarding increases in salmon and steelhead population levels and improvements to critical habitat (Beechie and Bolton 1999, PNAMP 2005, Roni et al. 2008). In response to this situation, both Washington state and several large regional initiatives are currently developing and implementing a network of Intensively Monitored Watershed (IMW) projects to respond to the need for more scientifically defensible monitoring and restoration programs (Bilby et al. 2004). The fundamental approach of IMW projects is to treat restoration as an experiment and concentrate a large restoration effort in order to increase the likelihood of detecting a population increase (Fullerton et al. 2010, Roni et al. 2010). The goal of these IMW projects is to link salmon and steelhead population responses to specific mechanisms related to habitat restoration. These initiatives will increase our understanding of what restoration activities are the most effective, demonstrate how changes in habitat influence survival of various life stages of salmon and steelhead, determine what magnitude of restoration is required to cause a significant population response, and ultimately provide information to better evaluate the efficacy of habitat restoration as a means of salmon and steelhead conservation and enhancement (Bayley 2002, PNAMP 2005).

In 2007, ELR was contracted by the State of Washington Recreation and Conservation Office to help develop an IMW in southeast Washington. The contract required ELR to coordinate the selection of a location for the IMW, develop an experimental and monitoring design, and implement pre-treatment sampling of fish and habitat. Eco Logical Research Inc. helped Snake River Salmon Recovery Board (SRSRB) coordinate input to the IMW process by federal, state, and local government, and local landowners via meetings with the Regional Technical Committee (RTT). The result of this contract was the development of a report titled: *Southeast Washington Intensively Monitored Watershed Project: Selection Process and Proposed Experimental and Monitoring Design for Asotin Creek* (hereafter referred to as the 'IMW design'; Bennett and Bouwes 2009). ELR was contracted in 2009 and 2010 to implement the IMW design including the installation and testing of PIT tag antenna arrays, fish and habitat monitoring, detailed geomorphic surveys (e.g., ground based LiDAR, aerial photography, and bathymetry), data analysis and management, and reporting. For both the IMW development phase (2007-2008) and the implementation of pre-restoration monitoring (2009-2011), ELR coordinated with and had assistance from the Washington Department of fish and Wildlife (WDFW) in the collection of fish and habitat data. The current RFP is for the second phase of the IMW – the implementation of the restoration design, and post-restoration monitoring as outlined in the IMW design. The second phase is expected to cover the period from ***November 1, 2011 to October 30, 2019***. Eco Logical Research Inc. is submitting this proposal for the *Intensively Monitored Watershed Project Implementation* request for proposal (RFP). We have arranged our proposal as per the RFP with three separate sections: A) Technical Proposal, B) Management Proposal, and C) Cost Proposal.

TECHNICAL PROPOSAL

A. Project Approach/Methodology

Eco Logical Research Inc. is submitting this proposal with the understanding that an IMW design has already been completed, and that the design has received approval by the RTT. As part of the IMW design process, Asotin Creek was selected as the most suitable site for the implementation of an IMW project. Asotin Creek is a tributary of the Snake River and supports a regionally significant run of mostly wild summer run steelhead (*Oncorhynchus mykiss;* ACCD 2004, Mayer et al. 2009, Crawford et al. 2011). Asotin Creek and its tributaries are desirable as an IMW location in the Snake River Salmon Recovery Region, in part, because there is strong agency and land owner support, extensive planning processes have already been undertaken, there is substantial amounts of historic habitat and steelhead population data available, and there are extensive ongoing monitoring efforts that can be utilized as part of an IMW (e.g., adult weir, smolt trap, and spawning monitoring; Bennett and Bouwes 2009, Crawford et al. 2011).

Three tributaries to Asotin Creek are the focus of the IMW and hereafter are referred to as the "study streams": Charley Creek, North Fork Asotin Creek, and South Fork Asotin Creek. Each one of these streams has been divided into three 4 km long sections starting at the mouth, and within these sections permanent sites have been established to monitor fish and habitat each year. The lower 8 km of Charley Creek is located primarily on private property (two landowners) whereas the North Fork and South Fork of Asotin Creek are owned and managed by the WDFW and USFS. The original IMW design proposed implementation of riparian restoration in three sections of Charley Creek (i.e., 12 km total restoration); however, we recently revised the experimental design based on extensive statistical modeling of alternative designs (Bennett et al 2011 in preparation). The current design now proposes that a 4 km section be restored in each study stream (Figure 1). This proposal is based on the revised experimental design.

Riparian function was recognized as a limiting factor in Asotin Creek by several previous assessments (ACCD 1995, ACCD 2004, SRSRB 2006) and will be addressed with fencing and planting of native vegetation (Bennett and Bouwes 2009). However, it was recognized in the IMW design that riparian fencing and planting would take several decades to restore full riparian function, and that in the short-term the addition of large woody debris (LWD) could increase pool abundance and instream habitat complexity. Therefore, LWD restoration methods will be the main focus of the IMW experiment. We propose to implement the revised IMW design with the steps outlined below.

1) Project Management and Coordination

Technical and Stakeholder Coordination

One of the main tasks of the successful candidate will be to act as the Project Coordinator for all aspects of the Asotin IMW. The duties of the Project Coordinator will be to communicate with all participating stakeholders, coordinate all IMW related activities (i.e., meetings, restoration actions, monitoring, communication, and dissemination of data), and manage the project to best meet the goals and objectives as described by the IMW design. Effective project coordination will best be accomplished by

working with the RTT and the SRSRB office, local landowners, the Asotin County Conservation District, the Washington Department of Fish and Wildlife (WDFW), NOAA Fisheries, the U.S. Forest Service, and other local and regional agencies to make sure that the goals and objectives of the IMW can be met. We have already developed strong working relationships with the above mentioned agencies and groups having worked with them during the study area selection, IMW development, and the pre-restoration phases of the IMW. We believe the working relationships we developed during this period will allow us to more efficiently implement the IMW design.

Examples of the types of coordination and management that will be required include:

- Coordination with the WDFW, Asotin County Conservation District (ACCD), and NOAA Fisheries to secure permits for fish capture and tagging and restoration implementation. We have already secured fish capture and tagging permits from NOAA fisheries through to 2013 for the Asotin Creek IMW. Permits have also been received for past installation of PIT tag arrays and trial restoration structures in accordance with the WDFW Joint Aquatic Resource Permit Application (JARPA) requirements, the Department of Highways, and County Shorelines Permits.

- Coordination with SRSRB and the RTT to ensure that IMW related information is shared. We regularly attend monthly RTT meetings to provide updates on the IMW's progress, review technical data, request budget reallocations, and approval for changes to design elements of the IMW as necessary.

- Coordination with the ongoing WDFW Asotin monitoring programs to ensure that the data can be shared between projects and that duplication of effort is avoided (e.g., adult weir, smolt trap, redd counts; Crawford et al. 2011). We coordinate with the Clarkston office of WDFW regularly as they provide 2-3 staff to assist in habitat and fish data collection from June through October each year. We also coordinate with the Dayton office redd counts.

Landowner and Public Outreach

It is important to provide information to the local community about the IMW an its goals. We propose to do this with consultation and regular meetings with private landowners to ensure that access by IMW monitoring crews will be allowed and to maintain landowner support for the project. We also propose to contact all local landowners regularly to get approval for any entrance on to their land to conduct IMW related activities. We currently have a landowner agreement with J. Thornton to access land along Charley Creek and are waiting for the Koch's to finish negotiating with WDFW before we try to secure an access agreement to their land along Charley Creek. Work on WDFW land is coordinated with regular meetings with the RTT.

We are also using outreach and education with local groups to increase understanding of the IMW and its goals. We have hosted Washington State University students each year and provide education on fish capture techniques, habitat surveys, and the goals and objectives of the IMW program. We have also presented IMW results at professional society meetings (AFS), and board meetings to draw attention to

the IMW project and increase awareness of the data being collected. We have also provided news stories and a poster to the ACCD to increase local awareness of the IMW.

Budget and Equipment Management, Purchase, and Maintenance

Management of the IMW Implementation budget and tasks is critical for efficient use of IMW resources. As the Project Coordinator our responsibility will also be to manage the IMW implementation budget, and submit monthly progress reports to the RTT, SRSRB, and Walla Walla Community College. To date we have successfully managed three IMW contracts collecting pre-treatment data and overseeing the installation of a cost effective monitoring infrastructure. All equipment will be carefully inventoried and maintained to extend the life of the equipment. Below we describe the major equipment management that will be required for the duration of the IMW project.

Pit Tag Antennas and Readers

Since the summer of 2009 ELR has been downloading PIT tag detections at each antenna array site, testing the read range of each antenna, and conducting detection efficiency tests. Read ranges for all antennas are between 25-45 cm and efficiency tests indicate detection rates are high (typically > 90%). In cooperation with Quantitative Consultants Inc. (QCI) we have linked all the arrays to the QCI server via a telephone modem. QCI manages numerous arrays for WDFW, IDFG and ISMEP. The performance of the arrays are now monitored continually, and the project coordinator will receive an alert via email if the performance of any array falls below set criteria (e.g., low power or high site noise/interference). ELR has arranged to have Quantitative Consultants Inc. (QCI) automatically upload all the Asotin IMW array data to PTAGIS for a monthly service fee. QCI currently manages ISEMP and WDFW arrays throughout the Columbia Basin. We will continue to test the efficiency of the antenna arrays, maintain the tag readers, and ensure that the data is downloaded and stored on a regular basis throughout the life of the contract.

Temperature Loggers

To assess water temperatures in the study streams, 25 temperature loggers were deployed in the summer of 2008 and 2009. We will continue to maintain, monitor, and replace temperature loggers through 2019 by downloading and analyzing the temperature data, replacing batteries as needed, and re-deploying the devices to continually monitor water temperature throughout the study area.

Stream Gauges

There are currently four active stream gauges in Asotin Creek managed by the Department of Ecology and the U.S. Geological Survey. We will continue to access these data online and use them for assessing stream conditions and as covariates in analyses of fish capture rates and other biological assessments. The original IMW design called for the addition of two manual gauge height stream flow sites (Charley Creek and South Fork). We installed two TruTrak water level gauges in 2009 - one at the pit tag antenna array at Charley Creek and one at the antenna array on South Fork. Since the water level gauges were installed, we have collected manual discharge estimates and developed a discharge relationship at each site. We will continue to maintain and monitor these water level gauges and use the data to estimate discharge within Charley and South Fork Creeks. Additionally we have installed a water level gauge

linked via telephone modem at each PIT tag array. These gauges will provide discharge information at the arrays which is necessary to fully assess detection rates and array performance. The array water level gauges will also provide backup discharge information throughout the watershed. These data will be used as covariates in analyses of fish abundance and also used to help design restoration structures.

2) Implementation of Asotin IMW Design

Our general approach to completing the *Intensively Monitored Watershed Project Implementation* contract will be to implement the original IMW design (Bennett and Bouwes 2009) and recent refinements to the design (Bennett et al. 2010, Bennett et al. 2011a). We have not reproduced all the details of the IMW design in this RFP because the design is a stand-alone document. However, the following sections detail our proposed approach and methodology for implementing the IMW design, and we have highlighted situations where the existing design may require amendments due to funding constraints, information gathered in the pre-treatment phase, and/or improvements in monitoring technology. We acknowledge that the original design has been revised and may continue to need revisions as new data analyses are performed and based on funding availability.

Experimental Design

During the summer of 2010 we completed a detailed model simulation of the original IMW experimental design (restoring one stream and using two streams as controls) and an alternative design (restoring one section in each study stream and using all remaining sections as controls) with the assistance of Dr. Tom Logan of Simon Fraser University. Dr. Loughin is one of the few people to publish papers related to the staircase design we originally proposed (Loughin et al. 2007). We determined that the alternative design was potentially more powerful at detecting changes in fish abundance and as such, recommended that the alternative design be adopted. The main assumptions of the current experimental design are that a 4 km long restoration treatment in each stream will be large enough to detect a population response of steelhead, that the variance between sections within streams is less than the variance between sections in different streams, and that the responses of sections and streams are relatively independent. We will be able to further test these assumptions as we implement restoration in each stream and the design is flexible enough that if these assumptions are violated we can alter the distribution of the restoration accordingly.

Monitoring Design

We have collected almost four years of pre-restoration fish and habitat data for the Asotin IMW. The majority of the data has been collected at 12 permanent monitoring sites within the study streams (Figure 2). Currently six sites are monitored in Charley Creek and three sites are monitored in both the North Fork and South Fork. We may need to establish some new permanent sites in the North Fork and South Fork because the experimental design has been revised. Originally the North Fork and South Fork were going to be used as control streams but in the new experimental design sections of all three streams will be restored. We propose to explore the benefits and costs of reallocating sampling effort based on the new design during the restoration phase of the IMW. Restoration will be implemented over three or more years in a staircase design to minimize the potential of restoration x year affects

from biasing the results (Walters 1988, Loughin et al. 2007). We propose to continue monitoring fish and habitat in sections that are restored (e.g., treatments) and sections that are not restored (e.g., controls) for the duration of the project which is expected to extend to at least 2019. The following sections briefly describe our proposed monitoring methods and rationale.

Fish Capture and Tagging

The IMW design calls for sampling of adult spawning (weir and redd counts), juvenile abundance estimates, and PIT tagging of juveniles. The WDFW operates an adult weir and smolt trap on the mainstem Asotin and conduct redd counts throughout the study streams (Crawford et al. 2010). These data will be used as part of the IMW monitoring design. The design also calls for adult fish to be PIT tagged at the weir so that we can estimate the number of adults entering the study streams using the IMW PIT tag array network. This information will be critical in helping calibrate the abundance of juveniles in relation to the number of adult spawners each year.

Juvenile sampling is scheduled for two periods per year - summer and fall. We propose to conduct the first juvenile sample after high flows in early July. The second sample will be conducted during low flow conditions in early fall starting in late September or early October. During each period we conduct a mark-recapture survey over two days at each site. All steelhead >= 70 mm are tagged with PIT tags and abundance is calculated using the modified Lincoln-Peterson mark-recapture method (Krebs 1999). The summer and fall capture periods also allow us to calculate growth and survival parameters for juvenile fish for the summer and winter/spring seasons. We propose to tag approximately 1500-2500 steelhead per period (i.e., 5000 per year). Bull trout and Chinook will also be tagged but make up < 1% of all fish captured.

Redetection of PIT Tagged Fish

We installed three PIT tag antenna arrays in 2009 at Charley Creek, Cloverland Bridge, and Asotin Forks and one array at the mouth of Asotin Creek in 2011 in conjunction with the WDFW. All the arrays are capable of detecting the direction of fish movement except the Cloverland array. All arrays were upgraded in 2011 to allow for remote data acquisition via telephone modem. These arrays form a critical part of the IMW monitoring framework allowing detection of adult and juvenile movement into and out of Asotin Creek and the three study streams. The detection of PIT tagged fish also allows us to determine when fish migrate from Asotin Creek and improve our survival estimates of juvenile steelhead by increasing the number of detections. We propose to continue to monitor and manage the array infrastructure to provide this valuable data.

We also propose to use a mobile pit tag detection antenna system to survey the fish sites in between the two tagging periods. This work takes advantage of the number of tagged fish that are in Asotin Creek to improve estimates of fish movement and survival. A mobile antenna will be used to detect tagged fish and a GPS system will be used to record the location of all tagged fish. These data will be used to calculate distances moved, habitat use, and site fidelity of juvenile fish. An additional resight of tagged fish will also improve the precision of survival estimates. We have conducted summer, fall, winter and spring mobile surveys at each study site since 2009 and propose to continue these surveys. We also

began to survey the entire 12 km of each study stream in 2011 to better understand movement of PIT tagged fish outside of the study sites and propose to continue these surveys.

Auxiliary Fish Data

In 2011 we initiated a tag retention and fish community study. At the end of the second day of the mark-recapture surveys we held fish over-night in live wells to determine if there was any tag loss within a 24 hour period. We also fin clipped all PIT tagged fish during the summer survey. We then recorded the number of fish with a PIT tag, fin clip, or both during the fall survey to determine tag loss between the summer and fall survey periods. We also began fin-clipping sculpin and dace in an effort to better understand the abundance of these fishes in relation to steelhead abundance. We believe that these are important data to collect and will increase our ability to explain the affect of restoration and help improve monitoring methods.

Riparian and Stream Habitat

The IMW design calls for stream habitat to be assessed once each year and riparian vegetation, and flood plain conditions to be assessed every three years. The restoration actions are designed to increase instream large wood and riparian conditions in Charley Creek to near historic conditions. It is hypothesized that additions of large wood will increase the number and quality of pools, increase channel complexity, and improve sediment sorting and bar development. Riparian and stream habitat characteristics were measured using the PACFISH/INFISH Biological Opinion (PIBO) Effectiveness Monitoring Program riparian and stream habitat protocols from 2008 to 2009 (Heitke et al. 2010; Leary and Ebertowski 2010). However, since 2010 we have transitioned to using the Columbia Habitat Monitoring Program (CHaMP; Bouwes et al. 2011). The protocols use many similar methods to assess riparian and stream habitat conditions and CHaMP will likely be able to reproduce PIBO channel assessments. But we feel that the CHaMP protocol in combination with remote sensing (see below) will provide data that will be move directly related to fish habitat requirements. The CHaMP protocol provides standard measures of key stream characteristics such as pool frequency, large wood abundance, width to depth ratio, and substrate size, as well as site level attributes such as food abundance (drift samples), topographic mapping of the channel and banks (digital elevation models), and solar radiation input (degree days of solar energy). The CHaMP approach also identifies and maps habitat units that will allow a more detailed assessment of habitat available for fish and allow us to better understand the influence of stream restoration on specific habitat attributes. The CHaMP program is also working in conjunction with ESSA Technologies to refine the River Bathymetry Tool Kit to allow automated data analysis of the CHaMP topographic surveys (McKean et al. 2009). This will further expand the ability to analyze and interpret the influence of the proposed restoration on stream habitat, channel form, and sediment transport. We propose to continue using the CHaMP protocol.

Spatially Explicit Rapid Habitat Surveys

To assist in the development of a restoration plan and assess how representative our permanent sample sites were of the study streams we began conducting spatially explicit rapid habitat surveys of the entire lower 12 km of each study stream in 2010. During these rapid surveys we determined the geomorphic reach type based on Montgomery and Buffington (1997). Determining the reach type will be important

in determining the potential response of the channel to restoration. We also georeferenced attributes that we expect to use as response variables to detect changes due to restoration which include: abundance of LWD, pools, inset bars, and sediment sources. For each pool we determined the main forcing mechanisms (i.e., how was the pool created) to better understand how to design restoration structures that could mimic these mechanisms. We propose to repeat these surveys after restoration actions have been completed to help understand the spatial influence of restoration actions: for example, are LWD moving downstream from restoration sections to non-restoration sections.

Aerial Photography and LIDAR

Changes in riparian habitat and channel form will be assessed using a combination of high resolution aerial photography, and ground based and aerial LiDAR (Jones et al. 2007). Most of the Charley Creek study sites were surveyed using ground based LiDAR in 2009, which provides information on riparian vegetation size and density, valley and channel topography. The ground based LiDAR surveys from 2009 will be augmented with aerial LIDAR surveys in 2011 (data has not been analyzed yet). The aerial surveys will cover the Asotin mainstem from the mouth to the confluence of North Fork and South Fork and the lower 15 km of each of the study streams. Georeferenced aerial photography (from a blimp) has been completed for most of Charley Creek. Further aerial photography surveys with a remote control plane will be completed over the extent of the aerial LIDAR surveys. The aerial photography can also be used to assess LWD, pool habitat, and water depth when used in conjunction with georeferenced water depth measurements (Marcus and Fonstad 2008). The LiDAR and aerial photographic surveys will provide context for the IMW study and allow us to determine changes in the stream channel form and riparian extent. We propose to synthesize the LiDAR and photographic data and make it all publically available. We propose to repeat these surveys after restoration has been completed and based on funding availability.

Restoration Design

During the summer of 2010 we conducted a literature review of the potential restoration options for IMW study streams (Charley Creek, North Fork and South Fork). We also invited several restoration practitioners from a variety of government and academic organizations (e.g., USU, WDFW, USFS, NOAA) to visit Asotin Creek and help us assess the restoration options that were proposed in the original IMW design (Bennett and Bouwes 2009). Based on these field visits and input from the participants, ELR determined that the original proposal of adding large woody debris (LWD) to the study streams was an appropriate restoration action to implement and test the effectiveness of as per the goals of the IMW program. A detailed draft restoration design has now been completed for the Asotin IMW and will be submitted to the RTT for comment and review prior to implementation (Bennett et al. 2011b).

The restoration plan was developed by ELR in consultation with Dr. Joe Wheaton, a fluvial geomorphologist at Utah State University. Dr. Wheaton has also been consulted by ISMEP to aid in restoration design and monitoring of the Bridge Creek IMW. The primary restoration design proposed for the Asotin IMW is to drive wooden posts into the stream bottom to act as a flow width constriction and as a debris catchers (Figure 3). Large woody debris will also be added to some structures to increase the habitat complexity of the stream and promote pool formation and sediment sorting.

As part of the 2010 Asotin IMW contract, ELR conducted a trial of the proposed restoration approach at the request of the RTT. Fifteen structures (five per study stream) were built in the lower reach of each stream to assess the techniques feasibility. The trial restoration demonstrated that the post structures are logistically feasible to build, inexpensive, and can be constructed with minimal disturbance to the existing riparian habitat. We conducted a habitat assessment and topographic survey as per the CHaMP protocol (Bouwes et al. 2011) at each trial restoration site prior to installation of the post and LWD structures. Pretreatment habitat attributes and topographic conditions will be compared to post-treatment conditions to determine the affects of the structures. We propose to assess the trial structures further in the spring of 2012 to determine their performance during high flow conditions.

We propose to fully implement the restoration plan starting in 2012 based on approval of the restoration plan by the RTT and based on the results of the trial restoration. We will coordinate with the SRSRB, USFS, landowners, and other groups to acquire materials for restoration activities (i.e., large wood, etc.). The USFS has already donated LWD that is being stock piled on WDFW and private property.

Restoration Funding

We developed a funding proposal for the full implementation of the Asotin IMW Restoration Design in the summer of 2011 in partnership with WDFW and SRSRB. This proposal was for the first year of an expected three years of restoration implementation. This proposal has been ranked in the top three restoration proposals and is in the final review stage. We propose to continue to assist the WDFW and SRSRB to develop restoration proposals and secure funding for the full implementation of the Asotin IMW Restoration Design.

3) Data Management, Analysis, Synthesis, and Reporting

Data Management

ELR is continually working with ISEMP database managers to develop databases for current monitoring efforts throughout the Columbia River Basin. ISEMP also provides data management tools and guidance to encourage best data management practices within local agencies. These data management tools are MS Access based databases providing users with database structures that ensure that newly collected data and historic data are structured in formats consistent with regional databases. These databases also ensure metadata is directly linked to raw data, and that a minimum level of data quality is assured at the time of data entry. The databases have an easy to understand structure, including tables for tracking projects, sites, data collection events, and observations. Templates have data entry forms and perform standard metric calculations and also allow users to create new tables, create data entry forms, or develop new metric calculations. ISEMP is currently providing training agencies during the testing phase of these tools. To date, agencies have expressed an overwhelming interest in ISEMP tools and guidance because these tools assist agencies in meeting both their analysis and reporting objectives. In addition, these databases will be loaded into a web-based data application. We propose to use the ISEMP data management and QA/QC procedures with all the Asotin IMW data collected. Nick Bouwes,

President of ELR, will also review all analyses and reports produced from the IMW design to ensure data quality and consistency with professional standards.

Data Analysis and Synthesis

To fully understand how the restoration treatment influences steelhead populations we propose to monitor a wide variety of response variables. The fish response variables we will assess will be components of overall population production: abundance, growth, and survival. These metrics will be used in combination with abiotic metrics such as stream discharge and temperature to explain changes in overall steelhead production (Sogard et al. 2009, Horton et al. 2009, Davidson et al. 2010). We will use the program MARK to estimate seasonal survival estimates from PIT tag detection data (Cooch and White 2010). Examples of steelhead response variables we will monitor include:

- Smolts/Spawner;
- Spatial distribution as measured by changes in relative density;
- population abundance;
- seasonal survival;
- parr-to-smolt survival;
- smolt-to-adult ratio (SAR);
- recruiting adults (R/S – provided by ongoing WDFW Asotin Assessment Project, Crawford et al. 2010);
- smolts per redd or per spawner;
- migratory timing, size, and growth rates.

Mapping and Spatial Analysis

A goal of our approach is to bring most of the data collected for this IMW into a GIS database in order to allow spatial analysis of fish populations and stream habitat. To this end we have completed geomorphic surveys of the first 12 km of each of the study streams and have mapped these data in GIS.

Other aspects of the project we propose to bring into GIS and analyze include:

- Fish movement within and between study streams will be plotted using GIS and detections of tagged fish at fixed antennas, the smolt trap, and with mobile antenna surveys,
- Adult spawning locations (with the assistance of WDFW all redds identified during spawning surveys will be located with hand held GPS during spring redd surveys),
- Existing restoration structures within Charley Creek, North Fork, and South Fork (i.e., use hand held GPS to locate large wood and boulders placed during previous restoration efforts and assess each structure as to its current function). Photographs will also be taken at each site.
- Aerial photographs of the study streams will be georeferenced and used for assessing channel change,

- All fish sample sites, habitat sample sites, restoration treatments, and supporting infrastructure (PIT tag arrays, temperature probes, water gauges, etc.), and
- CHaMP topographic surveys of the valley and stream channel will be converted to digital elevation models (DEMs) and further analyzed using an ArcGIS toolkit developed for ISEMP. Output information includes cross sections, pool frequency, pool volume, sinuosity, gradient, entrenchment, width, width:depth ratios and others metrics.

Reporting

All data collected will be summarized and presented in a year-end report (e.g., see Bouwes and Bennett 2009, Bennett et al. 2010). The report will incorporate the data collected since the beginning of the Asotin IMW and historic data where appropriate and include the following sections: Introduction, Methods, Results, Discussion, Conclusion and Recommendations. The report will also include a Work Plan for the next year and recommendations for refinements to the experimental and monitoring designs. Monthly progress reports will also be submitted to the contract monitor.

B. Work Plan

We provide a work plan for the period of November 1, 2011 through October 30, 2012 for the implementation of the IMW design (Appendix 1). The work plan also outlines what tasks the WDFW will be conducting as part of a cooperative agreement to collect and share data. We have proposed a ***one year*** work plan assuming that there will be a set amount of coordination, management, monitoring, and reporting required each year that will be repeated over the course of the IMW project (i.e., 2011-2019). Where appropriate we have outlined other tasks that are likely to occur less frequently (e.g., LiDAR flights). The exact timing of the non-annual tasks will be dependent on budget and implementation of restoration activities.

C. Project Schedule

The exact timing of monitoring will depend on stream conditions, weather, and availability of the WDFW crews. We anticipate conducting a late spring and a late summer/fall fish survey and conducting the habitat sampling during summer low flow conditions. The schedule we present reflects the approximate time range that tasks will be completed within (Table 1). We will coordinate, and seek approval from the contract monitor for any changes or refinements to this schedule.

Table 1. Proposed annual schedule for major project elements of the Asotin IMW project: 2011 - 2019. See Work Plan in Appendix 1 for a more detailed timeline of annual elements.

Year	Period	Activity	Description
2011	Nov - Dec	Management&Coordination	Begin contract & meet with RTT to assess future direction
	Nov - Dec	Implementation&Monitoring	Conduct mobile PIT tag surveys & maintain IMW equipment
	Nov - Dec	Data Analysis&Synthesis	Continue to data analysis & synthesis
2012	Jan- Dec	Management&Coordination	Manage activities & coordinate with landowners & stakeholders
	Jan - Dec	Implementation&Monitoring	Conduct fish & habitat surveys, maintain equipment, & revise design

	Aug - Sept	Implement Restoration*	Restore 4 km long section of South Fork (separate contract)
	Oct	Reporting&Deliverables	Data analysis & synthesis, submit annual report
2013	Jan- Dec	Management&Coordination	Manage activities & coordinate with landowners & stakeholders
	Jan - Dec	Implementation&Monitoring	Conduct fish & habitat surveys, maintain equipment, & revise design
	Aug - Sept	Implement Restoration*	Restore 4 km long section of Charley Creek (separate contract)
	Oct	Reporting&Deliverables	Data analysis & synthesis, submit annual report
2014	Jan- Dec	Management&Coordination	Manage activities & coordinate with landowners & stakeholders
	Jan - Dec	Implementation&Monitoring	Conduct fish & habitat surveys, maintain equipment, & revise design
	Aug - Sept	Implement Restoration*	Restore 4 km long section of North Fork (separate contract)
	Oct	Reporting&Deliverables	Data analysis & synthesis, submit annual report
2015	Jan- Dec	Management&Coordination	Manage activities & coordinate with landowners & stakeholders
	Jan - Dec	Implementation&Monitoring	Conduct annual fish (tagging & mobile) habitat surveys
	Oct	Reporting&Deliverables	Data analysis & synthesis, submit annual report
2016	Jan- Dec	Management&Coordination	Manage activities & coordinate with landowners & stakeholders
	Jan - Dec	Implementation&Monitoring	Conduct fish & habitat surveys, maintain equipment, & revise design
	Oct	Reporting&Deliverables	Data analysis & synthesis, submit annual report
2017	Jan- Dec	Management&Coordination	Manage activities & coordinate with landowners & stakeholders
	Jan - Dec	Implementation&Monitoring	Conduct annual fish (tagging & mobile) habitat surveys
	Oct	Reporting&Deliverables	Data analysis & synthesis, submit annual report
2018	Jan- Dec	Management&Coordination	Manage activities & coordinate with landowners & stakeholders
	Jan - Dec	Implementation&Monitoring	Conduct fish & habitat surveys, maintain equipment, & revise design
	Oct	Reporting&Deliverables	Data analysis & synthesis, submit annual report
2019	Jan- Dec	Management&Coordination	Manage activities & coordinate with landowners & stakeholders
	Jan - Dec	Implementation&Monitoring	Conduct annual fish (tagging & mobile) habitat surveys
	Oct	Reporting&Deliverables	Data analysis & synthesis, submit annual report

C1. References

Work References - N. Bouwes

Dr. Chris Jordan NOAA Fisheries, Northwest Fisheries Science Center, 2725 Montlake Blvd. E Seattle, WA 98112. Telephone: 541-754-4629. Integrated Status and Effectiveness Monitoring Program.

Dr. Michael Pollock- NOAA Fisheries, Northwest Fisheries Science Center, 2725 Montlake Blvd. E Seattle, WA 98112. ISEMP-Intensively Monitored Watershed Restoration Project-Bridge Creek. Telephone: 206-860-3451.

Dr. James Ruzycki- Oregon Department of Fish and Wildlife, 203 Badgley Hall, EOU, One University Blvd, La Grande, OR 97850. The Middle Fork Intensively Monitored Watershed Study and the John Day Steelhead and Salmon Monitoring Program. Telephone: 541-962-3067.

Dr. David Marmorek- ESSA Technologies Ltd. Suite 300, 1765 W, 8th Ave. Vancouver BC Canada V6J 5C6. Collaborative Systemwide Monitoring and Evaluation Program. Telephone: 604-733-2996

References - S. Bennett

Dr. Jeffery Kershner, Center Director, USGS Northern Rocky Mountain Science Center Bozeman, MT. Telephone: 406-994-5304

Dr. Brett Roper, National Aquatic Ecologist, USDA Forest Service, Fish and Aquatic Ecology Unit, Logan, UT 84322. The PACFISH/INFISH Biological Opinion (PIBO) Effectiveness Monitoring Program. Telephone: 435-755-3566.

Peter Corbett, Manager, Mirkwood Ecological Consultants Ltd., Box 138, Winlaw, B.C. V0G 2J0. Telephone: 250-226-7249.

D. Deliverables

The minimum deliverables that will be submitted as part of this contract are an annual report which will contain a summary of the previous years results and a synthesis of the fisheries and habitat data in relation to the restoration activities. Data and reports and supporting information (e.g., photos, digital elevation models, georeferenced fish and habitat data, LiDAR data, and aerial photography will be posted on a website and made publically available as the project progresses). Examples of the reporting elements that will be provided include the following:

- Summary of fish and habitat assessments within treatment and control sections of the study streams.
- Summary aerial and ground based geomorphic assessments (e.g., ground and aerial LiDAR, aerial photography, bathymetry, and topography) within treatment and control sections of the study streams.
- Maintenance and data downloading of all of PIT tag antenna arrays, stream flow gauges, and temperature probes. We will also include a list of all equipment purchased, a maintenance schedule, and replacement requirements.
- PIT tag approximately 4000-5000 juvenile steelhead per year, and all adults captured at the WDFW adult weir (coordinated with WDFW).
- Enter all PIT tag data into the PTAGIS system
- Enter and maintain all data collected (fish, habitat, water quality, geomorphic) into MS Access and GIS databases. Time and budget permitting, historic data will also be imported in databases.
- Monthly progress reports.
- A annual report including a revised experimental and monitoring plan, and a draft work plan for the following year of the IMW project form 2011 through 2019.
- A final report summarizing the Asotin IMW project, the affect of stream restoration on steelhead production, and implications for other restoration efforts in similar watersheds.

E. Outcomes and Performance Measurement

The above described Technical Proposal will provide the management, coordination, and implementation of the Asotin IMW through to the end of 2019. During this period all the proposed restoration will be implemented and the results of the experiment will be reported. We expect to further refine the existing experimental and monitoring design, and continue to coordinate all monitoring activities within the Asotin watershed to best attain the goals and objectives of the IMW design. We will have regular meeting with the RTT, private landowners, and interested agencies to coordinate our activities and engage these groups in the goals of the IMW. Monthly progress reports and budget updates will be provided to the contract monitor no later than five days after the end of each month. The progress reports will report any external contracts, deadline status, problems encountered, and our accomplishments. The progress report will be organized according to the tasks outlined in our Technical Proposal (see above). The SRSRB will provide oversight for the project and the projects progress will be communicated to the contract monitor (Walla Walla Community College), SRSRB, RTT, public and other interested parties via a final report and presentation.

Management Proposal

A. Project Management

1. Project Team Structure/Internal Controls

Dr. Stephen Bennett will be the team leader for this project. Dr. Bennett was the team leader in the development of the original IMW design and the implementation of the first four years of monitoring in Asotin Creek (2008-2011). Stephen has developed a solid working relationship with the groups and agencies that will be instrumental in implementing the Asotin IMW. Dr. Nicolaas Bouwes, as President of ELR, will provide oversight of the project and review all products and work plans to ensure they meet the regional standards that are currently being developed for IMWs (e.g., PNAMP 2005). Field technicians will be hired to assist in the equipment maintenance and monitoring portions of the contract and support staff will also be provided by WDFW through a cooperative agreement to coordinate monitoring in the Asotin Watershed. The cooperative agreement provides an opportunity for training and coordination of survey protocols and an ability to increase the efficiency of the monitoring program. Eco Logical Research Inc. has also conducted an annual training session for all employees working on IMW projects in order to increase consistency among projects, coordinate data collection, and reduce measurement and observer errors. These training sessions are also used to review goals and objectives of the IMW projects to ensure crew members are all working towards a common goal with a high degree of competency.

2. Staff Qualifications/Experience

Below we provide brief resumes of the two principle investigators that will be working on this project. More detailed resumes can be provided upon request.

Dr. Nicolaas Bouwes

Dr. Bouwes has a strong foundation in biometric and data analyses, modeling, experimental and monitoring design, fisheries research and aquatic ecology and has detailed knowledge of the salmon, steelhead, and bull trout issues in the Columbia River Basin. Nick is the owner of Eco Logical Research, Inc. Nick is also an adjunct professor at the Watershed Sciences Department, Utah State University, Logan UT. Projects he is currently working on include: Asotin Creek Intensively Monitored Watershed Project in southeast Washington and the Integrated Status and Effectiveness Monitoring Program to developed standardized status, trend, and effectiveness monitoring programs for salmon and steelhead in the Columbia River Basin. Other relevant projects he has worked on includes Collaborative Systemwide Monitoring and Evaluation Program to review information needs and development of monitoring and analyses for salmon and steelhead populations of the Columbia River Basin; technical review and validation of EDT and the KlamRAS models used in the FERC relicensing process of the Klamath River hydrosystem, and the Comparative Survival Study to compare steelhead and salmon smolt and adult survival rates across different regions and hydrosystem experiences. Nick was previously employed first as a fish population analyst and then as a biometrician/modeler for ODFW on regional issues related to the salmon and steelhead management in the Columbia River Basin. His project involvement included PATH, which was a multi-agency evaluation of the impacts of alternative management actions on survival and recovery of listed salmon and steelhead stocks in the Columbia River Basin. He also worked on the NMFS Technical Recovery Team to determine recovery goals and assessing risk to endangered salmonids of Lower Columbia/Willamette. Nick and employees from ELR recently completed a draft stream habitat monitoring protocol review and methods development for NOAA and Bonneville Power that will be used as the foundation of stream habitat monitoring in the throughout the Columbia River basin as part of the BiOP salmon and steelhead recovery process (Bouwes et al. 2011). Nick received a BS in zoology from the University of WI, Madison, and a MS and PhD in aquatic ecology from Utah State University, Logan UT.

Dr. Stephen N. Bennett

Dr. Bennett has been working for Eco Logical Research, Inc. since 2007 as the project coordinator of the Asotin Creek Intensively Monitored Watershed Project in southeast Washington. Stephen has also worked to aid in the development and assessment of regional salmonid monitoring programs and has been working as a Post Doctoral researcher with Dr. Brett Roper of the USDA Forest Service, Fish and Aquatic Ecology Unit. Stephen's Post Doctoral research has focused on writing a National Forest Fish Inventory and Monitoring Manual for the Forest Service involving a comprehensive review of the statistical design and analyses of fish abundance data. Stephen also co-authored a paper with Dr. Roper comparing the effectiveness of common stream habitat monitoring protocols (e.g. AREMP, PIBO, EMAP, ODFW, etc.) using a variety of measures of precision and estimating minimum sample size requirements to detect change (Roper et al. 2010). Stephen recently completed a PhD in Fisheries Biology in 2007 at the Watershed Sciences Department at Utah State University, Logan, Utah. Stephen's dissertation focused on invasion ecology and issues related to hybridization between native cutthroat trout and introduced rainbow trout. Prior to starting his PhD Stephen was a biological consultant for 12 years working on a variety of fisheries issues including fish inventory, fish passage assessment, watershed

analysis, habitat monitoring, impact assessments, and salmonid enhancement projects. Stephen also has a Masters in Resource and Environmental Management (M.R.M.) from Simon Fraser University, Canada, and a Wildlife Biology (B.Sc. Honors), University of Montana.

Dr. Joseph Wheaton

Dr. Wheaton is an Assistant Professor at Utah State University and a fluvial geomorphologist with over a decade of experience in river restoration, including working with beaver in restoration. Joe runs the Ecogeomorphology & Topographic Analysis Lab at Utah State University and is a leader in the monitoring and modeling of riverine habitats and watersheds. He has worked to develop monitoring protocols for the USFS, NOAA, USGS and National Park Service and he and his lab have produced software for monitoring applications and simulation modeling. He is the co-director of the Intermountain Center for River Rehabilitation & Restoration. He worked four years in consulting engineering before completing his B.S. in Hydrology (2003, UC Davis), M.S. and Ph.D. in Hydrologic Sciences (2003, UC Davis; 2008, U. of Southampton, UK). He has worked as a lecturer (U. of Wales 2006-08), Research Assistant Professor (Idaho State U. 2008-09) and is an Assistant Professor at Utah State U. (2009-present) where he teaches courses on GIS, Fluvial Hydraulics and Ecohydraulics as well as workshops on 'Restoration Monitoring: Geomorphic Change Detection', 'Partnering with Beaver in Restoration Design', and 'Geomorphology and Sediment Transport in Channel Design'. Projects he is currently working on include: Asotin Creek Intensively Monitored Watershed Project in southeast Washington, Intercomparing Monitoring Methods in the Lemhi Watershed of Idaho for the Integrated Status and Effectiveness Monitoring Program, Bridge Creek Intensively Monitored Watershed restoration project in Central Oregon, developing a Big River Monitoring Protocol for the National Park Service, working on sediment budgeting in the Grand Canyon with the USGS Grand Canyon Monitoring & Research Center.

Dr. Mary Conner

Dr. Conner is a population ecologist with an emphasis in biostatistics and the analysis of large and often messy data sets. Mary has extensive experience in inference methods for mark-reencounter (i.e., mark-recapture, mark-resight) data, and a strong background in the use of stochastic population projection modeling, meta-analyses of demographic data, simulation experiments to design or assess population monitoring programs, and application of information theoretic methods to management experiments with a focus on multi-model inference. In addition, Mary's Post Doctoral research included analysis of spatial and temporal epidemiology of chronic wasting disease. Mary has worked for academic and government agencies on a variety of projects; recent projects include developing a stochastic population model to assess the relative contribution of competition and disease to low population growth rates in a native cutthroat trout population, designing a meta-analyses to assess forest management strategies on California spotted owl demographics, developing a stochastic population model to assess impacts of disease and management interventions on endangered Sierra Nevada bighorn sheep, conducting a simulation experiment to compare precision and bias of Cormac-Jolly-Seber and Barker mark-resight models when data is collected by passive instream antennae, and conducting a simulation experiment to compare estimates of population growth rate from Pradel and occupancy models for a territorial species. The overarching goal of her work is to enable managers to evaluate effects of management actions or inaction in the face of temporal and/or spatial environmental variation. Mary is an adjunct professor in the Watershed Sciences and Wildland Resource Sciences Departments at Utah State

University. She received her BS in Agricultural Engineering from California Polytechnic State University, a MS in Wildland Resource Science from University of California, Berkeley, and a PhD in Wildlife Biology from Colorado State University.

Nadine Trahan

Nadine Trahan recently joined Eco Logical Research as GIS / Remote Sensing Analyst. She is implementing a process driven approach to the geomorphic classification of Columbia River Basin streams upon which to base geo-spatial data organization, analysis and results to support ELR's monitoring and assessment of salmonid habitat. Nadine has over 10 years experience in applying GIS and remote sensing technologies to interdisciplinary river research. Her research has focused on placing water quality assessment, macro-invertebrate indices and salmonid distributions into biophysical contexts via implementation of a geomorphic classification system, i.e., the River Styles Framework developed by Dr. Gary Brierley, (www.riverstyles.com). She has significant experience in GIS based watershed modeling associated with water quality, sediment and biological monitoring to support TMDL and BMP implementation. She has also spent several years researching remote sensing applications in extracting various parameters describing river systems, including the distribution of submerged aquatic vegetation (hyper-spectral imagery) in the St. Johns River, FL, topographic classification (Lidar) and wetland loss (multi-temporal Landsat) in the Mississippi River Delta, LA. Nadine received a Master's of Science degree in Environmental Science from the University of Auckland, New Zealand, where she spent two years working as research assistant in fluvial geomorphology to Dr. Gary Brierley. She co-authored a paper with Dr. Brierley focused on using geomorphic principles to frame eco-hydrological assessments of river condition (Brierley et al. 2010). Nadine also has a BA in Geography from Massey University, New Zealand.

B. Experience of the Consultant

1. Within Asotin Creek Watershed and Monitoring Protocols

Eco Logical Research, Inc. (ELR) is uniquely qualified to implement the Asotin IMW design as outlined in the RFP for several reasons. First and foremost, ELR helped coordinate the selection of Asotin Creek as a location for an IMW in southeast Washington and then developed the experimental and monitoring design (Bennett and Bouwes 2009) and implemented four years of pre-treatment monitoring which included the design and installation of PIT tag antenna arrays in key locations within the study area (Bennett et al. 2010). Second, Eco Logical Research, Inc. also has experience and training in stock assessment, biometric and data analyses, modeling, experimental and monitoring design and implementation, fisheries research and aquatic ecology and has detailed knowledge of the salmon, steelhead, and bull trout issues in the Columbia River and Klamath River basins. In addition, ELR has particular specialized experience with the on-going development of the Northwest Fisheries Science Center's (NWFSC) Integrated Status and Effectiveness Monitoring Program (ISEMP) in the Wenatchee, Salmon, and John Day River basins. ELR is heavily involved in ISEMP and in the development of the IMWs portion of that program. Currently, ELR is involved in designing experimental and sampling programs for the John Day Basin, the Bridge Creek IMW (in the John Day), the Middle Fork John Day IMW, the Entiat IMW and the Lemhi IMW. Eco Logical Research, Inc. has also functioned as the ISEMP

John Day Pilot Project coordinator. As coordinator ELR summarized and synthesized current research and monitoring, collaborated with researchers and managers, and participated in the building and deployment of instream PIT tagged detectors, snorkel, seining, shocking, redd surveys, and habitat surveys.

2. Other Relevant Experience

Other related projects of ELR has participated in include: the Collaborative Systemwide Monitoring and Evaluation Project (CSMEP), administered through the Columbia Basin Fish and Wildlife Authority, that is working collaboratively with state, federal, and tribal fisheries agencies to review and develop status and effectiveness monitoring programs (including the development of an effectiveness monitoring program for the Lemhi IMW) addressing NOAA and USFWS Biological Opinions and Recovery Plans and the Northwest Power Planning Councils' Fish and Wildlife Program throughout the Columbia River Basin; providing analytical support to the US Forest Service Pacfish/Infish Biological Opinion (PIBO) Effectiveness Monitoring Project to determine the quality of their monitoring protocols, whether monitoring data can distinguish impacts to streams due to different management actions in the Columbia River Basin, and provide review and recommendations of associated fish monitoring protocols; the Comparative Survival Study, a collaborative project of state, federal, and tribal fisheries agencies, administered by the Fish Passage Center, that has monitored survival over different life-stages of spring/summer Chinook with different migrational experiences through the Columbia River hydropower system through the use of PIT-tags; review of the Ecosystem Diagnosis and Treatment (EDT) model and KlamRAS model in assessing anadromous species population responses to current habitat conditions and different management alternatives evaluated in the FERC relicensing of Pacific Corps hydroelectric projects in the Klamath River; and development of paired watershed experiment (an IMW approach) in Boulder Creek, UT, to look at the impacts of incremental impacts of water augmentation and non-native fish removal on the performance of the Colorado Cutthroat trout, considered a sensitive and conservation species, and are currently manage under a Conservation Agreement among resource agencies.

Given the level of involvement ELR has with other IMWs, ELR's development of the proposed IMW would help insure consistency with other IMWs in the region, would build off the experience in designing these other IMWs, would allow for access to infrastructure produced by ISEMP (e.g. databases, analytical tools, etc.), and would build on the network of collaborators in the region in a consistent manner. See Appendix 2 for selected report and publications.

C. Related Information

1. Eco Logical Research Inc. has worked on two contracts for the state of Washington in the past 24 months. Both contracts were part of the Asotin IMW. Both contracts were with the Walla Walla Community College and the Snake River Salmon Recovery Board:

Contract Number and Title:	09-003; Intensively Monitored Watershed Project Implementation

Contract Description:	Implement the Asotin IMW Experimental and Monitoring Design in Charley, North Fork, and South Fork Creeks in the Upper Asotin Watershed.
Contract Monitor: Contract Agency and contact information:	Gary Boone Walla Walla Community College, 500 Tausick Way, Walla Walla, WA 99362 Phone: 509-527-4280, Fax: 509 527-4533
Contract Number and Title:	10-004; Intensively Monitored Watershed Project Implementation
Contract Description:	Implement the Asotin IMW Experimental and Monitoring Design in Charley, North Fork, and South Fork Creeks in the Upper Asotin Watershed.
Contract Monitor: Contract Agency and contact information:	Gary Boone Walla Walla Community College, 500 Tausick Way, Walla Walla, WA 99362 Phone: 509-527-4280, Fax: 509 527-4533

2. Reid Camp may be hired as a field technician if we are the successful applicants for the IMW implementation. Reid worked for the Washington State Fish and Wildlife Office in Clarkston, WA as a field technician in the spring of 2010 and at the same time helped ELR monitor PIT tag antennas in Asotin Creek.

3. No ELR contracts have been terminated in the last five years.

4. No termination of a contract for default has been experienced by Eco Logical Research Inc. within the last five years of the submission of this proposal.

D. OMWBE

Eco Logical Research Inc. is not certified minority owned.

COST PROPOSAL

We understand that the budget for the Asotin IMW will vary annually depending on available State and Federal funds. We have developed numerous budgets for the IMW implementation based on funding availability and in this cost proposal we provide our charge out rates for each staff member and all equipment costs/rentals based on the previous years contracts (Appendix 3a and 3b). We also provide and ***estimate*** what the annual costs of full implementation on the IMW design based on our four years of experience (Appendix 4). We propose that these estimates should be reviewed each year and that future budgets should be based on the funds available, schedule of the IMW design, and current status of the monitoring infrastructure (e.g., arrays, temperature loggers, etc.). We will work with the contract monitor and RTT to tailor each years work based on the available funds and the priorities of the IMW. We have also outlined value added work we can provide.

A. Hourly Rates, Field Costs, and Annual Budget

Please refer to Appendix 3a for a break-down of our charge out rates for personnel and crew field rates and 3b for one time and annual equipment costs. In Appendix 4 we provide an estimate of a detailed budget for the period of November 1, 2011 to October 30, 2012 for implementing the IMW design and reporting the results of data collection activities. All costs and expenses will be based on cost recovery and therefore, any cost savings on equipment or wages will be used for other aspects of the project after approval of the contract monitor and the RTT.

B. Value Added Work

In addition to the proposed Technical Proposal we have outlined, ELR will provide following value added work as part of our proposal:

Foraging model development: we currently have a graduate student working on the net energy intake of steelhead to evaluate response of proposed Asotin restoration actions. The addition of large wood in the study streams is expected to change the stream from high gradient plane-bed, to a step-pool system that should provide refugia to high velocity currents and reduce energy cost of steelhead. We are testing a foraging model that assess energy intake and losses, which we believe will help identify causal mechanisms of fish response to the proposed IMW treatments. The student will be using underwater video recorders and snorkel surveys to record fish behavior in different habitat types pre- and post-treatment.

Statistical Modeling: ELR is currently working with a statistician to run complex simulations of the IMW design to determine statistical power and better understand the potential to detect treatment effects. The statistician is one of the few people to have published literature on the effectiveness of staircase designs (employed in the Asotin IMW) and we hope to publish peer reviewed journal articles on the effectiveness of the IMW design and provide guidance for future IMW projects.

Aerial Photography: ELR is also developing expertise in aerial image acquisition and analysis and can provide these services at low cost for the Asotin Watershed because of our familiarity with the watershed and established control network. These data can be used to augment the change detection surveys we are currently implementing.

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Appendix 1. Proposed Annual Work Plan for the Asotin Creek Intensively Monitored Watershed Implementation Project (November 1, 2011 to October 30, 2019). See Appendices 3 and 4 for the schedule, charge-out rates, and budget respectively.

Work Item	Description and Rational	Period	
Project Management		**Start Date**	**End Date**
Asotin IMW manager	Management of overall project goals including coordination with ISEMP, synthesis of data, and interpretation of results	1-Nov-11	30-Oct-12
Asotin IMW Coordinator	Coordination with WDFW, RTT, SRSRB, landowners, and interested parties with all aspects of IMW, as well as implementation and refinement of the IMW design, and coordination of all restoration activities.	1-Nov-11	30-Oct-12
Field Biologist Monitoring	Management of all field data collection, processing, uploading, and QAQC	1-Nov-11	30-Oct-12
Monitoring			
Monitoring Management	IMW Manager and Coordinator to visit field site regularly to train crews, coordinate monitoring activities, QA/QC field crews, and coordinate with WDFW crew members, develop and field test data logger applications and databases versions	1-Nov-11	30-Oct-12
Field Biologist Monitoring	Direct supervision of field technicians and planning of daily field activities, conduct redd counts and GPS locations throughout study streams	1-Nov-11	30-Oct-12
Annual Fish capture and tagging	Annual fish capture and tagging in Charley, North Fork, and South Fork Creeks. Steelhead >= 70 mm are pit tagged during two days of mark and recapture at each site (12 sites total). Also includes mobile surveys time permitting.	1-Jun-12	30-Oct-12

Annual Stream Habitat Surveys (CHaMP protocol)	Annual stream habitat surveys to measure habitat attributes and collect topographic survey data in Charley, North Fork, and South Fork Creeks.	1-Aug-12	30-Oct-12
Aerial Photography and LiDAR Surveys	Repeat surveys budget permitting to determine changes in riparian habitat and channel form. Expect to repeat every 3-4 years.	To be determined	To be determined
Equipment and Expenses			
Travel/Technical Meetings	Costs to travel to Dayton for presentations, technical meetings, and landowner negotiations for coordinator, manager, and support (hydrologist).	1-Nov-11	30-Oct-12
Computing/Office (annual)	annual office supplies	1-Nov-11	30-Oct-12
Field Camp (annual)	supplies and equipment to house crew, provide field office space, cook supplies, tents, etc.	1-Nov-11	30-Oct-12
Habitat Supplies (annual)	purchase and replacement of annual habitat monitoring equipment such as survey pins, tape measures, invertebrate nets, velocity meters, total station equipment, etc.	1-Nov-11	30-Oct-12
Invertebrate supplies (benthic and drift)	supplies for collecting and preserving samples	1-Nov-11	30-Oct-12
Invertebrate processing (benthic and drift)	contracting of species identification	1-Nov-11	30-Oct-12
Mobile Surveys (annual)	all mobile survey equipment has been purchased	1-Nov-11	30-Oct-12
Per Diem Field	10/day to cover food expenses at field camp/person	1-Nov-11	30-Oct-12
Seining/Tagging (annual)	purchase and replacement of annual fish monitoring equipment such as nets, buckets, tagging supplies, electroshocker parts, etc.	1-Nov-11	30-Oct-12
Seining/Tagging (one time)	purchase of one time tagging supplies; PIT tags have been purchased through the end of 2012.	1-Nov-11	30-Oct-12
Topographic Surveys (Rental)	Rental of total station setups, map grade GPS and video gear	1-Nov-11	30-Oct-12
Utilities	power, phone lines, and internet at field house and arrays	1-Nov-11	30-Oct-12
Vehicle	cost on one 4x4 truck and 4 ATV rentals	1-Nov-11	30-Oct-12
Waders	annual cost of waders for field crews	1-Nov-11	30-Oct-12
Misc. Rentals	to cover unexpected rentals required	1-Nov-11	30-Oct-12
Misc. Supplies	to cover unexpected purchases	1-Nov-11	30-Oct-12

Reporting and Synthesis			
IMW Manager	Annual Reporting, Data Management, and Data Analysis	1-Nov-11	30-Oct-12
IMW Coordinator	Annual Reporting, Data Management, and Data Analysis	1-Nov-11	30-Oct-12
IMW Field Biologist	Annual Reporting, Data Management, and Data Analysis	1-Nov-11	30-Oct-12
Geofluvial Morphologist	To provide expertise and field support in restoration design, monitoring, assessment and data analysis and presentation	1-Nov-11	30-Oct-12
Analyst	Detailed modeling and analyses of mark recapture data to determine changes in survival, fidelity, movement, and abundance and role of covariates	1-Nov-11	30-Oct-12
GIS Specialist	Mapping and analysis of all geospatial data to explain fish movement and relationship between habitat units and restoration treatments	1-Nov-11	30-Oct-12
WDFW Cooperative Agreement			
Manager, Field Supervisor, 2 techs, support staff	Provide 2-3 months of monitoring support at IMW fish and habitat monitoring sites	1-Nov-11	30-Oct-12
Contract Monitoring	Walla Walla Community College to provide contract monitoring	1-Nov-11	30-Oct-12

Appendix 2. Selected publications and reports by ELR personnel.

Bennett, S. and Corbett. 1996. Level 1 Fish Habitat Assessment of Caribou and McMurdo Creek: A Watershed Restoration Project. Prepared for Forest Renewal BC.

Bennett, S.N. and Roper, B.B. 2007. DRAFT: Fish inventory and monitoring technical guide for wadeable streams on National Forests. Gen. Tech. Rep. U.S. Department of Agriculture, Forest Service

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Bouwes, N., Weber, N., S. Bennett, J. Moberg, B. Bouwes, and C. Jordan. 2010. Tributary Habitat Monitoring at the Watershed or Population Scale: Preliminary Recommendations for Standardized Fish Habitat Monitoring in the Columbia River Basin. Prepared for NOAA-Fisheries and Bonneville Power Authority. Prepared by the Integrated Status and Effectiveness Monitoring Program1.

Bouwes, N. ed. 2006. Integrated status and effectiveness monitoring John Day pilot program, 2005 annual report. Compiled and edited by Eco Logical Research, Inc. Providence, UT for NOAA Fisheries Service and the Bonneville Power Administration. 115 pp. http://www.nwfsc.noaa.gov/research/divisions/cbd/mathbio/index.cfm

Bouwes, N.. 2004. Analytical Framework and Study Plan Outline for the John Day Basin. Report compiled by Eco Logical Research, Providence, UT for the United States Bureau of Reclamation, Portland, OR. 92 pp.

Kershner, J.L, B.B. Roper, N. Bouwes, R. Henderson, and E. Archer. 2004. An analysis of stream habitat conditions in reference and managed watersheds on some federal lands within the Columbia basin. North American Journal of Fisheries Management 24:1363-1375.

Knight, C. and N. Bouwes. 2005. Shasta River Ecosystem Diagnosis and Treatment Model: Validation Analysis. Report compiled by California Trout, Shasta, CA and Eco Logical Research, Inc., Providence, UT for PacificCorps. 29 pp.

Marmorek, D.R., M. Porter and D. Pickard (eds). 2006. Collaborative Systemwide Monitoring and Evaluation Project (CSMEP) – Year 3, Project No. 2003-036-00, Annual Report for FY 2006. Prepared by ESSA Technologies Ltd., Vancouver, B.C. on behalf of the Columbia Basin Fish and Wildlife Authority, Portland, OR. 126 pp. + appendices.

McKean, J., D. Nagel, D. Tonina, P. Bailey, C. W. Wright, C. Bohn, and A. Nayegandhi. 2009. Remote Sensing of Channels and Riparian Zones with a Narrow-Beam Aquatic-Terrestrial LIDAR. Remote Sensing 1:1065-1096.

Nelle, P., M. B. Ward, C. Beasley, N. Bouwes, C. E. Jordan, S. Rentmeester, C. Volk eds. 2006. A Review of the Integrated Status and Effectiveness Monitoring Program: 2003 – 2006. Prepared for the Bonneville Power Administration's Integrated Status and Effectiveness Monitoring Program. 238 pp.

Pacific Northwest Aquatic Monitoring Partnership (PNAMP) & The Collaborative Systemwide Monitoring and Evaluation Project (CSMEP). 2006. Second Annual Research, Monitoring and Evaluation (RME) Workshop for Decision Makers, Program Managers, Scientists and Field Practitioners.

Roper, B. B., J. M. Buffington, S. Bennett, S. H. Lanigan, E. Archer, S. T. Downie, J. Faustini, T. W. Hillman, S. Hubler, K. Jones, C. Jordan, P. R. Kaufmann, G. Merritt, C. Moyer, and A. Pleus. 2010. A Comparison of the Performance and Compatibility of Protocols Used by Seven Monitoring Groups to Measure Stream Habitat in the Pacific Northwest. North American Journal of Fisheries Management 30:565-587.

Roper, B.B., J.L. Kershner, E. Archer, R. Henderson, and N. Bouwes. 2002. An evaluation of physical stream habitat attributes used to monitor streams. Journal of the American Water Resources Association 38(6): 1637-1646.

Schaller, H., P. Wilson, S. Haeseker, C. Petrosky, E. Tinus, T. Dalton, R. Woodin, E. Weber, T. Berggren, J. McCann, S. Rassk, H. Franzoni, P. McHugh, N. Bouwes. 2007. Comparative Survival Study (CSS) of PIT-Tagged Spring/Summer Chinook and Steelhead of the Columbia River Basin: Ten-year Retrospective Analyses Report. Prepared for the Bonneville Power Administration.

Appendix 3a. Charge-out rates for all Eco Logical Research Inc. personnel. Rates include a 20% overhead and 29% fringe rate for most employees.

Name	Role	Fringe	Indirect	Hourly	Fringe	Hourly + Fringe	Indirect	Total
N. Bouwes	Project Manager	0.24	0.20	69.54	16.69	86.23	17.25	103.48
S. Bennett	Project Coordinator	0.24	0.20	60.00	14.40	74.40	14.88	89.28
Bouwes/Bennett	Field Work	0.24	0.20	50.00	12.00	62.00	12.40	74.40
Dr Wheaton	Geofluvial Morphologist	0.25	0.20	39.71	9.93	49.64	9.93	59.57
Dr Conner	Analyst	0.25	0.20	39.71	9.93	49.64	9.93	59.57
Trahan	GIS Specialist	0.29	0.20	39.71	11.52	51.23	10.25	61.47
Camp	Field Biologist	0.29	0.20	19.16	5.56	24.72	4.94	29.66
To be named	Technician	0.29	0.20	14.00	4.06	18.06	3.61	21.67
To be named	Research Specialist	0.1	0.20	10.63	1.06	11.69	2.34	14.03
Crew1	2 Jr techs& 1 Res Specialist	0.29	0.20	38.63	11.20	49.83	9.97	59.80
Crew2	Field Bio & 2 Jr techs	0.29	0.20	47.16	13.68	60.84	12.17	73.00
Crew 3	2 Jr techs	0.29	0.20	28.00	8.12	36.12	7.22	43.34

Appendix 3b. Eco Logical Research Inc. equipment cost and rental rates for the Asotin IMW project.

Equipment/Utilities	Item	Unit Cost	Quantity	Total Cost to Buy or Rent	Equipment Life (Yrs)
Arrays	MUX	9,015	4	36,060	life of project
Arrays	antenna	1,000	20	20,000	life of project
Arrays	Support Equipment	1,000	20	20,000	life of project
Arrays	water level & temp transducer	1,000	4	4,000	life of project
Arrays	data loggers	1,500	20	30,000	life of project
Arrays	modems	350	4	1,400	life of project
Arrays	software	500	1	500	life of project
Arrays	electrical contract	20,000	1	20,000	life of project
Arrays	**Total Annual**			-	
Arrays	**Total One-Time**			131,960	
Computing/Office	Laptop	1,000	1	1,000	life of project
Computing/Office	Data logger	2,700	1	2,700	life of project
Computing/Office	laser printer	350	1	350	life of project
Computing/Office	Misc. USB Adapters/Splitters	150	1	150	life of project
Computing/Office	power cords, surge protectors	100	1	100	life of project
Computing/Office	Rite-in-rain notebooks	10	5	50	1
Computing/Office	Box Rite-in-rain printer paper	50	4	200	1
Computing/Office	Photocopying, printing, postage	250	1	250	1
Computing/Office	Field desks and chairs	200	1	200	life of project
Computing/Office	Thumb and external hard drives	125	1	125	life of project
Computing/Office	shoulder bag for laptop	30	1	30	life of project

Computing/Office	Memory Cards (SD)	50	4	200	life of project
Computing/Office	Office Supplies	60	1	60	1
Computing/Office	**Total Annual**			560	
Computing/Office	**Total One-Time**			4,855	
Field camp (3-4 person crew)	chairs	10	3	30	life of project
Field camp	table	70	1	70	life of project
Field camp	propane stove	72	1	72	life of project
Field camp	propane tank	40	2	80	life of project
Field camp	coolers	25	2	50	life of project
Field camp	cots	80	3	240	life of project
Field camp	frame packs	150	3	450	life of project
Field camp	cook wear	100	1	100	life of project
Field camp	tents	150	3	450	1
Field camp	tool set	100	1	100	life of project
Field camp	68 quart storage totes	40	1	40	life of project
Field camp	Hand tools	150	1	150	life of project
Field camp	Tow Strap	20	1	20	life of project
Field camp	6 gallon reliance water jugs	40	1	40	life of project
Field camp	Bungee Chords	10	5	50	1
Field camp	Batteries, AA, AAA, C, D, 9v, Lithium	150	1	150	1
Field camp	First Aid Kits	150	2	300	life of project
Field camp	Tape, duct	5	3	15	1
Field camp	WD40	10	1	10	1
Field camp	zip ties	5	1	5	1
Field camp	2 gallon gas can	15	1	15	life of project
Field camp	Rags, shop	20	1	20	1
Field camp	**Total Annual**			700	
Field camp	**Total One-Time**			1,757	
Habitat	Small Depth Rods	30	3	90	1

Habitat	Large Depth Rods	30	2	60	1
Habitat	Compass	10	1	10	life of project
Habitat	Measuring Tape	28	3	83	life of project
Habitat	Hip chain	120	1	120	life of project
Habitat	Conductivity Meter	58	1	58	life of project
Habitat	Conductivity Solutions	50	1	50	1
Habitat	Alkalinity Test Kit	30	1	30	1
Habitat	Pool Tail Fines Grid	50	1	50	life of project
Habitat	Pool Tail Fines Viewer	5	1	5	life of project
Habitat	Clinometer	130	2	260	life of project
Habitat	Shovel	15	1	15	life of project
Habitat	Sieve	200	1	200	1
Habitat	Pebble Ruler	70	1	70	life of project
Habitat	Handheld GPS	240	2	480	life of project
Habitat	Solar Pathfinder	260	1	260	life of project
Habitat	Solar Pathfinder software	190	1	190	life of project
Habitat	Digital Camera	325	1	325	life of project
Habitat	Water temperature Loggers	55	35	1,925	life of project
Habitat	Water temperature usb dock	150	1	150	life of project
Habitat	Air temperature loggers	38	15	570	life of project
Habitat	Air temperature usb dock	60	1	60	life of project
Habitat	Clip Boards	15	3	45	life of project
Habitat	Flags - stream	20	4	80	1
Habitat	SPOT	150	1	150	life of project
Habitat	Maps	10	1	10	1
Habitat	Action Packers	20	3	60	life of project
Habitat	**Total Annual**			520	
Habitat	**Total One-Time**			4,885	
Invertebrates	Drift Nets	160	2	320	life of project
Invertebrates	Benthic Net	300	1	300	life of project
Invertebrates	Sample Jars	140	1	140	1

Invertebrates	500 um Sieve	1	30	30	life of project
Invertebrates	Spray Bottle	1	10	10	life of project
Invertebrates	Ethanol	1	40	40	1
Invertebrates	Flow Velocity Meter	1	800	800	life of project
Invertebrates	tweezers	10	2	20	life of project
Invertebrates	**Total Annual**			180	
Invertebrates	**Total One-Time**			1,480	
Invertebrates	**Processing per sample**			150	annual
Mobile Surveys	Back pack	60	3	180	life of project
Mobile Surveys	Button GPS	39	3	117	life of project
Mobile Surveys	Mobile wand	430	3	1,290	life of project
Mobile Surveys	Pole assembly	75	4	300	life of project
Mobile Surveys	FS2001 Tag Reader tuner	160	3	480	life of project
Mobile Surveys	f2001 Pittag Readers	3,000	3	9,000	life of project
Mobile Surveys	**Total Annual**			-	
Mobile Surveys	**Total One-Time**			11,367	
Seining PIT Tagging	Electrofishing Dipnets	60	6	360	life of project
Seining PIT Tagging	Power sonic sealed lead acid batteries	75	3	225	1
Seining PIT Tagging	Electrofishing electrode poles	225	4	900	life of project
Seining PIT Tagging	Electrode pole Rings (5)	40	3	120	life of project
Seining PIT Tagging	Multi Meter (AC/DC)	15	1	15	life of project
Seining PIT Tagging	Samus Electrofishers	1,000	2	2,000	life of project
Seining PIT Tagging	Pocket thermometers	13	4	50	1
Seining PIT Tagging	DNA sample vials	0	100	28	1
Seining PIT Tagging	Variable dispenser bottles	150	1	150	life of project
Seining PIT Tagging	Case of DNA storage boxes	100	1	100	1
Seining PIT Tagging	Neoprene Socks	30	4	120	1
Seining PIT Tagging	Neoprene Gloves	55	4	220	1
Seining PIT Tagging	Wader repair supplies	50	1	50	1

Seining PIT Tagging	Daypacks	75	2	150	life of project
Seining PIT Tagging	External pack frames	150	1	150	life of project
Seining PIT Tagging	Carbineers	10	6	60	life of project
Seining PIT Tagging	Conductivity meter	100	1	100	life of project
Seining PIT Tagging	3 gallon collapsible bucket	30	1	30	life of project
Seining PIT Tagging	Clipboards	25	2	50	life of project
Seining PIT Tagging	Maps (Forest/Topo)	120	1	120	life of project
Seining PIT Tagging	Field utility boxes	35	1	35	life of project
Seining PIT Tagging	DC 400 inverter	60	1	60	life of project
Seining PIT Tagging	rock bar	40	1	40	life of project
Seining PIT Tagging	Seines/Blocknets	250	4	1,000	life of project
Seining PIT Tagging	repair kits for nets	25	1	25	1
Seining PIT Tagging	Nylon Rope	50	1	50	1
Seining PIT Tagging	Cable wire	5	1	5	1
Seining PIT Tagging	Utility straps	10	10	100	life of project
Seining PIT Tagging	Rebar	2	10	20	life of project
Seining PIT Tagging	Lockable, waterproof Streamside Boxes (Ammo Cans)	70	1	70	life of project
Seining PIT Tagging	scale card containers Tupperware	5	2	10	life of project
Seining PIT Tagging	aluminum site marking tags	100	1	100	1
Seining PIT Tagging	50 meter fiberglass measuring tape	50	1	50	1
Seining PIT Tagging	100 meter fiberglass measuring tape	75	1	75	1
Seining PIT Tagging	Flagging Tape	5	1	5	1
Seining PIT Tagging	Digital Camera	200	1	200	life of project
Seining PIT Tagging	Tagging Needles	2	500	1,000	1
Seining PIT Tagging	PIT tags	2	5000	11,600	life of project
Seining PIT Tagging	Anesthetic	25	2	50	1
Seining PIT Tagging	Airstones for bubblers	15	6	90	life of project
Seining PIT Tagging	Aquarium Nets	2	5	10	1
Seining PIT Tagging	Misc. Nalgene Bottles	100	1	100	life of project
Seining PIT Tagging	Scales w/usb adapters	250	2	500	life of project
Seining PIT Tagging	Injector supplies	150	1	150	life of project
Seining PIT Tagging	100 Round shotgun shell cases (Injector Rack)	40	1	40	life of project

Seining PIT Tagging	Aerators	40	4	160	life of project
Seining PIT Tagging	table top antenna	280	1	280	life of project
Seining PIT Tagging	tagging table/case	50	1	50	life of project
Seining PIT Tagging	Measuring Boards	30	2	60	life of project
Seining PIT Tagging	f2001 Pittag Readers	3,000	3	9,000	life of project
Seining PIT Tagging	Distilled H20	15	1	15	1
Seining PIT Tagging	Buckets 5-gallon	5	15	75	life of project
Seining PIT Tagging	**Total Annual**			2,178	
Seining PIT Tagging	**Total One-Time**			27,845	
Topographic Surveying and Video	Total Station setup	200	20	4,000	1
Topographic Surveying and Video	Map Grade GPS	75	20	1,500	1
Topographic Surveying and Video	Under Water Video Camera	50	20	1,000	1
Topographic Surveying and Video	**Total Annual**			6,500	
Topographic Surveying and Video	**Total One-Time**			-	
Utilities	Phone lines x 4	125	12	1,500	1
Utilities	Internet x 1	60	12	720	1
Utilities	Power x 4	60	12	720	1
Utilities	**Total Annual**			2,940	
Vehicles	4x4 truck	1,041	10	10,410	1
Vehicles	ATV	600	4	2,400	1
Vehicles	**Total Annual**			12,810	
Waders	waders	120	3	360	1

Waders	wading boots	95	3	285		1
Waders	**Total Annual**			645		

Appendix 4. Anticipated annual budget for the Asotin Intensively Monitored Watershed Project. * Note annual costs may vary depending on the IMW design schedule, available funds, and infrastructure needs.

Item	Unit Type	Unit Cost	Fringe	Indirect	Units	Base Total	Fringe Total	Indirect Total	Estimated
Personnel									
Coordination/Monitoring Fish & Habitat/Data Analysis and Reporting									**subtotal**
Project Manager	Office Hr	69.54	16.69	17.25	120	8,345	2,003	2,070	12,417
Project Manager	Field Hr	50.00	12.00	12.40	40	2,000	480	496	2,976
Project Coordinator	Office Hr	60.00	14.40	14.88	1,080	64,800	15,552	16,070	96,422
Project Coordinator	Field Hr	50.00	12.00	12.40	80	4,000	960	992	5,952
Geofluvial Morphologist	Hour	39.71	9.93	9.93	120	4,765	1,191	1,191	7,148
Analyst	Hour	39.71	9.93	9.93	120	4,765	1,191	1,191	7,148
GIS Specialist	Hour	39.71	11.52	10.25	120	4,765	1,382	1,229	7,377
Field Biologist	Hour	19.16	5.56	4.94	2,088	40,006	11,602	10,322	61,929
Field Crew (2 technicians)	Hour	28.00	8.12	7.22	870	24,360	7,064	6,285	37,709
Subtotal									**239,078.28**
Accommodation, Travel & Transportation									
4x4 truck rental and mileage	Month	1,021		204	9.0	9,189	-	1,838	11,027
4 ATVs rental from WDFW	ATV	600		120	4	2,400	-	480	2,880
Field Per diem 10/day	Day	10		2	240	2,400	-	480	2,880
Coordinator Travel							-		-
Food	Day	39		8	10	390	-	78	468
lodging	Day	70		14	10	700	-	140	840

Airfare SLC to Lewiston	Flight	600	120	4	2,400	-	480	2,880
Subtotal								**20,974.80**
Supplies & Equipment								
Computing/Office (annual)	Supplies	560.00	112.00	1.00	560.00	-	112.00	672.00
Field Camp (annual)	Supplies	700.00	140.00	1.00	700.00	-	140.00	840.00
Field Camp (one time)	Supplies	1,757.00	351.40	1.00	1,757.00	-	351.40	2,108.40
Habitat Supplies (annual)	Supplies	520.00	104.00	1.00	520.00	-	104.00	624.00
Habitat Supplies (one time)	Supplies	4,885.00	977.00	0.25	1,221.25	-	244.25	1,465.50
Invertebrates (benthic and drift)	Supplies	180.00	36.00	1.00	180.00	-	36.00	216.00
Invertebrate (benthic and drift)	Processing	150.00	30.00	12.00	1,800.00	-	360.00	2,160.00
Mobile Surveys (one time)	Supplies	11,367.00	2,273.40	0.25	2,841.75	-	568.35	3,410.10
Seining/Tagging (annual)	Supplies	2,177.58	435.52	1.00	2,177.58	-	435.52	2,613.09
Seining/Tagging (one time*)	Supplies	27,845.00	5,569.00	1.00	27,845.00	-	5,569.00	33,414.00
Topographic Surveys (Rental)	Supplies	6,500.00	1,300.00	0.50	3,250.00	-	650.00	3,900.00
Utilities	Supplies	2,940.00	588.00	1.00	2,940.00	-	588.00	3,528.00
Waders	Supplies	645.00	129.00	1.00	645.00	-	129.00	774.00
Misc. Rentals	Supplies	10.00	2.00	30	300.00	-	60.00	360.00
Misc. Supplies	Supplies	10.00	2.00	30	300.00	-	60.00	360.00
Subtotal								**56,445.09**
WDFW Cooperative Agreement								
Manger, Field Supervisor, Two Field Technicians, and Support Staff to aid monitoring efforts								**55,000.00**
Annual Cost not including CONTRACT ADMIN								**371,498.18**

* Pit tags have been purchased through the end of 2012.

ECO LOGICAL RESEARCH INC.

Name	Position and Agency	Fringe	Indirect	Hourly	Fringe	Hourly+F	Indirect	Total
Bouwes	Asotin Manager	0.24	0.20	73.00	17.52	90.52	18.10	108.62
Bennett	Asotin Coordinator	0.24	0.20	60.00	14.40	74.40	14.88	89.28
Bouwes/Bennett	Field Work	0.24	0.20	50.00	12.00	62.00	12.40	74.40
Bouwes/Bennett	Travel	0.24	0.20	30.00	7.20	37.20	7.44	44.64
Wheaton	Geomorphologist	0.43	0.20	35.18	15.13	50.31	10.06	60.37
-	Analyst	0.29	0.20	26.50	7.69	34.19	6.84	41.02
-	Field Supervisor	0.10	0.20	18.00	1.80	19.80	3.96	23.76
-	Field technician	0.10	0.20	16.00	1.60	17.60	3.52	21.12