Contract for Personal Services between the State of Washington **Walla Walla Community College** and **EcoLogical Research, Inc.**

This Contract is made and entered into by and between the state of Washington, **Walla Walla Community College**, hereinafter referred to as the "**AGENCY**", and the below named firm, hereinafter referred to as "**CONTRACTOR**."

EcoLogical Research, Inc.
456 South 100 West, Providence, UT 84332
Phone: 435.760.0771 Fax: 435-797-1871
Email: nbouwes@gmail.com
Federal TIN: 20-2544953 WA State UBI Number: 602 795 500

PURPOSE

The objective is to continue management and implementation of the Intensively Monitored Watershed (IMW) Project in the Asotin Creek watershed in the Washington area of the Snake River Salmon Recovery Region. The CONTRACTOR will provide the following services to implement and report on the experimental and monitoring design for the Asotin Creek IMW:

-
- Project Coordination
- Technical and Stakeholder Coordination/Outreach
- Equipment Purchase and Management
- Pre- and Post-treatment Monitoring
- Data Management, Quality Assurance, and Quality Control
- Data Analysis and Reporting including low elevation aerial imagery
- Progress report for data collected and analyzed since 2008

SCOPE OF WORK

A. Exhibit A, attached hereto and incorporated by reference, contains *General Terms and Conditions* governing work to be performed under this contract, the nature of the working relationship between AGENCY and 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 Proposal, 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 Snake River Salmon Recovery Board, acting as the Contract Manager, Attn: Steve Martin.

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, 2013
- Work plan for October 2013 through September 2014 due June 28, 2013

PERIOD OF PERFORMANCE

The period of performance under this contract will be from December 15, 2012, through September 30, 2013.

OFM FILING REQUIREMENT

The provisions of Chapter 39.29 RCW require the AGENCY to file this competitively awarded personal service contract with the Office of Financial Management (OFM) for review.

COMPENSATION

Total compensation payable to CONTRACTOR for satisfactory performance of the work under this contract shall not exceed one hundred fifty seven thousand two hundred fifteen dollars and nine cents ($157,215.10). CONTRACTOR'S compensation for services rendered shall be based in accordance with the following:

CONTRACTOR shall receive reimbursement for travel and other expenses as identified above. Such expenses may include airfare (economy or coach class only), other transportation expenses, and lodging and subsistence necessary during periods of required travel. CONTRACTOR shall receive compensation for travel expenses at current state travel reimbursement rates.

BILLING PROCEDURES AND PAYMENT

AGENCY will pay CONTRACTOR upon acceptance of services provided and receipt of properly completed invoices, which shall be submitted to the Contract Manager no more often than monthly. Invoices must be received by AGENCY within 30 days of grant conclusion in order to be paid.

The invoices shall describe and document, to the AGENCY'S satisfaction, a description of the work performed, the progress of the project, and fees. The invoice shall include the contract reference number. If expenses are invoiced, provide a detailed breakdown of each type. A receipt must accompany any single expense 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) calendar 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. The AGENCY may withhold 10 percent from each payment until acceptance by the AGENCY of the final report and project completion.

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 Contract Manager	AGENCY Contract Manager
Dr. Nicolaas Bouwes **ECO LOGICAL RESEARCH, INC.** 456 South 100 West Providence, UT 84332 Phone : (435) 760-0771 Fax: (435) 797-1871 Email address: nbouwes@gmail.com	Snake River Salmon Recovery Board **WALLA WALLA COMMUNITY COLLEGE** 410B East Main St. Dayton, WA 99328 Phone: (509) 382-4115 Fax: (509) 382-4116 Email: steve@snakeriverboard.org or davina.fogg@wwcc.edu

INSURANCE

The CONTRACTOR shall provide insurance coverage as set out forth in the Request for Proposals. 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 subcontractor, 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 unowned 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 thirty (30) calendar days advance notice of any insurance cancellation.

CONTRACTOR shall submit to AGENCY within fifteen (15) calendar days of the contract effective date, a certificate of insurance that 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:

1. Applicable federal and state of Washington statutes and regulations
2. Special terms and conditions as contained in this basic contract instrument
3. Exhibit A – General Terms and Conditions
4. Exhibit B – Request for Proposals dated 10-1-2011
5. Exhibit C – Contractor's Proposal dated 10-12-2011
6. 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 6 pages and 3 attachment(s), is executed by the persons signing below, who warrant they have the authority to execute the contract.

ECOLOGICAL RESEARCH, INC.

Signature

President — Jan 3, 2013
Title — Date

Approved As To Form
(On File)

Assistant Attorney General

Date

WALLA WALLA COMMUNITY COLLEGE

Signature – Steven VanAusdle, President

President — 12/31/12
Title — Date

SNAKE RIVER SALMON RECOVERY BOARD

Signature – Del Groat, Chairman

Title — Date 1/17/13

EXHIBIT A -
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 (AGENCY TITLE) 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 ADR 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

To the fullest extent permitted by law, CONTRACTOR shall indemnify, defend, and hold harmless State, agencies of State and all officials, agents and employees of State, from and against all claims for injuries or death arising out of or resulting from the performance of the contract. "Claim," as used in this contract, means any financial loss, claim, suit, action, damage, or expense, including but not limited to attorney's fees, attributable for bodily injury, sickness, disease, or death, or injury to or destruction of tangible property including loss of use resulting therefrom.

CONTRACTOR'S obligations to indemnify, defend, and hold harmless includes any claim by CONTRACTORS' agents, employees, representatives, or any subcontractor or its employees.

CONTRACTOR expressly agrees to indemnify, defend, and hold harmless the State for any claim arising out of or incident to CONTRACTOR'S or any subcontractor's performance or failure to perform the contract. CONTRACTOR'S obligation to indemnify, defend, and hold harmless the State shall not be eliminated or reduced by any actual or alleged concurrent negligence of State or its agents, agencies, employees and officials.

CONTRACTOR waives its immunity under Title 51 RCW to the extent it is required to indemnify, defend and hold harmless State and its agencies, officials, agents or employees.

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

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.

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.

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.

Exhibit B

PUBLIC ANNOUNCEMENT
REQUEST FOR PROFESSIONAL SERVICES

Snake River Salmon Recovery Board

PROJECT: Implement Intensively Monitored Watershed Project in Snake River Region

PROJECT DESCRIPTION:

The Walla Walla Community College, Snake River Salmon Recovery Board (WWCC/SRSRB) is seeking proposals for continuing implementation of an Intensively Monitored Watershed (IMW) project in the Snake River salmon recovery region. Phase I which started in 2008 and concluded in October 2011 resulted in the completion of an experimental design, baseline data collection and the first year of habitat restoration treatments. Phase II, which is to continue implementation of the experimental design will begin on or about November 1, 2011 and extend at least 8 years with the likelihood of further extension, contingent upon available funding. Work addressed in this contract will support technical and stakeholder coordination, IMW treatment implementation, field data collection, data management and analysis, and reporting.

Submit Proposals to:

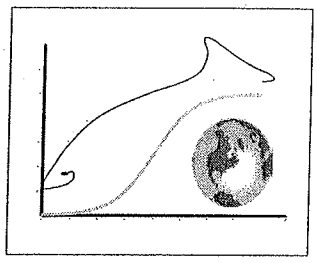
Gary Boone, Walla Walla Community College (Fiscal Agent).

500 Tausick Way, Purchasing office Walla Walla, WA 99362

(509) 527-4280 gary.boone@wwcc.edu fax 509 527-4533

To be considered, all materials must be **received** at the above address on or before 5:00 p.m. October 15, 2011. For a copy of the full RFP contact Gary Boone, WWCC at (509) 527-4280 or gary.boone@wwcc.edu Full version of RFQ is available at the WWCC website www.wwcc.edu.

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,

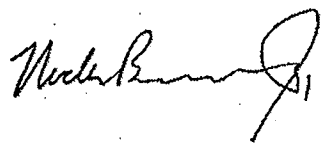
Nick Bouwes

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
Walla Walla Community College
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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.