

**Idaho Water Resources Research Institute  
Annual Technical Report  
FY 2015**

# Introduction

The Idaho Water Resources Research Institute (IWRRI) is housed at the University of Idaho. IWRRI is dedicated to supporting and promoting water and water-related research, education, and information transfer throughout Idaho. IWRRI collaborates with researchers and educators from all Idaho state universities; staff of local, state, and federal agencies; and private water interests. The IWRRI is the only mechanism in the state that provides an autonomous statewide source of support for water research and training without regard to specific topic or discipline area. This is important because Idaho's water problems cross multiple topics and disciplines and compartmental approaches to these problems are less effective. State and federal agencies and private water interests rely upon IWRRI to provide objective expertise addressing the needs of the state and region. The Institute has been a strong proponent of education and outreach for both youth and adult audiences. It is through education that the public can make informed public policy decisions concerning water. It is also through education that individual citizens become engaged in the process through adjustments of their own attitudes and lifestyles.

## Research Program Introduction

The Idaho Water Resources Research Institutes research program is comprised of the following objectives: (1) To work with state and federal agencies and non-government organizations to identify water research needs of the state and region; (2) To promote water-related research relevant to state and regional needs; (3) To stimulate, coordinate, and provide leadership for water resources research within Idaho universities and collaborate with sister institutions in adjoining states; (4) To cooperate with and assist state and federal agencies and non-governmental organizations for the benefit of the citizens of Idaho and the region; and (5) To develop funding for needed research and encourage cooperation with other research organizations.

The Idaho Water Resources Research Institute was able to support four new research projects during the 2015 Project year on linking agronomic soil phosphorus with water quality in Palouse (dryland) cropping systems, characterization and analysis of urban storm water quantity and quality, economics of flood risk management on the Columbia River and implication for Columbia River Treaty renegotiation, and a study of the social network among stakeholders in the South Fork Coeur d'Alene sub-basin watershed.

# Linking Agronomic Soil-P with Water Quality in Palouse Cropping Systems

## Basic Information

<b>Title:</b>	Linking Agronomic Soil-P with Water Quality in Palouse Cropping Systems
<b>Project Number:</b>	2015ID201B
<b>Start Date:</b>	3/1/2015
<b>End Date:</b>	2/28/2017
<b>Funding Source:</b>	104B
<b>Congressional District:</b>	ID-01
<b>Research Category:</b>	Water Quality
<b>Focus Category:</b>	Water Quality, Agriculture, Solute Transport
<b>Descriptors:</b>	None
<b>Principal Investigators:</b>	Daniel Strawn, Erin Brooks

## Publications

There are no publications.

(1) RESEARCH:

The goal of this proposed research is to link soil and topographic attributes with potential P runoff loss. We hypothesize that long-term application of P fertilizer, field-scale soil variability, and tillage management in the dryland cropping systems of the Northwest Wheat and Range Region create a patchy distribution of soil P availability for crop uptake and runoff; with some areas deficient in plant available P, and other areas with excessive soluble/available P that leads to transport losses out of the agricultural watershed. In our first year of research, we have documented subsurface dissolved reactive P concentrations up to 0.2 mg/L in subsurface drainage effluent.

We have conducted field water sampling and collected archived soil samples from fifteen years ago. Phosphorus availability from the archived soil samples will be compared to samples collected this year to measure how management and time has affected P availability in the soils. We setup three collection devices at the site to sample water outflow from the watershed: overland flow sampler, tile drain sampler, and stream sampler. From each sample we measured total, and dissolved reactive P, which included a quality control analysis to ensure that data were accurate. The data will be matched to data on outflow rates to calculate total loading per event (rain or snow melt). Figure 1 and Figure 2 shows the data collected to date.

We have identified sites to investigate how macro-pore channels affect subsurface transport of phosphorus to tile drains, which feed streams. Within the stream, we deployed and tested a stream-phosphorus analyzer that measures stream water reactive-P concentrations multiple time per day, allowing for measurement of reactive phosphorus on a continuous basis. Using this in-stream sampler, we will capture pulse events that are major contributors to surface water P loading. Correlating the pulse events with watershed outflow and soil P availability will provide us a complete understanding of phosphorus-source vectors from an agronomic field into surface waters.

Because this is a two year project, incoming graduate student start date, and seasonality of water flow, most of the field data will be collected in spring and early summer of 2016. First year activities, as described above, were critical to allow for ongoing measurement of phosphorus reactions and transport in an agronomically-influenced watershed. Thus, outputs from the project will be delivered at the end of the second year (February 2017).

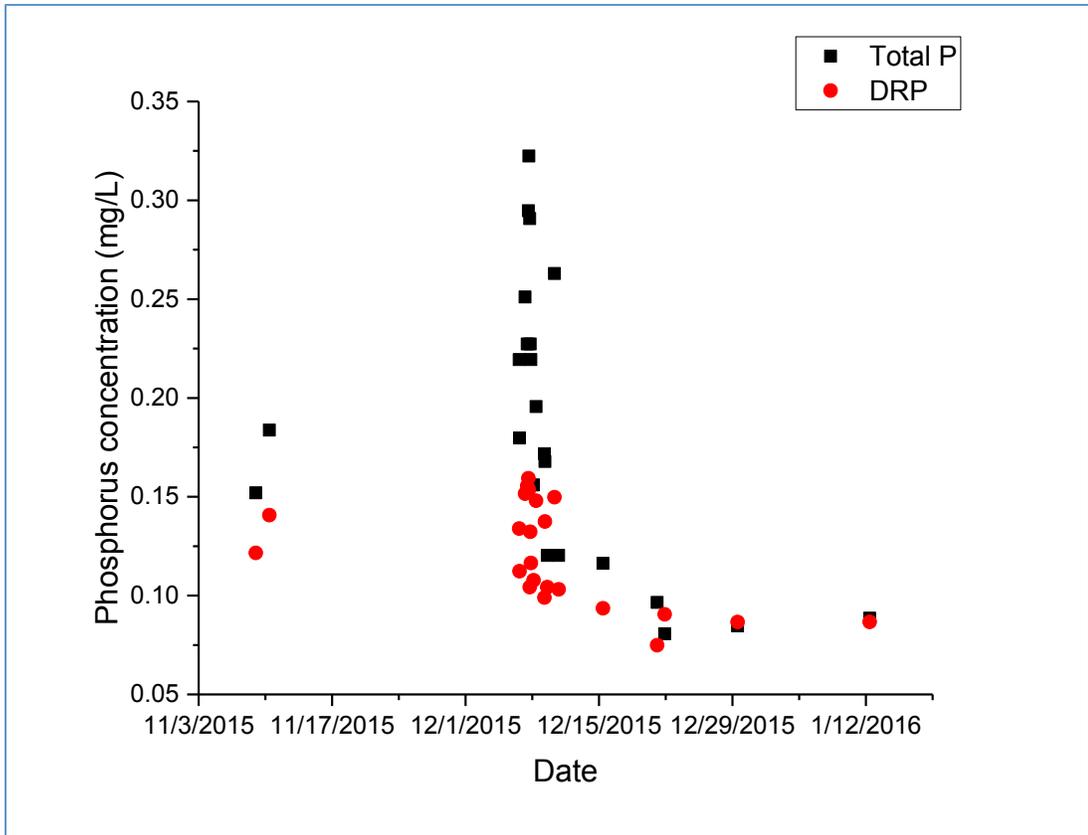


Figure 1. Total and dissolved reactive phosphorus concentrations in outflow from tile drain on Cook Agronomy Farm. In November, heavy freeze prevented subsurface drainage.

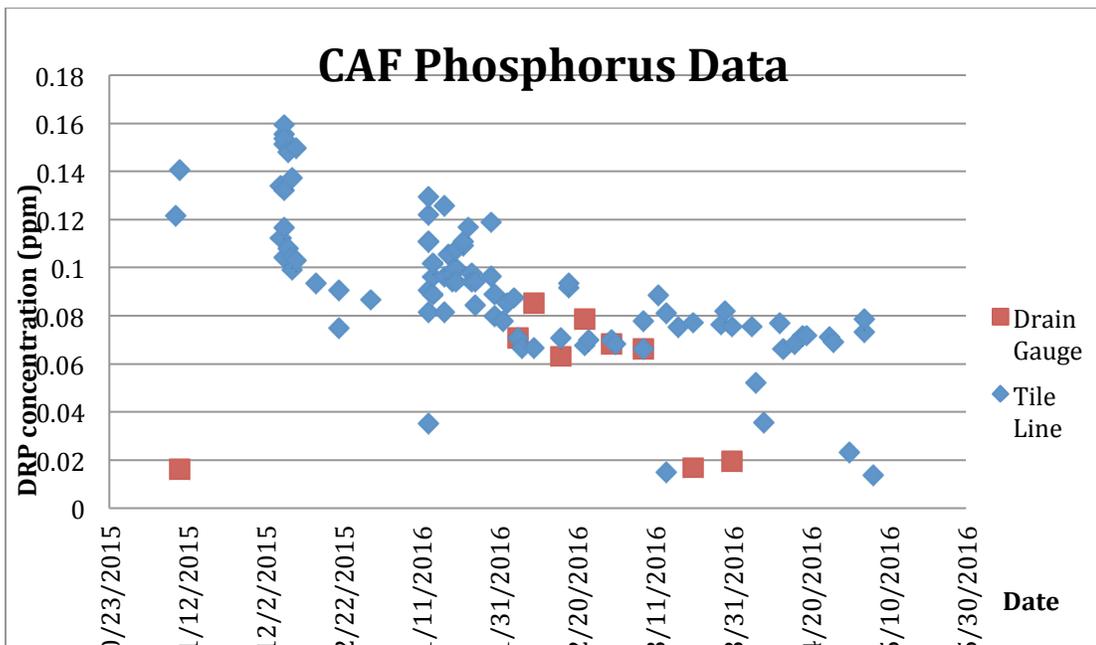


Figure 2. Dissolved reactive phosphorus concentrations in outflow from the tile line and drain gauge flow (when conditions allow) at Cook Agronomy Farm (CAF) over the span of 6 months.



# Characterization and Analysis of Urban Storm Water Quantity and Quality

## Basic Information

<b>Title:</b>	Characterization and Analysis of Urban Storm Water Quantity and Quality
<b>Project Number:</b>	2015ID202B
<b>Start Date:</b>	3/1/2015
<b>End Date:</b>	2/28/2016
<b>Funding Source:</b>	104B
<b>Congressional District:</b>	ID-01
<b>Research Category:</b>	Water Quality
<b>Focus Category:</b>	Hydrology, Non Point Pollution, Water Quality
<b>Descriptors:</b>	None
<b>Principal Investigators:</b>	Erin Brooks

## Publications

There are no publications.

## RESEARCH:

The goal of this proposed research was to characterize and examine urban storm water quality from specific urban sub-catchments within the City of Moscow. Specifically this analysis would identify illicit storm water connections and provide information and data to the City of Moscow in order to proactively prepare for NPDES storm water permitting.

A detailed inventory of Paradise Creek storm water outfalls was conducted between May 5 and May 8, 2015 during a period of dry weather. The survey covered a stretch of Paradise Creek from Mountain View Park to the Idaho/Washington State border. The survey identified 114 outfalls and 22 dry weather flows, including the Moscow Waste Water Treatment Plant (MWWTP) discharge. GPS coordinates were recorded for each outfall, as well as its material, diameter, and flow conditions. Any flowing outfalls were measured for electric conductivity (EC), pH, temperature, and flow during this initial inventory..

In coordination with the City of Moscow, the water quality and quantity from 20 of these storm water outfalls were then selected for monitoring and used to identify key sources areas within Moscow, see Figure 1. Specific water quality measurements included: electric conductivity (EC), pH, temperature, total suspended sediment, turbidity, dissolved and particulate nutrients (TP, NO<sub>3</sub>, NO<sub>2</sub>, and PO<sub>4</sub><sup>-3</sup>), and E-coli.

A particular concern for the city of Moscow was illicit sewage connections to the storm water system. Paradise creek water quality sampling conducted by the Department of Environmental Quality during 2014 indicated that E-Coli counts exceeded state standards (>576 MPN/100ml) on multiple sampling dates throughout the one year study period. As seen in Figure 2, E-coli counts from 12 out of the 20 sewage outfalls exceeded this state standard indicating that illicit connections may be widespread through the storm water system. City of Moscow was able to identify the source of one of these illicit connections as a direct connection of a sewage line to the storm system.

The Illicit Discharge Detection and Elimination Guidance Manual (Pitt 2004) was used to determine whether water quality measurements indicted a potential illicit connections. Nitrate levels above 3.5 mg/L indicate a potential illicit connection. Nitrate measurements exceeded 3.5 mg/L at four storm water outfalls, reaching as high as 13 mg/L at one location. Phosphate measurements exceeded the recommended threshold of 0.4 mg/L at six of the storm water outfall points. Although turbidity measurements exceeded the recommended 50 NTU limit for one or two sampling dates, overall total suspended solid concentration from storm water outfalls were generally low.

Overall we were able to successfully identify storm water outfalls and specific urban subcatchments that are likely source areas for illicit connection and pollutant loading. High e-coli measurements indicate that there may be possible sewage contamination at multiple sites.

From this work we are now starting a follow-up project with the city of Moscow and the university of Idaho where we will be using distributed temperature sensing (DTS) to identify specific illicit connections within these problem sites. DTS technology allows for high temporal (~ secs) and spatial (~1-2 m) frequency temperature measurements to be made along a fiber optic cable installed within a storm water system. Spikes in water temperature along the fiber optic cable indicate an illicit connection of a warm water source. This collaborative project will provide both the city of Moscow and the University of Idaho a

spatially explicit location of the illicit connection and provide an opportunity of direct repair of this connection.

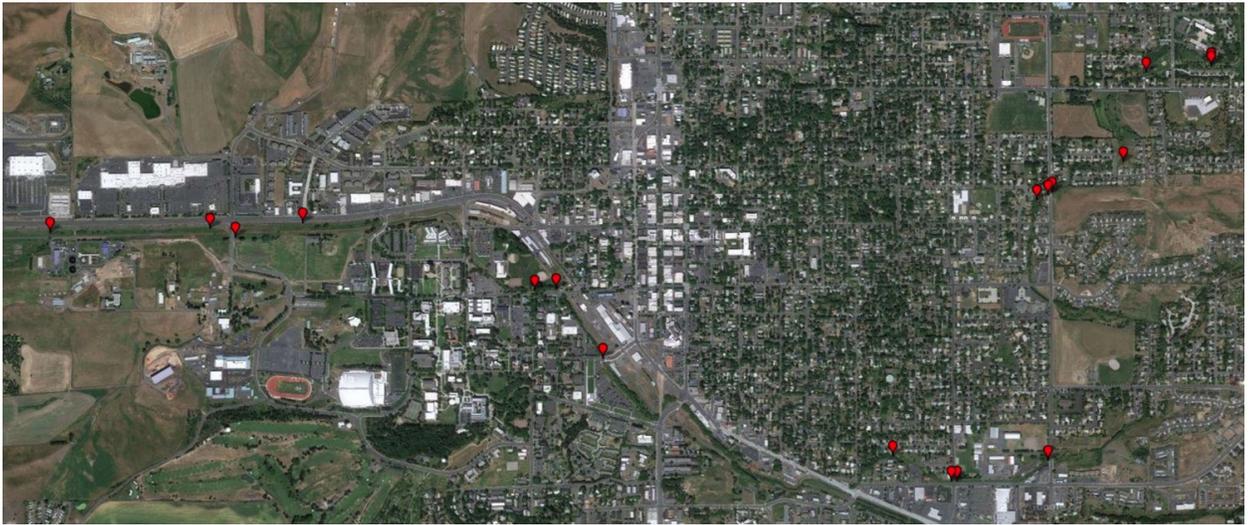


Figure 1. Storm water outfall points in the city of Moscow.

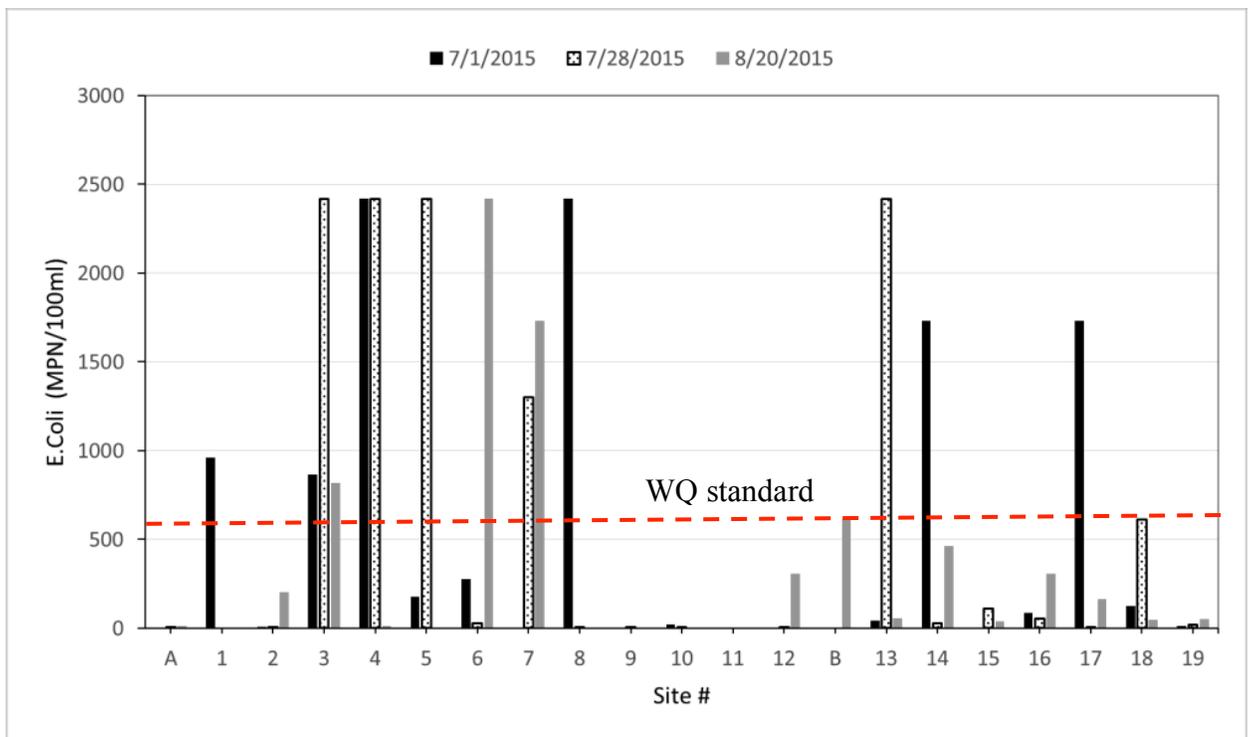


Figure 2. E-Coli counts in water samples taken from 20 storm water outfalls on three summer sampling dates. The Idaho State Standard for E. coli in secondary recreation is  $\leq 576$  MPN/100ml.

# The economics of flood risk management on the Columbia River and the Columbia River Treaty

## Basic Information

<b>Title:</b>	The economics of flood risk management on the Columbia River and the Columbia River Treaty
<b>Project Number:</b>	2015ID203B
<b>Start Date:</b>	3/1/2015
<b>End Date:</b>	2/28/2016
<b>Funding Source:</b>	104B
<b>Congressional District:</b>	ID-ALL
<b>Research Category:</b>	Social Sciences
<b>Focus Category:</b>	Economics, Floods, Law, Institutions, and Policy
<b>Descriptors:</b>	None
<b>Principal Investigators:</b>	Barbara Cosens

## Publication

1. Johnson, Patrick, 2016, A Comprehensive Integrated Water Resource Assessment of Potential Changes to Columbia River Basin Flood Risk Management Policy, Water Resources/College of Law, University of Idaho, Moscow, Idaho, 202.

## Project Summary

The Columbia River Basin, which spans seven U.S. states and two countries, is located in a diverse socio-ecological region of the Pacific Northwest with stakeholders ranging from flood risk managers, irrigators, power utilities, ecological interests, and more. With the governing document of the bi-national management of the Basin, the Columbia River Treaty under review, the basin is revisiting the more than fifty year-old decision to maximize production of hydropower and reduction of flood risk through international cooperation on the construction and operation of dams. As a result, significant flood risk management policy decisions are looming.



Figure 1: Columbia River Basin and the major dams in the hydropower system Top Figure: *About the Columbia River*, Env'tl. Protection Agency <http://www.epa.gov/columbiariver/about-columbia-river> Bottom Figure: *Columbia Basin Water Management Division: Hydrologic Engineering and Power Branch Power Team*, U.S. Army Corps of Engineers, <http://www.nwd-wc.usace.army.mil/PB/mainpage.html>

The process of review of the Columbia River Treaty has taken place on both sides of the international boundary. In December of 2013, the U.S. Regional Review transmitted its recommendations to the U.S. Department of State, and the British Columbia Review transmitted its position to the Commonwealth Cabinet. A robust process of input from the basin's sovereign governments, including both states and tribes, resulted in a U.S. recommendation to modernize the Treaty with three co-equal purposes in mind: hydropower, flood control and ecosystem function. Previous work by the principle investigator raised the question of whether changes to flood risk management from the current reliance on dams to a combination of dams and local structural and non-structural measures might improve ecological resilience while at the same time breathing space into the current narrow purpose operation of the system without sacrificing hydropower benefits. See, Cosens, B. 2012. *Resilience and Law as a Theoretical Backdrop for Natural Resource Management: Flood Management in the Columbia River Basin*, *Environmental Law* 42: 241. The article also raised the possibility that the current focus on keeping flows below 450K cfs as measured at the Dalles might be an unnecessarily low target. Although Tribes and environmental interests in the basin sought a thorough study by the U.S. Army Corps of Engineers on the flow level at which flood damage actually becomes a risk and on the opportunities to diversify flood risk management, no publically available study has been undertaken.

To determine if there is reason to believe that the requested comprehensive study is warranted, this research examined historic flow events that exceed the amount deemed to cause flood damages as measured at the Dalles and concluded that actual damages at the prescribed threshold flood discharge have been minimal in recent events. Additionally, an exploration of the costs and benefits of non-structural flood control measures and an allowance of increased flows shows qualitative and quantitative ecological, social, and economic benefits. This work supports the need for further research and examination of flood risk management policy in the Columbia River Basin.

A study of social network among stakeholders in the South Fork Coeur d'Alene subbasin watershed

## A study of social network among stakeholders in the South Fork Coeur d'Alene subbasin watershed

### Basic Information

<b>Title:</b>	A study of social network among stakeholders in the South Fork Coeur d'Alene subbasin watershed
<b>Project Number:</b>	2015ID204B
<b>Start Date:</b>	3/1/2015
<b>End Date:</b>	2/28/2016
<b>Funding Source:</b>	104B
<b>Congressional District:</b>	ID-01
<b>Research Category:</b>	Social Sciences
<b>Focus Category:</b>	Law, Institutions, and Policy, Management and Planning, Methods
<b>Descriptors:</b>	None
<b>Principal Investigators:</b>	Manoj Shrestha

### Publications

There are no publications.

## RESEARCH:

River basins, sub-basins or their watershed areas are complex, interacting social-ecological systems. Sustainable management of these resources demands collective action on the part of the public and stakeholder organizations. However, collaboration involves risks. Coordination among stakeholders can be difficult as stakeholders may lack information on who is doing what and how best to coordinate. Likewise, stakeholders can defect from their commitments or free-ride on others' investment. Understanding what types of communication networks emerge as stakeholders interact in response to addressing the risks and how these networks improve watershed outcomes is critical for improved watershed management. This project was aimed to understand this phenomenon in the St. Joe/St. Maries subbasin watershed of the greater Coeur d'Alene (CdA) Lake Basin located in the Panhandle region of Idaho.<sup>1</sup> In this regard, the project conducted network survey of stakeholder organizations to get insights into the issues of local concerns, the forums the stakeholders attended, and more importantly the communication networks they maintained to address the water issues in the subbasin.

The St. Joe River subbasin encompasses approximately 1,850 square miles, and is composed of St. Joe River and St. Maries River covering Benewah County, part of Shoshone County, city of St. Maries and other unincorporated communities in the area. The U.S. Forest Service manages approximately 50% of the area. 40% of the area is privately owned, and the rest is managed/owned by the Idaho Department of Lands, Idaho State Parks, Idaho Fish and Game, Bureau of Land Management, and the Coeur d'Alene Tribe. Primary land uses are forestry, agriculture, and recreation, and industries which include timber processing and a garnet mine. The mixed land ownership and land uses add complexity to water management in this subbasin. Under the Clean Water Act (CWA), the St. Joe/St. Maries watershed currently has total maximum daily loads (TMDLs) for temperature and sediment loads.

The online or paper survey (where requested) was sent to forty-four stakeholder organizations. The stakeholders were identified through multiple sources including document search, websites, newspapers, meeting minutes from St. Maries City Council, and phone calls and emails. The stakeholder included federal and state agencies, local governments, special districts, businesses, industries, and non-profits. The survey also used snowball sampling – respondent naming other contacts – to include all relevant stakeholders in the survey. Thirty stakeholders responded the survey.

### ***Water issues in the watershed***

Water quality, biota/habitat, land use, fish restoration, and water supply were reported to be issues of primary concern in the subbasin. 92.8 percent of respondents reported water quality to be the primary concern followed by biota/habitat 64.3 percent, land use by 60.7 percent, and fish restoration by 53.6 percent. The stakeholders gave priority to addressing these concerns within their organizations as well as at the forums. One exception was fish restoration, which did not receive attention at the forum. About 46 percent of respondents identified water supply an issue of primary concern, but it was not given attention by the organization or at the forum meetings.

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<sup>1</sup> The originally proposed study area was the neighboring South Fork CdA River subbasin. Given the pilot nature of the research, St. Joe/St. Maries subbasin of the CdA basin was chosen based on the advice of key knowledgeable individuals in the region who hoped more cooperative environment in the current site.

The stakeholders also reported flood control and recreation to be issues of secondary concern, but those issues did not receive attention at the forum or within organizations.

### ***Utilization of forum***

Forums are means for the stakeholders to discuss, plan and coordinate activities to address the issues that they face. About one-third of the respondents participated in forums. The Watershed Advisory Group (WAG) meeting was their primary forum. The other forums named were Idaho Lands Resource Coordinating Council, Basin Adjudication meetings, Coeur d'Alene Basin Natural Resources Restoration Trustee Council, and North Idaho Water Rights Alliance. The stakeholders attended the forums to fulfill their advisory roles, to gather information, and to be part of the solution. 71.4 percent of the respondents found the forum very helpful in addressing the issues in the subbasin. Likewise, 71.4 percent viewed the forum as a learning opportunity, and 57.1 percent felt that the process was very fair. Respondents reported the effectiveness of the forum on improving water management and cooperation among the stakeholders to be moderate.

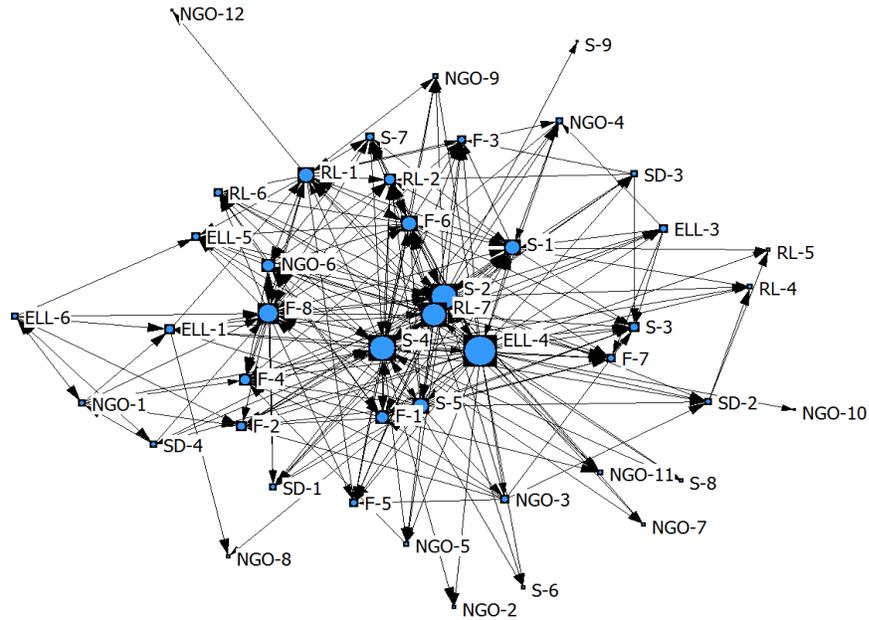
As regards to barriers to cooperation in the forums, process controlled by dominant groups and low attendance in the forum were reported to be the high level barriers. Time demands, lack of binding authority, inclusiveness, confusing procedures, scientific uncertainty, trust among the participants, and self-interests were considered to be low level barriers. Lack of common views among the forum participants was also a barrier to cooperation but respondents were divided whether this was a moderate or a high level barrier.

### ***Communication network***

Figure 1 shows the communication network between 44 stakeholder organizations, where circles represent the stakeholders (nodes) and ties between the nodes represent communication contacts between the stakeholders. Larger the circles, the more contacts the respective organizations made to other stakeholders. Some stakeholders are very active with many outgoing contacts than many in the periphery that have few outgoing contacts (Figures 1 and 2A). This is also the case with incoming contacts, which reveals which stakeholders liked by other stakeholders (Figure 2B). Incoming contacts are less variable than outgoing contacts. A few organizations (e.g., ELL-4) are very active (Figure 2A) but are not considered valuable by other stakeholders; ELL-4 is not even present in Figure 2B. Likewise, a few actors (e.g., RL-6) are not active (Figure 2A) but contacted by quite a few other stakeholders (Figure 2B). However, there are a number of stakeholders that are both active and popular.

No single organization is dominant in this subbasin network. Rather, the network characterizes multiple “hubs” connecting to peripheral organizations. The network also reveals that these organizational hubs are closely tied to each other. The presence of hubs and “clustering” among the hubs implies that a limited number of core stakeholders drive collaboration in the subbasin. Hubs help stakeholders to span structural holes by connecting to peripheral actors and to access non-redundant (new) resources or ideas. Close ties among a core group of organizations facilitate resolution of differences, coordinate actions, and maintain credibility of commitment by holding each other accountable.

**Figure 1. Network of stakeholder organizations in the St. Joe/St. Maries River Subbasin.**



Node size reflects the number of outgoing contacts. Arrows denote the direction of contacts. Arrow weights reflect the frequency of contacts (daily, weekly, monthly, once per quarter, every six months, once per year). The letter symbols denote type of organizations: F = Federal, S = State, RL = Regional or Local government, ELL = Education, Extension, and Local Industry, SD = Special District, and NGO = Non-Government Organization.

**Figure 2: Distribution of outgoing and incoming contacts**

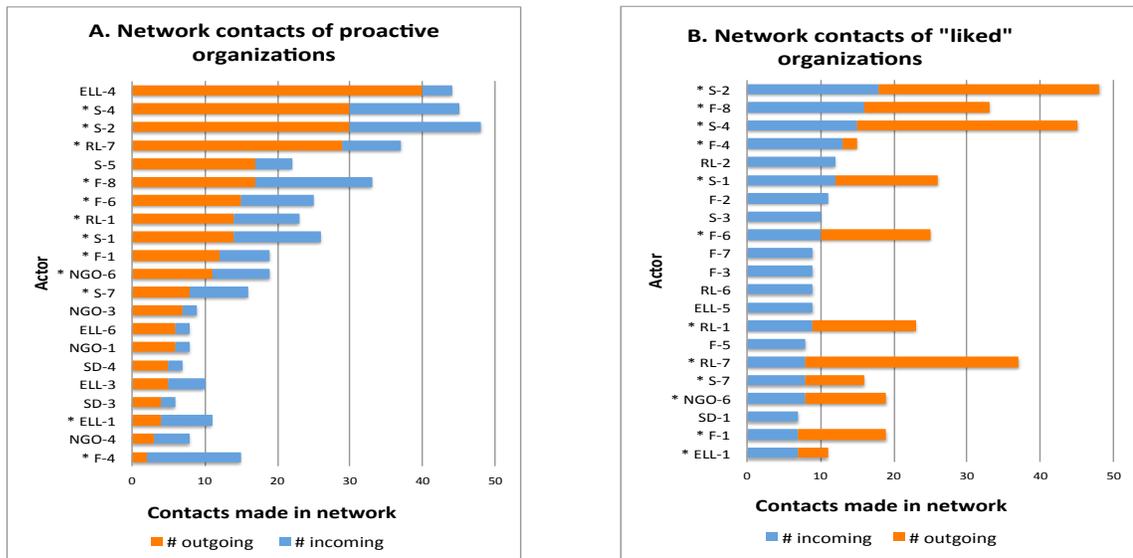


Figure 2A shows the proactive actors in the network. Figure 2B shows the most “liked” actors in the network, using the median of 5 incoming contacts as lower cut-off. Red denotes outgoing contacts, and blue represents incoming contacts from other actors. Starred actors appear in the both figures.

As regards to the perceived role of network in improving the watershed condition in the subbasin and future collaboration, majority of the respondents (68 percent) stated eagerness to collaborate in future. Although only about a quarter of the respondents felt that the network was helpful in solving water management problems in the subbasin, almost half of the respondents viewed that the network played important role in order to maintain regular interactions among stakeholders and to contribute towards addressing the issues they face in the subbasin.

## **Information Transfer Program Introduction**

The Idaho Water Resources Research Institutes Outreach and Information Transfer program is comprised of the following objectives: (1) To encourage and facilitate public involvement in water resource programs within the state; and (2) To promote water education within the state at the K–12, undergraduate and graduate levels. During the 2015 Program Year, 104B program and state funds were used to support the Idaho Water Resources Outreach and Engagement Effort, which is described in more detail below.

# Idaho Outreach and Engagement Project FY2015

## Basic Information

<b>Title:</b>	Idaho Outreach and Engagement Project FY2015
<b>Project Number:</b>	2015ID205B
<b>Start Date:</b>	3/1/2015
<b>End Date:</b>	2/28/2016
<b>Funding Source:</b>	104B
<b>Congressional District:</b>	ID-ALL
<b>Research Category:</b>	Not Applicable
<b>Focus Category:</b>	Education, Hydrology, Water Supply
<b>Descriptors:</b>	None
<b>Principal Investigators:</b>	Mark David Solomon

## Publications

1. Solomon, Mark, 2015, Rathdrum Prairie Integrated Water Resource Management, Idaho Water Resources Research Institute, University of Idaho, Moscow, Idaho, 35.
2. Solomon, Mark, E. Scott, 2015, Rathdrum Prairie Future Municipal Water Demand, Idaho Water Resources Research Institute, University of Idaho, Moscow, Idaho, 172

## **Idaho Water Resources Outreach and Engagement Project 2015 Summary**

### ***Bringing Water Resources Education to the K-12 Classroom***

Approximately 212 teachers were trained during 12 accredited Water Education Workshops that were delivered at locations across Idaho. In addition, IWRRRI participated as an i-STEM provider at the Idaho i-STEM summer institutes in Twin Falls and Boise and continued coordinated efforts with the Boise Watershed Center, Idaho Water Education Foundation and the Idaho Department of Environmental Quality on various K-12 education and outreach efforts. IWRRRI also trained 4 Project WET Facilitators, participated in the training and development for Climate Science coursework and made presentations to teachers at the annual Idaho Science Teachers Conference, the Idaho Environmental Education Conference and Teacher's Night Out, with an estimated 212 teacher contacts.

### ***Providing Water Resources Experiential Learning to K-12 Students***

IWRRRI participated in youth outreach efforts across the state, including the Water Awareness week (over 6,500 attendees) events and provided materials and support for the Youth Water Festival in Moscow, Idaho.

### ***The Idaho Water Resources Research Seminar Series***

Beyond supporting K-12 education, IWRRRI provided a state-wide water resources seminar series during the Fall semester of 2015, delivered via a compressed video system to Boise, Moscow, Pocatello, Idaho Falls and Coeur d'Alene. During project year 2015, IWRRRI expanded its reach across the state of Idaho, through increasing its seminar and professional outreach activities in Northern Idaho via direct stakeholder engagement and through K-12 workshops supported and/or delivered by IWRRRI at its Community Water Resources Center on the University of Idaho campus in Coeur d'Alene, ID.

***The Idaho Travel Grant Program-*** During Project Year 2015, travel support was provided to the Director of the Idaho Water Resources Research Institute, faculty and researchers at the University of Idaho. Support was provided for travel to attend: the 2015 Annual AWRA Conference, November 15 to 19, 2015, in Denver, CO (Director and Associate Director); and the 2015 Annual National Institutes of Water Resources meeting (Interim Director); and for stakeholder engagement meetings across Idaho (Interim Director).

### ***Support for the Idaho Floodplain Workshop***

IWRRRI participated in the Pacific Northwest NORFMA (Northwest Regional Floodplain Management Association) held in Coeur d'Alene Idaho as a participant, not as an organizer this year, but stayed in communication with the Idaho Floodplain Managers Team and Idaho Department of Water Resources Floodplain Manager regarding the potential for planning of future events.

### ***Rathdrum Prairie Integrated Water Resource Management***

IWRRRI engaged water resource Rathdrum Prairie stakeholders to develop the region's first integrated water resource management plan (IWRM) that incorporated water quality along with the more traditional water quantity considerations. IWRM was conducted by IWRRRI Interim Director Dr. Mark Solomon.

### ***Additional Activities***

The Idaho Water Resources Research Institute also provided support to the Boise River Enhancement Network (BREN) during the project year. BREN was formed through a grant from the US Bureau of Reclamation 2013, with the purpose of the grant being to help form a network of water resource professionals and engaged citizens to share information regarding the condition

of the Boise River watershed, forward ideas to sustain the ecological services provided by the watershed and identify resources to help manage and restore watershed function. The grant was completed and accepted by US Bureau of Reclamation. A formal Boise River Enhancement Plan was drafted, provided for public review and comment, finalized and distributed through outreach events throughout the watershed including – the Boise Bash, 7 brown bag luncheons and 2 watershed field trips. The IWRRI Outreach Coordinator (Julie Scanlin) served as lead for the BREN Outreach Team and organized planning and facilitation of those events. She continues to serve on the BREN Coordinating Team as the lead for the Outreach Team. During the 2015 Program Year, training opportunities for water professionals were continued through interactions with the Boise Watershed Center. The Institute has continued its support of the annual Idaho Environmental Education Conference – Julie Scanlin served as Conference chair. IWRRI also maintained the capacity to provide statewide distribution of professional short courses and professional development workshop available to statewide water professionals. IWRRI continues to network and coordinated to work on a regional level with other institutes and water research entities. IWRRI continues its support of the Idaho State Chapter of the American Water Resources Association by recruiting members and providing sponsorship and publicity for several of its events. During the current project year, IWRRI also sponsored the Palouse Water Summit, held in Pullman, WA in October of 2015; the Idaho Water Users Conference, held in Boise, ID in January 2016; assisted with planning for the Spokane River Forum in March 2016 (sponsorship will be reported in the 2016 Project Year).

# USGS Summer Intern Program

None.

<b>Student Support</b>					
<b>Category</b>	<b>Section 104 Base Grant</b>	<b>Section 104 NCGP Award</b>	<b>NIWR-USGS Internship</b>	<b>Supplemental Awards</b>	<b>Total</b>
<b>Undergraduate</b>	0	0	0	0	0
<b>Masters</b>	4	0	0	0	4
<b>Ph.D.</b>	1	0	0	0	1
<b>Post-Doc.</b>	0	0	0	0	0
<b>Total</b>	5	0	0	0	5

# **Notable Awards and Achievements**