

Outreach Plan for the Hyporheic Assessment in Columbia River Tributaries Project #2007-252-00



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10/30/2020

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Citation:

O'Daniel, S. J., 2020. Outreach Plan for the Hyporheic Exchange, Confederated Tribes of the Umatilla Indian Reservation, Pendleton, Oregon.

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1 Abstract

To dissemination of our research, about how hyporheic exchange influences stream temperature regimes, we discuss our outreach plan using the SMART framework. Toward this end, this project has developed a web site that provides a high level view of our work to date, including where to find our model code, lessons learned and documentation of our past presentations. Further, we present a general structure of the web communication/outreach approach of the CTUIR Fisheries Program and projects. Also, we identify multiple, relevant audiences and the outreach examples associated with each. Finally, we discuss the opportunities and constraints associated with developing this plan in 2020 and the outlook for our outreach for the next several years.

2 Background

If scientific outreach is essential for progress on recovery planning for imperiled Pacific Salmon, then a strategic approach to identifying audiences and effective techniques are the means to disseminate information on the work of individual projects.

There is a growing body of literature about effective ways to engage the public in scientific outreach (Brown et al. 2004, Eklund et al. 2012, Drake et al. 2013, Johnson et al. 2014, Varner 2014, and Pham et al. 2016). However, the majority of the outreach literature is focused on the general public.

3 Our Approach

We have identified separate audiences that will benefit from knowledge of our project. These audiences include other CTUIR staff, cooperators and partners within the Columbia River Basin, others in the broader Pacific Northwest and colleagues outside of the region (national). Our approach before 2020, relied primarily on in-person communication at meetings and conferences. These audience categories were created using three sources of information:

1. practitioners that can rapidly use the information in the design of restoration projects,

2. managers, who can incorporate hyporheic processes into riverine habitat / water quality planning, and
3. colleagues that provide critical insights into improving our methods and data analysis.

This outreach plan was created in response to the ISRP request from the 2019 proposal review of this project. In this report, we continue the use of the *SMART* framework to describe each of our outreach / communication activities and products.

:

- *Specific*: We list the specific activities and the associated audiences for outreach efforts.
- *Measurable*: We describe how the tasks related to each outreach deliverable will be quantified, in time, and across multiple audiences.
- *Actionable*: We describe the specific outreach actions and activities we will take to disseminate our work.
- *Relevant*: We focus on engaging multiple audiences critical to salmon recovery, and discuss water temperature and how it contributes salmonid recovery and associated planning/management.
- *Time-bound*: We describe the anticipated frequency of each proposed outreach event, for multiple audiences, and the frequency of updates to the project web site.

4 Identifying distinct audiences and outreach types- Hyporheic Flow Assessment Project

During the past several years, from 2012 to the present, we have focused our outreach on 4 principle areas:

- within the CTUIR,
- in the basins where the CTUIR co-manages rivers,
- within the Pacific Northwest and
- nationally.

Meetings within the CTUIR

Typically, the CTUIR Fisheries Habitat Program holds semi-annual meetings to review projects and discuss the lessons learned. I have presented results from this project at the Habitat Program meetings three times. Two of these presentations focused on the water temperature dynamics in Meacham Creek and the changes imparted by several restoration projects.

Each year, since 2012, the CTUIR Department of Natural Resources (DNR) alternates between holding an all DNR meeting and an open house for the local community. Typically, the all DNR meeting includes talks from each program (Cultural Resources, Fisheries, etc.) and an invited talk. The CTUIR DNR open house is organized around Tribal staff presenting their work through a poster or at a booth. The local community is invited and encouraged to interact with Tribal staff about their work. The average attendance of this open house, varies between 120 and nearly 200 people. I have presented material from the Hyporheic Exchange Project three times at the all DNR meeting as an invited talk and at each DNR open house (5 times).

Conferences within the basins where the tribes work

In the past these meetings have been organized by local Watershed Council or individual agencies. We will seek to present at one meeting in this category every other year. Two examples of meetings in this category is the State of the Sciences meeting organized in Grande Ronde basin by the local watershed council and the Tucannon Basin all hands meeting

Regional events

We will continue to present at regional events throughout the Pacific Northwest and Intermountain West. Examples of past outreach in this category has included American Water Resources Association (state section meeting in Washington and Montana), River Restoration Northwest, Washington State SRFB meetings and CRITFC topical conferences (ex. Future of our Salmon).

National meetings

In the past we have presented our findings at several national meeting, including the Society for Freshwater Sciences, American Society of Limnology and Oceanography, American Geophysical Union and

American Water Resources Association. A great benefit of presenting our work at these meetings is to get feedback about our methods and discuss new developments that have influence on our work.

Field workshops / training

We are unsure when we can resume holding field workshops to engage with restoration practitioners, agency partners, scientists and other affiliated representatives. In these workshops we visit field sites in the river basins where we work and discuss our research, the application of research concepts in restoration planning and project outcomes. We anticipate the audience number will continue be small (8-10), but the hands-on approach and field setting contributes to valuable discussions. Often, these discussions stem from observations made during the field tour. This category is not listed in Table 1 because it is not regularly scheduled and is often subject to the influence of travel outside of the budget of this project.

In lieu of holding a workshop, we propose to develop and hold an on-line training focused on water temperature. The title of this training will be “Management and Restoration of Water Temperature Regimes”. Using an asynchronous on-line forum (<https://voicethread.com/>, <https://conceptboard.com/de/use-cases/meetings/> or an equivalent), we will organize a training that brings together academics, fisheries managers and restoration practitioners. This format can support many more participants than an in-person workshop and, we hope, promote some of the detailed discussions typical in live events. This on-line format preserves the talks, comments and discussion among participants. Talks, comments and responses are not live so that participants can access and review the material on their own schedule. Further, we expect to have long term access to training material, discussions and comments allowing us time to evaluate the effectiveness of this training media.

Geographic Scope	Audience	Meeting Frequency (that we present)	Meeting Title
Within CTUIR	Restoration practitioners, Managers and Public	semi-annual, annual	CTUIR DNR Open house, All DNR staff meetings
Within CTUIR Ceded River Basins	Restoration practitioners, other researchers, Managers and Public	Biannual	State of the Sciences (GR Model Watershed)
Pacific Northwest	Restoration practitioners, other researchers and managers	Biannual	RRNW, Future of our Salmon (CRITFC), AWRA (state meetings)
Nationally	Other researchers	Biannual	SFS, AGU, ASLO

Table 1. Examples of our past outreach for in-person meetings.

5 SMART reporting

The results of our outreach efforts will be documented in the annual reports for this project.

- *Specific:* We will create and update a web site that focuses on high level communication of our project. Also, we will find new on-line forums and, through them, make presentations to a variety of audiences (see the Audiences column in Table 1).
- *Measurable:* We describe how the tasks related to each outreach deliverable will be quantified, in time spent and progressive development of outreach materials for specific audiences. Further, where we can, we will solicit evaluations of our outreach activities to provide feedback about our effectiveness (Varner 2014).
- *Actionable:* Within our project capacity, we describe the specific outreach actions and activities we will use to disseminate our work.
- *Relevant:* We discuss the importance of outreach efforts to better understand the role of hyporheic exchange in water temperature regimes.

- *Time-bound:* We describe the anticipated frequency of each proposed outreach activity and effort necessary to maintain the project web site.

Specific

We will create and update a web site that focuses on high level communication of our project (see the section below). Also, we will seek out on-line forums, through which, we will present progress on our project. We will pursue a cross-audience training to reach a more diverse set of participants than our previous outreach efforts.

Measurable

Using visits to our web site and feedback forms at presentations we anticipate creating data about our outreach activities that can be tracked over time. User feedback forms are a simple, inexpensive and direct path to receive feedback about our outreach. We will design both on-line and in person forms that will provide information about our effectiveness. The results of these forms will be summarized and discussed in our annual report.

We are currently investigating the types of information that can be obtained from visitors to the project web site. Our aim is to report on the types and frequency of users to the project web site. Progress on our development of this information will be delivered in our annual report.

Actionable

We have worked within the CTUIR to develop and publish the project web page and will continue to update the web site using internal capacities. Further, we have made several presentations via ZOOM and Microsoft Teams to both public and agency audiences during this past year. These technologies are stable and we have adapted to using them over the course of the past 8 months. Thus the

Relevant

We will continue to focus on the influence of hyporheic exchange and floodplain processes influence water temperature regimes in CRB rivers. Our efforts to organize and complete an asynchronous river temperature workshop are a useful example of how we will utilize online technology to

organize a meeting that takes advantage of the current “work-in-place” restrictions on travel and in-person meetings.

Time-bound

During the remainder of 2020, and through 2021, we anticipate continuing our outreach efforts exclusively through on-line forums. Our web site will be completed by the end of 2020; after which, we anticipate updates approximately every six months. We expect to organize and complete an asynchronous, on-line water temperature regime workshop during 2021. Additionally, we state rates of outreach for various audiences (above – see Table 1) and will report on how we met the targets and what we learned from the feedback we received.

6 Web site for the Hyporheic Exchange Project

During the strange and unusual time of 2020, we took the opportunity to build a web site to extend the outreach of this project. This web site is our primary outreach product for 2020. It can be found at -

<https://hyporheicexchange.ctuir.org/>

We have created an initial “Lessons Learned” section on the Science tab of this project web page. Also, we have placed a link to the Github site, where the most current version of the water temperature model (temperheic) is available.

We anticipate that for the near future, our outreach efforts will focus on a combination of on-line meetings and visits to the project web site. Our goal in developing this initial site was to disseminate high level information about products and people involved in this effort. This site follows a common layout, identifying the broad goals of the project on the home page. Subsequent pages describe the science, people, images and outreach. Many established outreach opportunities were disrupted through the majority of 2020. We took this opportunity to build an initial project web page that we will add to over time (see Figures 1 through 7 below).

Our current outreach tab, on the project web page, lists talks that date back to 2004. At that time this project was supported by a BPA Innovative Project, titled “Habitat Diversity in Alluvial Rivers”. We includes a continuous list of talks to show the development of these concepts through various projects and sources of support. During the next project year, we anticipate completing a list of past presentations for all categories listed in Table 1.

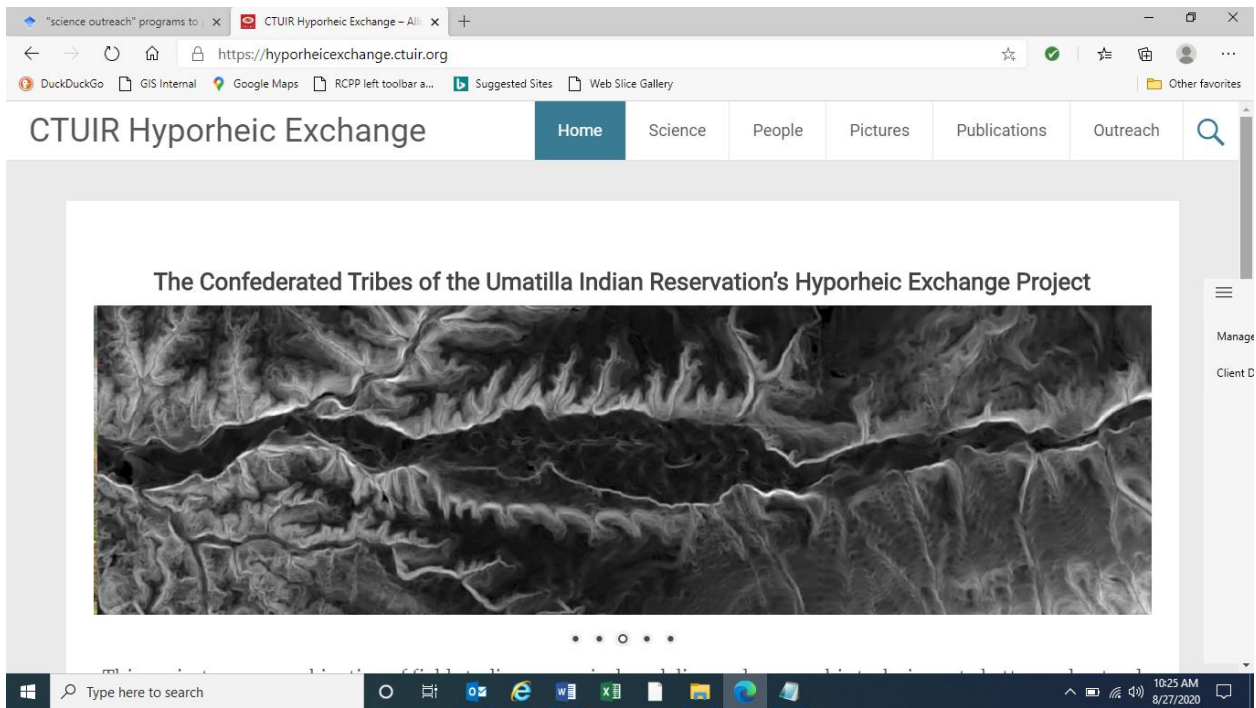


Figure 1. This image shows one of the scrolling images on the opening page of the Hyporheic Exchange Project web site.

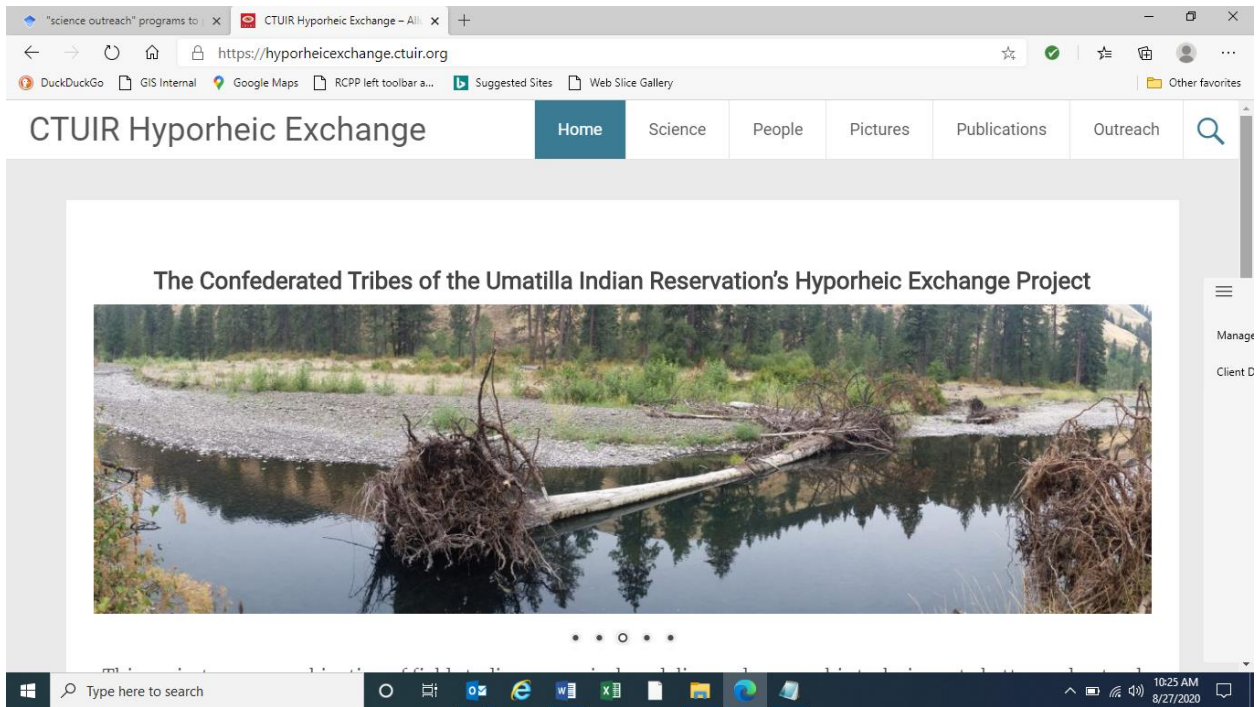


Figure 2. This image shows one of the scrolling images on the opening page of the Hyporheic Exchange Project web site.

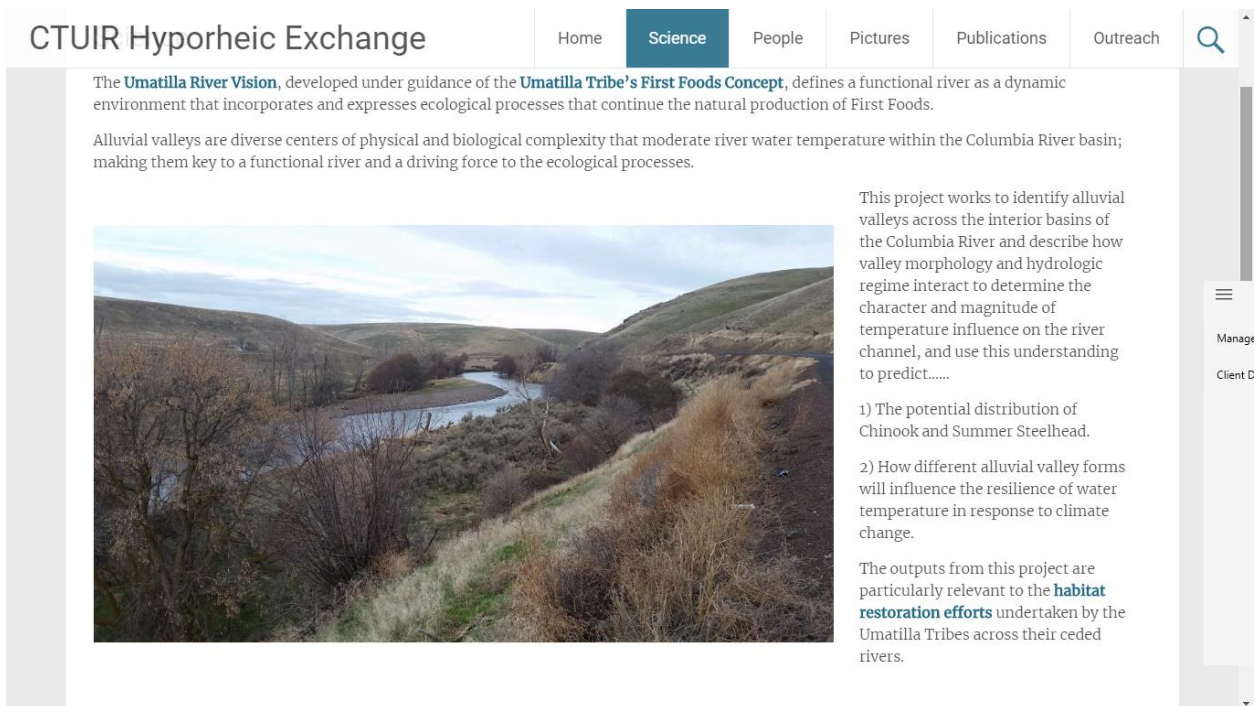


Figure 3. This image shows the top of the “Science” tab on the Hyporheic Exchange Project web site.

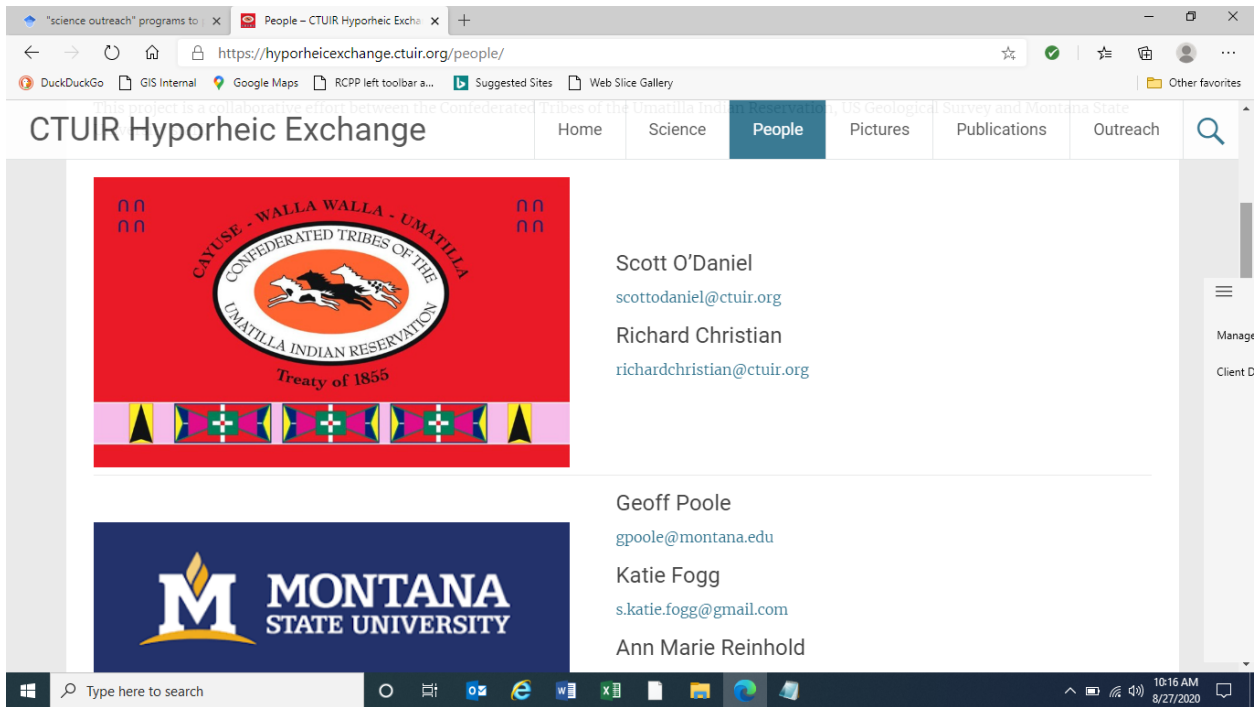


Figure 4. This image shows the top of the “People” tab on the Hyporheic Exchange Project web site.

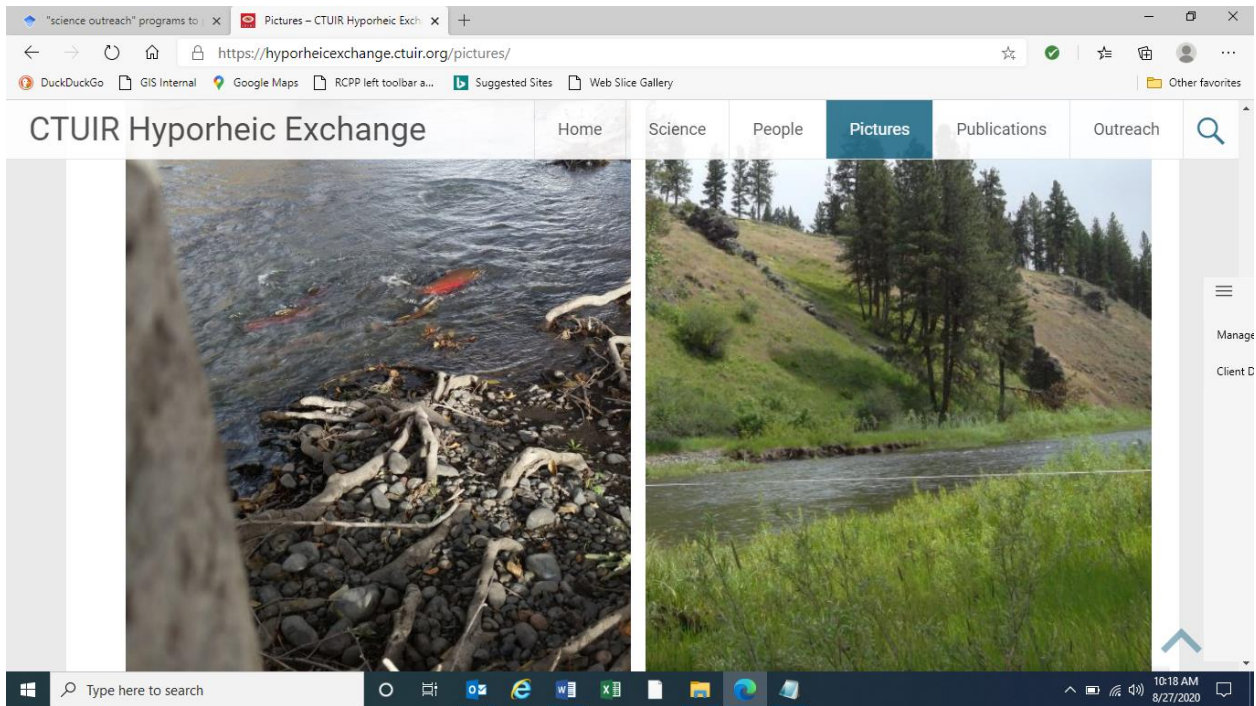


Figure 5. This image shows the top of the “Pictures” tab on the Hyporheic Exchange Project web site.

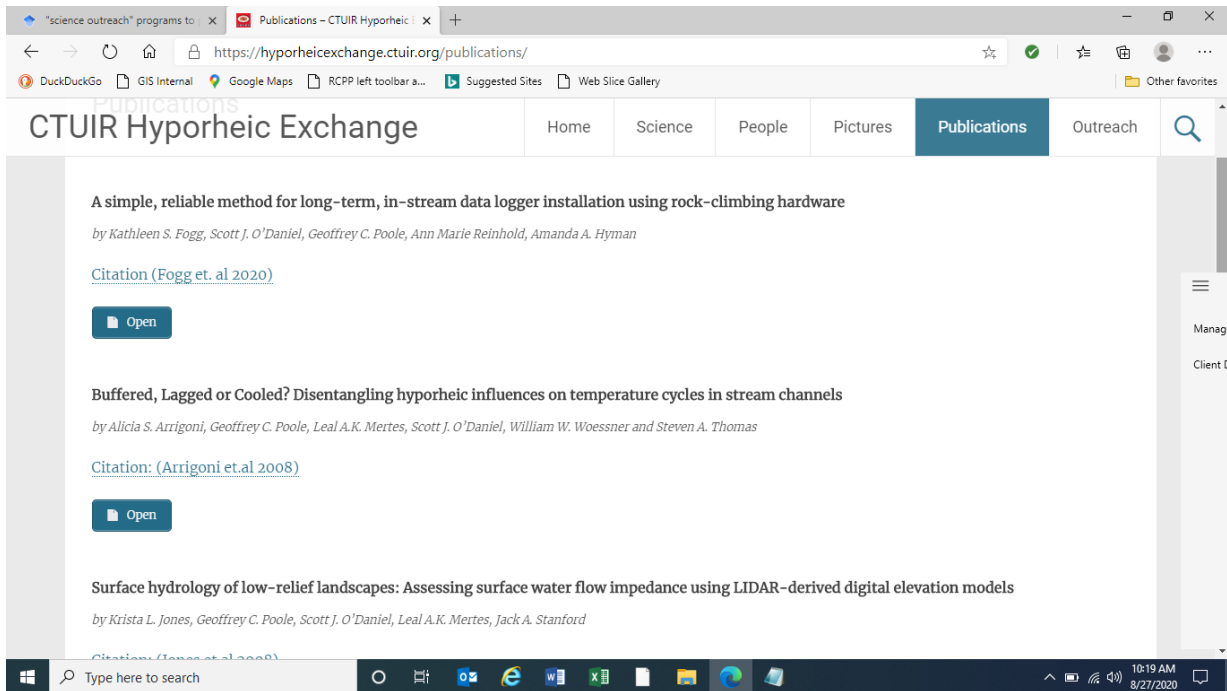


Figure 6. This image shows the top of the “Publications” tab on the Hyporheic Exchange Project web site.

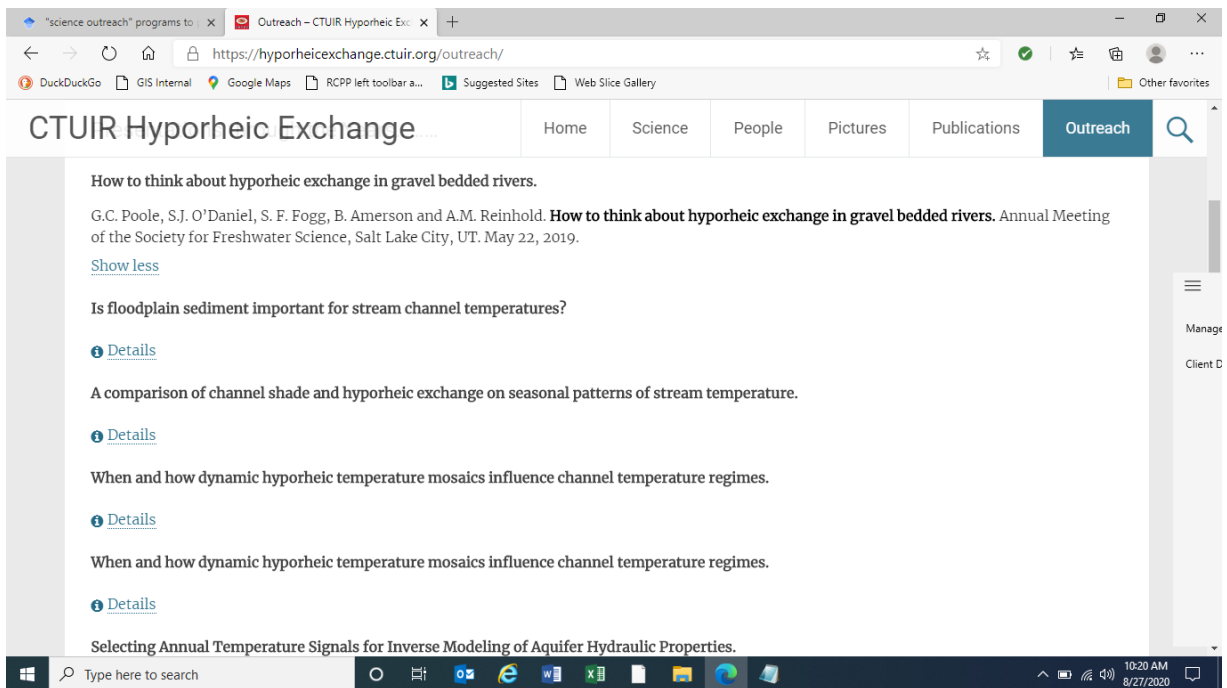


Figure 7. This image shows the top of the “Outreach” tab on the Hyporheic Exchange Project web site.

7 CTUIR systematic approach for web site standards

In parallel with the development the Hyporheic Exchange web site, we, in coordination with other workers in the CTUIR (in the GIS and IT programs) have created a structure for the high level architecture for other web sites (see Figure 8 and Table 2). This work has included defining and registering the domain names for each of the CTUIR Fisheries Habitat Projects, defining the process of storing long-lived information in the CDMS and working with individual project leaders (ex. Tucannon Fisheries Habitat Project (2008-202-00) to design and complete web sites. To better control content updates and limit extraneous advertising the CTUIR has developed this site at the CTUIR using Tribal staff and servers.

We have used the CTUIR's Central Data Management System (CDMS) to hold all of the content displayed on the web pages. All content of the web site - the photos, reports, tables and other documents are drawn directly from the CDMS and displayed on the site. This approach supports simple and traceable file organization system for the contents of several web sites. Additionally, the CDMS is the repository for the data collected by the CTUIR. Thus, we anticipate that the CDMS and CTUIR web site architecture will aid in a more efficient delivery of data (ex. data visualizations and other management applications) to managers and other users.

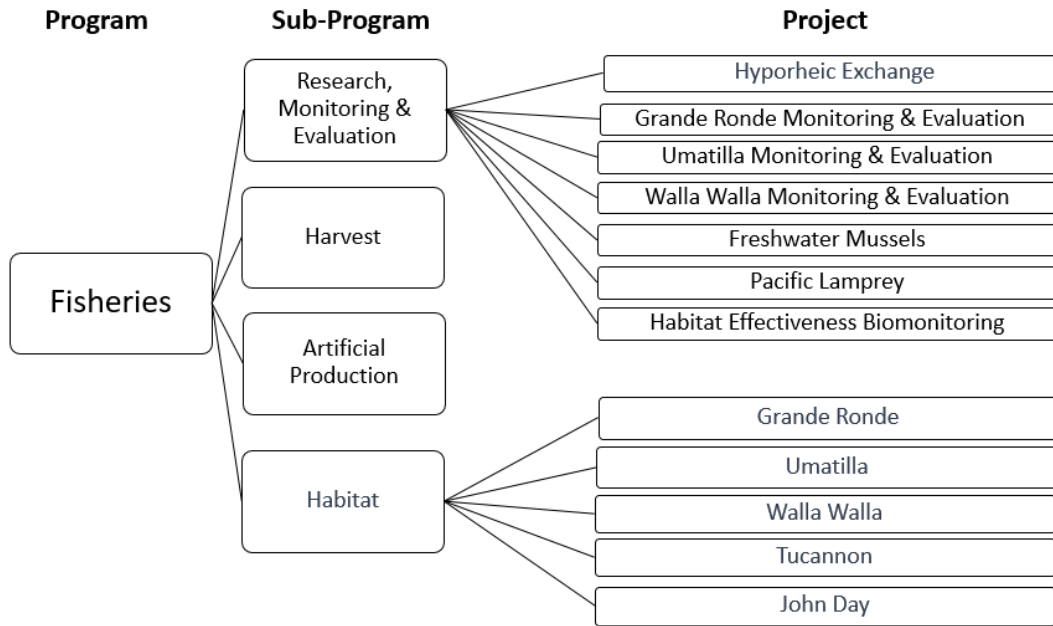


Figure 8. Fisheries program website organizational structure with the initial project pages identified in gray.

Web address / Domain Name	Geographic Area	Level of Completion
http://fisherieshabitat.ctuir.org/	Ceded Rivers	In Progress
http://tucannonriver.org	Tucannon R.	Completed
http://umatillariver.org	Umatilla R.	In Progress
http://wallawallariver.org	Walla Walla R.	In Progress
http://granderonderiver.org	Grande Ronde R.	In Progress
http://johndayriver.org	John Day R.	In Progress
https://hyporheicexchange.ctuir.org/	Ceded Rivers	Completed

Table 2. CTUIR Fisheries Habitat and Habitat related project web sites. Sites listed in blue font are currently available.

8 NEXT STEPS

Following the SMART format, we will report on outreach progress in each annual report. As we have in our past annual reports, we will document the types of outreach along with dates and times of each meeting. In addition, we will document the audiences that we reached through each of the outreach activities. Additionally, we will present statistics about visits to our project web page. Enhanced web statistics that describe the types of visitors will be investigated, and reported.

We continue to develop high level structures for the CTUIR web sites. A recent example of our ongoing work is a collaborator tab in some of the CTUIR Fisheries Habitat web pages (ex. CTUIR Tucannon River Habitat Project). The collaborator tab allows direct, secure data transfer between the CTUIR and others.

We anticipate a reduction in the total number of presentations during the remainder of 2020 and 2021. However, we are currently scheduled to present in-progress work on the Meacham Creek modeling at a national EPA 106 meeting in January of 2021. Also, we are scheduled to present a talk on this project at an online seminar hosted by the USFS Forestry and Range Science Lab, La Grande in February of 2021. We are actively seeking opportunities for online presentation to further our outreach efforts.

Additionally, we will continue to develop the project web page to include more detail about our history of presentations to local and regional watershed groups. This information is currently missing from the Outreach tab of the web page. Also, we will add detail to the lessons learned section by linking outputs of this project to restoration outcomes.

9 LITERATURE CITED

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