# WORKING DRAFT DOCUMENT EPA Grant Proposal Project Narrative

[---10 pages does not include: programmatic resources and personnel, description of roles of project partners, detailed itemized budget, previously awarded agreements]

Section 7 Project Narrative

## 7.1 Project Goals, Outputs and Outcomes

*7.1.1 Background and Business Need*

This application proposes the development of a Salmonid Coordinated Assessment Data Exchange (SCADE) in support of a regional Columbia River watershed data sharing effort, the Coordinated Assessments (CA) project.  The overarching goal of the CA project is to improve the timeliness, reliability, and transparency of data necessary for regional assessments and management decisions for improved environmental effectiveness.  PNAMP, CBFWA, and StreamNet have collaborated to coordinate the CA project with a 14 member CA Planning Group providing overall leadership. The action agency and fisheries co-managers participated through the CA Working Group which was comprised of over fifty additional biologists and data managers across the Columbia River Basin representing 26 different tribal, state, federal, academic, and private organizations.

The Coordinated Assessments (CA) project had its origins in a series of sub-regional and regional workshops held in 2009, the Columbia Basin Anadromous Salmonid Monitoring Workshops.  From those workshops the draft Anadromous Salmonid Monitoring Strategy emerged and agreements were made among federal action agencies and the state and tribal co-managers for monitoring to collect data to answer key management questions related to Viable Salmonid Population (VSP) parameters.  **The key business need identified in this strategy was the need to improve the process for obtaining and combining VSP data from the various collectors of this data. As described below, the proposed Salmonid Coordinated Assessments Data Exchange (SCADE) project seeks to improve the ability of partners to manage, exchange, access and use these data in support of improved local and regional environmental management decisions.**

A key output of the CA effort, to date, has been the development of an agreed upon data exchange template (DET) describing the data elements and their structure needed to support the exchange of three VSP indicators and supporting metrics: natural origin spawner abundance, smolt to adult ratio, and recruit per spawner. The DET was developed with wide participation of the larger working group, first through an extensive pilot program to document data flows and availability of the indicator and

supporting metrics conducted with Oregon, Washington, and Idaho state agencies, six Columbia River Basin tribes, and one tribal coalition (Columbia River Inter-Tribal Fisheries Commission). This was followed by intensive focus on refining the draft DET by a development team consisting of data management and resource management expertise. The draft DET was then vetted and approved by the CA Working Group for implementation.  We believe that this DET and the partnership behind it **demonstrates the feasibility** of successful implementation of the proposed data flows, given that work can begin immediately on data exchange mechanisms without the need to start from scratch on DET development.   Another major accomplishement from the CA project was the development of the Columbia River Basin Collaborative Data Sharing Strategy.  This strategy identified a long term outline for developing a data exchange and provided the 10 contributing agencies and tribes an opportunity to develop individual plans for developing systems to support sharing this important salmon and steelhead data.  This grant application addresses one element of the overall basin-wide strategy primarily being funded through Bonneville Power Adminstration.

This application is structured as a **partnership agreement** with the respective increased resource request because of the extensive partner to partner coordination required and because project completion will require the development of several major cross-partner infrastructure components. As described in the goals section and detailed budget these components include:

- XML Schema and associated documentation
- Flow Configuration Document
- Tribal Data Management Application
- Devleopment of an integrated repository and web service publishing plateform

As described below, upon project completion these infrastructure components will be available for use by other partners working with salmonid indicator data throughout the Pacific Northwest. All services and components created will be registered in their respective EPA EN Registries (ENDS and RCS).

7.1.2 Project Goals, Outputs and Outcomes

Implementation of the SCADE will be organized according to the five project goals:

1) Establish Project Governance
2) Refine DET and Develop XML Schema
3) Ready Partner Local Data Management Systems
4) Implement Virtual Data Sharing
5) Implement 24/7 Data Publishing

NEED TO ADD RESOURCES AND $ TOTALS FOR EACH GOAL
NEED TO REVIEW DATES

| Goal 1: Establish Project Governance | | |
|---|---|---|
| Output | Resource | Target Date |
| • Existing Coordinated Assessment Planning Group established as SCADE Project Steering Group | | 9/1/2013 |
| • Establish Project Management Team | | 10/1/2013 |
| • Establish Schema Devleopment Team | | 11/1/2013 |

| | | |
|---|---|---|
| • Establish Exchange Implementation Team | | 12/1/2013 |
| | | |
| *Outcome: Project is organized for success. Project design ensures that primary partners and secondary users are able to integrate SCADE information into local and regional management systems for more complete and timely data access in support of improved environmental decision making in their individual Agencies* | | |

Goal 1 establishes the governance and management of the project. As described above the Coordinated Assessments Planning Group has been operational for two years and has overseen the development of the DET, the group is composed of all key project stakeholders and is knowledgible about the implementation steps needed. The establishment of specialized teams for the various project components is modeled after the sucessfull Juvenile Migrant Data Exchange. The Project Management Team will report to the project manager (Brodie Cox, WSFW) and be responsible for overall project coordination. All teams will be staffed by a contracted Project Coordinator. The Schema Development Team will focus on translation of the CA DET into an XML schema and the testing, and finalization of that schema. The Exchange Implemenation Team will be composed of two sub-teams:
- *Exchange Configuration Team* which coordinate implementation work of partner's with existing systems, and develop the Flow Configuration Document.
- *Tribal Data Management Application Team*, which will oversee development of an application for Tribal use to manage and share SCADE data. This team will be chaired by a Tribal representitive.

*All of these teams will include programmatic staff from one or more partners to ensure that programatic issues are considered in the design and implementation of the project. Programmatic staff are identified in the Team Composition Tables in Section X*

| Goal 2: Develop XML Schema and Exchange Design | | |
|---|---|---|
| **Output** | **Resource** | **Target Date** |
| • Identify needed DET refinements (including addition of locational data) and develop XML schema requirements | | 3/1/2014 |
| • Develop Draft XML Schema | | 5/1/2014 |
| • Test Draft XML Schema | | 1/1/2015 |
| • Submit Draft XML Schema for EN review and registration | | 5/1/2015 |
| • Finalize XML Schema | | 7/1/2015 |
| • Establish exchange/publishing design and document in Flow Configuration Document | | 8/1/2014 |
| *Outcome: Based on standardization of data format into a shared XML schema, regional partners are better able to access and integrate data from multiple sources and across juristictional boundaries, in support of improved decision making. The additional metadata included in the the XML schema will improve the ability of partners to interpret and use these data in support of improved decision making.* | | |

Goal 2 is the development of the XML Schema and the overall exchange design, including web publishing services, as documented in the Flow Configuration Document. This work will be conducted by the Schema Development Team with a specialist technical contractor support. Schema development will include the determination and design of the appropriate spatial enablement of the schema. Prior to schema development, team will review the EN Guidelines for Schema Developers, and will search the RCS to identify re-usable schema components. The Flow Configuraiton Document will document the major exchange components of the project including: flows from data collectors to StreamNet, download of complete data sets for virtual sharing, and publishing web servcies outbound from StreamNet.

| Goal 3: Ready Partner Data Management Systems | | Target Date |
|---|---|---|
| **Output** | | **Target Date** |
| • Identify needed changes to existing State/Tribal partner source systems | | 5/1/2014 |
| • Conduct build/buy/adapt analysis to develop solutions for Partners with data but without an existing (or with an inadequate) data management system | | 5/1/2014 |
| • Plan and Implement needed refinement to existing partner systems | | 1/1/2015 |
| • Develop Tribal Data Management System | | 1/1/2015 |
| • Conduct needed data entry, organization and cleaning | | 6/1/2015 |
| *Outcome: Partner systems will provide improved local  data availability and integration functionality to better support  Agency's <u>local</u>, place based management decisions.* | | |

Goal 3 is to ready the data and data management systems of data collectors in preparation for mapping to the Schema and exchange client implementation. For the State partners this will consist of work such as query development and staging table design. For Tribal partners, the Exchange Implementation Team will conduct a build/buy/adapt analysis to support Tribal management of this data, this will include evaluation of the client application developed as part of the Juvinille Migrant Exchang project. Preliminary anaysis suggest that a centrally hosted web application may be the most effficient design to support multiple Tribal partners. An important outcome of this project component will be the improved local access and managemnt of these data by the individual data providers for local use in improving environmental decision making.

| Goal 4: Implement Data Exchange to Support Virtual Sharing | | |
|---|---|---|
| **Output** | **Resources** | **Target Date** |
| • Map partner data sources to XML Schema | | 3/1/2015 |
| • Configure virtual node for exchange functions as defined in Flow Configuration Document | | 3/1/2015 |
| • Implement Tribal Data Management Application | | 3/1/2015 |
| • Configure partner client applications for exchange functions as defined in Flow Configuration Document | | 4/1/2015 |
| • Test virtual data sharing functionality | | 5/1/2015 |
| • Establish Trading Partner Agreement to document security/sharing  proceedures | | 6/1/2015 |
| • Mount sharable data on data.gov infrastructure for improved public access. | | 8/1/2015 |
| | | |
| *Outcome: Virtual Sharing of SCADE supports improved access to additional documented data (especially from upstream and downstream partners) which will improve local environmental decision making.* | | |

Goal 4 uses the system improvements and the tribal application developed in Goal 3 to implement client and node web servcies **to support virtual sharing** of these data. We propose to utilize the EPA Virtual Node servcies to implement the data receipt web services with which the client applications at the data providers would interact. Sharing would be enabled by aggregating partner data in a cloud based repository managed by StreamNet which could be accessed via a web sharing application. Authorized parterns could use this application to share datasets, without the need to access local data stores. The Project Management Team will oversee development of the Trading Partner Agreements needed to enable exchanges. Agreement will include development of the security configuration  for sharing and publishing services. Sharable data will also be mounted on the data.gov plateform to provide an additional, and easy to implement, public sharing mechanism.

| Goal 5: Implement 24/7 Data Publishing | |
|---|---|
| **Output** | **Target Date** |
| • Configure virtual node web servcies per specifications in the Flow Configuration Document | 6/1/2015 |
| • Develop/adapt integrated access client for SCADE, JMX, WQX and PNWWQX exchanges | 11/1/2015 |
| • Test integrated client and node web servcies | 12/1/2015 |
| • Integrate services into exsiting StreamNet web access tools | 2/1/2016 |
| • Registration of public publishing servcies in ENDS for integration with the EN Browser Tool | 4/1/2016 |
| | |
| *Outcome: Publishing of SCADE data allows for broader access (including improved public access) across full range of secondary partners, this will support improved partner coordination and regional decision making.* | |

Goal 5 is to publish on a 24/7 basis the data aggregated in Goal 4; work under this goal will be coordinated by the Data Exchange Team.  This publishing functionality will include the capability to, for the first time, query data across data providers, and pull down sub-sets of the submitted data. This component will also make use of the EPA Virtual Node Services for the outbound publishing web services. A web based client will also be developed to integrate SCADE, JMX, WQX and PNWWX data via their respective web services.  In addition these data will be integrated into StreamNet's existing public data query tool which will allow access of related data alongside SCADE data. Public publishing services will be registered in ENDS to allow integration into the EN Browser Tool.

7.2   Exchange Network Priorities

The proposed project implements three Tier I priorities:

- **24/7 Data Publishing**: the project will aggregate and publish SCADE data from a cloud based data repository allowing consumpiton of this data by client applications and private/public websites. Data will be published in both standard EN format and as EN REST based services.
- **Use of the Exchange Network for Virtual Sharing**:  the project will allow virtual sharing of data sets across State/State, State/Tribal, and Tribal/Tribal juristictions. Virtual sharing configuration will allow authorized partner access to datasets without the need to access partner local systems. Because this capability will be provided across juristictions it will support improved regional environmental management across the entire Columbia Basin Watershed which is of priority concern.
- **Virtual Node Implementation**: the project proposes to *create data publishing services and new data flows* using the EPA Virtual Node servcies.  The SCADE flow is a new flow for the Exchange Network. Use of Virtual Node will avoid need for installation of a local Node at StreamNet. Instead, data providing partner clients can interact with the Virtual Node to aggregate data in a cloud based repository for data set sharing and re-publishing as described above.


In addition to these Exchange Network Priorities, the SCADE project will produce several re-usable components of relevance to other entities managing salmonid data, this includes all of the

environmental and wildlife Agencies and Tribes on the west coast including Alaska. These components include:

- The SCADE Schema, which could be used for salmonid indicator data from any watershed
- The SCADE data repository and Tribal Data Management Application, which could be re-used by any data providing partner. Selection of a hosted solution for this application would mean that new partners could implement the flow with no local software instalation and only minimal central security configuraiton.

Key Resources and Personal

Organizational Roles

| Partner | Role |
|---|---|
| WDFW (lead role) | WDFW will act as the lead applicant for the project. WDFW will provide the Project Manager (Brodie Cox, WDFW) as well as providing the programmatic and administrative reporting to EPA.  WDFW will distribute funds according to the detailed budget outline, and source (via RFPs) contracting resources needed for cross project assets such as the Schema, Flow Configuration Document and Project Coordinator. |
| State Data Providing Partners<br>• WDFW<br>• ODFW<br>• IDFG | State data providing partners will be responsible for configuring their local systems, doing any needed data organization, entry and cleaning and implementing the exchange client to enable the flow. State partners will also be responsible for providing staff to participate in the various project teams. |
| Tribal Data Providing Partners | Tribal Data Providing Partners will be responsible for participating in the design of the project, most specifically of the Tribal Data Management Application, and, with support from StreamNet (and CRITFC) implement the application to make their data available. |
| CRITFC | |
| PCMFC/StreamNet | StreamNet will manage and oversee hosting of both the data repository and the Tribal Data Management Application. StreamNet will perform configuration of the Virtual Node for data receipt and publishing and will have a major role in development of the Flow Configuration Document. StreamNet will also provide direct support to applicable Tribal Partners in data preparation and use of the Tribal application. |

Project Teams, Personnel and Roles

CRITICAL THAT THESE ROLES ILLUSTRATE INVOLVEMENT OF PROGRAMATIC STAFF…NOT JUST TECHNICAL STAFF

| Project Management Team | | |
|---|---|---|
| Personnel | Title | Role |

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| Schema Development Team | | |
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| **Personnel** | **Title** | **Role** |
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| Exchange Implementation Team: *Exchange Configuration Team* | | |
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| **Personnel** | **Title** | **Role** |
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| Exchange Implementation Team: *Tribal Data Management Application* | | |
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| **Personnel** | **Title** | **Role** |
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