

# Request for Proposals

## Reference Estuary Study & Biological Conditions Report for the *Deschutes River Estuary Restoration Study*

### I. BACKGROUND INFORMATION

#### THE PROJECT

Thurston Regional Planning Council (TRPC) has received funding from the Salmon Recovery Funding Board (SRFB) to undertake a ***Deschutes River Estuary Restoration Study*** (DRERS) that will focus on data collection and modeling to determine the estuary's future biological conditions.

#### PROJECT OBJECTIVE

The objective of the CLAMP estuary feasibility study is to evaluate the possibility of a restored estuary as an alternative to the continued management actions necessary to maintain a lake in this setting. This will involve evaluating the potential benefits and shortcomings of possible estuarine alternatives and identifying those alternatives which have a reasonable likelihood of success, could be permitted by the regulatory agencies, and are supported by the local community.

#### REQUEST FOR PROPOSALS

Consultant proposals are being sought to complete two of the study tasks for this SRFB grant. Consultant proposals will be accepted for both tasks.

The tasks are as follows:

#### REFERENCE ESTUARY STUDY

Estuary restoration is an increasingly important objective for restoring salmon populations and improving watershed and ecosystem health. Simple restoration in rural locations requires little quantitative analysis and planning. Complex estuary restoration in urbanizing settings where stakeholders weigh ecological with economic, and increasingly, aesthetic considerations have many risks and liabilities that warrant sophisticated studies to predict outcomes as accurately as possible.

Specifically, this task will quantify environmental characteristics that define estuarine community types (e.g. emergent marsh, mud flat, etc.) from a series of reference estuaries

similar in size and physical conditions to the proposed Deschutes Estuary. The output of this gradient analysis (statistical models that relate physical conditions to community types) will be linked to outputs of physical models used to predict environmental conditions across the proposed restoration area. By understanding the relationship among environmental gradients and community types in reference estuaries, we will create probability-based models to predict the location and extent of estuarine community types within the restored Deschutes River estuary through time.

USGS is undertaking a related study task - *Hydraulic and Sediment Transport Analysis and Modeling* for this SRFB grant. Their model will predict how the Deschutes River estuary is likely to respond to the removal of a control structure (dam and some adjacent fill) at the mouth of the river (Capitol Lake dam). This model will simulate processes such as tidal regimes and sediment transport, and will result in maps of environmental conditions, including elevation gradient, sediment characteristics, salinity, and inundation frequency across the estuary. Preliminary results are expected from this phase of the study in early 2005, the model will be refined by the end of 2005.

These same characteristics will be used to select appropriate reference estuaries and, ultimately, to predict the location and extent of major community types. Because physical conditions in the estuary are expected to change community types will be predicted on a decadal timeframe. Short-term and transient conditions should be identified to the extent practical.

Considering that the modeled estuary may take different trajectories depending on different restoration scenarios and boundary conditions, there will be a range of physical model outputs that will need to be translated into different biological outcomes based on Discriminant Analysis. More than one restoration configuration will be considered (e.g., various opening widths at the mouth or partial freshwater impoundments in the north basin) in the hydraulic model; however, these options have not yet been identified. This study must make estuarine community associations with physical conditions that span the range likely to be encountered. As the model is developed, it will be important to understand the degree to which these conditions may vary.

Estuarine communities are structured by both physical (abiotic) and biological (biotic) processes that are both predictable and stochastic in nature. This study is limited to the effects of predictable (i.e. modeled, including floods) abiotic factors on the location and extent of the estuarine community.

## **BIOLOGICAL CONDITIONS REPORT**

This task will bring together the field and modeling work of the SRFB grant, in an effort to answer the overarching question of whether an estuarine community, with diverse populations of plants and other organisms, can be reestablished in southern Budd Inlet (Capitol Lake). This task will address expected biological conditions, as outlined above, but will also focus on key uncertainties, insofar as the physical and biological systems are concerned, that lie in the path of reestablishing an estuary within the current Capitol Lake basin.

The Biological Conditions Report must also determine how the following conditions and constraints may affect restoration:

- Land use and water management,
- Climate change (sea level rise, temperature),
- Passive recruitment of native species to the restored estuary,
- Need for active restoration activities,
- Human disturbance (now and in the future as our needs change), and
- Noxious weeds (e.g. Purple loosestrife and Eurasian milfoil) and nuisance species (e.g. Canada geese)

There may be other conditions or constraints (identified during Tasks 1 and 2 of the consultant's scope of work listed below) that should be added to this list. It will be essential to identify any reasons why restoring a tidal regime to Capitol Lake would not result in reaching the restoration goal of a functioning estuarine community.

## **II. SCOPE OF WORK**

The scope of work for the above tasks will include the following:

1. Conduct a literature review limited to the identification and classification of southern Puget Sound estuarine community (also referred to as habitat) types. Determine the suite of physical parameters that best distinguish those types from each other. Provide an annotated bibliography of literature review.
2. Work with the project sponsor and the *CLAMP – Estuary Study Work Group* to review interim physical models of the Deschutes estuary to determine the range of physical conditions that would likely occur in the Deschutes estuary after the removal of the Capitol Lake dam.
3. Select at least three but as many as 10 estuaries (based on physical criteria from Tasks 1 and 2 above) to serve as reference sites to develop an estuary community type gradient analysis. If possible, reference sites should include restored estuaries with a known history of physical and biological development.
4. Map coarse-scale community types including emergent marsh, tidal channel, mudflat, sandflat, gravel-cobbles in each reference estuary. These maps should be based on field investigations, as much as possible, but can also include reviews of existing data.
5. Select a random sample of community types from each reference estuary and characterize the physical conditions associated with that sample (see Task 1 above). This shall include, but will not be limited to: elevation, sediment characteristics, inundation frequency and duration, and salinity regime from literature review and site-specific conditions.

6. Use multivariate statistical techniques (e.g. Discriminant Analysis, Canonical Analysis of discriminance) to describe differences among community types in terms of physical variables across a subset of physical model scenarios.
7. Create a classification procedure (function) that predicts membership of each map unit (pixel) in the Deschutes estuary into a community type based on physical variables.
8. Prepare a series of maps of the Deschutes estuary to reflect different outcomes, as determined in Task 7 of the scope of work above, as well as different trajectories over time. The appropriate time interval and number of intervals will be determined through the development of the USGS Hydraulic and Sediment Transport Analysis and Modeling.
9. Prepare a Draft and Final report, which describes the protocol, findings, and conclusions of the aforementioned tasks. Coordinate with the project sponsor regarding the preparation of the report. Include in the report an analysis of the key uncertainties regarding the restoration of the Deschutes River estuary based upon the literature review. These uncertainties shall include, but are not limited to: land use and water management, climate change (e.g. sea level rise, precipitation, and temperature), the recruitment of native species and control of invasive species in the restored estuary, and human disturbance.
10. Review the Draft report with the project sponsor and the *CLAMP – Estuary Study Work Group*, obtain their comments and incorporate these, as appropriate, into the Final report.
11. Forward all digital and hard copy documents, maps, photographs, data bases, and presentations to the project sponsor with the final invoice.

The combined budget allocated for the two study tasks is \$100,000.

### **III. QUALIFICATIONS**

Firms (or individuals) must demonstrate a staff which has degree(s) in estuarine ecology, or a related field with work experience in estuarine environments; including an understanding of estuarine hydrology and sediment characteristics. Other desirable requirements include:

1. Experience in performing field analysis on plants in riverine, estuarine, and wetland environments.
2. Familiarity with theory and practice of multivariate statistical analyses in ecological studies.
3. A minimum of five (5) years' experience in preparing scientific reports, and working with databases and GIS maps to support findings, conclusions, and recommendations contained within those reports.

#### **IV. SUBMITTAL PACKET**

A "Proposal Packet" shall be limited to ten (10) pages of related descriptive text with no less than 11 point font and one inch margins. This page limit will be twenty (20) pages for those individuals or firms which apply for both tasks. Resumes of key personnel and a letter of interest will not be counted in the page restriction. Interested parties must submit eight (8) copies of the following:

- Name, address, and telephone number of the firm or individual,
- List of similar relevant projects,
- Names of project team members and description of relevant experience for each,
- References, including names and phone numbers of contact persons, and
- Cost to complete the scope of work by task.

#### **V. CONTRACT SCHEDULE**

The contract shall run from approximately May 10, 2005 until April 30, 2006.

#### **VI. SUBMITTAL DATE AND REVIEW PROCESS**

Proposal Packets must be submitted by 5:00 p.m. on Friday, April 1, 2005. It is anticipated that a selection of the firms or individuals to be interviewed will be made on or about April 20, 2005. Interviews with firms or individuals are anticipated on or about April 28 & 29, 2005. The week following the interview will be used to contact references and select the firm or individual to undertake the project. Once selected, the firm or individual will be expected to begin work immediately on this project.

#### **VII. CRITERIA FOR SELECTION**

Proposal Packets will be reviewed based upon the qualifications of the individual or firm, ability to meet the project time line, and the estimated cost to complete the Scope of Work.

## **VIII. REJECTION OF PROPOSALS**

Thurston Regional Planning Council reserves the right to reject any and all proposals received as a result of this RFP.

## **IX. EQUAL OPPORTUNITY EMPLOYER**

Thurston Regional Planning Council is an equal opportunity employer; women and minority-owned firms are encouraged to apply.

TRPC fully complies with Title VI of the Civil Rights Act of 1964, the Civil Rights Restoration Act of 1987, Executive Order 12898 on Environmental Justice, and related statutes and regulations in all programs and activities.

## **X. MAIL TO**

Proposal Packets should be mailed to:

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