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Development of a User-Friendly Web-Based Interface for a Fish Passage Barrier Remediation Tool

Questions and Answers

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NOTE: A supplemental information package (https://psmfc.sharefile.com/d-s9816dc7c764423fb) related to this RFP is available for download. The download package includes technical documents, the OptiPass executable and demonstration data.

1) ***In order to align our approach with the budget available for this project, can PSMFC please share the budget for this effort?***

   Ideally, costs will not to exceed $65,000.

2) ***Who are the potential end users for the focus group and where are they located?***

   The potential end users are anadromous fish passage practitioners throughout coastal California that seek to prioritize barrier remediation efforts.

3) ***How does the requested web interface development project for the Fish Passage Remediation tool and its potential end users relate to the functionality and users of the BIOS website (https://map.dfg.ca.gov/bios/?al=ds69)?***

   The BIOS website serves a very broad audience including the general public and CDFW staff. It is not targeted to addressing Fish Passage Remediation. The proposed tool would serve a more focused audience of restoration practitioners, planners and multi-agency staff that administer restoration funds. Both tools, however, will leverage the same database (PAD) that locates and tracks attributes related to fish passage barriers.

4) ***Can PSFMC provide documentation on the inputs and outputs (API methods) to request information from OptiPass?***

   OptiPass is not currently available as an API. It was originally developed as a Windows desktop application GUI using Visual C++. A detailed user manual for Windows based version is available that explains the required input file format (simple text file), output file format (simple text file), and the mean of / how to set various user specified options *(see supplemental information package)*. OptiPass was subsequently implemented as a Linux based console application. Functionality is the same. A list of command-line flags and required input file format (which

differs slightly from the Windows version) can be made available upon request. A Windows based console application can be easily provided if preferred.

5) Is it PSMFC's main goal to enhance what you have to be more user friendly or is it to rewrite everything?

The goal is to build a front-end web interface to the existing OptiPass executable. OptiPass itself does not need to be rewritten.

6) Can PSMFC provide current technical documentation?

Yes *(see supplemental information package)*.

7) The RFP states that there are readily available web map and features services for the scope of the proposed work. Who publishes and maintains those services and how do they currently relate to OptiPass?

Multiple options exist for this. Currently, web map services for the PAD are published and hosted by CDFW's BIOS team using ArcGIS Server. The current REST endpoint in use is: https://map.dfg.ca.gov/arcgis/rest/services/Project_PAD/PAD/MapServer. OptiPass has established a linkage back to BIOS for displaying selected barriers, but this implementation has limitations. PSMFC GIS staff are involved in the development of the underlying GIS data (barrier order, upstream habitat), and have the capability of hosting web map and feature services. The use of ArcGIS Online is also an option. OptiPass does not currently relate to published map services, as all spatial filtering and optimization is done from the input Excel file.

8) The RFP references the OptiPass tool as being developed and maintained by Dr. Jesse O'Hanley (https://kar.kent.ac.uk/46455/), but later directly quotes a description from an ArcGIS dependent version that is maintained by a group called Great Lakes Inform (https://greatlakesinform.org/decision-tools/573). Are these the same tools? The latter is stated as an ArcGIS for Desktop 10.1 only extension. Is that compatible with the readily available web and map features services referenced?

These are separate tools. The former refers to the Window desktop version of OptiPass. The latter is an online tool called FishWerks that incorporates functionalities of OptiPass, namely the underlying mathematical program for optimizing barrier mitigation decisions. Please see Moody et al. (2017), included in the supplemental information package, for more details about FishWerks.

9) The final set of functionality requests passing user selected data to OptiPass and displaying the results. What software/technology was the OptiPass model developed with? Does it have an accessible API (Application Programming Interface)?

See explanation given to point 4 above. An API is not available. For the purposes of the RFP, the vendor will need to interface with the Linux (or Windows) based console application by

generating a properly formatted input file, call the console application to find an optimal barrier mitigation portfolio, and then read in an output file for display in the front-end interface.

10) ***The Passage Assessment Database (PAD) is currently viewable through BIOS at https://map.dfg.ca.gov/bios/?al=ds69. Is the intent of this proposal to either leverage, or alternatively replace that interface for viewing barrier data?***

The BIOS viewer will remain and is managed by CDFW for a broader purpose and audience. The intent is to create a separate interface dedicated to fish passage remediation planning. Both systems, however, will leverage the same fish passage barrier database (PAD).

11) ***Have ArcGIS Online or ArcGIS for Portal been considered as technologies for developing the proposed solution? Are there any reasons why one or the other could or could not be used to develop the solution? (i.e. Agency technology standards, compatibility issues, licensing issues, etc.)***

ArcGIS Online or ArcGIS for Portal are both options. There are no reasons (agency standards, etc.) why those options could not be used as part of a solution.

12) ***Are there any preferred technologies for this project based on agency technology standards or other factors?***

No, not specifically. Note, however, that the long-term cost of maintenance and ease of management are criteria that will be used in evaluating proposed solutions.

13) ***Did a contractor modify OptiPass for California's Fish Passage Forum, or was that work done in-house? If a vendor did the work, are they eligible to bid on this opportunity?***

Optipass was modified by the contractor that developed the program. Yes, anyone is eligible to bid on this opportunity.

14) ***Can this work be performed remotely?***

Yes .

15) ***Has PSMFC already selected a platform for interactively viewing map and tabular data and interfacing with the OptiPass model? If not, has there already been an assessment that narrows down potential platforms for the web-based interface? Will assessment and selection of a platform be a part of the contractor's scope of work or will PSFMC complete this task?***

The ArcGIS (Esri) platform is already in use for publishing web services but the web-interface and decision support platform has not been pre-determined. We expect the proposed solutions to identify a technical approach that will call-out and describe the web-interface platform that is being proposed for use.

16) If a platform has already been selected, have software licenses been acquired?

The decision support framework and web interface platform has not been selected. If there are licensing costs associated with that proposed platform, they should be included in the proposal and future licensing costs should be identified. The GIS web services platform used by CDFW and PSMFC is ESRI's ArcGIS platform. Licensing for that aspect of the solution will leverage existing agency infrastructure.

17) Who will be part of the focus group of potential end-users?

Anadromous fish passage practitioners from throughout coastal California.

18) Who is expected to be available for the end-user testing phase?

Anadromous fish passage practitioners from throughout coastal California as well as several Forum steering committee members.

19) Who are the expected end users for the web-based OptiPass? Approximately, how many?

Anadromous fish passage practitioners from throughout coastal California, potentially several hundred people.

20) Such a decision support tool as proposed by PSMFC can be used for decision-making at strategic (e.g., funding strategies), tactical (e.g., portfolios), and operational (e.g., selection) levels. The tool's design will depend on the level needed. Is there a vision for the level of decision-support required? Or, are the types of model formulations to be determined through project-scoping?

OptiPass is most often used for tactical/operational planning. That said, depending on how the user frames the analysis, OptiPass can address strategic planning issues as well. This topic is discussed in some detail in the user manual for the Windows desktop version of OptiPass *(see supplemental information package)*. It is envisioned that similar sorts of analyses can be performed with the online tool.

21) Is the web interface to interact with California Fish Passage Forum's version of OptiPass or is it to interact with the original OptiPass library published by the authors?

It will interact with the Forum's version of Optipass.

22) Can the California Fish Passage Forum's version of OptiPass be made available for review by the potential bidders to support preparation of their proposals?

Yes *(see supplemental information package)*.

23) Is the intent for the web interface to allow users to select barriers and to run OptiPass using only existing data maintained separately in the fish passage assessment database cited in the RFP? Or, is the intent of the interface (also) to allow users to upload their own barrier data? If users upload their own data, what database management systems and/or file formats will be used?

As long as an input file is properly formatted, the console application version of OptiPass can easily accommodate user-supplied data. However, the amount of work required to incorporate this into an online interface would significant – additional geospatial pre-processing routines would need to be incorporated into the interface's back-end. For the purposes of the RFP, the vendor need only work with existing data within PAD.

24) Have stream data sets been compiled to describe longitudinal connectivity and available upstream habitat? If so, what database management system and/or file formats are used?

Data for longitudinal connectivity and upstream habitat are calculated periodically, incorporating updates from the Passage Assessment Database. Data are calculated by PSMFC GIS staff using ArcGIS ModelBuilder and geometric network tracing. These data were previously exported as an Excel table, for input into FISHPass. Other formats can be considered for use in the new interface.

25) To what extent is the contractor expected to address maintenance of input data sets?

Maintenance of input spatial and tabular data sets are not the responsibility of the contractor, but the processes to update these resources will need to be established and documented by the contractor during the project.

26) In which format(s) are the geospatial layers available?

GIS data are available as web services or in a file based geodatabase format.

27) In which format(s) are the the other datasets available?

The tabular input for OptiPass has utilized Excel spreadsheets, although other formats should be considered in the new interface.

28) Does OptiPass offer an API for the web interface? If not, how would the web interface communicate with OptiPass, and vice-versa?

No. The interface would need to communicate with a Linux (or Windows) based console application.

29) The use cases seem to be read-only (ie. the interface does not store/save any user-generated content)

That depends entirely on whether or not the intent is to have registered users, who can save/store model runs/results onto a server. This sort of functionality is available for the Great Lakes online tool FishWerks. This is up for discussion with the Forum.

30) Does the application require sign-in?

Again, depends on if having registered users is intended, which is up for discussion with the Forum. For the Great Lakes online tool FishWerks, there are two classes of users. Unregistered "Guest" users, who do not need to sign-in but cannot save model runs, and "Registered" users, who can sign-in and access additional functionalities (e.g., save model runs/results and make edits to barrier attributes within a copy of the primary database called the "Wild West" option). Please see Moody et al. (2017) for more details.

31) What is PSMFC's budget for this project including scoping, implementation and user testing?
See the answer to question #1.

32) Is PSMFC looking for implementation costs prior to the project scoping phase?

Please respond to this RFP by including all projected costs.

33) Who are the intended users for the web based interface?

See the answer to question #2.

34) How many users are anticipated?

See the answer to question #19.

35) Is the goal for this web-based fish passage barrier remediation tool to replace all or part of the public facing portion of Biogeographic Information and Observation System?

BIOS, which exists for a variety of purposes, was used, in the short term, to spatially display the model outputs. The intention is for the new user-friendly interface to replace the short-term use of BIOS to spatially display outputs.

36) Can PSMFC confirm if the work to be conducted under the RFP will be supported through funds from a federal grant? And if so, will the successful bidders be considered a sub-awardee or a contractor for the procurement of services?

The work is supported through funds that are federally sourced. Successful bidders will be considered a contractor, not a sub-awardee.

37) Are subcontractors allowed to propose fully loaded rates inclusive of profit in response to this RFP?

Yes.