

## PROJECT PROGRESS SUMMARY (drafted July 9<sup>th</sup>, 2007)

### Summary

The following report details progress regarding the EVOSTC project titled: Herring data and Information Portal which has received funding for the FY07 fiscal year. The report addresses project status and progress on an objective by objective basis. The objectives listed below are those which were detailed in the FY07 project proposal. This progress report is reflective of work accomplished as of this writing which is July 9<sup>th</sup>, 2007. There will be considerable future progress made on these objectives through (now till September) the FY07 fiscal year.

### Objectives and Corresponding Progress

#### **Objective 1. Consolidate herring data sets, metadata and other electronic resources to publicly accessible web portal for herring information.**

Considerable progress has been made regarding this objective. A widespread survey has been conducted to document and isolate existing herring specific data resources which are specific to the Prince William Sound geographic area. A data inventory has been created which details candidate datasets, metadata status, geospatial qualities and prioritizes the resource for absorption into the portal. Rob Bochenek has traveled to Cordova Alaska to acquire and organize data holdings at the ADF&G Cordova Office. Mr. Bochenek has also participated in a Modeling workshop at USC with the Kiefer modeling group which included Dr. Evelyn Brown. Dr. Brown provided copies of many existing PWS herring related datasets that were produced by the Sound Ecosystem Assessment (SEA) Project and her dissertation work. These datasets have been put in the queue for metadata creation, processing and eventual absorption into the Herring Data Portal. The table (Table 1.) below provides a list of candidate data sets that are currently being processed for ingestion into the Herring Data Portal.

<u>Source</u>	<u>Data Set</u>
Aerial Surveys - ADF&G	Linear extent of spawn
Aerial Surveys - ADF&G	Survey track line
Aerial Surveys - ADF&G	Biomass
Aerial Surveys - SEA	CASI Herring Survey in Prince William Sound - July 9-15-1997
Acoustics Surveys - ADF&G	Broad scale survey tracks
Acoustics Surveys - ADF&G	Acoustics tracks and data
Spawn Deposition Surveys	egg density, kelp types, fecundity
Herring age, sex, size	age, sex, size, gonad maturity
Herring disease assessment	VHSV, Ich prevalence
Herring disease assessment	VHSV, Ich index
Age structured model forecasts	prefishery run biomass, forecast
Com Fish	Historic commercial catch data
Com Fish	Modern Catch Data
ADF&G	egg loss/mortality database

SEA Program	SEA herring catch database
E. BROWN Dissertation	Evelyn Juv. Herring/ forage fish aerial survey
SEA Program	PWS zooplankton SEA project
SEA Program	PWS zooplankton nearshore SEA project
SEA Program	PWS hatchery zooplankton
SEA Program	SEA broadscale acoustic (seasonal)
SEA Program	SEA nearshore bay acoustic
SEA Program	SEA predator database
SEA Program	SEA stomach database
SEA Program	SEA tucker/box trawl
APEX Program	APEX zooplankton
APEX Program	APEX zigzag nearshore accoustics
E. BROWN Dissertation	Juv./Adult energetics
E. BROWN Dissertation	Age distributions

Table 1. List of candidate data sets

Jim Vansant has made considerable progress regarding the data management of ADF&G historical herring survey spawn event and biomass observation data. These key data sets have been consolidated, standardized and documented via metadata. The aerial survey spawn data set processing is almost complete and will be the first dataset to be absorbed into the portal. The biomass and related survey effort datasets will be complete later in FY07 or early in FY08 (if funds are acquired for FY08). The following diagram (Figure 1) provides an information process flow chart for the data processing of the ADF&G Aerial Survey Dataset.

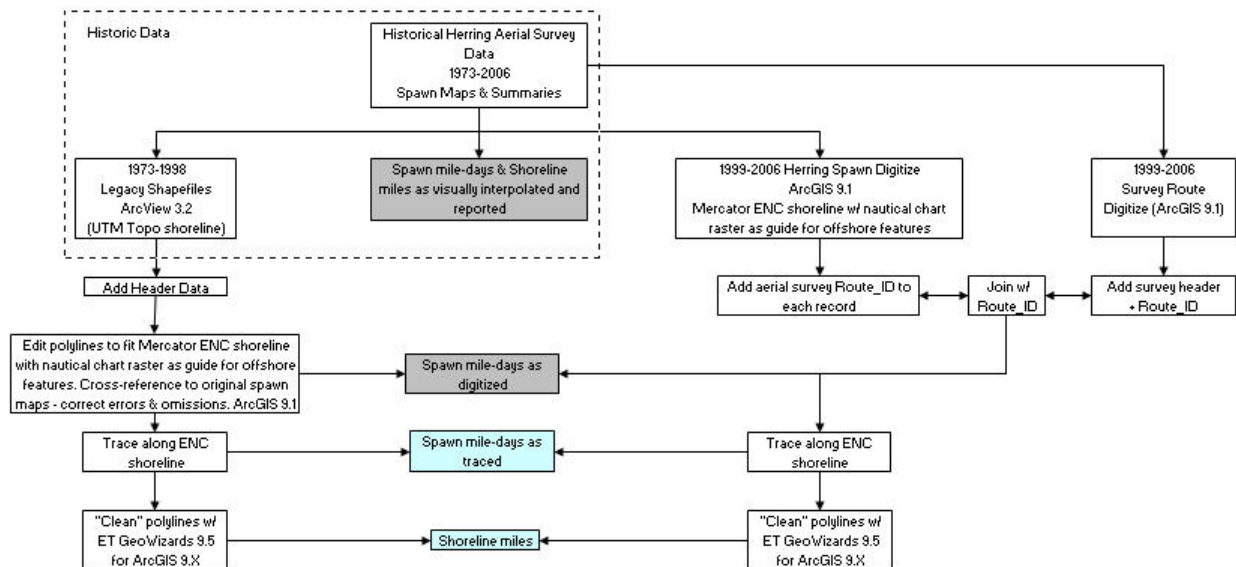


Figure 1. Aerial Survey Data Processing Flow Diagram

**Objective 2. Provide web accessible map based visualization of geospatially enabled herring data through a Mapserver and Google Earth client interface.**

Herring data portal staff member Rob Bochenek has been working with EVOSTC data management staff on developing technology for the storage and visualization of geospatially explicit scientific data. A draft relational database design which is geospatially enabled has been created which provides a flexible and scalable storage structure for a multitude of measurement types and geospatial features. The following diagram (Figure 2.) provides a brief view of the draft geo-spatially enabled database structure.

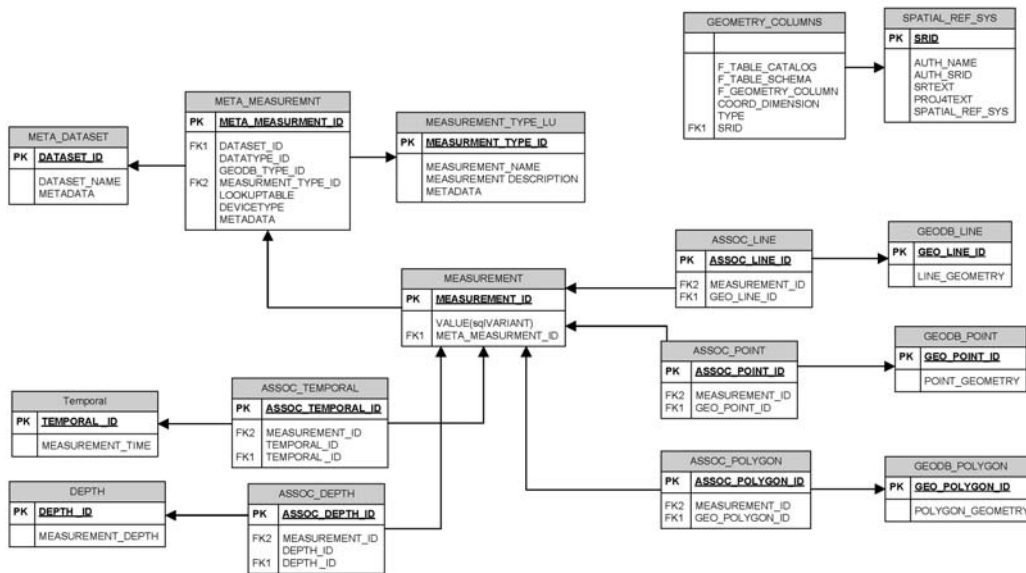


Figure 2. Draft Geospatially Enabled Data Model.

This data model is in draft form and will very likely change in structure to better accommodate data ingestion processing. Testing and redevelopment of this draft structure is scheduled to take place late in FY07 and into FY08.

Test aerial survey data has been loaded in the test database structure and KML has been successfully produced from the database through SQL queries. The KML then is loaded in google earth and provides geospatial rendering of Spawn events within the google earth interface. The following image shows this simple rendering of historic spawn events on the shoreline of Prince William Sound. This is a simple example of what is to come in the next few months as more sophisticated KML is generated from the data that is stored in the geo-spatial database.



Image 1. Google earth visualization of Spawn Data stored in Geo-database Structure.

**Objective 3. Develop Standard Operating Procedures (SOPs) for the absorption of additional herring datasets, metadata and information to the centralized herring datasystem. Provide system architecture documentation.**

This objective will be addressed later in the FY07 fiscal due to the fact that standard operating procedures for absorption of data into the herring data portal data structure are in a testing/experimentation phase at the moment. As the geospatially enabled relational database structure moves out of the testing/development phase and into the production phase explicit standard operating procedures can be developed which provide detailed instructions and documentation regarding data ingestion and manipulation. This deliverable is not scheduled for completion until September of FY07.

**Objective 4. Develop Arcpad application to automate herring spawn data collection.**

A beta version of the Prince William Sound Arcpad Aerial/Boat Survey application has been created which provides an automated and standard way to document herring specific physical and biological observations. The current version of the Arcpad application is being tested by ADF&G staff and user interface issues are being documented. Version 1.0 of the application

will be released in the next few weeks (as of this writing) and a copy of the application with system documentation will be issued to EVOS as a deliverable for this project. The following screenshot (Figure 3.) provides a view of what the biologist interfaces with when using the Herring Survey Application.

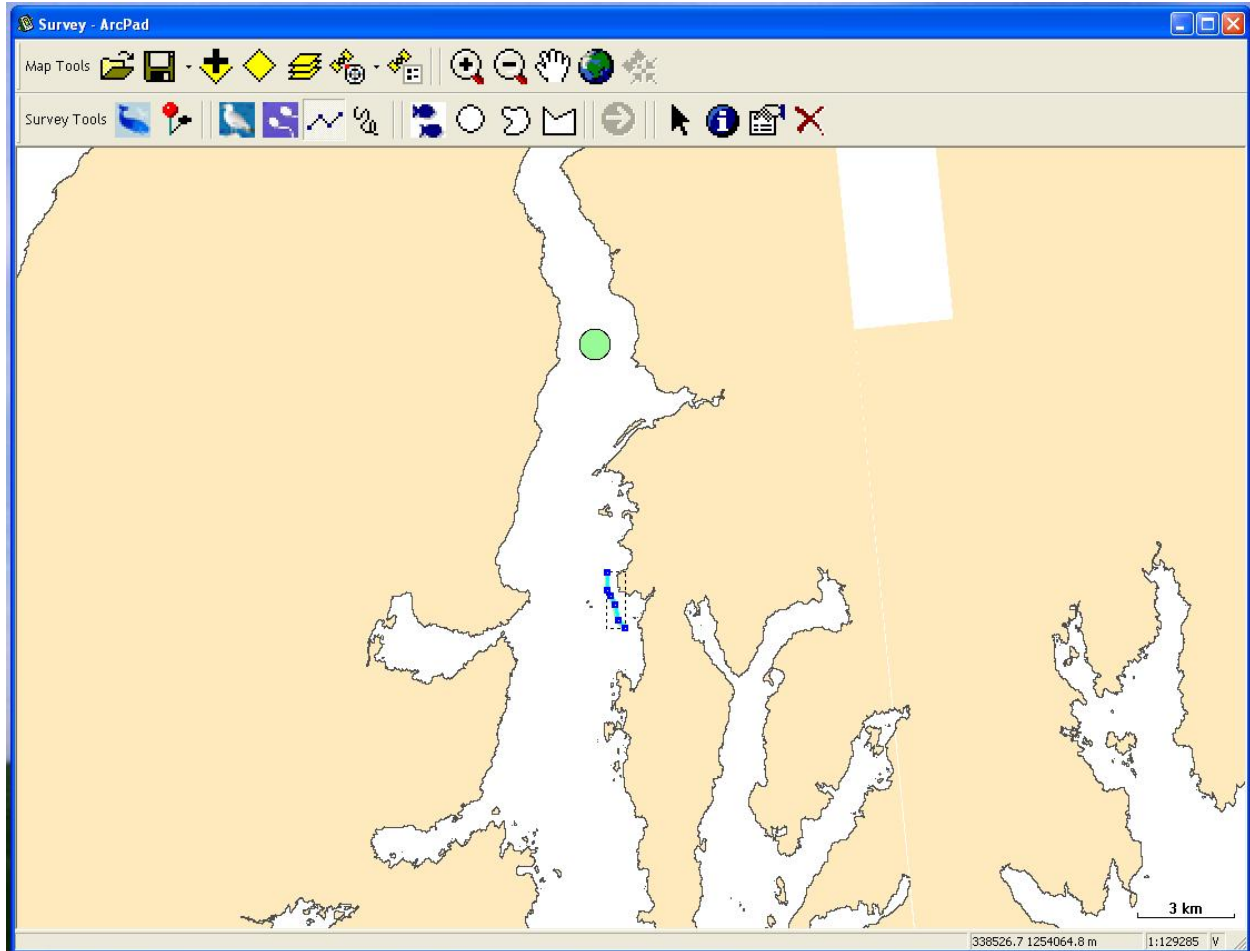


Figure 3. ARCPAD Survey Application.

The survey application provides automated and standard data collection for herring spawn extent (spawn class, polyline location), marine mammal observation (species, number, point location), Seabird (species, number, polyline location), fish school (species, biomass, polygon location) and other periphery observations. The application also stores GPS tracklog information for flight/cruise routes.

**THIS FORM MUST BE SIGNED BY THE PROPOSED PRINCIPAL INVESTIGATOR AND SUBMITTED ALONG WITH THE PROPOSAL.** If the proposal has more than one investigator, this form must be signed by at least one of the investigators, and that investigator will ensure that Trustee Council requirements are followed. Proposals will not be reviewed until this signed form is received by the Trustee Council Office.

By submission of this proposal, I agree to abide by the Trustee Council's data policy (*Trustee Council Data Policy\**, adopted July 9, 2002) and reporting requirements (*Procedures for the Preparation and Distribution of Reports\*\**, adopted July 9, 2002).

**PROJECT TITLE:** Herring Data and Information Portal

Printed Name of PI: Steve Moffitt\_\_\_\_\_

Signature of PI: \_\_\_\_\_ Date \_\_\_\_\_

Printed Name of co-PI: Rob Bochenek\_\_\_\_\_

Signature of co-PI: \_\_\_\_\_ Date \_\_\_\_\_

Printed Name of co-PI: \_\_\_\_\_

Signature of co-PI: \_\_\_\_\_ Date \_\_\_\_\_

\* [www.evostc.state.ak.us/Policies/data.htm](http://www.evostc.state.ak.us/Policies/data.htm)

\*\* [www.evostc.state.ak.us/Policies/Downloadables/reportguidelines.pdf](http://www.evostc.state.ak.us/Policies/Downloadables/reportguidelines.pdf)

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**PROPOSAL SUMMARY PAGE**

*(to be filled in by proposer)*

**Project Title:** Herring Data and Information Portal

Project Period: FY08 October 1, 2007 – September 30, 2008

Proposer(s): Steve Moffitt, Rob Bochenek

Study Location:     Prince William Sound

Abstract: This project will consolidate, document, and enter data sets, metadata, and other electronic resources into a web portal. The web portal will provide public access to information, data, and GIS visualizations. Scientist and researchers will utilize the web portal as a resource to assist in consolidating, accessing and synthesizing herring data. This project will also develop an ArcPad application for collecting herring aerial survey data directly into a GIS format. The project was conceived during an EVOS sponsored workshop in April 2006 that was tasked to identify Prince William Sound herring data gaps and develop restoration or research projects to help herring recovery. Participants indicated that knowledge of the spatial and temporal aspects of herring related data sets, e.g., herring spawn, was necessary to understand how restoration activities might affect herring abundance trajectories. Currently there are many herring related data sets that are not easily accessible to restoration researchers and managers. Several restoration projects proposed at the April 2006 meeting would require spatial and temporal knowledge of herring data as input to a model or as a measure of the success of a restoration project. This project would provide easier access and visualization of selected herring data sets and other electronic resources.

**Funding:**

EVOS Funding Requested: FY07 \$ 204.0 (must include 9%GA)

TOTAL: 204.0

Non-EVOS Funds to be used: FY07 \$ 43.4

TOTAL: \$43.4

Date: 7-24-2007

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# PROJECT PLAN

## NEED FOR THE PROJECT

### Statement of Problem

This project was conceived at an EVOS Trustee Council sponsored workshop on Prince William Sound (PWS) Pacific herring *Clupea pallasii* restoration in April 2006 and was funded as a pilot project by the EVOS Trustee Council in FY07. As of this writing, this project has made considerable progress in standardizing the collection of, creating metadata for and providing access to Prince William Sound Herring related data and information. Although considerable progress has been made regarding these issues, there exists a serious need for the continuation of these efforts. Currently, many existing PWS herring related research and monitoring data sets are dispersed and data are not easily accessible to researchers and managers. Additionally, the spatial and temporal relationships are not readily apparent because much data are not in a spatially enabled format. Many of the restoration project ideas from the April 2006 workshop require knowledge of the temporal and spatial relationships of past herring related data to assess possible future restoration success. For example, updating the circulation and larval drift model requires spatial and temporal herring spawn data as an input. The Alaska Department of Fish and Game (ADF&G) has been estimating the linear extent of herring shoreline spawning and spawning biomass since 1973 (e.g., Brady 1987 and Biggs et al. 1992). Additionally, there are data sets on herring biomass from spawn deposition surveys, and acoustics surveys (e.g., Willette et al. 1998); herring disease data (Marty et al. 2004); and other data sets, literature, and metadata that could be made available to researchers and managers.

This project would extend the work started by the ADF&G to make PWS herring aerial survey data sets and metadata available for visualization, analysis, or downloading. In addition, data sets that we discovered during FY07 will also be up-scaled into the portal providing access and visualization to users. A list of these candidate data sets is included in the FY07 Progress Summary Report which is included as an addendum to this proposal.

### Relevance to 1994 Restoration Plan Goals and Scientific Priorities

This project would support the 1994 Restoration Plan's Monitoring and Research category of general restoration actions by making PWS herring data available on the web for researchers working on restoration projects. Additionally, this project would indirectly support the recovery goals of herring, an injured biological resource, and indirectly support recovery of commercial fishing, a lost or reduced service. In order to design and evaluate restoration projects, an understanding of past spatial and temporal relationships of herring data is required. This project would consolidate and prioritize herring data sets, metadata, and other electronic information. This project will make the 1973-2006 aerial survey data on the linear extent of shoreline spawn available through a web-based portal. Additional information will be made available in priority order. The



web portal would be flexible enough to integrate other electronic information when possible.

The temporal and spatial data on the linear extent of shoreline spawn is necessary for researchers working on the circulation/larval drift model. The results of the circulation/larval drift model will be necessary for planning intervention or enhancement projects that require the movement of eggs. This project does not directly address the restoration of services or resources; however, the information provided is necessary for designing and evaluating direct restoration efforts.

## **PROJECT DESIGN**

### **Objectives**

- Objective 1. Continue to consolidate known herring data sets, metadata and other electronic resources to publicly accessible web portal for herring information. Discover new data resources for absorption into the portal.
- Objective 2. Continue to develop web accessible map based visualization of geospatially enabled herring data through a Mapserver and Google Earth client interface.
- Objective 3. Further develop Standard Operating Procedures (SOPs) for the absorption of additional herring datasets, metadata and information to the centralized herring data system. Provide system architecture documentation.
- Objective 4. Redevelop Arcpad application to further automate and standardize herring spawn data collection and increase data collection precision and quality.
- Objective 5. Develop Herring Data Portal Architecture into Web Mapping Service (WMS) so that information can be disseminated to other data systems.

### **Procedure and Scientific Methods**

Objective 1. Consolidation, assessment and documentation of existing herring resources

Existing herring data sets and electronic resources will be assessed, documented with metadata and centralized to a common access point for distribution and public access. Data sets will be documented via the Federal Geographic Data Subcommittee (FGDC) metadata standard. The metadata document will assist users of the system in utilizing, locating and interpreting the dataset posted on the web portal. Data sets will be stored in their native file formats and corresponding FGDC metadata will be stored as a XML document. Both the data set and corresponding metadata document will be available for download.

## Objective 2. Create Geospatial Relational Database and GIS Visualization

Herring data which has a geospatial component will be absorbed into geospatial relational database. Geospatial relational database provides a way to associate data with temporal (time) and spatial (location) information, creating a “geodatabase” and a way to visualize and analyze data in terms of where and when it was collected. Creation of the geodatabase will require:

- Creation of geospatial data structures that describe herring observations and relevant measurements.
- Isolation of layers and shore zone maps to be used in visualizations
- Import of geospatial herring information which is contained in datasets and databases.

Once the geospatial database has been created, analysis and visualization layers will be added on top of the database. Figure 1 below demonstrates how this will be accomplished and provides a logical information flow diagram.

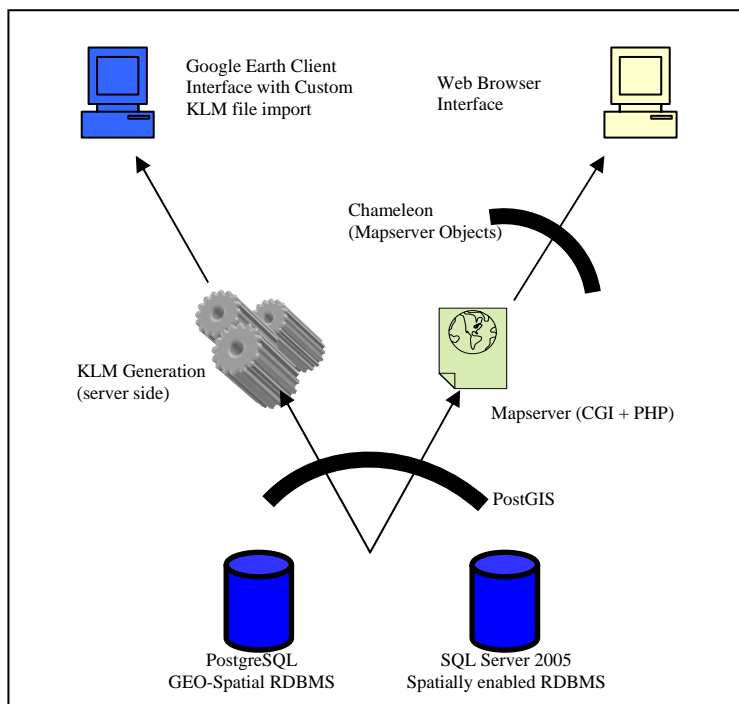


Figure 1. Technology and information flow for herring geospatial database and visualization.

The following is a description of the technologies referenced in Figure 1 broken up into logical information processing tiers. Tier 1 corresponds to data storage (database), tier 2 corresponds with analysis and aggregation of information (Business Logic) and tier 3 concerns itself with visualization (Client Interfaces).

### Tier 1 – Relational Database

Two Relational Database Management Systems (RDBMs) are being considered for this project: PostgreSQL and Spatially Enabled SQL Server 2005. The relational database schema is being developed in a way in which it can be implemented in both database systems. The scheme conforms to standard normalization schemes in addition to Open Geospatial Consortium criteria regarding geo-spatial database structures.

- PostgreSQL database – PostgreSQL is an open source, object-oriented and geospatially enabled database that can be tailored to the requirements of the herring geospatial database. When PostgreSQL database is coupled with PostGIS the combined database system is compliant with both ASCII SQL and with Open GIS Consortium (OGC) specifications, enabling PostgreSQL to communicate with enterprise relational databases and commercial and public GIS interfaces such as Mapserver and ESRI products. More information about OGC can be downloaded at <http://www.opengeospatial.org/standards> . PostgreSQL is being considered for it's long time support of geospatial indexing and structures.
- Spatially Enabled SQL Server 2005 – This “enhanced” version of the SQL Server 2005 RDBMs supports geospatial functionality through the implementation of an extension package called MsSqlSpatial (<http://www.codeplex.com/Wiki/View.aspx?ProjectName=MsSqlSpatial>). This package provides SQL Server 2005 with Open Geospatial Consortium data types, functions and stored procedures. In addition, SQL Server 2005 supports native XML data types which will provide a framework for directly parsing and compiling FGDC metadata. This ability to query and interact with XML datatypes is not an explicit functionality of PostgreSQL.

#### **Tier 2 – Business Logic**

- Business logic and tabular-based websites will be handled by server scripting languages such as Java, .NET and Cold Fusion to generate Keyhole Markup Language which is an XML schema used by the Goggle Earth interface.
- GIS business logic will be handled by POSTGIS (a GIS-specific Postgres package) and other map/cartographic libraries that blend with POSTGIS.
- Web based map generation will be handled by the Mapserver and Chameleon systems.

#### **Tier 3 – Visualization/Client Interface**

- Data visualization will occur for the user via a web based browser interface (thin client) or via the Google Earth client (thick client).

Objective 3. SOPs for absorption of additional herring data and system documentation.

Protocols will be developed to standardize and expedite the absorption of additional herring data resources into the web portal/GIS system. A document will be drafted which defines the various standard operating procedures for data migration into the system. It is envisioned that standard operating procedures will be developed to address the following issues.

- Metadata requirements for data sets and other electronic resources
- Procedures for the absorption of additional datasets to the system.
- Enabling geospatial datasets to be visualized through the systems GIS interface.

In addition to the development of data absorption SOPs, a system architecture document will be drafted to provide documentation of the technologies and methodologies utilized in creation of the herring data portal.

Objective 4. Develop ArcPad application to automate herring spawn data collection.

The Aerial Survey ArcPad application will be re-developed to assist scientists in efficiently and accurately collecting hearing spawning location information. The first version the Arcpad Application was developed and tested in May of FY07. Though the deployment of the initial application was a success, it was determined that additional application functionality could greatly augment the accuracy of measurements and data collection. It is proposed that a second version of the Arcpad application be developed for FY08 which focused on the lacking functionality of the current application.

Objective 5. Implement Web Mapping Service

In order to share information contained within the Herring data portal with other data systems, the Herring data Portal will need to be configured as a Web Mapping Service. A web mapping service is a technological layer which sits on top of the geospatially enabled database and provides communication channels with other data systems such as the Alaskan Oceanographic Observing System (AOOS) and other large scale modern data repositories. Creation of WMS also provides client GIS tools such as ESRI's Arcview remote access to data which is stored in Herring Data Portal. A web mapping service is achieved through the implementation of set of OGC web mapping protocols and corresponding web services. More on web mapping services can be accessed at <http://www.opengeospatial.org/standards/wms>.

### **Data Analysis and Statistical Methods**

Data will not be produced from this project. Data and information will be up scaled into relational and geospatial databases if possible. In order for these relational and geospatial databases to be robust, methods of normalization and standards based database development will be employed. Geospatial data structures will be created with compliance to Open Geospatial Consortium (OGC) standards. Computer programming code will be written in an object oriented fashion to increase the potential for code reuse.

### **Description of Study Area**

The majority of this project will involve consolidating existing data, metadata, and other electronic resources related to herring in PWS. The Arcpad application will require testing in ADF&G's Registration Area E. Area E is described in regulation (5AAC 27.300 Description of Prince William Sound Area): The Prince William Sound Area has as its western boundary a line extending south from Cape Fairfield, as its eastern boundary a line extending south from Cape Suckling and as its southern boundary 59° N. lat. The north, east, south, and west bounding coordinates of this area are 61.295, -143.880, 59.000, and -148.8710.

## **Coordination and Collaboration with Other Efforts**

This project was conceived during a PWS herring restoration workshop held in Anchorage on 24 and 25 April, 2006. This workshop was attended by local fishers and researchers from the University of Alaska, University of Washington, National Oceanic and Atmospheric Administration, Alaska Department of Fish and Game, United States Fish and Wildlife Service, Prince William Sound Science Center, and the Oil Spill Recovery Institute, and others. One of the objectives of the workshop was to utilize the results of the workshop to focus the 2007 Invitation for Proposals. This project will collaborate with an ongoing ADF&G funded project to enter historical ADF&G aerial survey data into ArcView. Herring Data Portal staff are also working with researchers of the Kiefer Herring Modeling project to coordinate data management efforts concerning relevant information resources.

## **SCHEDULE**

### **Project Milestones**

- Objective 1. Consolidate herring data sets, metadata and other electronic resources to publicly accessible web portal for herring information.  
To be met by September 2008
- Objective 2. Provide web accessible map based visualization of geospatially enabled herring data through a Mapserver and Google Earth client interface.  
To be met by September 2008
- Objective 3. Develop Standard Operating Procedures (SOPs) for the absorption of additional herring data sets, metadata and information to the centralized herring datasystem. Provide system architecture documentation.  
To be met by October 2008
- Objective 4. Re-develop ArcPad application to automate herring spawn data collection.  
To be met by April 2008
- Objective 5. The herring data portal will be enabled as a Web Mapping Service (WMS) by September of 2008

### **Measurable Project Tasks**

#### **FY08, 1<sup>st</sup> quarter (Oct 1, 2007 – December 31, 2007)**

- October: Project funding approved by Trustee Council
- December 1st: Final Geospatial Database Schema adopted by Herring Portal Staff and EVOSTC Data Management

**FY08, 2<sup>nd</sup> quarter (January 1, 2008 – March 31, 2008)**

February 1st: Development of automated data ingestion stored procedures developed, tested and deployed.  
March 1st: Aerial Survey Arcpad Application Version 2 released

**FY08, 3<sup>rd</sup> quarter (April 1, 2008 – June 30, 2008)**

April 30th: ArcPad Herring Spawn application redevelopment completed.  
June 30th: Herring information web portal user interface redeveloped and deployed.

**FY08, 4<sup>th</sup> quarter (July 1, 2008 – September 30, 2008)**

September 1<sup>st</sup>: Web Mapping Service node implemented.  
September 30th: SOP and technical documentation update complete.

**RESPONSIVENESS TO KEY TRUSTEE COUNCIL STRATEGIES**

**Community Involvement and Tradition Ecological Knowledge (TEK)**

This project was conceived during a PWS herring restoration workshop held in Anchorage on 24 and 25 April, 2006. This workshop was attended by local fishers and researchers from the University of Alaska, University of Washington, National Oceanic and Atmospheric Administration, Alaska Department of Fish and Game, United States Fish and Wildlife Service, Prince William Sound Science Center, and the Oil Spill Recovery Institute and others. This project will locally hire staff whenever possible, and the project PI will be physically located in Cordova.

**Resource Management Applications**

This project will develop technologies to make herring related data and other electronic resources more accessible and improve the timeliness and precision of aerial survey estimates of the length of shoreline used by spawning herring. PWS biomass projections use the total shoreline length of herring spawn (“mile-days) from aerial surveys as one of the abundance indices used to tune the catch-age model. More precise estimates of the shoreline miles of spawn should improve the fit of the model and improve the biomass projection. Local ADF&G area management staff can use improved pre-season projections to help optimize the harvest of PWS herring. Additionally, more precise measures of the extent of shoreline used for spawning will also allow managers to direct wild spawn on kelp fisheries more efficiently.

**PUBLICATIONS AND REPORTS**

Because this project is intended to consolidate data and develop applications, the major products will be a web portal and an ArcPad application. A document describing the Standard Operating Procedures (SOPs) for the absorption of future data sets will be published. In addition, a technical manual documenting the system architecture will also be published.

## LITERATURE CITED

- Brady, J.A. 1987. Distribution, timing, and relative biomass indices for Pacific Herring as determined by aerial surveys in Prince William Sound 1978 to 1987. Alaska Department of Fish and Game, Division of Commercial Fisheries, Prince William Sound Data Report 87-14, Anchorage.
- Biggs Evelyn D., Beth E. Haley, and Jean M. Gilman. 1992. Historic database for Pacific herring in Prince William Sound, Alaska, 1973-1991. Regional Information Report No. 2C91-11. Alaska Department of Fish and Game, Division of Commercial Fisheries, Anchorage, Alaska.
- Marty, G. D., T. J. Quinn II, S. A. Miller, T. R. Meyers, and S. D. Moffitt. 2004. Effect of Disease on Recovery of Pacific Herring in Prince William Sound, Alaska, *Exxon Valdez* Oil Spill Restoration Project Final Report (Restoration Project 030462), University of California, Davis, California.
- Willette T.M., G.S. Carpenter, K. Hyer, and J.A. Wilcock. 1999. Herring natal habitats, *Exxon Valdez* Oil Spill Restoration, Project Final Report (Restoration Project 97166), Alaska Department of Fish and Game, Division of Commercial Fisheries, Cordova, Alaska.

**BUDGET JUSTIFICATION: Fiscal Year: 08**

**Personnel:**

Funds are requested to support an ADF&G Fishery Biologist I position for 6 months and a Fish and Wildlife Technician III for 4 months. These staff will help consolidate, edit, and/or enter herring related data sets, metadata, and other electronic resources into an electronic format that can be consolidated into a geodatabase (*Objective 1*). Funds are also requested (6 months, cost \$55.2) to support a private contractor (Rob Bochenek, Axiom Data Management Services) to help create the web portal, develop standard operating procedures for data absorption, and assist with the development of the ArcPad application (*Objectives 2, 3,4, 5*). There are two additional small staff allocations for a GIS technician (1.5 months, cost \$11.4) and a web technician (.5 months, cost 3.6).

ADF&G will provide an in-kind contribution of 0.5 man months of staff time (cost \$3.2K) to supervise the technicians and 5 months of technician time (cost \$20.0 k) to assist with consolidation, editing, and entering of data (*Objectives 1*).

**MODIFICATION September 4<sup>th</sup>, 2007**

The EVOSTC Science Panel and staff have voiced concern regarding allocated Herring Portal Staff resources and whether the staff resources listed in the FY08 Detailed Project Description (DPD) would be capable of meeting the objectives. Specifically, EVOSTC staff are concerned with the issue of assessing, documenting and absorption (when possible) of all candidate datasets that have been listed in various progress reports and in the DPD. In order to ensure that this objective is met, Herring Portal Staff are requesting a budget modification for FY08 in the personnel section.

The GIS Tech position which currently budgeted for 1.5 months will be extended to 6.0 months (increased to \$45.6) to aggressively address the issue of data salvage for these data resources which are not under the Stewardship of ADF&G, Cordova. In addition, at least 3.0 months of Rob Bochenek (Information Architect) will be spent directly addressing the issue of data salvage bringing the total allocated staff time for this objective to 9.0 months. These newly allocated staff resources will be ample staff time to process, document, provide access to and absorb into the portal (when possible) the following list of datasets.

<b>Source</b>	<b>Data Set</b>
Aerial Surveys - SEA	CASI Herring Survey in Prince William Sound - July 9-15-1997
Herring disease assessment	VHSV, Ich prevalence
Herring disease assessment	VHSV, Ich index
ADF&G, Commercial Fisheries Division	Historical commercial harvest data
ADF&G, Commercial Fisheries Division	Modern commercial harvest data
SEA Program	SEA herring catch database
E. BROWN Dissertation	Evelyn Juv. Herring/ forage fish aerial survey
SEA Program	PWS zooplankton SEA project
SEA Program	PWS zooplankton nearshore SEA project



SEA Program	PWS hatchery zooplankton
SEA Program	SEA broadscale acoustic (seasonal)
SEA Program	SEA nearshore bay acoustic
SEA Program	SEA predator database
SEA Program	SEA stomach database
SEA Program	SEA tucker/box trawl
APEX Program	APEX zooplankton
APEX Program	APEX zigzag nearshore accoustics
E. BROWN Dissertation	Juv./Adult energetics
E. BROWN Dissertation	Age distributions
New-NOAA AUKE BAY	Herring Egg Mortality and Hydrocarbon Limid
New-NOAA AUKE BAY	Hydrocarbon DB

The Fish and Wildlife Technician III position which currently budgeted for 4.0 months will be extended to 6.0 months (increased to \$24.0 k) to aggressively address the issue of data salvage for these data resources which are under the Stewardship of ADF&G, Cordova. We anticipate that with this level of funding, we should be able to edit, document, and make available the raw data from all ADF&G data sets listed below. Many of these data sets will also be absorbed into the portal if possible.

Aerial Surveys - ADF&G	Linear extent of spawn
Aerial Surveys - ADF&G	Survey track line
Aerial Surveys - ADF&G	Biomass
Acoustics Surveys - ADF&G	Broad scale survey tracks
Acoustics Surveys - ADF&G	Acoustics tracks and data
Spawn Deposition Surveys	egg density, kelp types, fecundity
Herring age, sex, size	age, sex, size, gonad maturity
ADF&G	egg loss/mortality database
Age structured model forecasts	prefishery run biomass, forecast

**Travel:**

Funds are requested for Rob Bochenck to travel from Anchorage to Cordova (4 trips) to work with Cordova ADF&G staff on organizing data sets into a geospatial relational database, creating meta data, developing appropriate web based visualizations, developing SOPs for additional data absorption, and developing the ArcPad application (*Objectives 1,2,3, 4 and 5*).

Funds are requested for Steve Moffitt to travel from Cordova to Anchorage for the annual EVOS sponsored marine science symposium.

**Contractual:**

Contracts are for Axiom Data Management Services (Rob Bochenek) who will be responsible for providing the needed technical expertise to accomplish the objectives of this proposal. The contract calls for 6 months of salary, 4 round trips to Cordova, some required software for the development of the system (arc-editor license, macromedia studio, various extensions for web server). An amount of money (revised to \$45.6 k on 4 Sept. 2007) is also set aside for 6 months of work for a GIS technician to assist with data conversion and \$3.6 K is set aside for a web designer to assist in making the web portal user friendly and aesthetically pleasing. The indirect cost rate for Axiom Data Management Services is 16% and is set there to cover the costs of a high speed internet connection, electricity, equipment maintenance, software licenses, data backup services, copying and general maintenance. The entire cost of the contract (before ADF&G GA is figured in) is \$132.2 K (revised 9-4-2007).

ADF&G will provide an in-kind contribution of \$10.0 k for air charters used to test the ArcPad application for the collection of herring survey data (*Objective 4*).

**Commodities:**

Funds are requested to purchase software licenses and web server modules in the amount of \$3.2k. (*Objective 2*).

ADF&G will provide an in-kind contribution of \$2.5 k for an ArcPad application builder license and 2 ArcPad licenses used to develop the ArcPad application (*Objective 4*).

**Equipment:**

Funds are requested to a license for Arc Editor to assist in the manipulation of GIS data and information 3.3K (*Objective 2*).

ADF&G will provide the following equipment as an in-kind contribution (*Objectives 1 & 2*):

Dell desktop computers with ArcView 9.2 licenses	\$7.0 K
HP tablet PC for ArcPad application	\$3.0K
GPS for ArcPad application work	\$0.2 K

**2008 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET**

October 1, 2007 - September 30, 2008

<b>Budget Category:</b>	Authorized FY 2007	Proposed FY 2008						
Personnel	\$44.2	\$52.2						
Travel	\$0.8	\$0.8						
Contractual	\$76.2	\$134.2						
Commodities	\$0.0	\$0.0						
Equipment	\$0.0	\$0.0						
Subtotal	\$121.2	\$187.2	LONG RANGE FUNDING REQUIREMENTS					
General Administration	\$10.9	\$16.8						
Project Total	\$132.1	\$204.0						
Full-time Equivalents (FTE)		1.0						
Dollar amounts are shown in thousands of dollars.								
Other Resources								
<p>Comments:</p> <p>Cost-share Funds total: \$35.7</p> <p>This project will extend work done by ADF&amp;G with existing State of Alaska general funds. Additionally, ADF&amp;G will provide the following:</p> <p>\$3.2 K: ADF&amp;G will provide 0.5 month of staff time to supervise the project.</p> <p>\$20.0 K: ADF&amp;G will provide 5 months of FWT III time to help with data synthesis, editing, and proofing.</p> <p>\$10.0 K: ADF&amp;G will provide funding for all aerial surveys to test the ArcPad application.</p> <p>\$1.5 K: ADF&amp;G will provide a license for ArcPad Application builder to build the application.</p> <p>\$1.0 K: ADF&amp;G will provide 2 licenses for ArcPad 7.0.</p> <p>General Administration costs calculated as 9% of total direct costs per Invitation for proposals.</p>								

**FY08**

Prepared: 7/26/2007

Project Number:  
 Project Title: Herring Data and Information Portal  
 Agency: ADF&G



**2008 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET**

October 1, 2007 - September 30, 2008

<b>Contractual Costs:</b>		
Description		
See form 4AB for details Axiom Data Management Services		
When a non-trustee organization is used, the form 4A is required.		<b>Contractual Total</b>
<b>Commodities Costs:</b>		
Description		
		<b>Commodities Total</b>

**FY08**

Project Number:  
Project Title: Herring Data and Information Portal  
Agency: ADF&G

Prepared: 7/26/2007

**2008 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET**

October 1, 2007 - September 30, 2008

<b>New Equipment Purchases:</b>		Number of Units	Unit Price
Description			
Those purchases associated with replacement equipment should be indicated by placement of an R.		<b>New Equipment Total</b>	
<b>Existing Equipment Usage:</b>		Number of Units	
Description			
Desktop GIS computers		2	
Hp tablet computer for ArcPad application		1	

**FY08**

Project Number:  
 Project Title: Herring Data and Information Portal  
 Agency: ADF&G

**2008 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET**

October 1, 2007 - September 30, 2008

<b>Budget Category:</b>	Authorized FY 2007	Proposed FY 2008						
Personnel	\$55.2	\$104.4						
Travel	\$4.5	\$4.8						
Contractual	\$0.0	\$0.0						
Commodities	\$3.1	\$3.2						
Equipment	\$3.5	\$3.3						
Subtotal	\$66.3	\$115.7	LONG RANGE FUNDING REQUIREMENTS					
Indirect	\$9.9	\$18.5						
Project Total	\$76.2	\$134.2						
Full-time Equivalentents (FTE)	0.5	1.0						
Dollar amounts are shown in thousands of dollars.								
Other Resources								
Comments: Indirect Cost Rate for Axiom Consulting & Design is 16%								

**FY08**

Prepared:

Project Number:  
Project Title: Herring Data and Information Portal  
Name: Rob Bochenek, Axiom Consulting & Design

**2008 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET**

October 1, 2007 - September 30, 2008

<b>Personnel Costs:</b>				Months Budgeted	Monthly Costs	Overtime	
Name	Position Description						
Robert Bochenek	Information Architect			6.0	9.2		
Vacant	GIS Technician			6.0	7.6		
Vacant	Web Architect			0.5	7.2		
Subtotal				12.5	24.0	0.0	
<b>Personnel Total</b>							
<b>Travel Costs:</b>			Ticket Price	Round Trips	Total Days	Daily Per Diem	
Description							
RT Anchorage - Cordova Bochenek			0.4	4	16	0.2	
<b>Travel Total</b>							

**FY08**

Project Number:  
 Project Title: Herring Data and Information Portal  
 Name: Rob Bochenek, Axiom Consulting & Design





**2008 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET**

October 1, 2007 - September 30, 2008

<b>New Equipment Purchases:</b>		Number of Units	Unit Price
Description			
	Arc Editor License	1	3.3
Those purchases associated with replacement equipment should be indicated by placement of an R.		<b>New Equipment Total</b>	
<b>Existing Equipment Usage:</b>		Number of Units	
Description			
	Dell Poweredge Server for testing purposes	1	
	ESRI Arcview License	1	

**FY08**

Project Number:  
 Project Title: Herring Data and Information Portal  
 Name: Rob Bochenek, Axiom Consulting & Design

Prepared: