

L EXECUTIVE SUMMARY DWH WAREHOUSE

a) *Project Title and Applicant Name:*

97 JUL 28 PM 3:47

Initial Developments for a CALFED/Bay-Delta DataBase Warehouse Program, Specifically with a Data Mart to Track Essential Fish Habitat Parameters.

Commercial Maricultures International (CMI)
Gordon Sanford, Principal/DataBase Developments and Applications

b). *Project Description and Primary Biological/Ecological Objectives:*

Development of a database warehouse program with establishment of an initial data mart(s) accessible via web and/or e-mail addresses for accumulation and subsequent distribution of related data to all interested parties for analysis. The initial Data Mart will be designed around recently identified Essential Fish Habitat (EFH) Parameters as defined by the National Marine Fisheries Service for implementation of the Magnuson-Stevens Act's requirements to develop guidelines to assist Fisheries Management Councils in fisheries management plans (as published in the Federal Register on April 23rd, 1977). Such an information management system is being designed for supporting adaptive management as both a response tool and forecasting/predictive modeling agent.

c). *Approach/Tasks/Schedules:*

A practical approach is necessary, where each phase of the data mart(s) development process is recognized as a accumulative result of previous stages and ultimately will be subject to influences of follow-up stages, subsequently a rather flexible structure emerges. Database warehouse methodologies for development and implementation concentrate on the data, translations of source data into a desired warehouse format.

Development tasks for such a data mart are expected to evolve along the following guidelines (with estimated schedule, in a concurrent and sequential process):

<u>TASKS</u>	<u>SCHEDULE</u>
1. Defining the EFH Data Mart design,	Start-up though 60 days;
2. Investigating appropriate data sources,	Start-up through 90 days;
3. Designing initial loading procedures,	Sixty through 120 days;
4. Establishing the actual database,	Ninety through 120 days;
5. Adapting the data mart loading software,	Ninety through 150 days;
6. Confirming and loading the data into the data mart,	Ninety through 180 days;
7. Perpetuating (administering) the data mart,	Ninety days through year end.
8. Training for utilization...	One hundred twenty days on...

c). *Approach/Tasks/Schedules (continued):*

Once this EFH Data Mart is on-line, managed/administered, continual evaluation as to value and utilization will be underway. With the end of the first year of operation it is expected/intended that additional specific data marts for Priority Habitats, Priority Species and Identified Stressors will be under development bringing all of them together for the CALFED/Bay-Delta Database Warehouse (many integrating projects).

d). *Justification for Project and Funding by CALFED:*

CALFED's Adaptive Management plans and the monitoring, assessment and reporting requirements set forth in this Request for Proposals necessitates a centralized data depository. This data mart is proposed as a "pilot" stage for establishing the CALFED DataBase Warehouse.

e). *Budget Costs and Third Party Impacts:*

Personnel/Software Development...	\$ 98,860
CPU/Server Hardware (purchase, O&M)	\$ 47,500
Overhead and Other Direct Costs...	<u>\$ 29,272</u>
Total Project Costs...	\$ 175,632

f). *Applicant Qualifications:*

CMI has been involved in computer administration and database developments to meet fishery needs (research and commercial levels; private enterprises, state, federal and international agencies) for over fifteen years. Personnel and affiliates are up-to-date on the latest technology in database/data mart developments.

g). *Monitoring and Data Evaluation:*

This program will necessitate the active involvement of CALFED administration. Subsequently, an ongoing evaluation of direction and progress will be essential for successful development. What data is there? Where is it? What does it mean? How did it get there? How do we get it into the data mart? Finding the answers to these generalities are the incentives and directives for this proposal.

h). *Local Support/Coordination with other Programs/Compatibility with CALFED objectives:*

Recognition that the CALFED/Bay-Delta Program is a long-term, comprehensive investment, underscores the need for development of a diverse and flexible information management system. As such this data mart will be developed in a compatible format to meet all aspects of the CALFED/Bay-Delta Ecosystem Restoration Program.

II. Title Page

a) *Title of Project:*

**Initial Development of a CALFED/Bay-Delta DataBase Warehouse Program,
Specifically with a Data Mart to Track Essential Fish Habitat Parameters.**

b) *Name of applicant/principle investigator(s); address; phone/fax/E-mail;
organizational, institutional or corporate affiliations of applicant/principal
investigator(s):*

Commercial Maricultures International (CMI)
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Gordon Sanford, Principal/Database Developments and Applications

c) *Type of Organization and Tax Status:*

CMI is Limited Partnership.

d) *Tax Identification Number and/or Contractor's License as Applicable:*

CMI's Employer Identification Number is 94-3169088.

e) *Technical and Financial Contact Person(s), Address, Phone/Fax/E-mail:*

Gordon Sanford, Principal, CMI (contact information, same as above).

f) *Participants/Collaborators in Implementation:*

Softbite International	(for software engineering, application
33 North Addison Road	refinement and utilization training)
Addison, IL 60101-3800	

g) *RFP Project Group Type(s):*

Group 3: Services: All other projects, such as those addressing planning,
non-construction habitat restoration, design activities, educational projects, etc.

III. Project Description

a). *Project Description and Approach:*

As this data mart develops it becomes a composite of a set of solutions, evolving under influences from the external environment: the CALFED/Bay-Delta Ecosystem Restoration Projects and Programs. Each phase of the data mart development requires the answers to specific questions as part of its information gathering. Answers to these questions form deliverable components within the data mart, all contributing to the metadata repository which is the vital foundation for this data mart architecture.

An iterative approach is utilized, answering the same questions to continue the data mart development cycle: What data is there? Where is it? What does it mean? How did it get there? How do we get it into the data mart? Seeking these answers will involve CALFED/Bay-Delta staff, NMFS, CVP Stakeholders, as well as individuals involved in approved/active 1997 Category III Projects. Once the EFH Data mart has been defined, these five questions perpetuate themselves within this framework. As the EFH Data Mart develops, inputs become more focused. By constantly revisiting these enquiries, the sources become more accurate/direct and valuable.

The development steps for this EFH Data Mart:

1. Scoping the Data Mart (Defining the target data mart design, initial and subsequent. Investigating the appropriate data sources. Obtaining sample/test sets of data.)
2. Designing the Data Mart (Schema models. transitional load procedures. User/tool/ data mart architecture. Shared repository designs.)
3. Developing the Data Mart (Establishing the physical data mart/server facilities. building data mart load software. Inter-tool interfaces.)
4. Implementing the Data Mart (Identifying, verifying/cleaning and loading data. Building/loading metadata repositories.)
5. Perpetuating Data Mart existence (Establishing availability. Maintaining management/administrative responsibilities.)
6. End user training (Developing interactive tutorials. Establishing a Help desk. Conducting utilization workshops.)

b). *Location and/or geographic boundaries of project:*

This EFH Data Mart will extend to applicable information involving anadromous fish throughout the entire CALFED/Bay-Delta Ecosystem Restoration Program.

c). *Expected benefit(s):*

NMFS provides the following regulatory text in reference to the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) definition for EFH: Essential fish habitat means those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity. For the purpose of interpreting the definition of essential fish habitat: "waters" includes aquatic area and their associated physical, chemical, and biological properties that are used by fish, and may include areas historically used by fish where appropriate; "substrate" includes sediment, hard bottom, structures underlying the waters, and associated biological communities; "necessary" means the habitat required to support a sustainable fishery and a healthy ecosystem; and "spawning, breeding, feeding, or growth to maturity" covers a species full life cycle. The CALFED/Bay-Delta Restoration Program's geographic scope includes winter, spring and late-fall run chinook salmon and Steelhead trout as priority species, all under EFH scrutiny.

Establishing this EFH Data Mart at the onset of the CALFED/Bay-Delta Restoration Program, is anticipated as a preemptive tool for meeting monitoring requirements as deemed important by NMFS for implementing Magnuson-Stevens Act. Identifying EFH parameters at this time will ultimately result in recognizing such defined parameters as benchmarks for evaluation as to the success of restoration activities.

d). *Background and Biological/Technical Justification:*

NMFS, working through Fisheries Management Councils (FMC) is completing the description and identification of EFH. As with the CALFED/Bay-Delta Program, NMFS too is pursuing an ecosystem approach for assessing EFH of a managed species (or species assemblage).

The Magnuson Act Provisions, (Federal Register, Vol. 62, No. 78, April 23rd, 1997) require mapping of EFH to assist the public and affected parties to learn where EFH is generally located. Data gaps are anticipated and the dynamic nature of physical and biological habitat characteristics require constant updating. Thus an EFH Data Mart will meet a growing need in a timely manner.

Federal agencies are required to consult with the Secretary of Commerce on habitat impacts from water development projects, such as involved with in the CALFED/Bay-Delta Program. EFH regulations specify that, for species listed under the Endangered Species Act (ESA), EFH will always include critical habitat. EFH may be broader than critical habitat if restoration of historic habitat areas is feasible, and more habitat is necessary to support a sustainable fishery.

Fisheries Management Councils (FMC) must develop, with NMFS direct assistance, a Fisheries Management Plan (FMP). This plan requires accessibility and application of data that would be integral to this EFH Data Mart.

Mandatory contents for the FMP include descriptions of EFH in text and with tables providing information on the biological requirement for each life history stage of the species. These tables should summarize all available information on environmental and habitat variables that control or limit distribution, abundance, reproduction, growth, survival, and productivity of the managed species. These same tables provide not only an inventory of existing data, more importantly for they identify major species-specific habitat data gaps. NMFS has established an approach for gathering and organizing data necessary for identifying EFH. Specifically, NMFS has four levels of analysis: 1) Presence/absence distribution data are available for some or all portions of geographic range of the species. 2) Habitat-related densities of the species are available. 3) Growth, reproduction, or survival rates within habitats are available. And, 4) Production rates by habitat are available. Meeting these data demands is the primary justification for establishing the EFH Data Mart. Ultimately, information from the EFH Data Mart is expected to be used to populate a geographic information system (GIS) for the CALFED/Bay-Delta Program.

e). *Proposed Scope of Work:*

The eight development steps for the EFH Data Mart identified above (III. a.) provide for timely accounting of the data mart structure and growth. Quarterly reports will be presented, detailing the status of implementation for all eight phases.

f). *Monitoring and Data Evaluation:*

Development of this data mart will involve coordination of the many existing information resources throughout the CALFED/Bay-Delta geographic area for consideration of data inclusion and/or direct references.

g). *Implementability:*

No problem with implementation is foreseen.

IV. Costs and Schedule to Implement Proposed Project:

a) *Budget Costs:*

The following schedule is based upon the Development Phases (Tasks) presented in III. a (above): Please note that for this initial data mart, all of the funding is requested directly from the CALFED/Bay-Delta Program, 1997 Category III sources. -

Project Phase & Task	Direct Labor (hrs)	Direct Salary & Benefits	Overhead & Admin. (20%)	Services (outside) Consultants	Materials, Hardware & Supplies	Total Costs
1	-	\$ 8,480	\$ 4,296	\$ 13,000	-	\$ 25,776
2	-	\$ 12,800	\$ 2,560	-	-	\$ 15,360
3	-	\$ 6,480	\$ 2,796	\$ 4,000	\$ 3,500	\$ 16,776
4	-	\$ 12,800	\$ 7,560	-	\$ 25,000	\$ 45,360
5	-	\$ 6,480	\$ 2,256	-	\$ 4,800	\$ 13,536
6 O&M	\$ 4,860	\$ 3,200	\$ 3,012	-	\$ 7,000	\$ 18,072
7 O&M	-	\$ 12,800	\$ 3,760	-	\$ 6,000	\$ 22,560
8 O&M	-	\$ 8,960	\$ 3,032	\$ 5,000	\$ 1,200	\$ 18,192
TOTALS:	\$ 4,860	\$ 72,000	\$ 29,272	\$22,000	\$ 47,500	\$175,632

b). Schedule Milestones:

In relation to the tasks schedule (presented in III a, and detailed in the above fiscal schedule), the following milestone dates are presented (assuming a start of services with October 1st, 1997):

<u>Task</u>	<u>Start</u>	<u>Completion</u>
1. EFH Data Mart design	Oct. 1st, '97	Dec. 1st, '97
2. Identifying data sources	Oct. 1st, '97	Jan. 1st, '98
3. Data mart loading procedures	Dec. 1st, '97	Feb. 1st, '98
4. Establishing data mart	Jan. 1st, '98	Feb. 1st, '98
5. Adapting lading software	Jan. 1st, '98	Mar. 1st, '98
6. Loading data mart	Jan. 1st, '98	Apr. 1st, '98
7. Data mart administration	Jan. 1st, '97	Oct. 1st, '98
8. Training for utilization	Feb. 1st, '98	Oct. 1st, '98

Quarterly reports will be presented to the CALFED/Bay-Delta Program, detailing status as to each ongoing stage of development. A commercial consultation agreement is a standard practice for such development activities, including a twenty five percent mobilization payment upon signing, and monthly draws upon the contract for task completion (or percentage completed), less retentions for reimbursing the mobilization as well as a ten percent retention, for contract satisfaction (due thirty days post after submitting the final report.

c) Third Party Impacts:

At this time it is not fully defined as to the extent that this initial data mart of the envisioned CALFED/Bay-Delta database warehouse will have on third parties such as NMFS and the Pacific Coast Fisheries Management Council.

V. Applicant Qualifications

a). *Organization Development:*

Commercial Maricultures International has been involved in fisheries development and management since 1979. Acting as an administrative agent, CMI brings together professionals from multi-disciplines that share in the exchange of knowledge and expertise. Gordon Sanford (Marine Biologist and Software Developer) will be the principal investigator for this proposal. Mr. Sanford has an MBA in Organizational Development and is an active database developer in Microsoft Access DB, SQL language and COGNOS analysis and reporting tools. Mr. Sanford has been the lead developer and administrator for the database program established for the Bureau of Reclamation and the Trinity River Restoration Program at the Trinity River Hatchery (1991 - 1997). This six year tenure with the Trinity River Restoration Program has qualified (prepared) him in a most unique way for participation in the CALFED/Bay-Delta Ecosystem Restoration Program.

Softbite International is a leading application and training resource for Microsoft-centric development platforms. Softbite was actively involved in the original design and on-going appraisal and development of the Trinity River Hatchery master database. Softbite's training programs are custom designed to meet specific needs. Their instructors/developers have now been exposed to the intricacies of fisheries and specifically ecosystem management parameters.

b). *References:*

Gary Ramsden
Manager
Trinity River Hatchery
P.O. Box 162
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916.778.3931

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16349 Shasta Dam Blvd.
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916.275.1554

VI. Compliance with Standard Terms and Conditions

a).. *Contractual Terms and Conditions:*

Commercial Maricultures Int'l (Gordon Sanford, Principal) will fully comply with the terms and conditions detailed in the CALFED/Bay-Delta Program , Request for Proposals, 1997 Category III, Ecosystem Restoration Projects and Programs. (Attachment D, Terms and Conditions, page 34-36)

b). *Nondiscrimination Compliance Statement:*

Attached (notarized).

NONDISCRIMINATION COMPLIANCE STATEMENT

COMMERCIAL MARICULTURES INTERNATIONAL

The company named above (hereinafter referred to as "prospective contractor") hereby certifies, unless specifically exempted, compliance with Government Code Section 12990 (a-f) and California Code of Regulations, Title 2, Division 4, Chapter 5 in matters relating to reporting requirements and the development, implementation and maintenance of a Nondiscrimination Program. Prospective contractor agrees not to unlawfully discriminate, harass or allow harassment against any employee or applicant for employment because of sex, race, color, ancestry, religious creed, national origin, disability (including HIV and AIDS), medical condition (cancer), age, marital status, denial of family and medical care leave and denial of pregnancy disability leave.

CERTIFICATION

I, the official named below, hereby swear that I am duly authorized to legally bind the prospective contractor to the above described certification. I am fully aware that this certification, executed on the date and in the county below, is made under penalty of perjury under the laws of the State of California.

OFFICIAL'S NAME

DATE EXECUTED

EXECUTED IN THE COUNTY OF

PROSPECTIVE CONTRACTOR'S SIGNATURE

PROSPECTIVE CONTRACTOR'S TITLE

PRINCIPAL

PROSPECTIVE CONTRACTOR'S LEGAL BUSINESS NAME

**COMMERCIAL MARICULTURES INTERNATIONAL
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