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مشروع تنمية وإدارة الثروة السمكية في عمان  
**FDMP** Oman Fisheries Development and Management Project

## PROJECT PARTIAL TERMINATION REPORT INCLUDING SEMIANNUAL REPORTING

FOR THE PERIOD MAY 15, 1991 - NOVEMBER 30, 1992

**OMAN FISHERIES DEVELOPMENT AND MANAGEMENT PROJECT**  
AID CONTRACT NUMBER 272-0106-C-00-1001-00

PREPARED BY :

**CHEMONICS INTERNATIONAL CONSULTING DIVISION**

SUBMITTED TO :

**THE OMANI-AMERICAN JOINT COMMISSION**

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مشروع تنمية وإدارة الثروة السمكية في عمان  
FDMP Oman Fisheries Development and Management Project

January 13, 1993

Dr. Michael Cremer  
Project Officer, Oman FDMP  
Omani-American Joint Commission  
PO Box 6001 Ruwi  
Sultanate of Oman

Reference: Project Partial Termination Report

Dear Dr. Cremer:

Attached please find six copies of the document mentioned above. This partial termination report also includes FDMP semiannual reporting for the period May 15, 1991 through November 30, 1992.

Sincerely yours,

Dr. John Dorr  
Chief of Party

Attachments

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# PROJECT PARTIAL TERMINATION REPORT

INCLUDING SEMIANNUAL REPORTING

FOR THE PERIOD

**May 15, 1991 - November 30, 1992**

## I. INTRODUCTION

From its inception, the Oman Fisheries Development and Management Project (FDMP) has pursued the primary goal of sustainable growth and development of the fisheries industry in Oman by working to strengthen the technical, administrative, and management skills of the Directorate General of Fisheries Resources (DGFR). The development of a strong public sector management authority, together with appropriate incentives, will increase private sector confidence in the fishing industry, and encourage concomitant environmentally sensitive private sector development.

To assist the DGFR in developing such a strong public sector authority, the design of the project has focused on two key issues: (1) the capacity of the DGFR to develop its human resources, particularly by adequate training and experience of its staff members for sustaining its major programs, and (2) the institutional capacity for fisheries resources management, including planning, and development and control of appropriate budgetary support for its programs. The project has also been concerned with the related goal of conserving the marine resources of Oman through management policies, strategies, and programs. Conservation should be based not only on improved knowledge of fisheries resources, but also on a strong capacity by the Government to undertake research and planning to ensure the long-term sustainability of fishing industry development.

Provision of training opportunities for Omanis in the fisheries sector, and technical assistance to upgrade the institutional capacity of the DGFR have been the two avenues taken to achieve project objectives. The first of the main issues on which the project focuses—the capacity of the DGFR to develop its human resources—has been addressed by a combination of on-the-job training, short-term technical training, and long-term academic training. Strengthening the institutional capacity of the DGFR for fisheries resource management, vital to sustained long-term ability by the DGFR to manage the fisheries resources of Oman, has been the second main issue addressed by the project design. This has been by technical assistance to upgrade planning and administration capabilities, and to establish, in each operational department, systems designed to facilitate the overall task of the Directorate General in managing Oman's fisheries.

The project has been a collaborative effort between FDMP technical advisors and DGFR senior management staff. This collaboration has ensured that work meets not only long-term goals and objectives of the project but also technical assistance needs which the DGFR considers to be of high priority. Close working relationships have been established and continuation of these is essential for the success of future work.

During the period May 15, 1991 - November 30, 1992, activities were carried out by three principal technical components (assisted by administrative support units in Oman and in the United States) of the project:

1. Manpower Development and Training
2. Planning and Administration
3. Fisheries Resources Management

This report is organized into an introduction, followed by discussions of the three components of the project and the local support unit, summary tables, and an appendix. Within the three components, contractual objectives and activities are present in reduced font and set apart from the main body of the text by upper and lower horizontal lines. These contractual requirements were included to provide a benchmark for measuring the achievements of the project during the reporting period,

The first 18 months work on the project has yielded progress in all three of these technical components. Summaries of this progress and recommendations pertinent to the continuation of the project are contained in the body of this report. The activities and accomplishments of this period of the project have laid a foundation of information which will contribute to the success of the redesigned project.

## II. MANPOWER DEVELOPMENT AND TRAINING COMPONENT

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■ **Contractual Component Objective:** To strengthen the human resources development capacity of the Directorate General of Fisheries Resources (DGFR) and, where possible, of other units in the fisheries sector.

■ **Contractual Component Activities:** (1) Prepare a sector-wide training plan, including a detailed training plan for the MAF which should include (a) assessments of training needs and constraints, (b) assessments of pools of potential trainees, (c) recommended participant selection criteria, (d) likely training venues, (e) staging of program activities over time, (f) program budget, (g) indicators of plan achievement; (2) update the training plan annually; (3) implement the training plan by participant identification, placement and monitoring in accordance with the requirements of AID Handbook 10 and applicable Government of Oman regulations, with an appropriate reporting system; (4) strengthen the MAF training capacity by training counterparts including a fisheries training officer whose position is to be established under the project; (5) evaluate the impact of training, including the establishment of baseline measures and performance indicators to measure this impact (6) develop and implement a specific strategy for managing and monitoring the effectiveness of on-the-job training; (7) train ministry staff in fisheries protection, and, if appropriate at a later stage, in fish products quality control.

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### *1. Synopsis*

The Fisheries Training Advisor and the Manpower Planning Specialist arrived at the project in early September 1991. Following their brief orientation to DGFR human resources and tracking systems, they participated in a work plan development workshop conducted in late September 1991. At that time, activities and deliverables of the component were outlined in the First Annual Work Plan (AWP).

A total of 24 activities were scheduled in the First AWP during the period November 15, 1991 - November 30, 1992. Of the scheduled activities, 14 were completed, 6 are ongoing, and 4 were postponed for consideration during the project redesign. Associated with the activities were 30 scheduled deliverables. Of these, 24 were completed, 2 are delayed, and 2 were postponed. No unscheduled activities were conducted, but 3 unscheduled deliverables were submitted, one of which was produced jointly with the Planning and Administrative Specialist, and one of which is under revision.

The Manpower Planning Specialist completed his twelve-month assignment in August 1992. The Fisheries Training Officer was replaced in August 1992. (NOTE: Her replacement arrived in October 1992.)

The first draft of an integrated training plan was produced by the Chief-of-Party during September 1992. This draft provided basic information on training requirements, but will require substantial revision prior to implementation under the redesigned project.

The efforts of the technical assistance staff of this component were augmented by two consultancies: (1) two short-term consultants developed a monitoring and evaluation system for formal and on-the-job training, and (2) a third consultant analyzed the functional roles of DGFR staff and drafted job descriptions.

Upon his arrival in October, the new Fisheries Training Officer continued the preparation of an integrated training program. Monitoring has begun for the 10 Omanis placed in US colleges who matriculated in September, and efforts to place additional candidates continue.

The recent project review reconfirmed the major thrust of the project towards long- and short-term training in resource management and research, and in statistics and database development.

## *2. Activities and Outputs*

Activities and outputs of the Manpower Development and Training Component which were scheduled in the First Annual Work Plan for the period November 16, 1991 to November 30, 1992, as well as the status of each, are detailed in Table 1 at the end of this section. A brief summary of the status of work carried out in the major categories of activities is given below:

- Constraints, some of which were unavoidable, logistical complexities, and personnel changes delayed production of the first draft of the Training Plan until September 1992. This draft will require extensive modification prior to implementation. (Activity 1.1.)
- Substantial work has been completed on Activity 1.3., Implement the Training Plan, particularly in Activities 1.3.2., 1.3.3., 1.3.5, and 1.3.6. Monthly reports were submitted on activities in the participant training program.
- Activity 1.2., Update the Training Plan, and Evaluate the Impact of Training, respectively, was postponed, as was activity 1.5. except for submission of the deliverable, A Report on Linkages Established Between Training and the System of Staff Appraisals being Initiated by the Ministry of Civil Service, and also organization of training courses, as listed in Table 1.
- Deliverables associated with Activity 1.4., Strengthen Training Capacity of DGFR, were submitted on time.
- Three quarterly reports connected with Activity 1.6., Manage and Monitor On-the-Job Training Activities, were submitted.

### 3. *Selected Details of Scheduled Activities*

- Because fielding of the Fisheries Protection Training Specialist was delayed, no work was completed on Activity 1.7, aside from one quarterly report to the DGFR.
- A system was established for assessing nominees for academic training, in coordination with DGFR management and OAJC staff. The system conforms with AID Handbook 10 guidelines and involves (1) submission and assessment of documentation of educational preparedness; (2) arrangement, where necessary, of in-country standardized objective examinations in English and scholastic achievement; (3) assurance that proposed training is in accordance with training plans being prepared under the project. (Activity 1.3.3.)
- The dossiers of 23 candidates were transferred to the Ministry of Education's Department of Postgraduate Studies and Training for submission to regional universities. (Activity 1.3.3.)
- Procedures were developed to establish a participant training office within the DGFR including a data base and regular reporting system. (Activity 1.3.4.)
- An information pamphlet was prepared on conditions relating to an AID-funded training program for distribution to DGFR management. (Activity 1.3.4.)
- Project training regulations (OAJC and FDMP) were finalized. (Activity 1.3.4.)
- A computerized record-keeping and academic and biographical data input system was established. (Activity 1.3.5.)
- A system was established for measuring and reporting on the performance of project training activities in coordination with Chemonics HO and Development Associates in accordance with AID-stipulated reporting requirements. This was done within the first two months of the project. (Activity 1.3.6.)
- A monitoring and evaluation system was proposed for on-the-job training. This system would cover OJT as well as other structured training courses. Procedures were proposed for managing and administering this system. (Activity 1.6.1.)
- Technical training: (1) Four Omani counterparts attended the World Fisheries Congress in Athens; (2) three members of senior administration of the DGFR attended a one month management training course, Pittsburgh, PA.

NOTE: When planning the component's activities for this period, it was agreed that the primary effort of assessment of manpower training needs and development of training plans would be spent on the DGFR and only secondarily on other institutions. No institution outside the DGFR was assessed.

#### **4. Major Accomplishments**

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Component Contractual Outputs: (1) Increases in the skills, and improvements in the performance, of staff of fisheries institutions; (2) a training plan for fisheries institutions; (3) short-term and long-term participant training in the US, Oman and third countries; (4) reports on training activities including candidate selection, placement and performance; (5) reports on the impact of training; (6) a strategy for the provision of on-the-job training in all components of the contract, and analysis of the effectiveness; (7) particular progress in the strengthening of the systems and staff skills of fisheries protection and fish products quality control services.

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- Matriculation by ten master's degree candidates at universities in the USA
- First draft of the integrated training plan prepared
- Strengthening of the DGFR Training Unit and its procedures via collaboration of the technical advisor and counterparts
- Proposal of a monitoring and evaluation system for on-the-job and other structured training courses
- Identification of long- and short-term training candidates

#### **5. Recommendations**

The following recommendations are offered as suggested ways to improve the efficacy of training within the DGFR:

- All parties must agree on the numbers of participants to be trained, minimum academic and language standards for acceptable candidacy to training, and the amount and type of resources which should be devoted to preacademic work.
- The DGFR should support on-the-job training projects and in-country training through commitment of personnel and funds to further this training.
- A system to reward increased knowledge and performance as a result of on-the-job, in-country, and technical training would make non-academic training more attractive to employees.

**Table 1. Activities Scheduled in the First AWP for the Manpower Development and Training Component  
(November 15, 1991 - November 30,1992)**

ACTIVITY	STATUS	OUTPUT
1.1. Prepare a Training Plan for the DGFR and Other Units in the Sector		
1.1.1. Classify skills employed in the sector	Completed	Contained in outputs of Activity 1.1.3.
1.1.1.1. Specify standards for each skill area	Completed	Contained in outputs of Activity 1.1.3.
1.1.2. Identify the skills required and construct ideal skill profiles	Completed	Contained in outputs of Activity 1.1.3.
1.1.3. Prepare inventory of existing skills and construct actual skill profiles	Completed	Deliverables: Training plans for the following units: <ol style="list-style-type: none"> <li>1. Department of Fisheries Statistics, 3/31/92</li> <li>2. Administration and Finance Section, DGFR, 6/30/92</li> <li>3. Marine Science &amp; Fisheries Center, 7/31/92</li> <li>4. Department of Fisheries Affairs, 7/31/92</li> <li>5. Department of Fisheries Resources, 7/31/92</li> <li>6. Department of Fisheries Resources, Salalah, 7/31/92</li> <li>7. Department of Fisheries, Musandam, and Regional Offices of MAFR, with respect to fisheries departments, 8/26/92</li> <li>8. Department of Fisheries Extension &amp; Technical Services, 8/26/92</li> </ol>

1.1.3. Prepare inventory of existing skills (cont'd)		Unscheduled Deliverable: Draft Training Plan for Data Collection Operations and Observers, 12/31/91
1.1.4. Prepare inventory of training facilities available	Incomplete	No formal output
1.1.5. Construct skills development priority plan	Completed	Deliverable: Report to DGFR Proposing Priorities for Staff Training during the Fourth Five-Year Period, submitted 3/31/92
1.1.6. Construct training requirements, training facilities plans and training finance plans	In progress	Contained in output of Activity 1.1.8.
1.1.7. Develop recruitment plan (DGFR)	Postponed	Postponed for consideration during project redesign
1.1.8. Integrate these plans into overall manpower development plan	In progress	First Draft, Training Plan, November 1992 - October 1995
<b>1.2. Update the Training Plan</b>		
1.2.1. Develop an assessment and review system whereby the training plan can be monitored and evaluated as part of its updating activity	Postponed	Postponed pending implementation of the Training Program
1.2.2. Conduct a preliminary assessment of the need to undertake a feasibility study of the proposed Fisheries Training Center	Postponed	Postponed for consideration during project redesign
<b>1.3. Implement the Training Plan</b>		
1.3.1. Implement the sector-wide training plan through structured assignments, on-the-job training, longer training and educational courses	Postponed	Postponed for consideration during project redesign

1.3.2. Process the departure of the first batch of nominees for degree training in US and elsewhere	Completed	First group of 10 participant trainees matriculated at US universities in September 1992
1.3.3. Assess and process nominees for training programs in US and elsewhere	Ongoing	See Table 8 for a list of participant trainees
1.3.4. Development of participant training program, i.e., selection criteria and mechanism, and training unit resources and procedures	Ongoing	To be included in outputs of the Second AWP
1.3.5. Development of record system, i.e., create computerized database for degree, technical training, and on-the-job training participants; input data	Completed	Deliverable: Technical Report to DGFR on the Procedures and Recording Systems in Place for the Participant Training Program, submitted 4/30/92
1.3.6. Development of monitoring system, i.e., define objectives for specified period of time/training; measure progress of training; report on training and trainee progress	Ongoing	(1) Deliverable: Technical Report to DGFR on Design and Installation of the Evaluation and Monitoring System for Training, submitted 3/31/92, and (2) Deliverables: Monthly Report to the DGFR on Activities in Participant Training Program Showing Numbers Entering Institutions, Program Specializations, etc., submitted monthly 12/3/91-11/10/92
<b>1.4. Strengthen the Training Capacity of the DGFR</b>		
1.4.1. Establish a training unit within the DGFR for the coordination and supervision of the various training activities in the sector	Completed	Deliverable: Progress Report to the DGFR on Work done in Establishing Training Unit and Staff Activities therein, submitted 6/30/92
1.4.2. Review of current DGFR programs and procedures in order to identify areas that need to be strengthened	Completed	Deliverable: Report to DGFR on Results of First Graduates' program (January-March 1992) showing results achieved and plans for successive programs, submitted 4/30/92

<p><b>1.5. Evaluate the Impact of Training</b></p>		
<p>1.5.1. Establish ongoing system for evaluation of training impact on individuals and institutions, i.e., outputs defined; evaluation system designed; data inputs; trial run of system; revision of system if necessary</p>	<p>Ongoing</p>	<p>To be included in the outputs of the Second AWP</p>
<p>1.5.2. For OJT, establish in collaboration with project advisors and specialists, structured programs with identified objectives, methodology, and results to enable a system of performance and measurements to be applied</p>	<p>Completed</p>	<p>This activity has resulted in the following training: (1) Extension agents upgrading course (10 days) completed in May; (2) statistical data collection course (10 days) began June 20. Additional courses designed: (1) observer induction course (5 days); (2) Introduction to ELEFAN (2 days)</p>
<p>1.5.3. For OJT and other activities establish links with the civil service performance evaluation scheme to align results and impact of training with the ongoing methods and procedures of staff appraisal</p>	<p>Completed</p>	<p>Deliverable: Progress Report to DGFR on Linkages Established between Training and the System of Staff Appraisals being Initiated by the Ministry of Civil Service, as Regards Results within the DGFR, submitted 9/2/92</p>
<p><b>1.6. Manage and Monitor the On-the-Job Training Activities</b></p>		
<p>1.6.1. Design and operate procedures whereby OJT activities are managed and monitored as a control-cum-service task on behalf of all concerned work; this task will attempt to comprehend training activities initiated and ongoing in other units, external to DGFR, within the fisheries sector</p>	<p>Ongoing</p>	<p>Deliverables: Quarterly Report to DGFR on Results of OJT Schemes, submitted quarterly 1/31/92 - 8/23/92</p>

<b>1.7. Train Staff for Fisheries Protection</b>		
1.7.1. Establish within the Fisheries Training Plan, a detailed plan for training the staff of the Fisheries Affairs Department in all aspects of fisheries protection	Postponed	Deliverable: Quarterly Report to the DGFR on Training Activities Relating to Fisheries Protection, submitted 6/30/92. Further action postponed for consideration during project redesign.
1.7.2. Design and operate OJT programs for the management personnel in the planning and management of fisheries protection agencies (FPA)	Postponed	Postponed for consideration under project redesign

### **III. THE PLANNING AND ADMINISTRATION COMPONENT**

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- **Contractual Component Objective:** To strengthen the performance of the DGFR by improving planning, programming, budgeting, and administrative systems and skills.
  
  - **Contractual Component Activities:** (1) Design a planning, programming and budgeting system to relate Ministry plans, budgets and performance in fisheries to fisheries sector plans and activity and to provide measures of performance for various fisheries units within the Ministry; (2) assist fisheries unit managers to develop annual action plans; (3) train departmental managers in the use of the planning, programming and budgeting system, (4) establish measures of MAF performance; (5) review the present management, financial and administrative procedures of the Ministry relating to fisheries; (6) assist in the preparation and implementation of a training plan for Ministry's fisheries planning, finance and administrative staff.
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#### ***1. Synopsis***

The Planning and Administrative Specialist for the Planning and Administration Component arrived in early September 1991. Following a brief orientation to the DGFR finance and administration system, component activities commenced with his participation in a work plan development workshop, conducted during late September 1991. At this time the activities and deliverables scheduled for this component were formulated in the AWP.

A total of 23 activities were scheduled in the First AWP to be performed by the component during the period November 15, 1991 - November 30, 1992. Of the scheduled activities, 10 were completed, 3 were deferred to another component, and 10 were not carried out. Associated with these activities were 12 scheduled deliverables. Of these deliverables, 7 were completed, 2 were deferred to another component or activity, and 3 were not carried out.

In addition, 2 unscheduled activities were carried out at the request of the Director General. There were 5 unscheduled deliverables submitted at his request. In an addition, an unscheduled paper was prepared in collaboration with the Manpower Planning Specialist.

Following the review of the FDMP in September-October 1992, and upon the recommendation of the review team, activities in this component were terminated on November 30, 1992. However, many of the activities and outputs of this component, for example, manuals for annual planning and budgeting, will continue to assist the administration and finance of the DGFR.

#### ***2. Activities and Outputs***

Outlined below is a brief summary of the status of work carried out in the major categories of activities scheduled in the First Annual Work Plan for the Planning and Administration Component during the period November 16, 1991 to November 30, 1992.

For a more detailed examination of activities and outputs, see Tables 2 and 3 at the end of this section.

- Work on Planning, Programming and Budgeting and Perform Organizational Review of the DGFR, (activity 2.1. and 2.3 respectively) has been substantially completed. Preliminary work was completed on Assess and Plan Computer Needs and Applications. (Activity 2.6.)
- Responsibility for the training tasks, Prepare Training Plan for Managers and Staff, and Prepare and Implement Training Programs in Planning, Finance, and Administration, (activities 2.2.23., and 2.5. respectively) was deferred to the Manpower Development and Training Component for possible inclusion in the training program being prepared for the DGFR.
- The Report on Project Performance, (activity 2.7.) the responsibility of the Chief of Party, was carried out in preparation for the FDMP project review.
- The remaining activities, Establish Measures of DGFR Performance (activity, 2.2.), Review Present Management, Financial and Administrative Procedures (activity 2.4.), and DGFR Plan of Computerization (activity 2.6.2), to have been done by short-term consultants, were postponed from their original dates. The former was rescheduled for November 1992, but not carried out.
- Five unscheduled deliverables were prepared in response to specific requests made by the Director General. Although activities represented by the first three documents fall roughly within the sphere of the component's activity 2.3, Perform Organizational Review of the DGFR, and to some extent overlap documents prepared as a part of scheduled activities, they required additional activities relating to regional fisheries and staffing assessment.

The remaining two deliverables, stemming from scheduled work on budgeting and work plans, are (1) the Work Plan Preparation Manual, and (2) DGFR Work Plans and Budget, Fiscal Year 1993. The latter demonstrates the use of systematically formulated work plans to prepare a relevant budget.

### 3. Major Accomplishments

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Contractual Component Outputs: (1) Establishment of a medium-term planning, programming, and budgeting system, to be used for annual fisheries budget preparations, management and monitoring of fisheries unit performance; (2) reports on improvements in financial and administrative procedures in the MAF relating to fisheries; (3) improvements in the securing and use of resources for fisheries by the MAF; (4) training programs for MAF management, finance and administrative staff; (5) reports and advice on major fisheries development proposals; (6) quarterly progress reports and [other reports as] required by contract.

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The preponderance of the technical advisor's effort was given to organizational analysis, to work plan and budget preparation, and to making recommendations for changes to the modus operandi of the Directorate General. The major achievements stemming from this effort are outlined below.

- The Work Plan Preparation Manual, and its companion, the Budget Preparation Manual, will afford lasting benefit to the DGFR. These manuals detail the rationale for preparing a careful budget based on projected actual total need of the sections and departments of the DGFR. If utilized, as they were during 1992, they will enable the Directorate General of Fisheries Resources to prepare work plans which reflect the realities of its resources, and also associated budgets to support that work.

To date, the tangible benefit to the DGFR stemming from the preparation of work plans and budgets is the significant on-the-job training which the technical advisor was able to carry out in the course of that work. Beginning in the second quarter, he held presentations and workshops on work plan preparation which were attended by all levels of staff of the DGFR. In addition, preparing the numerous (21) work plans provided an excellent opportunity for on-the-job training not only of the two DGFR staff members assigned to help computerize the material, but also of the large number of section and department heads who participated in the planning exercise. These staff members will now have gained a base on which to build the skills necessary for future preparation of work plans.

Although the departmental work plan and budget for the Marine Science and Fisheries Center is incomplete and therefore is not included in the current draft of the 1993 work plan and budget estimate of the DGFR, plans generated in various sections in the MSFC under the aegis of the technical advisor are now serving to guide the work of its sections. This practical application will give the participants not only a deeper understanding of the work plan process, but also a respect for its function as an analytical and planning tool.

- An additional achievement was the relationship that the technical advisor was able to build with the senior counterpart assigned to him. The counterpart was at all times most cooperative and supportive, and participated in the day-to-day work associated with component activities. It is hoped that this involvement will lead to increased emphasis and value being placed by the DGFR on the need for planning and administration procedures.

To summarize, in addition to giving the Director General ample material on organization and staffing, the component made contributions to the development of the DGFR's institutional capacity through introduction of new systems and procedures in work plan and budget preparation. It also was able to achieve significant on-the-job training in these two functional areas.

Perhaps the most tangibly productive work done by the Planning and Administration Component was that on work plans and budget estimates, and the most significant outcome of this activity was the involvement by department and section staff in the actual work of preparing these plans. The technical adviser found that many of the staff members of the DGFR responded positively to this challenge and that, for a first effort, the results were commendable. As the DGFR has already made such a great investment of time in this work, it would be in its interest to continue with it.

However, despite the sharp focus of the component on the organization and staffing of the DGFR, the technical advisor feels that work in these areas has had little institutional impact. Organizational issues at the levels of the ones addressed are sensitive and difficult to resolve. They require action at higher levels of management, and, in this case, require coordination and involvement of the regions and perhaps of other ministries. In this instance, advice can be given, but little can be done to effect its implementation.

#### *4. Recommendations*

- Consideration should be given to conducting technical training in the functional areas in which the component has been active, and especially in the area of work plan and budget estimate formulation. The technical advisor has suggested that reports prepared by the Planning and Administration Component be used as training material. The two manuals, Work Plan Preparation, and Budget Preparation, would be especially suitable for this purpose, as they give step-by-step outlines of procedures and detail the rationale behind each.
- Continuation of this training would be the decision and responsibility of the DGFR itself, supported by the Manpower Development and Training Component of the FDMP. Although training of this nature might require short-term FDMP sponsored public administration trainers to conduct workshops or other training exercises, for success it would certainly require a commitment on the part of DGFR management. However, by building on the foundation already established, the loss of considerable effort on the part of both the contractor and the DGFR would be minimized.
- It is recommended that the DGFR establish a planning unit to operate locally within the Directorate, but in cooperation with the Directorate General of Planning and Projects of the Ministry.

**Table 2. Activities Scheduled in the First AWP for the Planning and Administration Component  
(November 15, 1991 - November 30, 1992)**

ACTIVITY	STATUS	OUTPUTS
<b>2.1. Planning, Programming &amp; Budgeting</b>		
2.1.1. Develop annual action plans	Completed for four departments; in progress for MSFC	Unscheduled deliverable: DGFR Annual Work Plan and Budget Estimate, Fiscal Year 1993, submitted 11/30/92
2.1.11. Analyze requirements, prepare instructions, develop departmental performance indicators	Completed	See above
2.1.12. Prepare action plan preparation manual	Completed	Unscheduled deliverable: Draft Action Plan Preparation Manual, submitted 3/15/92, revised as Final Draft Work Plan Preparation Manual, resubmitted 11/30/92
2.1.13. Assist departments with developing their action plans	Completed	Action plans prepared by department members with assistance from the TA.
2.1.2. Develop a system for planning, programming, and budgeting	Completed	See 2.1.1. above
2.1.21. Review present budget procedures and policies	Completed	Deliverable: Review of Present Budget Procedures, Policies and Operations, submitted 10/31/92
2.1.22. Develop revised budget preparation procedure manual, identify performance indicators	Completed	Deliverable: Draft Budget Preparation Manual, submitted 10/31/92

2.1.23. Prepare training plan for managers and staff	In progress	Unscheduled Deliverable: First Draft, DGFR Training Plan, presently undergoing revision
2.1.24. Conduct training and assist with 1993 budget preparation on a pilot basis in a region	Not undertaken	One-to-one training carried out during preparation of action (work) plans and budgets
2.1.3. Train department managers	Completed as part of Activity 2.2.13.	Undertaken as part of the task of action plan and budget preparation
2.1.31. Plan and conduct workshops in mgt and admin, planning process, planning and budgeting as tools of management	Initiated	
<b>2.2. Establish Measures of DGFR Performance</b>		
2.2.1. Develop methodology for measuring performance, identifying qualitative, quantitative, and internal/external indicators	Not undertaken	Fielding of short-term consultant delayed
2.2.2. Collect data for these indicators in each activity as they are being performed	See above	
2.2.3. Analyze organization and system performance as systems are upgraded	See above	
<b>2.3. Perform Organizational Review of the DGFR</b>		
2.3.1. Compare and analyze functions and organization given in Ministry Report to that in DGFR; recommend changes required; prepare implementation plan including staffing, manpower development and training	Completed	Deliverable: Organizational Review and Assessment of the Directorate General of Fisheries Resources, submitted 7/15/92

2.3.2. Study feasibility of establishing a planning unit in DGFR including functions of monitoring the five-year plan	Completed	Deliverable: Feasibility of Establishing a Planning Unit within the DGFR, submitted 6/30/92
2.3.21. Develop staffing needs, management and budgetary procedures and budget requirements over a five year period	Completed as part of Activity 2..3.2.	
2.3.22. Assess training and manpower development requirements of the unit	Addressed	Deliverable: DGFR Planning Unit: Manpower Development and Training Needs, submitted 8/31/92
<b>2.4. Review Present Management, Financial and Administrative Procedures</b>		
2.4.1. Review procedures in use; identify priority procedures which need to be revised and improved	Not carried out	Fielding of short-term consultant delayed
2.4.2. Recommend revisions to those identified above within existing regulations/laws; prepare revised procedures	Not carried out	
2.4.3. Train staff in use of revised procedures	Not carried out	
<b>2.5. Jointly with the Training Component, Prepare and Implement Training Programs in Planning, Finance and Administration</b>	Ongoing	To date, three from DGFR senior management have participated in a short course in management training in Pittsburgh, PA

<p><b>2.6. Assess and Plan Computer Needs and applications for Planning, Finance and Administrative Functions in DGFR</b></p>		
<p>2.6.1. Assess needs and analyze areas of applications</p>	<p>Completed</p>	<p>Deliverable: Assessment of Computer Applications by the DGFR in Planning, Finance and Administration, submitted 6/30/92</p>
<p>2.6.2. Prepare a computerization plan for DGFR; state hardware and software needs and five year budget support; develop organization, staffing, manpower development and training needs</p>	<p>Not carried out</p>	
<p><b>2.7. Project Management and Coordination</b></p>		
<p>2.7.1. Administration and management</p>	<p>Ongoing</p>	
<p>2.7.2. Establish project performance of major activities</p>	<p>Completed</p>	<p>Carried out as part of the FDMP project review</p>

**Table 3. Unscheduled Activities of the Planning and Administration Component (November 15, 1991 - November 30, 1992)**

ACTIVITIES	STATUS	OUTPUTS
<p>Prepare paper/manuscript on the transfer of management technology in the development process, jointly with the Manpower Planning Specialist, for presentation at the SQU conference "Technology Transfer to Local Industries," March 1 and 2, 1992.</p>	<p>Completed</p>	<p>Unscheduled Paper: Development and Transfer of Management Technology, submitted 2/3/92</p>
<p>Review the functions of the Office of the Director General as described in the Report on Ministry Organization, June 1991</p>	<p>Completed</p>	<p>Unscheduled Deliverable: Office of the Director General: Assessment of Functions and Staffing Requirements, submitted 3/22/92</p>
<p>Based on the Report on Ministry Organization, June 1991, define the decentralization environment, the functional responsibilities of the DGFR vis à vis the regions, and the necessary relationships between them, including staffing levels necessary for the DGFR and the regions</p>	<p>Completed</p>	<p>Unscheduled Deliverables: (1) DGFR Organization and Staffing Assessment, submitted 3/22/92, and (2) Regional Fisheries Organizations: Staffing Assessment and Decentralization of Functional Responsibilities, submitted 5/10/92</p>

#### IV. THE FISHERIES RESOURCES MANAGEMENT COMPONENT

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- Contractual Component Objective: To improve the capacity of the MAF to manage fisheries resources in Oman.
  
  - Contractual Component Activities: (1) Provide training for (a) MSFC staff in fisheries research methodology and in the use of fisheries research results for fisheries management and development, and (b) DSDP staff in fisheries data collection and analysis, and presentation; (2) assist the Ministry and the Training Advisor in the design and implementation of participant training programs; (3) assist in other aspects of the development of the manpower of the MSFC and the fisheries statistics programs; (4) supervise MSFC staff as required in research tasks and in reporting on research results; (5) lead research activities in specific priority tasks; (6) provide recommendations on fisheries management and development issues; (7) provide advice and assistance on other aspects of the management and organization of the MSFC and the DGF Department of Statistics and Data processing as required; (8) assist in the coordination of the work of the MSFC and the DSDP especially in relation to stock assessment, database development and data processing; (9) propose and implement approaches to strengthening the fisheries statistics program; (10) supervise the preparation of annual fisheries statistical reports; (11) prepare computer programs for statistical analysis; (12) undertake specific statistical analyses; (13) propose and implement the development of a coherent process for fisheries management decision-making.
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##### *1. Synopsis*

The Fisheries Research Specialist I and the Data Collector and Analyst Specialist joined the project in early September. Both had previously been under contract with the OAJC, and continued project activities related to research and statistics. The Fisheries Research Advisor arrived in October, and the Statistics Advisor came shortly thereafter. When the Research Specialist II joined the team in January 1992, the five-person Resources Management Component was at full strength.

As with the other components, the activity and output scheduled under the first Annual Work Plan began during November 1992. A total of 23 activities were scheduled in the First AWP to be performed by the component during the period November 15, 1991 - November 30, 1992. Of the scheduled activities, 7 were completed, 10 are ongoing, 5 were deferred, and 1 was not carried out. Associated with these activities were 9 scheduled deliverables and various unspecified reports. Of these, 6 were completed, 2 were postponed, and 1 was deferred to another component. See the Appendix for a detailed enumeration of the unspecified reports submitted. At the request of the Director General, 2 unscheduled activities were carried out, and 3 unscheduled deliverables were submitted.

During this period, the focus of the work at the Marine Science and Fisheries Center was on reviewing and advising the Director on administrative procedures and on research priorities and programs. The work at the Ministry centered on assisting in the reformatting, analysis, and production of the 1991 Statistical Yearbook. During this assistance, considerable OJT occurred with a resulting increase in Omani staff capabilities to perform this work themselves.

The component's efforts were augmented by a short-term consultant who provided technical assistance and OJT in operation of the OSAM remote sensory unit of the MSFC. This system is now receiving and archiving satellite-transmitted sea-surface temperatures for future reference/analysis.

The outputs connected with the efforts of this component are summarized in the Appendix, and a much more extensive compilation of reports and advisory outputs is housed at the MSFC. The efforts of Fisheries Resource Management Component resulted in a much improved understanding of the technical and training requirements of the Marine Science and Fisheries Center and of the Department of Fisheries Statistics in relation to fishery resource management.

On the recommendation of the project review team, the Fisheries Resource Management Component team was reduced from five to two plus one-half of the time of the Chief-of-Party. The refocus of the project will be on research related training and database development.

## ***2. Activities and Outputs***

Activities and outputs as scheduled in the First Annual Work Plan for the period November 15, 1991 to November 30, 1992, and the status of work carried out in each activity, are discussed below as well as outlined in Table 4, at the end of this section.

- Assistance was provided to develop human skills at the Marine Science and Fisheries Center and in the fisheries statistics programs, and a survey of computer skills in both the Department of Fisheries Statistics and the MSFC has been completed. (Activity 3.4.2.) In addition, skills assessments and job description activities have been carried out. (Activity 1.1.)
- A review of MSFC activities was undertaken to assess the major procedures in place and to recommend structural and procedural remedies. A detailed program of work was also prepared for the Center.
- Work was carried out on budget planning and preparation for fiscal year 1993 in support of formation of the major procedures required for the effective functioning of a fisheries research center, including the allocation of resources available for research. (Activity 2.1.2.)
- The component prepared an initial computer procurement plan to improve computer usage and efficiency. This is to assist coordination between the Marine Science and Fisheries Center and the Department of Fisheries Statistics, especially in relation to stock assessment, database development, and data processing. It was in addition to the assessment of computer skills and the formulation of a joint computer development and training plan for both departments. In addition, a review of past stock assessments was submitted. (Activities 3.1. and 3.4.4. respectively.)

- Staff meetings of sections heads have been instituted, as have regular weekly meetings between the director and all expatriate staff in support of effective functioning of the MSFC. The latter have been held since June 1992. In support of the management and organization of the Marine Science Center, close contact was maintained with the director as follows:
  - Continuous dialogue on executive administration, time budgeting, and staff management
  - Frequent contact concerning recruitment policy and individual recruits
  - Day-to-day exchange on improvement in field facilities and logistical problems
  
- Activities 3.1.1 through 3.1.4. of the First Annual Work Plan designate the establishment of several task forces to develop a coherent process of fisheries management decision making. These have been functional as outlined below:
  - A statistics task force was established to provide regular coordination and cooperation between the DFS, the MSFC, and other departments of the DGFR, as well as to review and make recommendations concerning the statistics program (also Activity 3.2.6)
  - Two fisheries management task forces were established (1) squid and crab fisheries, and (2) large- and small-pelagic fisheries
  
- As a contribution to the activity of technical review, seminars and workshops have been organized to review progress in research. Also a seminar series, to promote the exchange of information and ideas among fishery researchers and managers, was instituted in November 1991. Additional seminars and workshops were held on computer analysis of large pelagic stocks. (Activity 3.2.1.)
  
- As part of activity 3.2.3. and in addition to advice contained in scheduled and unscheduled deliverables, advice and assistance on aspects of fisheries management and development has been given on the following topics:
  - Use of MSFC aquarium facilities
  - Establishment of regional research centers
  - The IOC workshop planned for Oman
  - Fish drying
  - Use, for management of Omani fisheries, of the FAO survey results
  - Management of abalone and rock lobster
  - Squid and crab fisheries development
  - Prospects for aquaculture and the planning framework for development
  - Training and participation in budget planning and preparation in the MSFC and the DFS
  - Oceanographic research
  - Establishment of aquaculture studies
  - Control of the industrial demersal trawl fishery by-catch
  - Fishermen's Encouragement Fund
  - Managing the industrial demersal trawl fishery

- Mobile teams for data collection and verification of catch and effort data have been formed to ensure the relevance of fisheries data collection for stock assessment. These are being tested in the field under the supervision of the Data Collection Specialist. (Activity 3.2.8.)
- As specifically delineated in the contract and implied in activity 3.3. of the annual work plan, day-to-day consultation in operations and planning has been established with the JICA project. In addition there has been coordination with Sultan Qaboos University on remote sensing programs and on abalone research. (Activity 3.3.1.)
- In addition to supervising research germane to the various activities mentioned above, the project provided leadership in research on small pelagics and on fish ageing. (Activity 3.3.1.)
- The Fisheries Research Advisor lead a small research program on large pelagic fisheries which was confined to taking length frequencies of catches landed at Muttrah and Seeb. Recruitment and growth were investigated. Excel programs were developed for kingfish and yellowfin tuna size-frequency analysis, and growth parameters of both kingfish and yellowfin tuna were either determined or validated, when known, from other research. The age and size of first recruitment and the time of recruitment was determined for both species, and data over the past six years was compared; a working hypothesis was established to explain the appearance and disappearance of these fish on Omani fishing grounds; and the catch of the important age groups over the past six years was estimated and variations examined. The usefulness of all data sets for stock assessment was evaluated. In summary the biological data is mainly confined to one sample site, and thus lacks coverage and the fishing data lacks effort measures. The data are also biased by selection of fish for marketing. Processes and procedures to overcome these deficiencies were being introduced when the project was curtailed. (Activity 3.3.1.)
- In preparation for the fielding of the short-term consultant, groundwork has been laid for the establishment of a fish-ageing facility at the MSFC. (Activity 3.3.2.)
- Specific statistical analysis was undertaken to consolidate the data bases of the Marine Science and Fisheries Center. In addition, programs have been written to plan and administer field trips, to roster staff for market sampling, and to prepare budgets. The Statistical Year Book 1991 was produced.
- Although it was decided to delay the installation of CANOFISH, as part of activity 3.4.3, software acquired to aid stock assessment and research includes:
  1. AbaSim: A Graphic Fishery
  2. LFSA: Length-based Fish Stock Assessment
  3. ANACO: Stock Assessment; analysis of catch data by age group
  4. ELEFAN: Length-based fisheries stock assessment (complete)
  5. FSAS: Basic Fishery Science Programs

- Continuous on-the-job training has been provided at the MSFC, mainly on a one-to-one basis. Daily interactions on the use of various software (WORD, LOTUS 1-2-3, dBase IV, Excel, etc.) has improved skills. Supervision of the market sampling of fish, and its analysis and use has probably imparted enough skill and confidence for this important project to continue with little supervision. The following formal exercises were carried out:
  - The use of the FAO fisheries computing program ELEFAN I to model growth for yellowfin tuna;
  - The use and purpose of the fisheries simulation program ABASIM was illustrated in two seminars: one at Salalah and one at the MSFC;
  - An introduction to the use of the FAO fisheries program "Length-based Fisheries Stock Assessment" for cohort separation;
  - Graphics training: importing maps and line diagrams of fish into documents.

### *3. Major Accomplishments*

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Contractual Component Outputs: (1) Appropriately trained Omani staff capable of fulfilling the major managerial and operational responsibilities of the MSFC; (2) major procedures established for efficient functioning of the MSFC, including research priorities and allocation of resources; (3) effective institutional programs for supporting research; (4) appropriately trained Omani staff managing and operating the fisheries statistics program; (5) a fisheries statistics program with broader coverage of the individual fishing sector. . . closely coordinated with the MSFC, especially in stock assessment; (6) reports on research results. . . to include preliminary assessments of the stocks of heavily exploited commercial resources, including demersals, kingfish, and lobster; (7) timely annual fisheries statistics reports; (8) reports on specific fisheries research, statistical, and management issues as required; (9) draft fisheries management plans for all major commercially exploited resources; and (10) reports on the strengthening of fisheries management decision-making processes.

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- Both the structure and the administration of the MSFC has improved as a result of continuous discussion on executive administration, time budgeting, and staff management. The Center is now capable of planning projects, prioritizing, and reviewing results.
- Subsequent to submission of the deliverable "Review of the Center and Its Programs," the Fisheries Management Committee was established.
- As a result of FDMP advice, research on Omani fisheries has been divided into demersals, large pelagics, small pelagics, and shellfish. This division will allow better research and management analysis than was previously possible. The research on large and small pelagic fish is directed by task forces headed by FDMP technical advisors.
- Model documentation, prepared by the research task forces on both small- and large-pelagic fish programs, has been circulated. This documentation covers project

identification and justification, planning activities (programs, schedules, etc.), and measures of progress and outputs.

- The basic field data collection and data entry components of the statistics program are currently operating largely under Omani supervision. Properly trained field staff members are now available, and capability of analyses of field data by medium and lower level staff is being developed.
- The annual Statistics Report in Arabic was produced on time. However, as agreed to by the OAJC and the DGFR, the Statistical Year Book in English was delayed to permit restructuring and improvement of presentation, as well as recalculation of some of the summary data.
- Recommendations to the Director General on the future of the Fishermen's Encouragement Fund are under consideration.
- A draft review of the status of all stocks has recently been submitted to the Director of the MSFC.
- Formal training in the laboratory on fish identification was provided to on-board observers by the Data Collector and the Analysis Specialist.
- The heads of all sections of the MSFC and the DFS have received training in work plan and budget development.
- Training Courses: (1) A training course for 17 data collectors and 2 supervisors was organized and conducted; (2) a training course for observers was begun.

## *5. Recommendations*

### RESEARCH

#### 1. For the Marine Science and Fisheries Center:

- Continue market measuring of large pelagic and demersal fish at Muttrah.
- Continue market sampling of lobster and abalone in Dhofar.
- Record and archive at least one satellite image per week of sea surface temperatures.
- Maintain a formal diary of events such as weather, fishing, and market regulation changes.

2. For the Department of Fisheries Statistics:

- Collect fisheries statistics on fishing effort. The unit of effort must be chosen to ensure that the expenditure of each such unit takes a constant fraction of the remaining stock of fish.
- Collate data by fishery, by month, and by fishing area. For each, record:
  - (i) The catch in weight and numbers;
  - (ii) The number of fishing units, both boats and fishing gear;
  - (iii) Fishing effort;
  - (iv) Catch per unit of fishing effort in weight and number.
- Maintain databases in a form compatible with ready input for stock assessment by the Marine Science and Fisheries Center. Pay particular attention to capacity to weight up market sampling to total catch.

ANALYSIS

1. For the Marine Science and Fisheries Center

- Produce an annual supplement to the Statistical Year Book containing an updated assessment of the status of major fishery stocks, fishing activities, development options, and management recommendations.
- Consolidate and analyze existing data bases to improve the understanding of the biology and the dynamics of selected fish stocks.

2. For the Department of Fisheries Statistics:

- Measure and monitor the variance of estimates prepared from samples.
- Produce and publish confidence limits around estimates of total catch and catch per unit effort.
- Determine the number of full-time and part-time fishermen and the number of vessels fishing during the year.
- Produce tables of the frequency with which vessels are used in each fishery.

**Table 4. Activities Scheduled in the First AWP for the Fisheries Resources Management Component  
(November 15, 1991 - November 30, 1992)**

ACTIVITY	STATUS	OUTPUT
<b>3.1. Organization and Coordination</b>		
3.1.1. Establish and operate a task force to evaluate the fisheries management decision-making process in the DGFR	Completed	Incorporated in output of Activity 3.1.5 (see below)
3.1.2. Establish and operate Task Force A to advise on the management and development of a specified fishery	Ongoing	Task forces formed for research on large- and small-pelagic fisheries and resources
3.1.4. Establish and operate a task force to investigate collaboration between MSFC and the Department of Fisheries Statistics	Ongoing	Included in the mandate of the Statistics Task Force
3.1.5. Review of MSFC Activities	Completed	Deliverable: A Review of the Center and Its Programs, submitted 12.31/91
<b>3.2. Advice on Fisheries Management</b>		
3.2.1. Conduct a regular seminar series	Inaugurated November 1991	Seminars which promoted the exchange of information and ideas among fishery researchers and managers
3.2.2. Conduct a fifteen-unit course in basic stock assessment and fisheries management in conjunction with existing course	Started but suspended	Several courses given; others will be conducted as part of the redesigned project
3.2.3. In collaboration with counterparts, provide ad hoc advice on fisheries management issues as requested	Ongoing	Advice given on various topics, including that contained in the following ad hoc deliverables: 1. Recommendations for Research Programs in Seafood Technology, submitted 12/31/91

3.2.3. Provide advice on fisheries management (cont'd)		<p>2. Advice on Management of Fisheries Resources, submitted 2/28/92</p> <p>3. Technology Transfer in the Development of Fisheries, paper/manuscript delivered at SQU workshop Technology Transfer to Local Industries, 3/1/92</p> <p>4. Economic Feasibility of Shrimp Farming, submitted 3/3/92</p> <p>5. Evaluation of the Need for a Fisheries Research Vessel, submitted 3/18/92 (See Appendix A. for enumeration of additional advice given.)</p>
3.2.4. With the active participation of counterparts, install and introduce CANOFISH system	Postponed	CANOFISH installation delayed (See output note for Activity 3.4.3., below)
3.2.5. Coordination with other projects and agencies	Ongoing	No formal output
3.2.6. Establish and operate a task force to review handling, transfer, validity, and use of data collected by the national fisheries statistics program, the fisheries licensing program, and research projects operating from MSFC	Ongoing	Portions of this mandate were completed by the Statistics Task Force during preparation of the 1991 Statistical Year Book
3.2.7. Recommendations to DGFR on ways to strengthen the statistics program	In progress	Deliverable: Statistics Progress Report (including Report on Mechanisms for Collaboration in Statistics, activity 3.1), submitted 8/19/92
3.2.8. Plan implementation of revised collections and data-handling procedures	Postponed	To be addressed during the project redesign
3.2.9. Initiate program of training statistical staff and data collectors (Training plans prepared as part of component 1.)	Inauguration delayed	DGFR Training Program under revision

3.2.10. Establish and operate a task force to prepare the annual statistical report	Ongoing	Deliverable: Statistical Year Book 1991, submitted 9/15/92
<b>3.3. Collaborative Fisheries Research Projects</b>		
3.3.1. Continue or implement specific research projects relevant to government objectives and task force activities	Ongoing	Small-pelagic fishery research task force will continue
3.3.2. Plan and commence the operation of a national fish-ageing facility	Postponed	Fielding of the fish-ageing consultant delayed
3.3.3. Establishment of a fish reference collection as part of the aquarium	Altered	Photographs of fish were taken for inclusion in a fish catalog to be used by on-board observers, among others
<b>3.4. Implementing Computer Programs</b>		
3.4.1. Survey available computer programs with Dr. Hilal	Completed	Deliverables: (1) A Report on Available [Computer] Programs, submitted 4/29/92; a survey of computer skills in both the DFS and the MSFC has been completed
3.4.2. Identify needs for new programs and/or training demands	Ongoing	Needs assessment for the DGFR training plan in cooperation with Manpower Development & Training
3.4.3. Install CANOFISH and other stock assessment and management programs as appropriate.	Postponed	Will be considered during project redesign
3.4.4. Review Past Stock Assessments	Completed	Deliverable: A Review of Past Stock Assessments, submitted 3/21/92
3.4.5. Conduct analysis as identified by task force A to aid the management of the fishery	Completed	Draft Report on Large-Pelagic Fishery Situation (not yet submitted)

3.4.6. Carry out, with the assistance of subcontractors, a preliminary analysis of existing data relevant to stock assessment	Postponed	To be considered during project redesign
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## V. OMAN SUPPORT UNIT

- Component Objective: To provide backstopping support in Oman to the Contractor's technical assistance team.

### 1. Activities Scheduled during the Reporting Period

#### 4.1. Administration

- 4.1.1. Recruitment
- 4.1.2. Procure expendable equipment
- 4.1.3. Procure furnishings
- 4.1.4. Procure vehicles
- 4.1.5. Other nonexpendable equipment
- 4.1.6. Vehicle management
- 4.1.7. Inventory control
- 4.1.8. Host country personnel
- 4.1.9. Visas, etc.
- 4.1.10. Import/export HHEs
- 4.1.11. Leases
- 4.1.12. Communications
- 4.1.13. Filing system
- 4.1.14. Computer services
- 4.1.15. Travel arrangements
- 4.1.16. Special arrangements

#### 4.2. Financial control and reporting

- 4.2.1. Recruitment
- 4.2.2. Vouchers
- 4.2.3. Ledgers and journals
- 4.2.4. Host country salaries
- 4.2.5. Monthly invoices
- 4.2.6. Financial files
- 4.2.7. Budget preparation
- 4.2.8. Procedural memorandums

#### 4.3. Publications

- 4.3.1. Recruitment
- 4.3.2. Translations
- 4.3.3. Edit documents
- 4.3.4. Project library
- 4.3.5. Quarterly progress reports
- 4.3.6. Second Annual Work Plan

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STATUS OF SCHEDULED ACTIVITIES During the reporting period, the Oman Support Unit provided continuous routine administrative, financial, and document production support to the project.

## *2. Scheduled Deliverables Submitted during the Reporting Period*

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AWP ACTIVITY	TITLE	DATE SUBMITTED
4.3.5.	Quarterly Progress Report	10/30/91 1/31/92 4/30/92 7/31/92 10/31/92
4.2.7.	Local Budget Monitor	12/31/91
4.3.2.	Translation Requisition System	12/31/91
4.3.3.	Editing Requisition System	12/31/92
4.1.7.	Project Inventory Control System (PICS)	3/31/92
4.3.4.	Project Library	6/30/92
4.3.6.	Vehicle Management Plan	6/30/92
4.3.6.	Draft Second Annual Work Plan	9/30/92

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## *3. Other Activities Carried Out during the Reporting Period*

Activities, in addition to those reflected in the deliverables listed above, were carried out as follows:

- Nine local support staff members were recruited and/or hired by the end of September 1991. The remaining recruitment was completed by June 1992. (Activities 4.1.1., 4.2.1, and 4.3.1.)
- A procurement system was established for household furniture (TAs), and a monitoring system was developed. (Activity 4.1.3.)
- A local law firm was retained to advise Chemonics on legal matters relevant to conducting business in the Sultanate of Oman, including local employment agreements and local labor law. Also training sessions were conducted for various Chemonics communications systems and AID allowances, and computer software training for eight support unit staff members was carried out. (Activity 4.1.8.)

- Systems for NOC processing, driving licenses, import/export of household goods and other permits were established. In addition, a system for supervision of household leases for TAs was established. (Activities 4.1.9., 4.1.10. and 4.1.11.)
- Financial control and reporting systems, procedures and policies were established to cover vouchers, ledgers and journals, host country support salaries, monthly invoices (including installation of the Solomon accounting system on project computers), financial files, budget preparation and control, purchasing, and travel. (Activities 4.2.2. through 4.2.7.)
- Five utility vehicles were purchased. (Activity 4.1.4.)
- Computer procurement was initiated.

**TABLE 5. PROJECT FINANCIAL REPORT  
MAY 15, 1991 THROUGH NOVEMBER 30, 1992**

Cost Item	Commulative Cost Through November 30, 1992
I. SALARIES	1,042,993.44
II. FRINGE BENEFITS	202,147.63
III. OVERHEAD	675,785.07
IV. TRAVEL/TRANSPORTATION	302,185.01
V. ALLOWANCES	713,884.94
VI. OTHER DIRECT COSTS	302,040.49
VII. RESEARCH ACTIVITIES	0.00
VIII. TRAINING	95,027.59
IX. NON PIO/P TRAINING COSTS	29,831.43
X. COMMODITIES	447,687.16
XI. SUBCONTRACTORS	119,478.63
<b>TOTAL COSTS</b>	<b>3,931,061.39</b>
XII. GENERAL AND ADMINISTRATIVE	143,243.08
XIII. TOTAL	4,074,304.47
XIV. FIXED FEE	212,678.68
XV. COSTS PLUS FIXED FEE	4,286,983.15

TABLE 6. FINANCIAL REPORT BY PROJECT COMPONENT  
MAY 15, 1991 THROUGH NOVEMBER 30, 1992

COST CATEGORY	Technical Assistance	Oman Support Unit	Home Office Support	Total
	May 15, 1991 to November 30, 1992			
TECHNICAL ASSISTANCE				
Salaries, Fringe Benefits, Overhead, Travel, Transportation, Allowances				
Long-term expatriates	2,278,561.41			2,278,561.41
Short-term expatriates	206,169.46		13,027.52	219,196.98
Local Hire		258,223.98		258,223.98
Home Office			249,642.17	249,642.17
Subtotal – Technical Assistance	2,484,730.87	258,223.98	262,669.69	3,005,624.54
Other Direct Costs	180,455.54		125,051.01	305,506.55
Research Activities				
General Administration				143,243.43
Fixed Fee including Subs				217,427.44
TOTAL – TECHNICAL ASSISTANCE	2,665,186.41	258,223.98	387,720.70	3,671,801.96
TOTAL COMMODITIES	454,052.63		(6,365.47)	447,687.16
TRAINING				
Long-term U.S.	119,711.57			119,711.57
Long-term Third Country				
Short-term U.S.	20,172.41			20,172.41
Short-term Third Country	23,744.50			23,744.50
Short-term Oman	3,865.55			3,865.55
TOTAL TRAINING	167,494.03	0.00	0.00	167,494.03
TOTAL CONTRACT	3,286,733.07	258,223.98	381,355.23	4,286,983.15

**Table 7. Project Inputs: Level of Effort by Project Component (Person Months)  
May 15, 1991 – November 30, 1992**

Staff Classification	Project Component						Total LOE to Nov. 30, 92
	Manpower Development & Training	Planning and Administration	Resource Management	Other**	Oman Support Unit	Home – Office Support Unit	
	Total	Total	Total	Total	Total	Total	
Long-Term TA	28.91	21.03	65.21	8.36	12.16		135.68
Short-Term TA	6.46	3.09	1.49	1.38			12.42
Oman Support Unit					162.18		162.18
Home-Office Support Unit*						30.42	30.42
<b>Total</b>	<b>35.37</b>	<b>24.12</b>	<b>66.70</b>	<b>9.74</b>	<b>174.34</b>	<b>30.42</b>	<b>340.70</b>

\* Billable time only.

\*\*Includes 1 day that Dr. John Dorr worked on project management, coordination, and COP orientation.

TABLE 8. STATUS OF TRAINING ACTIVITIES AS OF NOVEMBER 30, 1992

SUMMARY OF ACADEMIC TRAINING PARTICIPANTS  
WHO COMMENCED STUDIES IN THE UNITED STATES  
August - September, 1992

11.30.92

NO	NAME	ESL Program	UNIVERSITY	FIELD OF STUDY	STATUS
1	Hilal Al-Shaqsi	Univ of Southern Mississippi	USM If ESL reqmnts are met	MSc. Marine Science	Has to achieve an appropriate English language level, enroll fulltime for one semester w/ grades of B and has to finish prerequisite work before admission to the graduate program.
2	Ahmed Al-Mazrooei	Univ of Southern Mississippi	USM If ESL reqmnts are met	MSc. Marine Science	Has to achieve an appropriate English language level, enroll fulltime for one semester w/ grades of B and has to finish prerequisite work before admission to the graduate program.
3	Mohammed Al-Hinai	-----	New Hampshire College	MSc Business Administration	
4	Younis Al-Akhzami	Univ of Maryland/College Park	NCCU If ESL reqmnts are met	MSc. Management Information Systems	
5	Saleh Al-Hinai	Univ of Maryland/College Park	U of Maryland/Eastern Shore	MSc. Marine Estuarine & Envi. Sci.	
6	Saoud Al-Habsi	Univ of Miami	NOVA U If ESL reqmsts met	MSc. Coastal Zone Management	Recently took institutional TOEFL but scored below his previous score of 470. He has to achieve a 550 TOEFL score and a B grade in his first 2 terms before admission. Extension of ELT needed.
7	Abed Arafah	-----	New Hampshire College	MSc. Computer Information System	
8	Ahmed Al-Masroory	-----	Florida Inst of Tech	MSc. Oceanography	
9	Hilal Am busaidi	-----	Oregon State University	MSc. Fisheries Stock Assessment	B average in his first term. He has to obtain grades of A to be able to be admitted to a Masters deg program. Approx 30 months to complete the degree.
10	Nadia Al Raiesi	-----	Oregon State University	MSc. Fisheries Stock Assessment	

TABLE 8. STATUS OF TRAINING ACTIVITIES (CONT'D)

11.30.92

SUMMARY OF PARTICIPANTS WHO ARE SCHEDULED  
FOR FUTURE GRADUATE ACADEMIC TRAINING IN U.S.

NO	NAME	DEGREE	FIELD OF STUDY	DEPARTMENT	POSITION	TOEFL	GRE	STATUS
1	AL ABDISALAAM, Thabit Zahran	Ph.D.	MSc. Marine Science	MSFC	Director			Admitted, Oregon State University. Deferred, September 1993
2	AL BAHRANI, Kadhim Mohd	Masters	Fisheries Law & Mgt.	Fisheries Affairs	Surveillance Officer	493	none	Submissions made to US Univ. Awaiting GRE Score. Took TOEFL exam in Oct. 24. Scheduled to take GRE test on Feb 06 '93 in Dubai.
3	AL HARTHY, Sabra	Masters	Marine Biology	MSFC	Research Asst.	490	210/560/360	Recently married. Decision for deferral still pending.
4	AL MAZROOEI, Nashwa Ali	Masters	Consumer Economics	Fisheries Resources	Consumer Educ. Specialist	523	none	Submissions made to US Univ. Awaiting GRE Score. Scheduled to take GRE test on Feb 06 '93 in Dubai.
5	AL MUKHEINI, Hilal	Ph.D.	Oceanography	Statistics	Director		250/360/230	Masters complete. Doctorate thesis abstract being prepared. Awaiting for original transcript from U of Wales.
6	AL QASIMI, Adel	Masters	Sea Food Technology	MSFC	Research Asst.	617	none	To U of Rhode Island in Jan 1993 for completion of degree. Completion of thesis extended till Aug. '93. His wife is having a baby and finds it difficult to go to US.
7	AL YAFAEY, Aref Mohsin	Masters	Quality Control	DGFR, Salalah	Quality Control Specialist	480	none	Submissions made to US Univ. Awaiting GRE Score. Scheduled to take GRE test on Feb 06 '93 in Dubai. Options made to Egypt universities.
8	BAHAJAJ, Tariq Abdulla	Masters	Fisheries Technology	DGFR, Salalah	Fisheries Advisor (Extension)	510	none	Submissions made to US Univ. Awaiting GRE Score. Scheduled to take GRE test on Feb 06 '93 in Dubai.

TABLE 8. STATUS OF TRAINING ACTIVITIES (CONT'D)

SUMMARY OF ACADEMIC TRAINING PARTICIPANTS WHO ARE SUBMISSIBLE TO EGYPTIAN UNIVERSITIES

NO	NAME	DEGREE	FIELD OF STUDY	DEPARTMENT	POSITION	TOEFL	STATUS
1	ABU-BAKR, Alawi	Masters	Fisheries Law	DGFR, Salah	Law Researcher	390	Consistent US rejections. Submissions to Egyptian universities in progress.
2	AL ALAWI, Ali Abdullah	Masters	Fishing Gear Tech.	MSFC	Fishing Gear Specialist	450	Submissions to Egyptian universities in progress.
3	AL AISRY, Ahmed Khaled Said	Masters	Marine Biology	MSFC	Research Assisstant	none	Submissions to Egyptian universities in progress.
4	AL AZRI, Ali Nasser Ali	Masters	Coral Reef	Extension	Coral Reef Specialist	410	Submissions to Egyptian universities in progress.
5	AL BALUSHI, Mariam Mohd Ali	Masters	Marine Biology	MSFC	Research Assisstant	407	Submissions to Egyptian universities in progress.
6	AL BARIKI, Shineen Rashid	Masters	Sea Food Technology	MSFC	Research Assisstant	463	Submissions to Egyptian universities in progress.
7	AL FARSI, Essa Mohd	Masters	Aquaculture	MSFC	Research Assisstant		Submissions to Egyptian universities in progress.
8	AL FARSI, Ismail Ibrahim	Masters	Fishing Vessels Mgnt.	MSFC	Head Maintenance	430	Submissions to Egyptian universities in progress.
9	AL GHEILANI, Hamad Mohd	Masters	Fisheries Extension	Extension	Ext. Programmes Specialist	427	Submissions to Egyptian universities in progress.
10	AL HOSNI, Ahmed	Masters	Marine Law	Statistics	Data Analyst	460	Consistent US rejections. Submissions to Egyptian universities in progress.
11	AL KHARUSI, Lubna Hamoud	Masters	Marine Chemistry	MSFC	Research Assisstant		Withdrew from US Based training. Submission to Egyptian U in progress
12	AL KHATRI, Aziz Hamed	Masters	Fish Technology	Quality Control	Quality Control Specialist	430	Submissions to Egyptian universities in progress.

TABLE 8. STATUS OF TRAINING ACTIVITIES (CONTD)

SUMMARY OF ACADEMIC TRAINING PARTICIPANTS WHO ARE  
SUBMISSIBLE TO EGYPT UNIVERSITIES

Page 2 of 2  
11.30.92

13	AL KIYUMI, Fatma	Masters	Stock Assessment	MSFC	Research Assisstant	453	Consistent US rejections. Submissions to Egyptian universities in progress.
14	AL KIYUMI, Nasser Saif	Masters	B.A. Marketing	Fisheries Resources	Production Observer	430	Submissions to Egyptian universities in progress.
15	AL MAMARY, Juma Mohd	Masters	Fishing Gear Tech.	MSFC	Biology Research Assisstant	343	Submissions to Egyptian universities in progress.
16	AL OJAILLY, Abdulrahim	Masters	Fisheries Management	Fisheries Resources	Deputy Director	430	Submissions to Egyptian universities in progress.
17	AL ORAIMI, Abdulla Mubarak	Masters	Fisheries Extension	Training	Training Officer	377	Submissions to Egyptian universities in progress.
18	AL RASBI, Salem Abdulla	Masters	Quality Control	Quality Control	Quality Control Specialist	420	Submissions to Egyptian universities in progress.
19	AL SAADI, Khamis Rashid	Masters	Fish Technology	MSFC	Research Assisstant	393	Submissions to Egyptian universities in progress.
20	AL URIMI, Ali Khamis	Masters	Fish Technology	MSFC	Research Assisstant	none	Submissions to Egyptian universities in progress.
21	AL YAF AEY, Aref Mohsin	Masters	Quality Control	DGFR, Salalah	Quality Control Specialist	480	Submissions to Egyptian universities in progress. Submissibile to US universities.
22	MOHAMMED, Hussein Mohd Redha	Masters	B.A. Marketing	Fisheries Resources	Industrial Specialist	none	Submissions to Egyptian universities in progress.
23	RAFEET, Musallem	Masters	Fisheries Management	DGFR, Salalah	Research Assisstant	483	Submissions to Egyptian universities in progress.

TABLE 8. STATUS OF TRAINING ACTIVITIES (CONT'D)

11.30.92

SUMMARY OF ACADEMIC TRAINING PARTICIPANTS WHO ARE  
NOMINATED FOR UNDERGRADUATE PROGRAM IN U.S.

NO	NAME	DEGREE	FIELD OF STUDY	DEPARTMENT	POSITION	TOEFL	STATUS
1	AL HARIZI, Naser Mohd	Bachelors	Fisheries Extension	DGFR, Salalah	Fisheries Guide	393	Submissions made for conditional admissions to US Community College. Set for TOEFL Exam on January 09 '93
2	AL JABRY, Ibrahim Khalfan	Bachelors	Fisheries Management	MSFC	Administrator	293	Submissions made for conditional admissions to US Community College. Took TOEFL exam November 21 '92
3	AL JARADI, Sami Said	Bachelors	Statistics	Statistics	Data Collector	417	Submissions made for conditional admissions to US Community College. Took TOEFL exam November 21 '92
4	AL MURAZZA, Mohd Hassan	Bachelors	Economics	MSFC	Lab. Assisstant	430	Submissions made for conditional admissions to US Community College. Took TOEFL exam November 21 '92 Student requested for self-funded ELT in U.S. Decision pending.
5	AL SALMY, Sukaiman Salem	Bachelors	Computer Science	Statistics	Computer Operator	410	Submissions made for conditional admissions to US Community College. Took TOEFL exam November 21 '92 Student requested for self-funded ELT in U.S. Decision pending.
6	AL SINAWI, Mansour Nasser	Bachelors	Electrical Eng'g.	Extension	Tech. Technician	330	Submissions made for conditional admissions to US Community College. Took TOEFL exam November 21 '92
7	BARSHIED, Khamis Ashoor	Bachelors	Computer Science	DGFR, Salalah	Data Sampler	410	Submissions made for conditional admissions to US Community College. Set for TOEFL Exam on January 09 '93

APPENDIX

A SUMMARY OF PROGRESS TOWARDS  
FISHERIES RESOURCES MANAGEMENT COMPONENT OBJECTIVES

PREPARED FOR  
THE SEPTEMBER 1992 OAJC PROJECT REVIEW

Anthony Harrison  
John Dorr  
Dana Thomas

## A SUMMARY OF PROGRESS TOWARDS FISHERIES RESOURCES MANAGEMENT COMPONENT OBJECTIVES

This report summarized the progress of the Resource Management Component in relation to the contractual activities and outputs of the project. It was prepared for the September 1992 interim review of the project conducted by the Omani-American Joint Commission.

### I. INSTITUTION BUILDING

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1. **Contractual Activities in Institution Building:** Provide advice and assistance on other aspects of the management and organization of the MSFC and the DGF Department of Statistics and Data Processing (DSDP)<sup>1</sup> as required including task planning and priority setting, allocation of resources, budgeting, technical reviews, development of library and other information systems, database and computer development, and field operations. In these areas, the contractor will generally be responsible for procedures rather than for day-to-day operational aspects, but offerors should propose substantial contributions to the activities of task planning and priority setting, technical reviews and data base development. . . .
- 

#### Activities Undertaken:

- A review of the MSFC examined administrative problems and recommended structural and procedural remedies. At the request of the DGFR an addendum was prepared recommending a detailed program of work for the MSFC; this program was endorsed by the Director General.
- The director of the MSFC and the research advisor have had continuing discussions on executive administration, time budgeting, staff management. There have subsequently been improvements in administration.
- "Glossary of Fisheries Terms" was prepared and circulated to provide a standard set of technical definitions for the team and the DGFR staff.
- Advice, training, and participation in budget planning and preparation in both the MSFC and the FSD.
- Seminars and workshops have been organized to review progress in research.
- A fisheries news bulletin board was established at the MSFC.

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<sup>1</sup> Now known as the Fisheries Statistics Department (FSD).

- A fisheries research journal for the DGFR was proposed and discussed.
- Advice was given on the purchase of a new research vessel.
- Advice was given on use of aquarium facilities and a planning group was established to discuss competing demands, particularly with respect to the establishment of aquaculture studies.
- A draft computer procurement plan for the MSFC and the FSD was produced by the project and accepted by the OAJC. This plan, when implemented, will substantially improve computer usage and efficiency in these two departments and will ensure integration with the project.
- Databases are kept in numerous areas of the DGFR. The contents and potential use of these databases for stock assessment are currently being compiled and analyzed by the statistics task force.
- The MAF has a computer department responsible for computing within the DGFR. To date interaction between the DGFR and the Computer Department has been confined to preliminary consideration of a centralized license issue program and data bases.
- Advice was given on the establishment of regional research centers.
- The use of a research task force was demonstrated in respect to both the small- and large-pelagic fish programs. Model documentation has been circulated covering project identification and justification, planning activities (programs, schedules, etc.), measuring progress and outputs.
- The planning of a national facility for ageing fish has been accomplished as a cooperative venture.
- The TAs participated in meetings to coordinate the use of vehicles and supervision of staff by regional departments collecting fisheries statistics.
- Mobile teams for data collection and verification of catch and effort data have been formed and are being tested in the field under the supervision of the data collection specialist.

- 
2. **Contractual Activity in Institution Building:** Ensure close coordination between the work of the Contractor's team and fisheries statistical and research work outside the project, e.g., MSFC oceanographic program and the Japanese fisheries scientist presently working at the MSFC.
- 

Activities Undertaken:

- Close cooperation with the JICA project has been established. There is day-to-day consultation on operations and planning. Dr. Thomas has worked with the Japanese scientist (Dr. T. Hirais) at the MSFC on his research on demersal fishes. In particular, Dr. Thomas has helped solve database problems and has done some statistical analyses related to Dr. Hirais's work on demersal trawl data using the area swept method. Coordination has been established with SQU on remote sensing programs and abalone research. A good working relationship has been established with staff in several faculties.
  - Advice was given to the director of the MSFC on the IOC Workshop planned for Oman.
  - Consultation was held with the director of the MSFC on the FAO survey, and comments were presented. The second work plan may involve follow-up analysis of the FAO survey.
- 

3. **Contractual Activities in Institution Building:** Assist in the coordination between work of the MSFC and the DSDP, especially in relation to stock assessment, database development and data processing.
- 

Activities Undertaken:

- A statistics task force was established to provide regular coordination and cooperation between FSD and MSFC as well as other DGFR departments.
  - The deliverable on the subject was submitted.
  - A joint computer development plan for both departments was developed and joint computer training is planned.
  - As the new Director of the FSD is a former research assistant at the MSFC, there is now a better understanding of the role of fisheries statistics in stock assessment and research.
- .

- 
4. **Contractual Activities in Institution Building:** Assist in other aspects of the development of the development of the manpower of the MSFC and the fisheries statistics programs including providing advice and assistance on organizational structure, responsibilities, job descriptions and recruitment.
- 

Activities Undertaken:

- TAs have assisted in skills assessment and job description activities of the Manpower and Training Component.
  - A survey of computer skills in the FSD and the MSFC has been completed.
  - Sections of the report "A Review of the Center and Its Programs" provide assistance in organizational structure and responsibilities.
  - The Fisheries Research Adviser and the Director of the MSFC confer frequently on recruitment policy and individual recruits. Recent discussion on the impact of participant training on operations of the MSFC have focused attention on this problem.
  - The Fisheries Research Adviser, the Data Collection Specialist, and the Director of the MSFC confer on a day-to-day basis on improvement in field facilities and logistical problems.
- 

5. **Contractual Outputs in Institution Building:** The major procedures required for the effective functioning of a fisheries research center in place at the MSFC including procedures for establishing research priorities, allocating resources available for research, technical reviews of research undertaken, and presentation of research results.
- 

Outputs achieved:

- Weekly meetings between the Director of the MSFC and all expatriate staff were scheduled beginning in June 1992.
- Staff meetings of section heads have been instituted.
- Budget planning and preparation is rationalized and operating for the 1993 budget.
- A seminar series was initiated in November 1991. Seminars have been conducted to promote the exchange of information and ideas among fishery researchers and managers. Some of these seminars included presentations by DGFR/MSFC staff.

- 
6. **Contractual Outputs in Institution Building:** Effective institutional programs for supporting research including library and information services, data base management, computing, appropriate laboratory services, research vessel and other field operations. . . .
- 

Outputs achieved:

- Consolidation of MSFC data bases is in progress.
- The MSFC library has effective programs in place. Their effectiveness will be improved when support of the library and training of the librarian is upgraded.
- Planning is well advanced to establish a national fish-ageing facility at the MSFC as a central service, and equipment is on order.
- Computer programs have been written to plan and administer field trips, to roster staff for market sampling, to prepare budgets.

## **II. FISHERIES MANAGEMENT**

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1. **Contractual Activities in Fisheries Management:** Propose and implement the development of a coherent process of fisheries management decision making, which includes procedures for the coordinated development of fisheries management plans and other proposals within the MAF, and procedures for dialogue with other interested parties through a mechanism such as the Council for Living Marine Resources Management. As part of this activity, the contractor will report on proposals for participation by small-scale fishermen and their communities in this process. . . .
- 

Outputs Achieved:

- The report "A Review of the Center and Its Programs" comprehensively reviewed the decision-making structure for fisheries management, and structural and organizational proposals were made. Subsequently the Minister established the Fisheries Management Committee.
- A task force was established to plan and oversee development of squid and crab fisheries.
- Task forces to prepare data for managing large- and small-pelagic fisheries are operational.

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2. Contractual Outputs in Fisheries Management: Draft fisheries management plans for all major commercially exploited resources.

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Outputs Achieved:

- The team was designated general responsibility for small- and large-pelagic fisheries. The precursors of the management plans—situation reports—are being prepared by task forces. A draft situation report for the large pelagic fishery is being circulated and parts of a similar document for small pelagics is completed.
  - A report on managing demersal trawl fishery was submitted to the Minister.
- 

3. Contractual Outputs in Fisheries Management: Reports on the strengthening of fisheries management decision-making processes within the MAF and the activation of a mechanism such as Council for Living Marine Resources Management, and assistance in implementing proposals in this area.

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Outputs Achieved:

- A report was made on the organizational and administrative requirements for effective fisheries management presented the "A Review of the Center and Its Programs."
  - A report on the Fisheries Management and Development Committee was presented and implemented.
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4. Contractual Activities in Fisheries Management: Provide recommendations on fisheries management and development issues where the contractor's staff has undertaken relevant research or statistical analysis.

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Activities Undertaken:

- Numerous meetings of the MSFC research task forces have been held, and situation reports on key fisheries are in preparation by these task forces.
- Advice on fish drying has been provided.
- Advice on prospects for shrimp farming was sought and given.
- Advice was given to the Minister on management of demersal trawl fishery. Advice was also given to the Director of the MSFC on by-catch control.

- A memo was prepared on the use of the FAO survey results in the management of Omani fisheries.
- Advice was given to the Director of the Department of Fisheries Resources, Southern Region on abalone and rock lobster management (seminars in Salalah).
- Advice was given on squid and crab fisheries development.
- Advice was given on prospects for aquaculture and a framework for fishery development planning.
- A paper on fisheries development was prepared and presented at the SQU seminar on technology transfer.

### **III. RESEARCH**

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1. Contractual Activities in Research: Supervise MSFC staff as required in research tasks and in reporting on research results.
- 

#### Activities Undertaken:

- Supervision of staff engaged in large pelagic research was provided.
  - Advice was given to staff engaged in oceanographic research.
  - Dr. Dorr supervised staff engaged in small pelagic research and in planning ageing studies.
  - Dr. Thomas supervised staff engaged in computer support for research.
  - Technical advisers supervised the preparation of a research paper and posters presented by Omani research assistants at the World Fisheries Congress in Athens.
  - The data collection specialist is a member of the group preparing a catalogue of the fishes of Oman.
- 

2. Contractual Activities in Research: Lead research activities in specific priority tasks, and prepare appropriate reports on research methods and results.
- 

#### Activities Undertaken:

- The research adviser led research in large pelagics.

- Dr. Dorr led small pelagics research and ageing studies.
- 

3. Contractual Output in Research: Reports on research results consistent with the program of work for the contractors advisors agreed upon within the annual work plans for the contract, but expected to include preliminary assessments of the stocks of heavily exploited commercial resources including demersals, kingfish and lobster.

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Output Achieved:

- Review of past stock assessments delivered.
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4. Contractual Outputs in Research: Reports on specific fisheries research, statistical and management issues as required.

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Outputs Achieved:

- Draft situation report on large pelagic fisheries circulated.
- Fisheries Statistical Year Book, 1991, finished and Annual Statistics Report (in Arabic) prepared.

#### IV. STATISTICS

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1. Contractual Activities in Statistics: Prepare computer programs for statistical analysis. There is presently a very limited capacity for computer programming in the DSDP so that responsibility for computer programming will be the responsibility of the contractor. There is however, a well-developed set of programs in place for current data collection and analysis operations.

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The project has not prepared any major computer programs to date. Spreadsheet and database programs have been used to prepare routines to aid in planning operations and data management and research. Programs have been written by staff to permit the conversion of past and future databases from variable formats and versions (e.g., Lotus, Symphony, dBase) to standard database formats which can be conveniently accessed and analyzed. These programs are used by both statistical and research staff. It has software for doing analyses as detailed below.

There is a significant need for a good data base programmer in statistics to develop new programs and to rework old programs to summarize effort data, to improve the

efficiency of the current programs, and to train local staff. In addition, there is a substantial need for increased computer skills at the MSFC for use of available stock assessment programs as well as of CANOFISH. (See below.)

The University of Maryland CEES computer program CANOFISH is to be the centerpiece of fisheries research software for the project. The implementation of this software was delayed because of contract negotiations between Chemonics and CEES. In the interim, the project has acquired numerous fisheries computer programs for fisheries research work. Training has been provided on several of these programs. (See training item.) These programs include:

- AbaSim: A Graphic Fishery (1991)
- LFSA: Computer programs for fish stock assessment
- ANACO: Computer programs for fish stock assessment
- The Compleat ELEFAN: A comprehensive package incorporating numerous routines for length-based fisheries stock assessment
- Basic programs for the text Quantitative Fisheries Stock Assessment: Choice, Dynamics and Uncertainty
- A computer program for analyzing the growth of fish
- FSAS. Basic Fishery Science Programs: A Compendium of Microcomputer Programs and Manual of Operation

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2. Contractual Activities in Statistics: Propose and implement approaches to strengthening the fisheries statistics program, including broadening the industrial fisheries program, improving the analysis and presentation of results for public and private sector fisheries managers and ensuring the relevance of fisheries data collection for stock assessment.

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Activities Undertaken:

- A task force to review the statistics program was planned, established and is operational. Recommendations have been framed and definitions refined and documented.
- Channels of communications with private companies have been strengthened.

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3. Contractual Activities in Statistics: Supervise the preparation of annual fisheries statistical reports.

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Activities Undertaken:

- Staff members of the FSD produced a first draft of the 1991 annual fisheries statistical report in its traditional form, with the help of the data specialist. The

Fisheries Resources Management Component staff then revised the presentation of the report using software unavailable to FSD. These revisions were reviewed by the Statistics Task Force and approved for publication.

- A task force consisting of the Director of the FSD, Dr. Bouhlel, and three senior staff members of FSD prepared the 1991 report in Arabic.

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4. Contractual Activities in Statistics: [The contractor's team will] undertake specific statistical analyses [and] will have . . . some capacity to respond to requests for particular analyses and reports. . . . It [will] have a defined system for the approval and allocation of contractor staff time on such tasks.

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Activity Requested:

- A request for a special study of fisheries in the Batinah including statistical analyses was made but could not be accommodated in the current work plan. No other special requests were made.

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5. Contractual Outputs in Statistics: A fisheries statistics program with broader coverage of the individual fishing sector, without major logistical constraints and more closely coordinated with the work of the MSFC, especially in stock assessment.

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Outputs Achieved:

- The project has recommended and implemented a division of Omani Fisheries into demersals, large pelagics, small pelagics, sharks and rays, and shellfish within the annual statistics report and within the research section of the MSFC. The traditional and industrial fisheries are addressed separately within these areas. This division will allow a better management perspective than previously realized.
- The MSFC director took part in the statistic task force that reviewed the annual statistics report. This task force is also responsible for suggesting changes in the type and methods of data collection.
- MSFC staff working on yellowfin tuna are using a database collected by DFS staff in stock assessment.

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6. Contractual Outputs in Statistics: Timely annual fisheries statistics reports.

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Outputs Achieved:

- The annual statistics report in Arabic was produced on time.
- The yearbook in English was delayed by agreement to permit restructuring and improvement of presentation, as well as to recalculate some of the summary data.

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**V. TRAINING COURSES**

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1. Contractual Activities in Training: Provide training for (1) MSFC staff including scientists, research assistants, and technicians in fisheries research methodology and in the use of fisheries research results for fisheries management and development, and (2) DSDP staff in fisheries data collection and analysis, and presentation.
- 

The following on-the-job training has been provided at the MSFC:

- Training was given in use of the FAO fisheries computing program ELEFAN I to model growth for yellowfin tuna. Dr. Harrison and Dr. Thomas gave a three hour workshop discussing the need to evaluate growth, the use of software to do so, and the advantages and faults with such analyses.
- Training was given on importing graphics into word processing documents. Historically, the Omani staff at the MSFC have not documented their research well. A self-training program has been written so that Omanis who want to "dress up" their reports with graphics or images of maps or fish could do so.
- An extended regional analysis of Oman's traditional fishery is being undertaken to provide tabular and graphical training for MSFC staff and to improve communication between the MSFC and Statistics Department.
- A system for reviewing the data collected and stored by the MSFC is being established to document the data available for stock assessment and as a data base management training exercise.
- The use and purpose of the fisheries simulation program ABASIM was illustrated in two seminars; one at Salalah and one at the MSFC. This program illustrates the advantages and disadvantages of various fisheries management techniques and their impact on fisheries resources.

- An introduction to the use of the FAO fisheries program "Length-based Fisheries Stock Assessment" for cohort separation was provided to four Omani staff of the MSFC.
- Daily interaction on the use of various software (Word, LOTUS 1-2-3, dBase IV, Excel, etc.) provides OJT in this area.
- Market sampling of fish and analysis and use of this sampling.
- Assistance was provided to the DGFR and the MSFC as they organized training programs for the data collectors and observers.
- A two week course on species identification, data recording, and some analysis was taught to a group of 16 DGFR staff members from DFS and DFA (statistics workers and observers).
- A training course for observers was organized and conducted.

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2. Contractual Activities in Training: Assist the Ministry and the Training Advisor in the design and implementation of participant training programs for scientific and statistics staff, including participating in the presentation of in-country seminars, workshops, etc.

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Activities Undertaken:

- See the preceding training section for seminars and workshops.
- The DGFR will be encouraged to recruit staff in areas such as Statistics, where they are weak.

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3. Contractual Outputs in Training: Appropriately trained Omani staff capable of fulfilling the major managerial and operational responsibilities of the MSFC, with expatriates still required in a largely supporting and advisory role that is more limited than at the beginning of the project.

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Outputs Achieved:

- The core of the training effort is the participant training program. The long-term US training participants will have just returned to Oman at the time of the scheduled termination of the project. These participants will still require OJT to supplement their education and to meet the desired output.

- Those receiving OJT in Oman from the team are not likely to be able to replace expatriates. When the participant trainees return following their academic training, the process of reducing the input from expatriates can begin.
  - Evaluation is in progress of administrative staff as requested by the DG. OJT for administrative staff at MSFC is planned for the next work plan.
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4. Contractual Outputs in Training: Appropriately trained Omani staff managing and operating the fisheries statistics program, with expatriate staff required at an advisory level in the design of any new statistical programs and analysis.

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Outputs Achieved:

- The statistics program is currently operating under largely Omani supervision. However, there are no potential training participants identified to date who are adequately prepared to study for an M.Sc. degree in statistics. Currently, the statistics staff can use dBase and Lotus software to produce the annual statistics report but have little or no skills in programming, statistical methods (e.g. estimation of sampling error), or sampling design.
- Properly trained field staff is now available.
- Medium and lower level staff for analyses of field data are being developed.