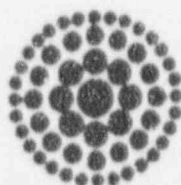


FLORIDA POWER CORPORATION
CRYSTAL RIVER FISH HATCHERY
OPERATING PLAN

1991 - 1994



May, 1991

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CRYSTAL RIVER FISH HATCHERY THREE YEAR OPERATIONAL PLAN

OBJECTIVE

The concept of a multi-species fish hatchery was developed as part of a negotiated settlement to mitigate fisheries losses at Crystal River related to entrainment and impingement at Units 1,2 and 3. The operation of a marine hatchery would allow for the restocking of affected species into local waters.

BACKGROUND

Florida Power Corporation conducted 316(a) and (b) environmental studies at Crystal River. Data collected as part of these studies were used to project annual site entrainment and impingement losses of selected important organisms. In March 1988, as part of a tentative agreement with the Environmental Protection Agency (EPA) and the Florida Department of Environmental Regulation (FDER), Florida Power Corporation made the commitment to construct and operate a multi-species marine hatchery at the Crystal River Energy Complex. In September, 1988, the agencies jointly issued a National Pollution Discharge Elimination System (NPDES) Permit in accordance with this agreement. The concept of a multi-species marine hatchery to mitigate these fisheries losses at Crystal River was developed as a practical, cost-effective alternative to more conventional engineering solutions.

FUNDING

Total O&M funding has been set at an upper limit of 4.5 million dollars (NPV 1/1990\$). Based on this amount, the available O&M funding during the first year will be approximately \$320,000 (1990 dollars). Projected future years funding has been adjusted upwards through January 2014 based on the CPI.

TECHNICAL ADVISORY COMMITTEE

A Technical Advisory Committee (TAC) has been established to review reports and offer suggestions on necessary actions. The three year plan and budget has been reviewed by the TAC for refinement and recommendations as to program emphasis and priority for funding. The TAC will also review outside research requests. Representation on the TAC includes members of the public and private sector, technical and regulatory expertise, as well as Florida Power Corporation representatives.

STAFFING

A staff of six full-time employees will be responsible for hatchery operation. During periods of labor intensive activities, additional manpower needs will be satisfied with student help and other temporary labor.

The hatchery management will report to the Director, Crystal River Coal Plant. Licensing interface and support will be coordinated with the hatchery through the Environmental Services Department.

FACILITIES

A two-story fish hatchery building is being constructed in the transmission access corridor east of the generating stations at Crystal River. It will include eight environmentally controlled spawning tanks, larval culture tanks, laboratory facilities, and a display area. Eight one acre hypalon-lined ponds are being constructed east of the hatchery building and filled with salt water from the Gulf of Mexico. The hatchery has been designed to permit the culture of several crops per year of any given species and to alternate species to address different restocking needs.

SPECIES SELECTION

Suitable hatchery techniques exist for some species. For others, refinement may be necessary *prior* to large-scale production. Refinement of these techniques may take several years; therefore, species selection is based on a phased implementation approach. Species are prioritized based on observed impact levels and technical feasibility. The priority categories are:

- Level 1: Those species for which existing techniques will enable hatchery culture and restocking to commence upon completion of the hatchery. They represent species which have been directly impacted by entrainment, impingement and/or thermal impacts. This level is comprised of species for which hatchery techniques have been developed due to their commercial and/or sport value.
- Level 2: Species for which technique refinement is required prior to mass culture. Developmental efforts leading towards potential production of species within this category will be initiated based on ecosystem need, facility capabilities and the availability of funding.

Though a preliminary ranking of species within each priority level has been determined, other species may be added to the list as the program develops and techniques become known through the scientific literature, subject to the availability of program funding. Over the course of facility operations, not all species will be produced simultaneously. Specific

species to be cultured will be established based on facility accommodations, technical capabilities, and funding.

OPERATING PLAN

Certain activities can be accomplished during the construction phase of the hatchery program. These include recruitment of staff, development of operational procedures, and establishment of supply inventory. This will allow for the implementation of hatchery operating procedures following completion of the hatchery facility. The initial three year operating plan includes the initial start-up of the facility with a phased approach towards the collection, culture, and release of targeted species. Each subsequent year, the three year plan will be revised to reflect program changes and updates. A summary of the major tasks to be accomplished during the first three years of hatchery operation has been included below:

Initial Start-Up and Operation:

The first three months of hatchery operation will involve initial start-up and adjustment of hatchery facilities and procedures. This trial period will ensure the proper functioning of the hatchery equipment, and allow for the refinement of operating procedures.

Year One:

During the first full year of hatchery operation, species cultivation will occur on a limited, small-scale basis in an effort to establish techniques and train personnel. Only one species will be cultured during this period. Necessary contacts for the location and collection of broodstock will be established. Communications with other professional and educational resources will also be initiated.

Year Two:

The second year of hatchery operation will be geared more towards full-scale operating levels. Equipment and procedures for standard operation will be in place, and operations should include cultivation of more than one species along with the maintenance of broodstock for full-scale production. Developmental efforts leading toward potential production of species for which culture procedures have not yet been fully developed should begin during this phase of operation. Suitable habitats for species release will be identified during this period.

Year Three:

The third year of operation will involve full-scale production, with some species being cultured on a production level. Procedures for the maintenance and culture of these species will be in place, and the development of procedures for the culture of additional species will continue as part of the standard operating procedures for the facility. Additional habitat for species release will be identified.

INITIAL OPERATION STAFFING

The hatchery is expected to have a full-time staff which will be responsible for hatchery operation. A brief description of the staff positions is as follows:

Hatchery Manager

The Hatchery Manager will be responsible for hatchery operation. This includes technical and administrative duties necessary for proper operation. The manager will be the primary interface between corporate communications for tours and public access. The manager has primary Florida Power Corporation accountability for the hatchery.

Senior Hatchery Biologist

The Senior Hatchery Specialist will be responsible for the implementation of hatchery operating procedures. This includes the care and feeding of cultured species, as well as the operation of facility systems.

Hatchery Biologist

The Hatchery Specialist will be responsible for performing the various daily tasks which are necessary for hatchery operation and production. This includes biological aspects, as well as any chemical tests which must be performed.

Facility Specialist

The Facility Specialist will be responsible for ensuring the availability of the hatchery facilities.

Secretary

The Secretary will be responsible for the administrative duties and schedule coordination associated with the hatchery. This includes standard secretarial duties, data entry, and report preparation.

Temporary Resources

During certain periods of hatchery operation when additional manpower is required (i.e. pond harvest), temporary resources such as summer, intern, and co-op students will be utilized.

THREE YEAR PLAN TECHNICAL OPERATIONS

Overall Objective

The overall objective of the hatchery is to mitigate fisheries losses related to thermal, entrainment, and impingement effects at Crystal River Units 1, 2 and 3. Environmental studies identified species which are affected by entrainment and impingement. A priority list of species has been compiled based upon degree of impact, abundance, and commercial or recreational importance. Suitable hatchery techniques exist for some of these species. For others, techniques will need to be developed prior to large scale production. A phased implementation program was developed for the hatchery to enable restocking of some species and refinement of techniques for others, as appropriate. These species have been prioritized as follows:

Level 1 Species

Those species for which suitable hatchery techniques will enable hatchery culture and restocking to commence upon completion of the hatchery. They represent species which have been directly impacted by entrainment, impingement and/or thermal effects. This level is comprised of species for which hatchery techniques have been developed due to their commercial and/or sport value:

Red Drum	<u>Sciaenops ocellatus</u>
Spotted Seatrout	<u>Cynoscion nebulosus</u>
Penaeid shrimp	<u>Penaeus spp.</u>

Initial operation of the facility will include the collection and stabilization of these species for use in a controlled culture setting. Development of standard operating procedures and testing of equipment will occur during the first year of operation. Limited species production will occur this first year, since emphasis will be on the start-up of the hatchery and procedure development.

Level 2 Species

Species for which technique refinement is required prior to mass culture. Developmental efforts leading toward potential production of species within this category will be initiated during years two and three of hatchery production. Production of species within this category will be based on facility capabilities, ecosystem need, and available funding:

Spot
Silver Perch
Striped Mullet
Stone crab

Leiostomus xanthurus
Bairdiella chrysoura
Mugil cephalus
Menippe mercenaria

Stocking for some of these species may include the release of larvae and/or juveniles instead of adult forms. Specific stocking densities and developmental stages to be released will be based on impact, availability of suitable culture technique, and survivability of released stages.

THREE YEAR PLAN TECHNICAL ADVISORY COMMITTEE

A Technical Advisory Committee (TAC) will be established to review reports and offer suggestions on necessary actions. The TAC will review the three year plan and budget for refinement and recommendations as to the program emphasis and priority for utilization of available funding. The TAC will also review outside research requests. Representation on the TAC will include members of the public and private sector, technical and regulatory expertise, as well as Florida Power Corporation and recreational fisheries representation. The TAC representatives are:

W. Jeffrey Pardue, Chairman	Florida Power Corporation
Robert Ingle	Retired, Commercial Aquaculture
Ed Irby	Florida Dept. Nat. Resources
Robert Jones	Southeastern Fisheries Association
Kumar Mahadevan, PhD.	Mote Marine Laboratory
Eugene Nakamura	National Marine Fisheries Service
Larry Olsen, PhD.	Tallahassee Community College
Alan Peirce	Florida Dept. of Agri. and Consumer Services
Dan Roberts	Florida Dept. Nat. Resources
John Ryther, PhD.	Woods Hole Oceanographic Institute
Jerome Shireman, PhD.	University of Florida

OPERATIONS AND MAINTENANCE BUDGET PROJECTIONS
CRYSTAL RIVER FISH HATCHERY

YEAR	<u>ANNUAL O&M BUDGET</u>
1991	\$ 292,000
1992	\$ 346,000
1993	\$ 365,000
1994	\$ 385,000

Total O&M funding has been set at \$4.5 million (NPV 1/1990)
Available annual O&M budget is based on operation
projections through year 2016

3/8/91
David A. Bruzek