


SOUTHERN NEVADA WATER AUTHORITY
BOARD OF DIRECTORS
AGENDA ITEM

APPROVED BY BOARD

May 21, 1998



Authorized Signature Date

Subject: COOPERATIVE AGREEMENT	Director's Backup
Petitioner: DAVID A. DONNELLY, DEPUTY GENERAL MANAGER, ENGINEERING/OPERATIONS	
Recommendations: THAT THE BOARD OF DIRECTORS APPROVE AND AUTHORIZE THE CHAIR TO SIGN THE ATTACHED COOPERATIVE AGREEMENT BETWEEN THE BUREAU OF RECLAMATION AND THE AUTHORITY FOR ADDITIONAL WORK ON THE LAKE MEAD RAZORBACK SUCKER STUDY.	

Fiscal Impact:

The Authority will receive up to \$200,000 from the Bureau of Reclamation for the razorback sucker study.

Background:

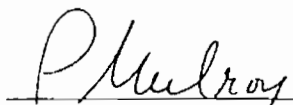
In March of 1994, Lake Mead was designated as Critical Habitat for the razorback sucker. On August 12, 1996, the Board of Directors authorized the Authority to amend the existing agreement with BIO/WEST, Inc. to conduct a study on the razorback sucker population in Lake Mead.

As part of the 1997 "Final Biological and Conference Opinion on Lower Colorado River Operations and Maintenance - Lake Mead to Southerly International Boundary", the Bureau of Reclamation (Reclamation) is required by the U.S. Fish & Wildlife Service to conduct additional research on the razorback sucker population in Lake Mead. Reclamation, as part of their requirements under the Endangered Species Act for operations and maintenance of the Lower Colorado River, desires to cooperate with the Authority for further research on the razorback sucker in Lake Mead.

In an effort to fulfill this requirement, Reclamation has requested the Authority to enter into the attached Cooperative Agreement. This agreement will allow funds to be transferred from Reclamation to the Authority for the purpose of augmenting the Authority's existing research project on razorback suckers in Lake Mead. As stipulated in the Cooperative Agreement, the total estimated budget contributed by Reclamation is \$200,000 over the next three years.

The attached agreement has been reviewed and approved as to legality by the Authority's legal counsel.

Respectfully submitted:



Patricia Mulroy, General Manager
PM:DAD:KB:JM:ZM:vw 5/5/98
Attachment

AGENDA
ITEM #

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UNITED STATES DEPARTMENT OF THE INTERIOR
 BUREAU OF RECLAMATION
 ASSISTANCE AGREEMENT

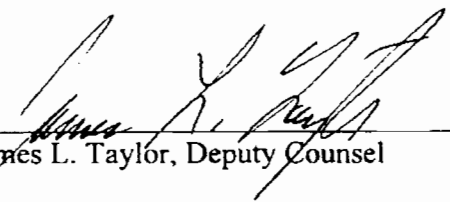
DUPLICATE
 ORIGINAL

1. AGREEMENT NO. 1425-98-FC-30-00019		2. TYPE OF AGREEMENT Cooperative Agreement		3. REQUISITION NO.	
4. ISSUED BY Bureau of Reclamation Lower Colorado Region P.O. Box 61470 Boulder City NV 89006-1470			CODE LC-2000	5. RECIPIENT Southern Nevada Water Authority 1001 South Valley View Boulevard Las Vegas, NV 89153	
6. NAME, ADDRESS, & PHONE NO. OF ASSISTANCE REPRESENTATIVE Mike Walker Bureau of Reclamation PO Box 61470 Boulder City, NV 89006-1470 Telephone: (702) 293-8702			7. NAME, ADDRESS, & PHONE NO. OF RECIPIENT'S PROJECT MANAGER Janet Monaco Southern Nevada Water Authority 1001 South Valley View Boulevard Las Vegas, NV 89153		
8. PROGRAM STATUTORY AUTHORITY Reclamation Act of June 17, 1902 (32 /stat, 388), as amended and supplemented, Endangered Species Act of 1973 (Pub L. 93-205; 81 Stat.884) as amended			9. CLASS OF RECIPIENT		
10. EFFECTIVE DATE May 1, 1998			11. COMPLETION DATE September 30, 2001		
12. TOTAL AMOUNT OF AGREEMENT		\$ 200,000		13. ACCOUNTING AND APPROPRIATION DATA	
FUNDS OBLIGATED FY98		\$ 40,000		Cost Authority - A30-1732-6055-130-20-0-0-3	
AMOUNT OF FUNDS OBLIGATED		\$ 40,000		Cost Center - 3002300	
				Object Code - 411C	
14. PROJECT TITLE Lake Mead Razorback Study (RPA 10), Augmentation of SNWA effort					
15. Acceptance of this Assistance Agreement in accordance with the terms and conditions contained herein is hereby made on behalf of Southern Nevada Water Authority _____ NAME OF RECIPIENT BY _____ SIGNATURE Mary Kincaid _____ TYPED NAME Chair _____ TITLE TELEPHONE NO.			16. Acceptance of this Assistance Agreement in accordance with the terms and conditions contained herein is hereby made on behalf of the United States of America, Bureau of Reclamation. BY _____ SIGNATURE DATE Robert W. Johnson _____ TYPED NAME Grants and Cooperative Agreements Officer _____ TITLE TELEPHONE NO. (702) 293-8411		

UNITED STATE DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
ASSISTANCE AGREEMENT

THIS AGREEMENT shall be in full force and effect as of the _____ day of _____, 1998, when it was duly signed by the proper officer of the Southern Nevada Water Authority.

APPROVED AS TO LEGALITY:



James L. Taylor, Deputy Counsel

COOPERATIVE AGREEMENT
BETWEEN THE
BUREAU OF RECLAMATION AND SOUTHERN NEVADA WATER AUTHORITY
FOR
FUNDING FOR ADDITIONAL WORK ON LAKE MEAD RAZORBACK SUCKER
POPULATION AND DISTRIBUTION STUDY

SCHEDULE OF AGREEMENT

I. Background

The Bureau of Reclamation (Reclamation) proposes to participate as partners with Southern Nevada Water Authority (SNWA) in the ongoing survey effort which SNWA is conducting on Lake Mead.

The Southern Nevada Water Authority, through funding to BIO/WEST, Inc., Colorado River Commission and the Nevada Division of Wildlife initiated a study of razorback sucker in Lake Mead in October 1996. The study has focused on population enumeration, sonic tracking, and larval sampling at Las Vegas Bay and Echo Bay, areas with known populations of razorback sucker. The study has been successful in capturing adult razorback suckers, sonic tagging and tracking them to spawning areas and summer use areas, collecting large numbers of larvae in Echo Bay and small numbers in Las Vegas Bay, and collecting juvenile razorbacks in Echo Bay. The collection of large juvenile razorbacks (318-381 mm TL), as well as growth information from recaptured fish, indicate that some survival of these fish from egg to adult is occurring in Lake Mead.

Reclamation has contributed to the study throughout the first two years, and has agreed to provide funds to expand the study starting in 1998 through September, 2000. Reclamation's interest is to expand the sampling beyond Las Vegas Bay and Echo Bay in an attempt to locate additional populations of razorback sucker in other parts of the reservoir and gather demographic information on them. Reclamation is also interested in aging (using otoliths) existing preserved specimens of razorback sucker from Lake Mead, and in enhancing the sampling for juvenile razorbacks that was initiated in 1997. See attached Exhibit A for specifics on work to be accomplished.

II. Purpose and Objectives

The purpose of this agreement is to identify Reclamation and SNWA as partners in implementing and funding of a razorback sucker survey effort in Lake Mead.

The objectives of this agreement are to:

(1) expand the sampling effort of SNWA beyond Las Vegas Bay and Echo Bay in an attempt to determine if other populations of razorback sucker may occur in other parts of the reservoir.

(2) enhance the sampling for juvenile razorbacks that was initiated in 1997.

Reclamation will use the information from this study for partial fulfillment of Provision #10 of the Reasonable and Prudent Alternative generated by the U.S. Fish and Wildlife Service Final Biological and Conference Opinion on Lower Colorado River Operations and Maintenance - Lake Mead to Southerly International Boundary (1997).

III. Authority

This cooperative agreement is entered into pursuant to the Reclamation Act of June 17, 1902 (32 Stat. 388), as amended and supplemented, and the Endangered Species Act of 1973 (Pub L. 93-205; 81 Stat. 884) as amended.

By signing this agreement, the SNWA and the Bureau of Reclamation agree to use the Grants and Cooperative Agreements Act of 1977, in lieu of Section 108 of Pub.L. 93-638, as referenced in Section 9 of the Act.

IV. Benefits

Reclamation will benefit from this agreement in that crucial data will be collected to enable meeting Provision number 10 of the Reasonable and Alternative generated by the U.S. Fish and Wildlife Service Final Biological and Conference Opinion on Lower Colorado River Operations and Maintenance - Lake Mead to Southerly International Boundary (1997).

SNWA will benefit from this agreement as additional information will be collected that will add to the value of their ongoing study.

V. Roles and Responsibilities

Reclamation will:

1. Appoint a representative to serve as Reclamation liaison with Reclamation and any principal investigator agreed upon by both Reclamation and SNWA.
2. Provide additional equipment as necessary to complete the objectives of this Agreement.
3. Acknowledge all signatories and participating organizations in any documents and reports associated with the work herein described.

SNWA will:

1. Conduct larval sampling around the periphery of Lake Mead at selected sites conforming to known information about razorback sucker spawning habitat. Sampling shall be conducted for minimum 15 minute periods at each location, unless razorback sucker larvae appear in less time. This sampling effort would continue through the spawning season for the razorback sucker during the spring of 1998 and 1999. The number of sampling sites would be determined by available funding.
2. Conduct adult sampling if larval razorback suckers are located during task 1, then an effort shall be made to capture adults in the area. A minimum of 4 trammel nets would be set overnight in appropriate habitat proximate to the area where the larvae were detected. Should adult razorback suckers be captured, standard measurements shall be made and reported.
3. If adults are captured during task 2, radio tag a representative sample and track the adult fish through the life of the tag.
4. Conduct population estimates. Capture/recapture data from the adult populations detected under task 2 above shall be used for population estimates for these fish.

5. Collect and/or use as many specimens of existing preserved razorback sucker to extract the otoliths for aging determination. These otoliths shall be used by available experts for determining the age of the fish. These data shall be reported when acquired.
6. Provide annual reports in August 1998 and 1999 and a final report by September 30, 2001.
7. Appoint a representative to serve as SNWA liaison with Reclamation and any principal investigator agreed upon by Reclamation and SNWA. (See attachment A)
8. Furnish goods, services, equipment, supplies and personnel as needed to meet the requirements of this Agreement (See attachment A)
9. Meet with Reclamation at mutually agreeable times and places, and /or maintain regular contact (telephone, etc.), to discuss status of the study, and to keep Reclamation fully apprised of all elements of the study.
10. Acknowledge all signatories and participating organizations in any documents and reports associated with the work herein described.
11. Provide Reclamation with a report presenting the results of the effort on Lake Mead and otolith sampling.

Reclamation and SNWA jointly will:

1. As necessary, make minor modifications to any of the above tasks by mutual agreement. This is to ensure flexibility at the field level to accommodate varying field conditions or new information.

VI. Funding and Budget

Contingent upon availability of funds, the total estimated budget for this agreement is \$200,000, as follows:

From effective date of this agreement through September 30, 1998	\$ 40,000
From October 30, 1998 through September 30, 1999	\$ 80,000*
From October 30, 1999 through September 30, 2000	\$ 80,000*
From October 30, 2000 through September 30, 2001	\$ - 0 -*
TOTAL	\$200,000

* Unexpended funds from previous fiscal years may also be made available for costs incurred during this period.

SECTION B

VII. Performance Schedule and Deliverables

Deliverable	Scheduled Completion	Responsible Party
Annual Reports	August 1998, 1999	Southern Nevada Water Authority

Final Report	Sept 30, 2001	Southern Nevada Water Authority
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See attachment A for further information regarding performance schedule.

II. Reimbursable Costs and Limitations

1. All direct and indirect costs for which reimbursement is sought under this cooperative agreement must be determined to be allowable under the principles contained in the applicable OMB circulars in effect upon the date of execution of this agreement which are incorporated by reference.
2. Reclamation shall not be obligated to reimburse the Recipient and the Recipient shall not be obligated to continue performance under the agreement or to incur costs in excess of the estimated costs set forth in Section A(vi) unless the Grants and Cooperative Agreements Officer and/or the Recipient has provided revised estimated costs in writing.
3. The recipient shall be entitled to reimbursement of costs incurred only to the extent that they would have been allowable if incurred after the date of the award. (See OMB Circular A-87, Attachment B, Part 32)

III. Payment

The Recipient shall provide, with its requests for reimbursement, details of the costs incurred for the period covered in the request for reimbursement. If an advance is requested, details of the costs covered by that advance shall be submitted with the next request for advance or reimbursement. The recipient should submit an original and two copies of Standard Form (SF) 270, Request for Advance or Reimbursement, to the Grants and Cooperative Agreements Assistance Representative for approval at the following address:

Kristy Sullivan
Bureau of Reclamation, Lower Colorado Region
Resource Management Office
PO Box 61470
Boulder City, NV 89006-1470

Upon approval, the Recipient submittal will be forwarded to the Grants and Cooperative Agreements Officer for review and subsequent payment.

IV. Grants and Cooperative Agreements Officer's Technical Representative

The Grants and Cooperative Agreements Officer's Technical Representative will be Glen Gould who will act in all, but only, technical matters during the term of the cooperative agreement. The Reclamation Technical Representative and the SNWA Project Manager shall work closely to ensure that all requirements are being met. The Technical Representatives' responsibilities include, but are not limited to, the following:

1. Assist the Recipient concerning the accomplishment of the Scope of Work.
2. Provide information to the Recipient which assists in the interpretation of specifications, if any.

3. Review and, where required, approve technical reports, drawings, specifications, and information to be delivered to the Government.

Technical direction must be within the general scope of work stated in this cooperative agreement. The Technical Representatives do not have the authority to, and may not, issue any technical direction which (a) constitutes an assignment of additional work outside the general scope of the cooperative agreement, (b) in any manner causes an increase or decrease in the total costs of the time required for performance, or (c) changes any of the expressed terms, conditions, or specifications. The Recipient shall proceed promptly with the performance of technical direction duly issued by the Technical Representatives in the manner prescribed in this provision.

V. Availability of Funds

The Government's obligation under this agreement is contingent upon the availability of appropriated funds from which payment for agreement purposes can be made. No legal liability on the part of the Government for any payment may arise until funds are made available to the Grants and Cooperative Agreements Officer for this agreement, and until the Recipient receives notice of such availability from the Grants and Cooperative Agreements Officer, to be confirmed in writing by the Grants and Cooperative Agreements Officer.

VI. Term of the Agreement

The term of the basic agreement is from the date of execution through September 30, 2001. The total estimated cost is \$200,000.

VII. Modification

Any changes to this Agreement shall be made by means of a written modification. Changes dealing with administrative matters (such as in paying office, changes of address, etc.) may be made by a unilateral modification. A modification issued solely for funding may also be made unilaterally. Any other changes shall be made by a bilateral modification (signed by both parties). No written statement by any other person than the Grants and Cooperative Agreements Officer, and no oral statement of any person, shall be allowed in any manner or degree to modify or otherwise effect the terms of the Agreement.

VIII. Payments

Payments may be made in advance or by reimbursement in accordance with OMB Circular A-102 and upon the submittal of a completed Standard Form 270.

IX. Termination

Either party may terminate this agreement upon 30 days written notice to the other party. Termination of this agreement, either for cause or convenience, will be in accordance with the termination provisions of the applicable OMB Circular.

Reclamation may terminate the Agreement, for cause, in whole, or in part, at any time before the date of completion, whenever it is determined that the Recipient has failed to comply with the conditions of the Agreement. Reclamation shall promptly notify the Recipient in writing of the determination and the reasons for the termination, together with the effective date.

Reclamation or the Recipient may terminate the Agreement, for convenience, in whole, or in part, when both parties agree that the continuation of the project would not produce beneficial results. The two parties shall agree upon the termination conditions, including the effective date and, in the case of partial termination, the portions to be terminated.

X. Liability

Reclamation will perform its obligation under this Agreement in the capacity of a Federal agency. Reclamation assumes no liability for claims or actions arising solely out of the performance of work under this Agreement by Reclamation's employees or agents.

Liability of the United States resulting from the negligence of its employees will be governed by the Federal Tort Claims Act (28 U.S.C. 2671, et seq.). The Federal Tort Claims Act operates to provide liability coverage for the United States Government, and its employees and the Indian Tribe pursuant to 25 CFR 900.180.

GENERAL PROVISIONS

1. Regulations and Guidance

The regulations at 43 CFR, Part 12, Subparts A - F are hereby incorporated by reference as though set forth in full text. The following Office of Management and Budget (OMB) Circulars, as applicable, and as implemented by 43 CFR Part 12, are also incorporated by reference and made a part of this agreement. Failure of a recipient to comply with any provision may be the basis for withholding payments for proper charges made by the recipient and for termination of support.

a. Agreements with colleges and universities shall be in accordance with the following circulars:

Circular A-21, Revised August 29, 1997, "Cost Principles For Educational Institutions"

Circular A-110, Revised August 29, 1997, "Uniform Administrative Requirements for Grants and Agreements with Institutions of Higher Education, Hospitals, and Other Nonprofit Organizations"

Circular A-133, Revised June 24, 1997, "Audits of States, Local Governments, and Nonprofit Organizations"

b. Agreements with State and local governments, including an Indian tribal Governments, shall be in accordance with the provisions of the following circulars:

Circular A-87, Revised August 29, 1997, "Cost Principles for State and Local Governments"

Circular A-102, Revised August 29, 1997, "Uniform Administrative Requirements for Grants and Cooperative Agreements with State and Local Governments" and "Common Rule for Uniform Administrative Requirements for Grants and Cooperative Agreements to State and Local Governments," Revised August 29, 1997

Circular A-133, Revised June 24, 1997, "Audits of States, Local Governments, and Nonprofit Organizations"

c. Agreements made with nonprofit organizations shall be in accordance with the following circulars and provisions:

Circular A-110, Revised August 29, 1997, "Uniform Administrative Requirements for Grants and Agreements With Institutions of Higher Education, Hospitals, and Other Nonprofit Organizations"

Circular A-122, Revised August 29, 1997, "Cost Principles for Nonprofit Organizations"

Circular A-133, Revised June 24, 1997, "Audits of States, Local Governments, and Nonprofit Organizations"

d. All agreements with organizations other than those indicated above shall be in accordance with the basic principles of OMB Circular A-110, and cost principles shall be in accordance with Part 31 of the Federal Acquisition Regulations, Subpart 31.2 entitled, "Contracts with Commercial Organizations."

e. All grants and cooperative agreements awarded by Reclamation must provide for an appropriate flow-down of the requirements of the applicable OMB Circular(s) and Section 12.76, Procurement, of 43 CFR Part 12, in all subgrants, subagreements or contracts awarded thereunder. The administrative requirements and cost principles applicable to the subrecipient or contractor depend on the subrecipient, and not the prime recipient, and may, therefore, differ from the cost principles and administrative requirements applicable to the prime recipient (e.g., OMB Circulars A-102 and A-87 apply to an award to a local government, while OMB Circulars A-110 and A-122 apply to a subsequent award of a subgrant or cost-reimbursable contract to a nonprofit organization by the recipient).

2. Assurances Incorporated by Reference

The provisions of the Assurances executed by the Recipient in connection with this agreement shall apply with full force and effect to this agreement as if fully set forth in these General Provisions. Such Assurances include, but are not limited to, the promise to comply with all applicable Federal statutes and orders relating to nondiscrimination in employment, assistance, and housing; the Hatch Act; Federal wage and hour laws and regulations and work place safety standards; Federal environmental laws and regulations and the Endangered Species Act; and Federal protection of rivers and waterways and historic and archeological preservation.

3. Covenant Against Contingent Fees

The recipient warrants that no person or agency has been employed or retained to solicit or secure this agreement upon an agreement or understanding for a commission, percentage, brokerage, or contingent fee, excepting bona fide employees or bona fide offices established and maintained by the recipient for the purpose of securing agreements or business. For breach or violation of this warranty, the Government shall have the right to annul this agreement without liability or, in its discretion, to deduct from the agreement amount, or otherwise recover, the full amount of such commission, percentage, brokerage, or contingent fee.

4. Contracting with Small and Minority Firms, and Women's Business Enterprises

It is a national policy to award a fair share of contracts to small and minority business firms. The Department of the Interior is strongly committed to the objectives of this policy and encourages all recipients of its grants and cooperative agreements to take affirmative steps to ensure such fairness.

a. The grantee and subgrantee shall take all necessary affirmative steps to assure that minority firms, and women's business enterprises are used when possible.

b. Affirmative steps shall include:

(1) Placing qualified small and minority businesses and women's business enterprises on solicitation lists;

(2) Assuring that small and minority businesses, and women's business enterprises are solicited whenever they are potential sources;

(3) Dividing total requirements, when economically feasible, into smaller tasks or quantities to permit maximum participation by small and minority business, and women's business enterprises;

(4) Establishing delivery schedules, where the requirement permits, which encourage participation by small and minority business, and women's business enterprises;

(5) Using the services and assistance of the Small Business Administration, and the Minority Business Development Agency of the Department of Commerce as appropriate, and

(6) Requiring the prime contractor, if subcontracts are to be let, to take the affirmative steps listed in b.(1) through (5) above.

5. **Notice Regarding Buy American Act**

Pursuant to Section 502 of the Energy and Water Development Appropriations Act, 1998, Public Law 105-62 (111 Stat. 1338), please be advised of the following:

It is the sense of the Congress, that to the greatest extent practicable, all equipment and products purchased with funds made available in this Act should be American-made.

6. **Resolving Disagreements**

When entering into a cooperative agreement with a recipient, Reclamation commits itself to working with the recipient in a harmonious manner to achieve the objectives of the project successfully. When disagreements arise between the parties, they must be resolved according to the procedures discussed below:

a. Reclamation shall attempt first to resolve disagreements with the recipient through informal discussion among the Grants or Contract Specialist, the Program Officer, and the recipient's Project Director.

b. If the disagreement cannot be resolved through informal discussion between these parties, the Grants Specialist and the Program Officer shall document the nature of the disagreement and bring it to the attention of the Grants Officer.

c. After reviewing the facts of the disagreement, as presented by the Grants and Program Offices, the Grants Officer will arrange a formal meeting. If agreement still cannot be reached, the parties will collectively decide on any varied approaches which might be used to resolve the disagreement. The parties shall be responsible for their individual expenses related to any approach utilized to resolve the disagreement. If attempts at resolving the disagreement fail, the (Chief, Acquisition and Assistance

Management Services, or the Regional Director, whichever is appropriate) shall make a decision which shall be final and conclusive.

d. Nothing herein shall be construed to delay or limit Reclamation's right to take immediate and appropriate action, as set forth at 43 CFR, Subpart 12.83 or 12.962, as applicable, in the event of material noncompliance by the recipient, and no attempts at informal resolution shall be necessary.

Any post award issue will be open for resolution in accordance with the above procedures, with the exception of disagreements regarding continuation of the agreement (since either party may terminate the agreement with the specified notice), or other matters specifically addressed by the agreement itself.

7. Lobbying

Recipient shall not use any of the funds from the Energy and Water Development Appropriations Act, FY1998, directly or indirectly to influence Congressional action on any legislation or appropriation matters pending before Congress.

8. Electronic Funds Transfer (EFT)

In accordance with the Debt Collection Improvement Act of 1996, all Federal payments to recipients must be made by EFT unless the recipient provides a written certification that the recipient does not have an account with a financial institution or an authorized payment agent.

9. Increasing Seat Belt Use in the United States

Recipients of grants/cooperative agreements and/or sub-awards are encouraged to adopt and enforce on-the-job seat belt use policies and programs for their employees when operating company-owned, rented, or personally-owned vehicles. These measures include, but are not limited to, conducting education, awareness, and other appropriate programs for their employees about the importance of wearing seat belts and the consequences of not wearing them.

10. Certifications

The following certifications are incorporated by reference and made a part of this agreement:

Certifications Regarding Debarment, Suspension, and Other Responsibility Matters, Drug-free Workplace Requirements and Lobbying (DI-2010)

Statement of Work
BIO/WEST (contractor of SNWA)

In furtherance of Reclamation's objective's, BIO/WEST will increase the effort of field staff and add a part-time technician to assist with the project. The two existing biologists, Mr. Paul Abate and Mr. Jack Ruppert, will be split into two crews with slightly different responsibilities.

Mr. Abate will have primary responsibility for adult sampling, including both trammel netting and sonic tracking. Mr. Ruppert will have primary responsibility for work with larvae and juveniles, and will have primary responsibility for aging fish. They will work together in a coordinated fashion, although Mr. Abate will have most of the responsibility for sampling outside of Las Vegas Bay and Echo Bay, and Mr. Ruppert will have primary responsibility for sampling within these two areas.

During the March-May period of 1998, Mr. Abate will continue trammel netting monthly at Las Vegas Bay and Echo Bay. It is our belief, based on our experience in the lake, that the most efficient way to locate populations of razorback sucker is through larval collection during spring rather than trammel netting. This stems from the fact that larval razorbacks are relatively easy to collect when available, whereas trammel netting for adults is very time consuming and can be relatively unproductive even in areas with known adult razorbacks. Hence, over the course of the next three years Mr. Abate will systematically sample the remainder of the lake for larval razorbacks during the spring spawning periods. If larval razorbacks are found in other bays, trammel netting will be instituted to collect adults, and sonic tags will be implanted in from 2 to 5 adults per new population.

From June through December 1998, Mr. Abate will concentrate on trammel netting, scuba diving, and underwater camera review for other groups of razorback sucker. He will also have primary responsibility for sonic tracking throughout the study area. If new populations are located, additional effort (i.e., funding) may be needed to monitor habitat use and range in the lake. The part-time technician will primarily be used to support Mr. Abate's activities.

Mr. Ruppert will intensify our efforts in larval collection at Las Vegas Bay and Echo Bay, and initiate an intensive effort for juvenile collection at both locations. Additional sampling gear, primarily fyke nets, will be purchased and utilized, as will seining and other activities.

Mr. Abate's crew will conduct most of the sonic tracking and tagging, although Mr. Ruppert's crew will do some tracking in the areas they are working in. We anticipate tagging additional adult razorbacks in May 1998 at both Las Vegas Bay and Echo Bay.

This proposed expansion in effort will require that a NDOW technician (Jeff) and/or SNWA technician (Cy) be available for all of our trips. We would suggest that Cy be available to Mr. Ruppert, and Jeff be available to Mr. Abate. Without this added support from the cooperators, it will be difficult to accomplish the effort discussed above. This effort will also require another full time boat for crews since both crews will often be working on the lake at the same time. It also will require a second vehicle.

BIO/WEST will expand collecting permits. The federal permit will be expanded to include sampling in the Arizona portion of Lake Mead, and our Arizona collecting permit will be expanded to include Lake Mead. Since we are presently in the prime larval collection period, BIO/WEST will be initiating larval sampling outside on Las Vegas Bay or Echo Bay in late March, 1998.