STATE OF CALIFORNIA – CALIFORNIA NATURAL RESOURCES AGENCY
EDMUND G. BROWN JR., Governor

DEPARTMENT OF WATER RESOURCES
1416 NINTH STREET, P.O. BOX 942836
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Nat'l Marine Fisheries Svs.
Sacramento, CA
Doc# SA00196

Ms. Maria Rea, Supervisor
Sacramento Area Office
National Marine Fisheries Service
640 Capitol Mall, Suite 8-300
Sacramento, California 95814-4706

Re: NMFS OCAP Biological Opinion

Dear Ms. Rea,

The Department of Water Resources (DWR) is reporting on two actions contained in the Reasonable and Prudent Alternative of the National Marine Fisheries Service 2009 Biological Opinion (NMFS BiOp) governing the operation of the Delta facilities of the State Water Project and the Central Valley Project. These actions have deadlines for implementation this year that DWR cannot completely meet. Therefore, DWR is requesting that NMFS extend certain timelines, as specified in the attached Proposed Implementation Plans.

The specific actions of concern require improved predator control methods to be implemented in Clifton Court Forebay and predation reduction methods to be implemented for fish salvaged at the Skinner Fish Facility and released back into the Delta.

We request the deadline for implementing improved predator control methods in Clifton Court Forebay be changed to December 2014 to correspond to the time construction of facilities to improve fishing access will be completed. We also request the deadline for achieving full compliance be changed to December 2017, which allows for monitoring and completion of the related report. With respect to reducing predation at the fish release sites, we propose a suite of actions which would be implemented over the next few years and fully completed by 2015. We request the revised deadline for implementing release-site predation reduction measures incorporate the schedules in the implementation plan and the deadline to achieve the required predation reduction level be revised to September 2017. A deadline of September 2017 allows for monitoring two salmon out-migration periods with all the actions in place and preparation of the results summary. The attachment provides the details of the implementation plans.

The plans of implementation for these two Actions have been developed in close coordination with the DWR staff that will be conducting the work. These schedules assume the use of consultant support and no increase in DWR staff resources. We currently do not have sufficient staff to implement all the required actions per the

specified deadlines; however the recently-added consultant support has greatly increased our ability to comply with the BiOp. We are seeking additional staff positions to assist with implementing the requirements. These positions must be approved by the State Legislature as part of the State's budget for Fiscal Year 2011-2012. It may be that some or all of these positions will be approved. If so, we will be in a better position to implement these proposed plans and to meet additional requirements of the NMFS BiOp.

Although we have not been able to completely meet some of the deadlines, we have been diligently working on implementing key actions required by the NMFS BiOp. A discussion of these activities follows.

- A full-scale field study of a "non-physical barrier" at the divergence of Georgiana Slough from the Sacramento River began in mid-March and will continue through April. DWR is studying the "non-physical barrier" as a potential engineering solution to reduce the diversion of emigrating juvenile salmonids to the interior and southern Delta, consistent with RPA Action IV.1.3. Action IV.1.3 requires completion of a report on recommended engineering solutions by March 30, 2015. The barrier combines acoustics and a strobe-lit sheet of bubbles to create an underwater wall of light and sound at frequencies that repel juvenile Chinook salmon to discourage out-migrating salmon smolts from entering Georgiana Slough and keep them in the Sacramento River where their chance of survival is greater. The study costs over $9 million and includes tagging and releasing over 1500 juvenile Chinook salmon and tracking their positions and interactions with the barrier using an array of underwater sound receivers (hydrophones). DWR is assisted by technical staff of the US Bureau of Reclamation and the US Geological Survey, as well as a team of specialized consultants. The results of this full-scale field study will be incorporated into the required report on recommended engineering solutions.

- During April through May in 2009 and 2010, DWR conducted a study of a non-physical barrier at the Head of Old River at the San Joaquin River. High flows will prevent the installation of a similar barrier this year; however fish behavior without the barrier will be monitored and analyzed. These studies are consistent with RPA Action IV.1.3 and are designed to determine the effectiveness of the barrier in keeping out-migrating salmon in the main stem of the San Joaquin River and preventing them from moving into Old River, where their chance of survival is less.

- In order to implement certain RPA Actions, DWR is planning to construct a new fish science laboratory at Skinner Fish Facility. The expansion of the UC Davis Fish Conservation and Culture Laboratory for the creation of a delta smelt refuge reduced the amount of space for the DWR fish science laboratory by half and has severely limited our ability to conduct studies requiring fish holding space. In addition, large releases of marked fish are required for NMFS BiOp studies such

as the Clifton Court Forebay predation study, the Skinner Fish Facility efficiency study, and the six-year acoustic tagging study. We are, therefore, planning to construct a new fish science laboratory on the grounds of the Skinner Fish Facility. The laboratory is at the 30% design phase. The approximate schedule for the completion of the new fish laboratory building is as follows:

- Dec. 2011 – final design complete
- April 2012 – permits in place
- Dec. 2013 – construction complete

We also plan to construct a warehouse near this site to store the equipment needed to support these, and other, studies.

I appreciate your consideration and would greatly appreciate your subsequent approval of the Proposed Implementation Plans. For further discussion, you or your staff may contact me at (916) 653-8045 or Kathy Kelly, Chief of our Bay-Delta Office at (916) 653-1099 or kkelly@water.ca.gov.

Sincerely,

Dale F. Hoffman-Floerke

Dale Hoffman-Floerke,
Deputy Director

Attachments

cc: Mr. Don Glaser, Regional Director
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Mr. Carl Wilcox
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Proposed Implementation Plans
For RPA Action IV.4.2 (2) and Action IV.4.3

Action IV.4.2 (2): Clifton Court Forebay Predator Control

Action IV.4.2 (2) requires DWR to:
"Immediately commence studies to develop predator control methods for Clifton Court Forebay that will reduce salmon and steelhead pre-screen loss in Clifton Court Forebay to no more than 40 percent.

a) On or before March 31, 2011, improved predator control methods. Full compliance shall be achieved by March 31, 2014. Failure to meet this timeline shall result in the cessation of incidental take exemption at SWP facilities unless NMFS agrees to an extended timeline."

Studies of predators were conducted by DWR prior to the issuance of the NMFS BiOp (June, 2009). In March 2009, DWR issued a report of these studies titled "Quantification of pre-screen loss of juvenile steelhead in Clifton Court Forebay". As discussed in the proposed plan of implementation below, DWR will use these studies to implement predation control methods for juvenile steelhead. However, DWR cannot have these methods in place by March 31, 2011 and, therefore, requests that NMFS extend the timeline for implementation of improved predator control methods according to the schedule provided below.

DWR has not conducted any additional studies that may be required by the above Action. DWR has not had staff available to develop and conduct specific studies that may be envisioned by NMFS for this Action. The circumstances for the lack of available staff are described in Attachment A.

Proposed Plan of Implementation

The 2009 Report presents the results of a study conducted in 2006-2007. The report includes an estimate of the loss of juvenile steelhead to predation within Clifton Court Forebay; an evaluation of the behavior and movement patterns of adult striped bass; a description of the locations and environmental and operational factors that contribute to increased vulnerability of juvenile steelhead to predation within the forebay; a description of the prevalence of avian predation within the forebay; and an evaluation of the behavior/movement patterns of juvenile steelhead during passage through the forebay.

Specific recommendations for controlling predators are not included in the report. However, the authors recommend studying the effects of increased public fishing pressure on the pre-screen loss rate and conducting more studies related to avian predation.

Although the 2006-2007 study was not designed as such, information in the 2009 report can be used as a baseline rate of predation for juvenile steelhead in the forebay. We propose to move forward on actions based upon the 2009 report. Specifically, we would focus on reducing the steelhead predation rate by increasing the fishing intensity at the forebay. This would be accomplished by exempting the forebay from bag limits and size restriction limits for striped bass and improving access to fishing at the forebay. DWR submitted a letter on March 24, 2011 to the California Fish and Game Commission (Attachment B) petitioning for the bag limit exemption and size limit modifications to increase removal of striped bass in the forebay.

Design of improved fishing access will depend on several items including identifying the locations where predatory fish are most dense and could easily be caught by anglers, and public safety concerns. The schedule below allows for time to identify the best locations for improving fishing access and determining the conceptual design of any facilities (such as a pier, dock, and parking facilities). It incorporates time for the information needed for the specific design, such as bathymetry mapping of the forebay, and land and environmental surveys. It accounts for the time needed to obtain environmental and construction permits. Construction will likely include pile-driving in the forebay so the schedule incorporates anticipated in-water work restrictions. Construction will need to be timed such that monitoring of the survival of salmonids can occur just after construction is completed. Monitoring should continue for two or more years and is dependent upon the construction of a new fish science laboratory at Skinner Fish Facility. This building is expected to be completed by the end of 2013.

The schedule for improving fishing access to Clifton Court Forebay is:

- December 2013 Design and permitting completed.
- December 2014 Construction completed.
- February 2015 – February 2017 Monitoring of salmonid survival in Clifton Court Forebay
- December 2017 Final report of effectiveness in reducing predation loss.

Greater fishing pressure brought about by the California Fish and Game Commission modifying the bag and size limits, and providing greater public fishing access to the forebay may reduce predation and improve juvenile steelhead survival, however, it is uncertain that the loss rate will decrease to 40%. The 2009 report suggests that predation loss might decrease to approximately 60% (doubling of current survival rate) with a reduction of 50% of the predator fish population. However, as the forebay is an

open system, predatory fish may replace those taken by anglers and negate any potential reduction of predation in the forebay associated with the increased fishing pressure. Monitoring results will be evaluated annually for two years after the project is constructed. The first year's monitoring results would be available by December 2015. If the monitoring conducted in 2015 shows no significant reduction in the predation loss rate, DWR will investigate other methods to control predators in the forebay to reach the 40% loss rate.

Given this plan, we request the deadline for implementing improved predator control methods be changed to December 2014 to correspond to the time construction will be completed. We also request the deadline for achieving full compliance be changed to December 2017, which will allow for the completion of the final report on the effectiveness of the actions and the identification and completion of an implementation plan for any additional necessary actions.

Action IV.4.3: Reduce Predation of Salvaged Fish

Action IV.4.3 requires DWR to undertake studies by October 1, 2009 and to implement certain actions. The relevant sections are:

> "3) Release Site Studies shall be conducted to develop methods to reduce predation at the "end of the pipe" following release of salvaged fish. Studies shall examine but are not limited to:
>
> a) Potential use of barges to release the fish in different locations within the western Delta, with slow dispersion of fish from barge holding tanks to Delta waters;
> b) Multiple release points (up to six) in western Delta with randomized release schedule;
> c) Conducting a benefit to cost analysis to maximize this ratio while reducing predation at release site to 50 percent of the current rate."
>
> 4) By June 15, 2011, predation reduction methods shall be implemented according to analysis in 3. By June 15, 2014, achieve a predation rate that has been reduced 50 percent from the current rate."

In June 2010, DWR issued the report "Release Site Predation Study". This report presents results from an element of the Collection, Handling, Transport and Release (CHTR) study. The report includes recommendations for reducing predation at the release sites and improving the release process. We have not conducted a study of releasing salvaged fish from a barge or conducted a benefit-to-cost analysis related to reducing predation to 50 percent of the current rate.

Proposed plan of implementation

At the October 13, 2010 Tracy Technical Advisory Team (TTAT) meeting, NMFS, Reclamation, California Department of Fish and Game (DFG) and DWR staff informally agreed to continue with the implementation of actions identified in the 2010 report, to work closely together to construct two additional release sites, and to implement an alternating release schedule designed to discourage predation. In addition and because the rate of predation is highly variable at the release sites, DWR proposes to implement a predation monitoring plan at the existing and proposed release sites to qualitatively analyze predation.

The proposed monitoring would be conducted at the existing release sites under normal operations to observe baseline conditions. Once the new sites are constructed and operational, monitoring would be conducted at both the existing and new sites under the proposed alternating release schedule. Predation before and after implementation of the alternating release schedule could then be compared to qualitatively determine the amount of predation reduction. The monitoring plan and its details will be discussed and developed at the Release Site Technical Team meetings.

We propose to implement Action IV.4.3 by moving forward on the actions identified in the 2010 report, constructing two additional release sites, implementing the alternating release schedule, and conducting a qualitative comparison of predation rates with and without these actions.

The specifics of these actions follow.

1) 2010 Report Recommendations.

Recommendations in the 2010 report relevant to release-site predation are: periodic removal of underwater debris in the vicinity of the release pipe; improve existing release sites through more effective flushing of the release pipes to move salvaged fish more quickly through the pipe and to prevent predators from congregating at the base of the pipe and by installing screens at the intake of the flushing system to avoid entraining released fish; remove roosting sites for predatory birds; and avoid releasing the fish at dawn or dusk when predator activity is highest.

> Recommendations being implemented: We have implemented routine inspection of the release sites for underwater debris. To date, no significant debris has been observed. We have also removed roosting areas at the release sites. We have purchased new release trucks and have eliminated the 90 degree elbow in the release system at the Curtis Landing site to flush the pipe more effectively. We have also explored removing the 90 degree elbow at Horseshoe Bend but,

unfortunately, the site's physical constraints will not allow it. As a result, Horseshoe Bend is planned to be used only on releases with low debris.

Release site improvements: Both the Curtis and Horseshoe Bend release sites will be modified with a larger auxiliary flow (3.5 cubic feet per second) pump with a fish screen on the intake. The pump will aid in flushing the pipe clean after a release. The flushing flow at the existing release sites is 0.5 cfs. Modifying the existing release sites with larger pumps for the greater auxiliary flow will require a support structure for the diversion pipe and fish screen. The fish screen will be designed to protect delta smelt. The structure will be designed through DWR Division of Engineering and permitted with regulatory agencies before in-water work may begin.

The approximate schedule for installing a new auxiliary pump at both of the release sites is as follows:

- June 2013 – final designs complete
- Nov. 2013 – permits in place
- Dec. 2014 – construction complete

2) Additional release sites.

We have identified a few potential sites for two additional release sites. We are establishing a Release Site Technical Team, which will be a sub-team of the Central Valley Fish Facilities Review Team and is expected to include representatives from NMFS, USFWS, DFG, USBR and DWR. The Release Site Technical Team will determine the suitability of these proposed new sites. Before locations of new release sites can be decided, the criteria for selecting and designing release sites need to be re-evaluated and updated through the Release Site Technical Team. Any potential site will have to be analyzed and approved by the regulatory agencies. This may involve field surveys for flow and channel bathymetry to make sure the proposed site conditions are suitable for the fish being released. The following is our estimated schedule for constructing these sites.

- May 2012 – identify new release sites
- July 2013 – final design complete
- Jan. 2014 – permits in place
- Dec. 2015 – construction complete

3) Release Schedule Improvements.

DWR and Reclamation will implement a release schedule designed to discourage predation. The release schedule will involve DWR and Reclamation using the same

release site on the same day to allow the maximum time between using the release site again. This procedure will be implemented once DWR and Reclamation have an interagency agreement to use each other's sites and have approval from NMFS. Staff is exploring amending an existing interagency agreement, which allows for the use of each other's release sites for emergencies, to include normal operations. This agreement also involves the U.S. Army Corps of Engineers as one of the release sites is on their property. We expect to have an agreement completed within twelve months. Also, DWR will be discussing with the Release Site Technical Team the possibility of releasing salvaged fish at boat ramps on days when the number of salvaged fish is low.

We request the revised deadline for implementing predation reduction measures incorporate the schedules as described above and the deadline to achieve the required predation reduction be revised to September 2017. A deadline of September 2017 allows for monitoring two salmon out-migration periods with all the actions in place and preparation of the results summary.

Attachment A

Why were positions not redirected to these BiOp actions?

In 2009, assignments were directed from existing efforts to implementing some of the requirements in the BiOps. Simultaneously, staff was assigned to develop and release a Request for Qualifications to obtain consultant support. In the reassignments, consideration was given to the skill and experience of existing staff as well as the priority of their current assignments.

We reassigned engineers from the South Delta Improvements Program, which was put on hold due to the NMFS BiOp, to work on the NMFS BiOp requirement of investigating "engineering solutions" to reduce diversion of emigrating salmon to the interior and southern Delta (Action IV.1.3). This effort includes the installation of a full-scale bio-acoustic fish fence at the entrance of Georgiana Slough beginning March 2011, which has required us to call upon staff from other agencies, large consultant support, and temporary assignment of internal staff. We expect to install this test facility next year also. Action IV.1.3 requires completion of a report on recommended engineering solutions by March 30, 2015. The results of this full-scale field study will be incorporated into this report.

Engineers and Environmental Scientists (ES) associated with the Temporary Barriers Project could not be reassigned. This project is a necessary component for operating the State Water Project. In addition, work load associated with one of the barriers, a barrier at the Head of Old River on the San Joaquin River, has increased significantly as a result of requirements in the NMFS and FWS BiOps. In the past, it consisted of a temporary rock barrier. We are now testing a full-scale bio-acoustic fish fence at this location. The BDO has engineering staff to cover this test but has no ES or Fish and Wildlife Technician (FW Tech) staff available. We are relying upon consultants and support from other agencies and have incorporated as much of the study activities (e.g. fish tagging and monitoring station installation) as possible with concurrent studies by FWS and others.

Existing Environmental Scientists and FW Techs could not be reassigned to the NMFS BiOp requirements because they were working, and continue to work on, another more urgent permitting requirement. Specifically, a three-year fish monitoring study required by the NMFS biological opinion associated with the permit for the Temporary Barriers Project in the south Delta. The study investigates the predation level existing prior to the barriers being placed in the south Delta channels and during the operation of the barriers. Information gathered for this study will help us understand the behavior of predators within these channels and may assist with developing actions to protect out-migrating salmonids from predation.

Attachment B

STATE OF CALIFORNIA – CALIFORNIA NATURAL RESOURCES AGENCY

EDMUND G. BROWN JR., *Governor*

DEPARTMENT OF WATER RESOURCES
1416 NINTH STREET, P.O. BOX 942836
SACRAMENTO, CA 94236-0001
(916) 653-5791

MAR 24 2011

Jon K. Fischer,
Acting Executive Director
California Fish and Game Commission
Post Office Box 944209
Sacramento, California 94244-2090

Dear Mr. Fischer:

The Department of Water Resources (DWR) requests the Fish and Game Commission (Commission) to consider and approve regulation changes that will allow greater fishing pressure on striped bass in Clifton Court Forebay (Forebay), a facility of the State Water Project (SWP), to reduce predation of native fish species. Specifically, we request the Commission to increase or completely remove the bag limit and modify the size limit for striped bass caught in the Forebay.

Clifton Court Forebay is located in the south Delta adjacent to the SWP Skinner Fish Facility (map attached). Fish enter the Forebay through gates at the divergence of Old River and West Canal. Fish that have travelled across the Forebay and are in water destined for the California Aqueduct are intercepted and collected via a series of screens at the fish facility. They are subsequently trucked and returned to Delta waters at several release sites. Unfortunately, many of the fish in the Forebay are eaten by predators before they can be salvaged at the fish facility. Studies by DWR have determined that only about 20 percent of the fish (juveniles of steelhead, Chinook salmon and striped bass) in the Forebay are salvaged at the fish facility. The remaining 80 percent are lost, primarily to predation, with striped bass being a significant predator.

Central Valley Spring run salmon and Central Valley steelhead are threatened species under the federal Endangered Species Act. In their *Biological Opinion and Conference Opinion on the Long-term Operations of the Central Valley Project and State Water Project* (June 2009), the National Marine Fisheries Service (NMFS) has determined the removal of striped bass from Clifton Court Forebay will be beneficial to the survival of these species. NMFS has directed DWR to implement actions to control predation in the Forebay to reduce the loss of these species. As part of this action, NMFS recommends that DWR "petition the Fish and Game Commission to increase bag limits on striped bass caught in Clifton Court Forebay."

We greatly appreciate your consideration of our request to increase or completely remove the bag limit and modify the size limit for striped bass caught in the Forebay. We understand that the Commission may not be planning to address revising sport fishing limits this year. We encourage the Commission to adjust its plan and allow this issue to be addressed within the next few months. DWR staff is available to provide Commission staff relevant technical information.

You may call me at (916) 653-8045 or your staff may call Katherine Kelly, Bay-Delta Office Chief, at (916) 653-1099 or email at kkelly@water.ca.gov for additional information as necessary.

Sincerely,

Dale K. Hoffman-Floerke
Deputy Director

Attachment

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Mr. Scott Barrow, Senior Biologist Specialist
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Mr. Dan Castleberry,

Mr. Dan Castleberry,
ARD of Water and Fisheries
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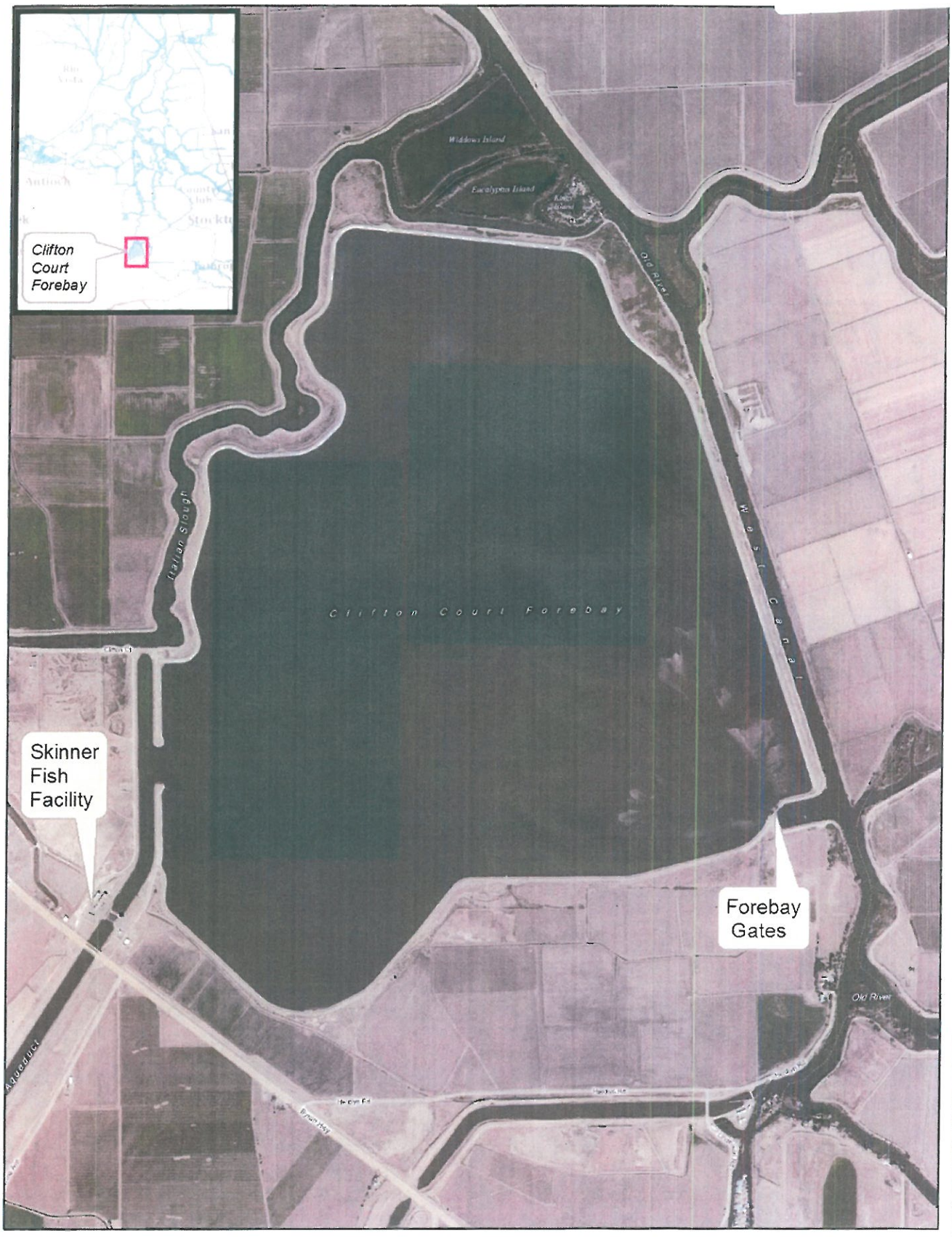
Attachment


Clifton Court Forebay
Widdows Island
Eucalyptus Island
Old River
Italian Slough
West Canal
Clifton Court Forebay
Skinner Fish Facility
Forebay Gates
Old River
Aqueduct
0
0.25
0.5
1
Miles