

FINAL FINDING OF NO SIGNIFICANT IMPACT

TILAPIA REMOVAL PROGRAM ON THE VIRGIN RIVER, CLARK COUNTY, NEVADA AND MOHAVE COUNTY, ARIZONA



U.S. Fish and Wildlife Service
Ecological Services
Southern Nevada Field Office
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UNITED STATES DEPARTMENT OF THE INTERIOR
U.S. FISH AND WILDLIFE SERVICE
SOUTHERN NEVADA FIELD OFFICE
LAS VEGAS, NEVADA

FINDING OF NO SIGNIFICANT IMPACT

ENVIRONMENTAL ASSESSMENT FOR THE TILAPIA ERADICATION AND
CONTAINMENT PROGRAM ON THE VIRGIN RIVER, CLARK COUNTY,
NEVADA

FILE NO. PLAR_NEPA

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The U.S. Fish and Wildlife Service (Service) is adopting a proposal to conduct a blue tilapia (*Oreochromis aurea*) (tilapia) eradication program (project) on the Virgin River in Clark County, Nevada, and Mohave County, Arizona. Issuance of this Finding of No Significant Impact (FONSI) follows our review of the Final Environmental Assessment (EA). The purpose of this action is to eliminate tilapia from the Virgin River between the Mesquite and Bunkerville agricultural diversions (River Miles [RM] 63.30 to 59.25), and to prevent tilapia from invading the upper Virgin River watershed. This FONSI addresses only the use of chemicals to remove tilapia. Fish barrier structures would need to be constructed in irrigation ditches, but not the main river; therefore, fish barrier structures would be covered under a separate categorical exclusion. References to the barrier construction, included in the list of alternatives, are made for illustrative purposes since the projects are integrally related.

This project is part of a program developed by the Lower Virgin River Recovery Implementation Team (RIT), whose goal is to recover endangered fishes within the Virgin River in Arizona and Nevada. The purpose of the project is to prevent the spread of tilapia from the Bunkerville irrigation diversion to the Littlefield Springs area near Littlefield, Arizona and further upstream. It is imperative that tilapia are prevented from becoming established in the lower Virgin River in order to keep them from invading and threatening native fish populations in the upper Virgin River watershed, as well. The need for the proposed project arises from the probability of severe impacts to native fishes due to the introduction of a new non-native competitive and predatory fish. If tilapia reach and inhabit the Littlefield Springs reach of the Virgin River, then eradication within the springs would be extremely difficult due to the continuous outflow of spring water, as well as the existence of a large localized population of native fish. In addition, there are no fish barriers between Littlefield Springs and the Virgin River Gorge, Arizona, thereby complicating fish removal projects in this river reach. Therefore, implementation of the proposed project would prevent tilapia from becoming established within the lower Virgin River above the Bunkerville irrigation diversion and moving upstream to further impact populations of native fish.

The long-term objective of this project is to remove a threat to the fishes of the Virgin River that are listed under the Endangered Species Act of 1973, as amended, which would assist in furthering recovery of the species. The Virgin River Fishes Recovery Plan (Recovery Plan) (Service 1995) delineates reasonable actions which are believed to be required to recover and/or protect listed species. This proposed project is consistent with tasks 1.21 and 1.22 of the Recovery Plan, which state that fish barriers should be established at suitable sites along the Virgin River, and non-native fish species should be eradicated or reduced from below Johnson Diversion in Utah to Lake Mead in Nevada, respectively.

Chapter 5 of the EA contains the comments received during the initial scoping process on the Draft EA, as well as responses to these comments.

Documents reviewed in the preparation of this Finding of No Significant Impact include:

- EA for the tilapia removal program on the Virgin River, Clark County, Nevada, and Mohave County, Arizona, dated October 17, 2002.
- Final Intra-Service Biological Opinion on the proposed tilapia removal program on the Virgin River, Clark County, Nevada, and Mohave County, Arizona, dated October 4, 2002.
- Historic Properties Identification and Evaluation Report of the Bunkerville Ditch Fish Barrier Project, dated October 11, 2002.
- Nevada Division of Wildlife Draft Project Proposal: Chemical removal of Tilapia (*Oreochromis aureus*) from the Virgin River from the Mesquite Diversion (Mohave County, Arizona) to the Mesquite Bridge (Clark County, Nevada), dated September 10, 2002.

These documents are incorporated by reference, as described in 40 CFR §1508.13.

ALTERNATIVES CONSIDERED

In order to meet this purpose, a no-action alternative and six action alternatives were considered in the Draft EA.

Alternative One, the Piscicide, Detoxification, and Barrier Alternative, would involve the use of rotenone to eradicate tilapia from between the Mesquite and Bunkerville agricultural diversions as described in the Final EA. A fish barrier shall be constructed in the adjoining Bunkerville Ditch, but would be considered under a separate Categorical Exclusion. This is the selected alternative.

Alternative Two, the No Action Alternative, would consist of not treating the Virgin River with piscicides to eliminate tilapia below the Mesquite and Bunkerville diversion structures. This alternative would likely result in tilapia moving upstream past the diversion structures and reaching warm water springs near Littlefield, Mohave County, Arizona. Once the tilapia reach the springs they would likely spawn and increase in numbers. The tilapia within this location would be resistant or immune to elimination from cold river temperatures, and would likely persist in perpetuity. This population of tilapia would negatively effect native fish populations, including the Virgin River spinedace (*Lepidomeda mollispinis mollispinis*), woundfin (*Plagopterus argentissimus*), and Virgin River chub (*Gila seminuda*) (chub), and provide for a seed population to invade the upper Virgin River in Washington County, Utah, as well as Lake Mead.

The following alternatives were rejected for further analysis:

Alternative Three, the Piscicide and Barrier Alternative, would be the same as the Action Alternative, with the exception that a detoxification station would not be placed at the downstream end of the treatment area. This would increase the area affected by the rotenone, but would eliminate effects of potassium permanganate, to the affected environment. Although rotenone would rapidly decompose and be rendered ineffective on its own, there would be no control over the extent of area affected by the rotenone. Application of the detoxification agent would minimize the area impacted by the rotenone. Rejection of this alternative would therefore lessen the impacts to the affected environment.

Alternative Four, the Barrier Alternative, would involve constructing barriers within the irrigation system, as described in the proposed Action Alternative, to prevent upstream movement of fish past the Bunkerville and Mesquite diversion structures. With this alternative, there would be no application of piscicide to prevent fish from advancing upstream prior to barrier construction. Due to the time it would require to plan and construct barriers that would not impede current irrigation functions, tilapia would potentially advance past both diversion structures and invade the Littlefield Springs area.

Alternative Five, the Piscicide Alternative, would involve periodic application of piscicides as described in the proposed Action Alternative to eliminate tilapia downstream of the Mesquite diversion structure, but does not provide for the construction of barriers within the irrigation system to prevent upstream movement of fish past the Bunkerville and Mesquite diversion structures. Since tilapia could emigrate from Lake Mead, treatment regimens would need to be conducted annually to prevent tilapia from invading the Littlefield Springs site, which is logistically difficult with available staff, and is cost prohibitive. In addition, given past experience with eradicating non-native fishes, treatments generally are not 100 percent effective at eliminating all of the tilapia from the system; therefore, there is a potential that a tilapia may be missed by a treatment and make its way upstream of the diversion structures. Treatments also adversely affect the native aquatic fauna within the river system, and repeated annual treatments may affect the ability of these species to rebound

Alternative Six, the Mechanical Removal Alternative, involves removal of tilapia from the proposed project area using a variety of net and electro-fishing options. This alternative was rejected since complete eradication of tilapia would not occur using mechanical methods. The morphology of the river and the difficulty associated with netting fish within roots and debris, makes it difficult to remove fish from this river. Furthermore, tilapia are able to actively avoid capture equipment and it is believed that netting success is poor. The high conductivity in the Virgin River makes it unfeasible to electro-fish, especially when the goal is the complete removal of tilapia. High water conductivities lower efficiency of electro-fishing operations, and small fish may not be removed because electro-fishing fields have less effect upon them and they are more difficult to locate in order to remove when stunned.

Alternative Seven, the Barriers in the Mainstem Virgin River Alternative, consists of placing small fish barriers across the Virgin River mainstem which would be similar in form to the Mesquite and Bunkerville diversion structures without an irrigation withdrawal. Similar structures such as these have been built on the Virgin River in Utah. This alternative was rejected due to the difficulty in finding appropriate fish barrier sites, the expedience needed in completing the project, the need for further analysis in determining effects of barriers on the habitat of woundfin and chub, and cost was prohibitive. This option may be revisited in the future but shall be considered rejected as an alternative for this project.

We have determined that the Alternative One, the Piscicide, Detoxification Station, and Barrier Alternative, with the modifications and additions included in the Final EA will not result in significant impacts to the human and natural environment and would be the best alternative to meet the purpose and need as stated above. Therefore, an Environmental Impact Statement will not be prepared. An analysis of any additional anticipated environmental impacts resulting from the modifications and additions is included in Chapter Three of the Final EA.

The reasons for the FONSI determination are summarized as follows:

1. All requirements of the National Environmental Policy Act (NEPA) relative to Department of Interior and Fish and Wildlife Service NEPA Policy have been met, including public involvement and coordination with Federal, State, and local agencies.
2. All applicable Federal and State environmental laws, regulations, and executive orders will be adhered to.
3. The Selected Alternative will meet the Purpose and Need for the Action. It will prevent the establishment of tilapia upstream of the project area.
4. The Selected Alternative has a low potential for adverse impacts to the resources addressed in Chapter 3 of the EA. Any impacts would not be significant. The Selected Alternative resolves the issues listed in Chapter 1.
5. Coordination and consultation with Federal and State resource agencies throughout the planning process provided the opportunity to incorporate design changes and impact avoidance measures into the project.
6. The modifications to the design will minimize the impacts to the human and natural resources of the project vicinity.
7. All stipulations of the National Historic Preservation Act and other applicable Federal laws, regulations, and guidelines concerning cultural resources will be satisfied.

ENVIRONMENTAL COMMITMENTS

The Final EA specifies environmental commitments to be implemented in order to (1) prevent, minimize, or offset the occurrence of potential adverse environmental effects and (2) ensure compliance with applicable Federal and State regulations designed to protect fish and wildlife resources, cultural resources, human health and safety, and the public interest. The following commitments, also listed in the Environmental Commitment section of the Final EA, are included as conditions of this FONSI:

- Subsequent treatments would be scheduled to occur outside of listed birds' nesting season of between early May to mid September, if feasible.
- Efforts would be made to initiate treatments after neotropical migrant birds have migrated out of the area, and before spring arrival.
- Efforts will be made to spend the least amount of time as possible in marsh situations to limit effects to wildlife.
- Efforts will be made to salvage as many native fish from the site as possible, with minimal handling to reduce stress, and then relocate to river reaches above the Mesquite irrigation diversion.
- Woundfin from Dexter National Fish Hatchery, if available, will be restocked within the proposed treatment site after the habitat is at least partially recovered.
- Fish barriers will be constructed as needed to prevent further infestation of tilapia.
- Rotenone use will be carefully monitored by licensed pesticide applicators as required by State law.
- Rotenone and detoxification agent effectiveness will be closely monitored through the use of multiple bioassays. Dedicated crews will adjust concentrations to achieve desired results, though rotenone will not be increased past the 2 ppm level.
- All dead, large-bodied fish, such as carp, will be removed from the site to the greatest extent possible. Concentrations of dead small-bodied fish will also be removed to the greatest extent possible, especially near access points. Fish will either be disposed of in a landfill, buried, or preserved for further studies or analysis.
- Existing access roads or trails would be used to the greatest extent possible to prevent damage to vegetation.

- Efforts will be made to avoid thistle, as well as other native vegetation, during activities on the river.
- All work will occur during weekdays when visitation is lowest.

POTENTIAL EFFECTS OF THE ACTION

Based on a review and evaluation of the Final EA and other supporting documentation, it was determined that the proposed action is not a major Federal action which would significantly affect the quality of the human environment within the meaning of Section 102(2)(C) of NEPA. Accordingly preparation of an Environmental Impact Statement on the proposed action is not required. The effects upon the resources listed below are described in detail within Chapter 3 of the EA. Implementation of this project is expected to result in the following environmental, social, and economic effects, which would be minimized through the above environmental commitments:

Geology and Soils

Limited to temporary disturbance of banks and floodplain due to access. No change to character of soils or the geologic characteristics of the area.

Climate

No effect

Visual Resources

No effect

Ambient Noise Levels

No effect

Land Use

No effect

Air Quality

A slight odor would be present during treatment, otherwise there would be no change to air quality.

Water Resources

Water quality would be negatively impacted for the duration of the treatment due to addition of toxicant and detoxification agents, though rotenone would be detoxified and not allowed to travel downstream. There would be an addition of potassium permanganate to the water downstream of the detoxification station. The effects of these agents would be transitory, since they rapidly bind with organic material and the physical conditions of the water speed neutralization.

Vegetation

Limited to disturbance of banks due to river access. Aquatic vegetation would increase at sites already containing tilapia, and removal of tilapia would prevent decrease in aquatic vegetation at the Littlefield Springs area.

Aquatic organisms

Implementation of the tilapia removal program would temporarily eliminate all fish within the treatment reach and permanently eliminate tilapia within the treatment reach. Associated with the treatments would be temporary elimination of a portion of aquatic invertebrates and larval amphibians within treatment reach. Elimination of tilapia to prevent tilapia movement would safeguard populations of aquatic organisms upstream of the project area.

Wildlife

Temporary displacement of wildlife during treatment. Temporary decrease in emergent invertebrate prey species for insectivorous animals.

Threatened and Endangered Species

Temporary elimination of Virgin River chub and woundfin from the project area, but providing for long-term benefit in the eradication of tilapia. As much of the native fish population as possible will be salvaged and moved upstream prior to treatment. No effect to bird species other than temporary elimination of aquatic invertebrate prey base due to rotenone, but this would be mitigated by treating outside of the breeding season.

Socioeconomic

No effect

Cultural Resources

No effect

PUBLIC REVIEW

Agency scoping meetings and site visits were held on January 8-9, 2002. The meetings were attended by members of the RIT, including the Bureau of Reclamation, U.S. Fish and Wildlife Service Region 1, U.S. Fish and Wildlife Service Region 2, BIO/WEST, Southern Nevada Water Authority, Arizona Game and Fish, Utah Division of Wildlife Resources, and the Nevada Division of Wildlife. As a result of the meetings, the proposed projects and alternatives were developed and decision made that action should be taken to prevent tilapia from invading the Virgin River above the Mesquite diversion structure.

The scoping effort was initiated by the RIT on January 15, 2002. This process consisted of contacting and meeting with the Virgin Valley Water District, Bunkerville Irrigation Company, and the Mesquite Irrigation Company to discuss the proposal and various issues related to the proposal. On June 17, 2002, a scoping letter was sent to affected government agencies, non-governmental organizations, and private individuals. On June 21, 2002, a press release was issued to the Desert Valley Times, Las Vegas Review Journal, and the Las Vegas Sun soliciting initial public comments. A press release to the Desert Valley Times published on July 25, 2002, advertised a public meeting which was held in Mesquite, Nevada, on July 30, 2002. A Notice of Availability for the Draft EA was published in the Desert Valley Times on August 8, 2002, and the Draft EA was made available on the Nevada Fish and Wildlife Office web page on August 5, 2002.

CONCLUSION

In summary, as documented in the EA and biological opinion, implementation of a tilapia eradication program on the Virgin River in Clark County, Nevada, and Mohave County, Arizona, is not expected to result in significant impacts to the physical and biological resources, as well as the human environment, within the Virgin River or the surrounding area. It is our determination that the proposal does not constitute a major Federal action significantly affecting the quality of the human environment within the meaning of section 102(2)(c) of the National Environmental Policy Act of 1969. Accordingly, an Environmental Impact Statement on the Proposed Action is not required.