

# **ARIZONA GAME AND FISH DEPARTMENT**

## **PISCICIDE TREATMENT PLANNING AND PROCEDURES MANUAL**

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# PISCICIDE TREATMENT PLANNING AND PROCEDURES MANUAL

Arizona Game and Fish Department

Approved:

  
Assistant Director, Wildlife Management Division

Date:

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# **CHAPTER 1. INTRODUCTION, ARIZONA GAME AND FISH COMMISSION POLICY ON ROTENONE, AND FINAL RECOMMENDATIONS BY THE ROTENONE REVIEW ADVISORY COMMITTEE**

## **Introduction**

The Arizona Game and Fish Department (Department) applies rotenone and antimycin-A for piscicide applications as tools for fisheries management in Arizona after careful planning for when, where, and how they to be are used. All applications are governed by federal and state laws that insure human health and environment safety. Fisheries in Arizona may be managed by water body, recreational fish species, native fish species, or a combination of each. Piscicide treatments are typically applied to attain species specific fisheries objectives, for the protection and/or restoration of native fish or aquatic species, or to remove invasive species. These projects are proposed based on the future desired condition of particular water bodies or for specific species that are supported by management objectives, fishery management plans, recovery plans, or equivalent.

## **Purpose**

Because of the complexities involved with piscicide project development, planning, and application, a standardized procedure is essential to provide guidance on all aspects of piscicide treatments to ensure public engagement; compliance to applicable internal procedures, and state and federal laws; and treatment planning according to piscicide product labels and standard operating procedure manuals which ensure treatments have minimum impacts to the environment, and avoid impacts to human health and drinking water supplies. The Department's standardized procedures for piscicide applications was developed to incorporate the Rotenone Review Advisory Committee's final recommendations, the Commission policy on rotenone, strict compliance to the piscicide product labels and standardized operating procedure manuals for commercially available piscicides.

## **Final Recommendations by the Rotenone Review Advisory Committee (approved 11/21/2011)**

1. The Arizona Game and Fish Department (AGFD) Commission should formally adopt the Rotenone Standard Operating Procedures (SOP) Manual (Finlayson et al. 2010) as the minimum mandatory standard for the planning and implementation of rotenone piscicide projects in Arizona. All AGFD piscicide applications of rotenone in Arizona should be consistent with U.S. Environmental Protection Agency labeling requirements, appropriate

state and federal laws and regulations, and the Rotenone SOP manual (Finlayson et al. 2010).

2. The AGFD should develop a public awareness or involvement plan during the development of each piscicide project with consideration of the following factors: stakeholder involvement, the potential for human, non-target species and ecological exposure, the sensitive nature of the project, and the concerns of the public expressed during the public outreach process. Elected and appointed officials that represent the public in the project area should be briefed and invited to participate in the public awareness process as appropriate.
3. The AGFD should develop a project specific operating protocol when there is a known or suspected direct hydrologic connection with groundwater wells and rotenone treated water within the project area as required in the Rotenone SOP Manual (Finlayson et al. 2010). This would include an appropriate monitoring plan and a mitigation plan to reduce rotenone levels to 40 ppb or lower or providing alternative water supply as appropriate.
4. The AGFD should make certain that the rotenone or other piscicide application project supervisors have received American Fisheries Society or National Conservation and Training Center Piscicide Training and all rotenone or other piscicide application project personnel have undergone appropriate training for their level of involvement on handling the chemical and minimizing the human and non-target species exposure.
5. The AGFD should make sure the public and elected or appointed officials in Arizona have ready access to the Final Rotenone Review Advisory Committee Report, Executive Summary, and updated Frequently Asked Questions developed as a result of the Committee's research.
6. The AGFD should use potassium permanganate (or other approved oxidizers) to neutralize rotenone or other piscicide treated water at the downstream end of the treatment area in all flowing water applications to maintain control of the treatment and minimize exposure outside of the treatment area.
7. The AGFD should monitor the scientific literature related to rotenone or other piscicides and their potential impacts on human health and the environment and periodically communicate with the U.S. Environmental Protection Agency to ensure that its policies and practices account for any advances in knowledge about the risks posed by piscicide use or ways to minimize exposure to humans and the environment.
8. The AGFD should recognize the recreation, economic, and social value of having rotenone as a tool to manage fish populations. The AGFD should also recognize the very

limited number of alternatives available to accomplish fisheries management goals and objectives where full eradication of fish species from a water body is necessary. Considering these factors, the AGFD should have the ability to use rotenone in a manner consistent with the product label and Rotenone Standard Operating Procedures Manual (Finlayson et al. 2010), which will minimize impacts to the environment, and avoid impacts to human health and drinking water supplies.

9. The AGFD should have the ability to use other registered piscicides provided they can be applied in a safe manner that minimizes impacts to the environment, and avoids impacts to human health and drinking water supplies. Other registered piscicides should continue to be available for use as a fisheries management tool in Arizona considering the limited options available for full eradication and removal of fish species.
10. The AGFD should adopt the revised piscicide treatment process as developed by the Regulations Subcommittee to include the following key changes or additions to process steps:
  - a. Incorporate the Rotenone Standard Operating Procedures (SOP) Manual (Finlayson et al. 2010) as an absolute minimum procedure for all piscicide projects.
  - b. Initiate, maintain, and document public scoping (for both support and opposition), engagement, and coordination early in the project planning process and through project development and implementation (also per SOP).
  - c. Thoroughly evaluate other methods of fish removal prior to decisions on piscicide use.
  - d. Incorporate the legally-required Arizona Pollutants Discharge Elimination System permit process into the AGFD piscicide treatment process which requires a General Permit for treatments from the Arizona Department of Environmental Quality (ADEQ) (for applicable waters).
  - e. Incorporate the Arizona Game and Fish Commission public review and appeals process for proposed piscicide treatments.
11. The AGFD should establish firm criteria to define situations that justify piscicide treatments on an emergency rapid response basis and add this step to the revised process for AGFD piscicide treatments.
12. The AGFD should review and revise the piscicide treatment process as necessary to maintain safe, effective, and responsible application of piscicides.

## **Commission Policy on Rotenone (approved 1/13/2012)**

Rotenone is a piscicide registered for safe use in the United States by the Environmental Protection Agency (EPA 2007). Rotenone is an important tool essential for the management of aquatic wildlife, and its continued use should be done safely and responsibly. To insure Rotenone's safe and responsible use, the Department shall develop and implement strict planning and application protocols that include:

- Adherence to EPA labeling requirements and applicable state and federal laws, including the Arizona Pollution Discharge General Permit process;
- Adopting the procedures endorsed by EPA as prescribed in the 2010 American Fisheries Society Rotenone Standard Operating Procedures (SOP) Manual as amended (Finlayson et al. 2010) or as future endorsed amendments may dictate. The SOP specifies detailed procedures concerning all aspects of rotenone treatments including:
  - Treatment planning, evaluation and training;
  - Public outreach and engagement throughout the project;
  - Application, exposure, and neutralization requirements.

## **CHAPTER 2. OUTLINE OF PISCICIDE PROJECT PLANNING STAGES**

The Arizona Game and Fish Department, per Commission policy, will comply with the Rotenone Standard Operating Procedures (SOP) Manual (Finlayson et al. 2010) as the minimum mandatory standard for the planning and implementation of rotenone piscicide projects in Arizona. The Department's piscicide project planning procedures defined within this manual comply with the SOP, product labels, and applicable laws and regulations. The sequence of planning steps differs slightly from the SOP in certain areas to accommodate recommendations by the Rotenone Review Advisory Committee. However, all aspects of planning and implementation of rotenone piscicide projects included in the SOP are included in the Department's piscicide project manual. The amount of public involvement will differ between new projects as compared with emergency rapid response projects, re-treatments, and new projects already covered under an existing approval process. See the appropriate chapter for the specific project type for details.

### ***Stage 1. Piscicide Project Internal Review and Approval***

#### **Internal Review and Approval**

- All proposed piscicide projects must receive internal review and approval by the Nongame Branch Chief, Fisheries Branch Chief, and appropriate Regional Supervisor(s) before moving forward with the initial public meeting. These include all new projects, emergency rapid response treatments, re-treatments, and new treatments already covered under an existing approval process. Executive Staff and the Commission will be sent a briefing upon approval.

### ***Stage 2. Preliminary Planning and Public Involvement***

#### **Initial Public Meeting(s)**

- For all new projects at least one initial public meeting must be held before beginning to develop the Preliminary Treatment and Public Involvement Plans. Emergency rapid response treatments, re-treatments, and new projects already covered under an existing approval process will not require initial public meetings. When significant controversy results from the initial public meeting, more public meetings may be necessary before submitting the briefing for approval. Following the initial public meetings, and any subsequent meetings necessary, the Piscicide Project Public Meeting Briefing must be approved by the Nongame Branch Chief, Fisheries Chief, and Regional Supervisor(s) before moving forward with the Preliminary Treatment and Public Involvement Plans. One briefing may summarize the outcome of multiple public meetings.

## **Preliminary Treatment and Public Involvement Plans**

- The Preliminary Treatment and Public Involvement plans can be initiated after the following criteria are met: 1) the Piscicide Project Internal Review and Approval form is approved; and 2) the initial public meeting is held and the associated Piscicide Project Public Meeting Briefing has been approved. Once completed, the Piscicide Project Preliminary Treatment Plan and Piscicide Project Public Involvement Plan are submitted for approval to the Nongame Branch Chief, Fisheries Chief, and Regional Supervisor(s) before moving forward with intermediate planning. Executive Staff and the Commission will be sent a briefing upon approval. NEPA, EAC, and other environmental compliance planning can be initiated upon approval.

## **Public Education Meetings**

- For all projects, once the Piscicide Project Treatment and Public Involvement plans are approved, at least one non-NEPA related public meeting must be held during this planning stage before moving forward with intermediate planning. If significant controversy resulted from the public meeting, more public meetings may be necessary during this planning stage before moving forward with the project. Submit one Piscicide Project Public Meeting Briefing describing the level of support or opposition for the project to the Nongame Branch Chief, Fisheries Chief, and Regional Supervisor(s) for approval before moving forward with the intermediate planning stage. One briefing may summarize the outcome of multiple public meetings.

## ***Stage 3. Intermediate Planning and Public Involvement***

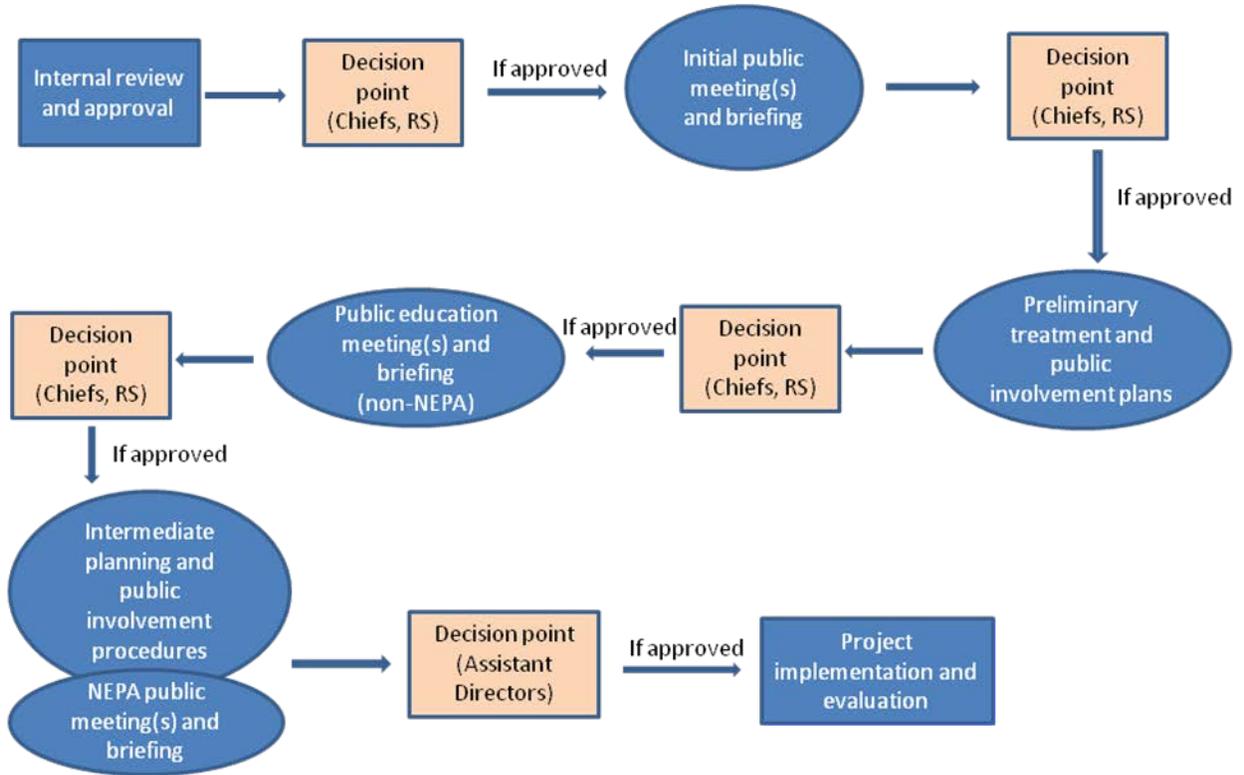
- The intermediate planning stage can be initiated when the following have been reviewed and approved by the Nongame Branch Chief, Fisheries Chief, and Regional Supervisor(s): 1) the Piscicide Project Preliminary Treatment Plan, 2) the Piscicide Project Public Involvement Plan, and 3) the Piscicide Project Public Meeting Briefing for all public education meetings held during the preliminary treatment and public involvement planning stage. This is the planning stage to complete all necessary environmental compliance and further define the treatment plan. Public meetings held during this planning stage will most likely be NEPA related. Once NEPA and all associated environmental compliance is completed (including FONSI, ESA, EAC, and NPDES compliance), the Piscicide Project Intermediate Planning and Public Involvement Proposal should be reviewed internally by at least two individuals with applicator experience. Thereafter, the Piscicide Project Intermediate Planning and Public Involvement Proposal and one Piscicide Project Public Meeting Briefing must be submitted to the Wildlife Management Division Assistant Director and Field Operations Assistant Director for review and approval at least two months prior to treatment. One public meeting briefing may summarize the outcome of multiple public meetings. The

Assistant Directors will brief the Director and the Commission about the project if approved.

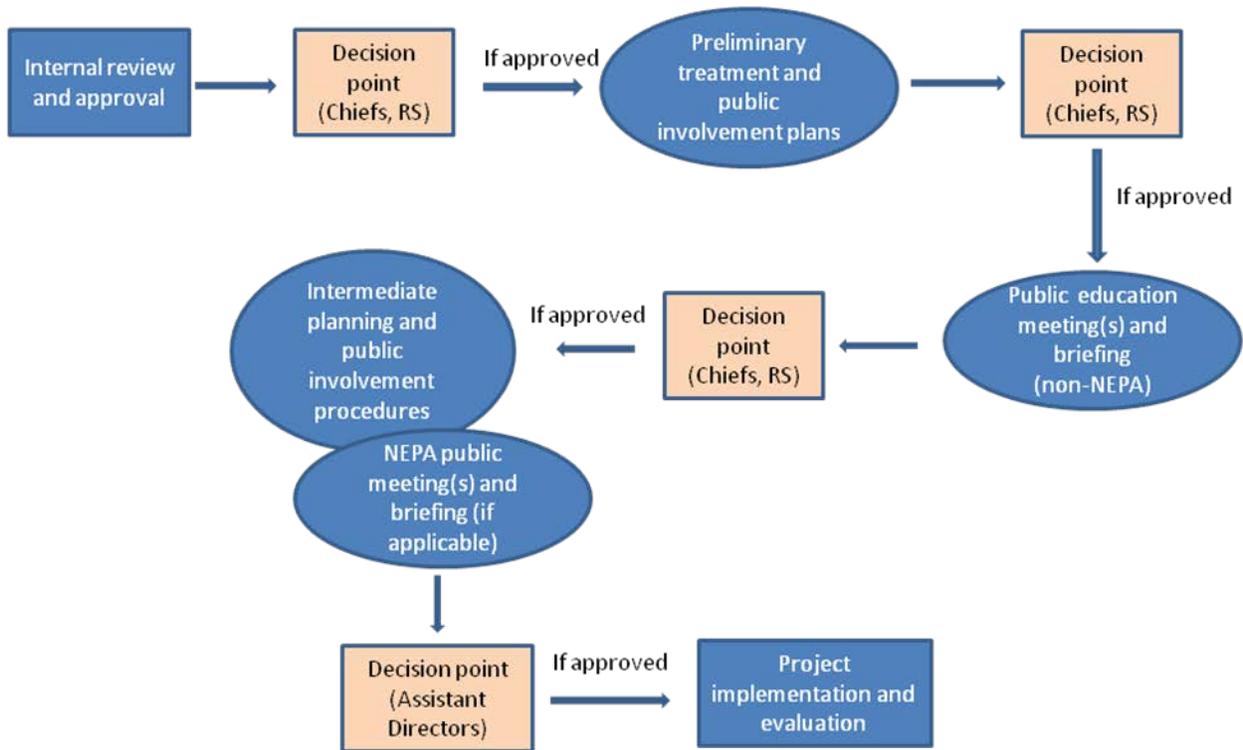
#### ***Stage 4. Project Implementation and Evaluation***

- Projects are implemented per the Piscicide Project Intermediate Planning and Public Involvement Proposal once all applicable state and federal compliance activities are completed and the Piscicide Project Intermediate Planning and Public Involvement Proposal is approved.
- The post-treatment evaluation is a critical part of the treatments and will assist the Department in improving planning and implementation of future projects. The Piscicide Project Evaluation Report and documentation must be submitted to the Nongame Branch Chief, Fisheries Chief, and Regional Supervisor within 60 days following the final treatment.

**Process Map of Piscicide Project Planning Process for New Projects**



***Process Map of Piscicide Project Planning Process for Emergency Rapid Response Treatments, Re-treatments, and New Projects Covered Under an Existing Approval Process***



## **CHAPTER 3. PISCICIDE PROJECT PLANNING AND PUBLIC INVOLVEMENT – FOR NEW TREATMENTS**

New treatment projects include those considered new or where a treatment was applied in the past, but is not currently covered under an existing approval process (e.g., EA, FONSI, EAC). Emergency rapid response treatments, re-treatments, and new treatments already covered under an existing approval process must follow the planning procedures in Chapter 4.

### ***Stage 1. Piscicide Project Internal Review and Approval***

All new proposed piscicide projects should receive internal review, input, and approval before seeking public input (per Rotenone SOP Manual, page 15; Appendix C).

### **Piscicide Project Internal Review and Approval Template (for New Treatments)**

For all new projects, the Piscicide Project Internal Review and Approval form must be approved by the Nongame Branch Chief, Fisheries Branch Chief, and Regional Supervisor before moving forward with the next appropriate planning stage. Executive Staff and the Commission will be sent a briefing.

Include the following for Internal Review and Approval:

1. Project supervisor (this will be the primary contact for the project and will submit all documents required within this planning manual):
2. Project location (including description of proposed treatment area):
3. Proposed project timeline (month and year; although this is pre-NEPA, give the best estimate):
4. Statement of purpose (include threat of target species on surrounding waters):
5. Target species for removal:
6. List any conflicts with management objectives, recovery plans, etc.
7. Sensitive, endemic, and listed species potentially impacted by the project:
8. Fish removal alternatives attempted and/or justification/explanation of why alternatives were not considered as viable fish removal options:
9. Proposed piscicide to be used and method of application (include neutralization chemical and application method if applicable):

10. Land ownership:
11. Current use of water body (describe angling, recreational, and agricultural use) and water uses potentially affected by the project:
12. Interested parties potentially affected by the project:
13. Downstream areas potentially affected by project:
14. Likely supporting and opposing groups and individuals:
15. Supporting and regulatory agencies affected:
16. Determination of applicable laws and regulations the project will require (these will likely be the same for most treatments; identify if environmental compliance issues may exist):
17. Chance of success to meet management objectives and number of treatments/years required for success:
18. Add signature page for the Nongame Branch Chief, Fisheries Chief, and Regional Supervisor.

## ***Stage 2. Preliminary Treatment and Public Involvement Plan***

### **Initial Public Meeting (non-NEPA related)**

The Initial Public Meeting may be held for new projects once internal review and approval is completed. An Initial Public Meeting *must* be held for all new projects (new projects do not include re-treatments, emergency rapid response treatments, and new treatments already covered under an existing approval process). When significant controversy exists during an Initial Public Meeting, more public meetings may be necessary to try to inform and resolve the issues before moving forward with developing the Preliminary Treatment and Public Involvement plans. The need for additional Initial Public Meetings will be determined by the project supervisor.

The purpose of the Initial Public Meeting is to acquaint the public and elected officials in the *proposed* project area with the proposed project to explain the background, management objectives for the waterbody (and/or species) and desired conditions, define the problem, alternatives considered, major issues, and how the public is involved in the decision making process. The purpose is also to identify major public concerns and issues, and consider how to address them. The outcome of the initial public meeting will help guide the development of the Public Involvement Plan.

Following an Initial Public Meeting, submit one Piscicide Project Public Meeting Briefing to the Nongame Branch Chief, Fisheries Chief, and Regional Supervisor for approval before moving forward with the Preliminary Treatment and Public Involvement planning stage. This briefing may summarize the outcome of multiple meetings.

When planning the Initial Public Meeting, consider the following:

1. The initial public meeting will be held after the proposed project received internal review and approval. The initial public meeting must be held before developing the Preliminary Treatment and Public Involvement plans.
  - a. Use the public input received during the initial public meeting to develop the Public Involvement Plan.
2. Disclose information on all the alternatives, piscicides and their associated impacts (non-technical at this stage), anticipated benefits to the resource and the public, and provide opportunities for interaction between stakeholders and project proponents.
3. Solicit public input on alternatives considered. Remember this is a *proposed* project and it should be conveyed to the public as such.
4. An open house style meeting which is informal and uses displays, handouts, maps, and other materials designed to expose the public to the project information and ideas. It provides a chance for the public to react and express feedback in oral or written form. Consider the following:
  - a. Educate the public by using language easily understood by laypersons.
  - b. Public participation should be meaningful to the public (incorporate awareness, education, input, and decision-making).
  - c. Document comments in the meeting minutes.
  - d. Encourage attendance by angling groups, agencies, other partners (if applicable).
  - e. Incorporate feedback and response from initial public meeting(s) into the Public Involvement Plan per treatment.
5. At any public meeting, present information on the following:
  - a. Describe the current problem and the desired condition of the water body.
  - b. Describe the project as it relates to fisheries management objectives.

- i. If the area has been treated with piscicides in the past, explain why the treatment(s) were not successful and the justification for potentially proposing another piscicide application.
- c. Discuss alternatives to consider.
- d. Describe potential benefits if the project moves forward.
- e. Describe the geographic area.
- f. Identify recreational activities and interests in the watershed.
- g. Identify water uses in the project area (including livestock use).
- h. Describe prior public participation activities undertaken in developing the project (if applicable).
- i. Identify partners.
- j. Describe the process steps and general timeframe for the project.

### **Piscicide Project Public Meeting Briefing Template (for New Treatments)**

The Piscicide Project Public Meeting Briefing template should be used to describe the outcome of *all* public meetings.

Include the following in every briefing:

1. Date, time, and location of the meeting.
2. Number of participants.
3. Stakeholders invited and the method of publication notification of the meeting.
4. Briefly describe meeting format and information presented.
5. Document public, staff, landowner, permittee, and downstream user support, opposition, concerns, and/or feedback from the meeting. Also include:
  - a. Number of previous public meetings held in association with the project.
  - b. Feedback from previous public meetings if applicable. Compare with feedback from the current public meeting.
  - c. Explain if more public meetings are or are not necessary.

- d. If stakeholders chose not to become involved at the meeting, or did not show up at a meeting, please document. If another public meeting is necessary, describe how the meeting and/or communication strategy will be adjusted to better engage stakeholders.
6. Briefly justify why the project is ready to move forward to the next planning stage, or why more public meetings may be necessary before moving forward to the next planning stage.
7. Include a signature page for the Nongame Branch Chief, Fisheries Chief, and Regional Supervisor.

### **Preliminary Treatment Plan**

The Preliminary Treatment Plan can be initiated after the following criteria are met: 1) the Piscicide Project Internal Review and Approval form is approved; and 2) the Initial Public Meeting is held and the associated Piscicide Project Public Meeting Briefing has been approved.

#### ***Piscicide Project Preliminary Treatment Plan Template (for New Treatments)***

The Piscicide Project Preliminary Treatment Plan template applies to new treatments. Prior to submitting the Preliminary Treatment Plan for approval, it should be reviewed internally by at least two individuals with piscicide application experience.

The Piscicide Project Preliminary Treatment Plan must be submitted with the Piscicide Project Public Involvement Plan and approved by the Nongame Branch Chief, Fisheries Chief, and Regional Supervisor before moving forward with an additional public meeting (non-NEPA) and intermediate planning. Executive Staff and the Commission will be sent a briefing. NEPA and all applicable environmental compliance can be initiated once the Preliminary Treatment and Public Involvement plans are approved.

See the Rotenone SOP Manual (2010; Appendix C) and product label(s) for guidance. Please provide sufficient detail for each treatment plan step.

Include the following in the Preliminary Treatment Plan:

1. Project supervisor(s):
2. Treatment location and project area (see SOP 6, pages 65-66). Attach map of project area (one map can include details requested in #2-4).
3. Physical and chemical characteristics of the water body (see SOP, page 15). Attach map of system highlighting these characteristics.

4. Barriers, ownership, and obstructions (see SOP, pages 15-16). Describe barriers and obstructions to fish (hydrological) and human movement (topographical and legal). Attach map of system highlighting these characteristics.
5. Piscicide and neutralization formulation to be used and how concentrations will be determined (see SOP and product labels).
  - a. Neutralization is mandatory for all flowing water treatments.
6. Identify public and commercial interests of those that use the water body (see SOP, page 16). Document land ownership of land surrounding treatment areas.
  - a. Document/investigate permittees/landowners/water users within treatment area and identify owners of domestic wells or ponds within treatment area (see SOP, page 29):
7. Interagency responsibilities (see SOP, page 16):
8. Determination of applicable laws and regulations the project will require (these will likely be the same for most treatments; identify if environmental compliance issues may exist; see SOP, page 15):
9. Protocols and monitoring plan for groundwater or surface water connections to treatment area (if applicable; see SOP 16, pages 121-123):
10. Logistics:
  - a. Methods of operation (piscicide application plan; see SOP chapters 5 - 14) including neutralization (note that neutralization is mandatory for all flowing water treatments). Include planned methods of application (e.g., drip station, spray unit) and where each method will be used in project area. Include planned methods of neutralization for flowing water applications.
  - b. Staff needs:
  - c. Equipment needs:
  - d. Required permits and approvals:
  - e. Biological and chemical monitoring required; list lab(s) that will conduct analysis, if applicable (see SOP 14, pages 115-117):
11. Restocking plan. Describe restocking plan and include any description of monitoring that will occur to determine when conditions are best for restocking.

12. Project budget. Identify costs for equipment, staff, environmental compliance, chemical, etc.
13. Include a signature page for the Nongame Branch Chief, Fisheries Chief, and Regional Supervisor.

## **Public Involvement Plan**

The Public Involvement Plan can be initiated after the following criteria are met: 1) the Piscicide Project Internal Review and Approval form is approved; and 2) the initial public meeting is held and the associated Piscicide Project Public Meeting Briefing has been approved.

The purpose of the Public Involvement Plan is to create public awareness relative to the project goals, objectives, and process, while providing opportunities for public participation in decisions relating to wildlife management, human health, and the environment in reference to the proposed project. In general, you want to generate awareness, consensus, and support for the proposed project.

The Public Involvement Plans will vary with project type. The level of public involvement necessary and the subsequent plan per treatment will be determined by the project supervisor. When applicable, the results of the Initial Public Meeting should be closely considered when developing the Public Involvement Plan.

### ***Piscicide Project Public Involvement Plan Template (for New Treatments)***

The Piscicide Project Public Involvement Plan must be submitted for approval by the Nongame Branch Chief, Fisheries Chief, and Regional Supervisor before holding any additional public meetings and before beginning intermediate planning.

Include the following for the Public Involvement Plan:

1. Describe proposed project:
2. Define Public Involvement Plan objectives:
3. Create a Public Involvement team to identify opportunities for public engagement. Identify team roles and responsibilities.
4. Describe level of public concern or interest. Consider the following:
  - a. What was the public feedback from the initial public meeting?
  - b. What is the anticipated level of conflict, controversy, opportunity or concern about the proposed project or piscicide use?

- c. How much do the major stakeholders care about the issues or project?
  - d. What is the potential for public impact on the potential decision or project?
5. Determine and describe level of public participation. The number of public meetings will be dependent on the size and location of the project, as well as perceived public opinions on the project (this includes emergency rapid response treatments and may include re-treatments). Small piscicide projects (e.g., stock ponds) may not require a significant level of public participation.
6. Identify stakeholders:
  - a. Identify key interest individuals, groups, stakeholders, area public officials, and agencies. Extending an open invitation for participation to the general public is not enough to secure broad representation of public interests. A diverse and broad group of stakeholders must be targeted to ensure the process isn't dominated by any single interest group.
7. Describe public involvement tools (e.g., meeting type – open-house style, large meetings, and neighborhood meetings). Be very careful, thoughtful, and strategic about the tools you select because every public participation activity either builds a bridge or barrier for the proposed and future projects. Take into consideration outreach methods to audiences not engaged in public networks.
8. Schedule of public participation activities:
9. Include a signature page for the Nongame Branch Chief, Fisheries Chief, and Regional Supervisor.

### **Public Educational Meetings (non-NEPA related)**

Public educational meetings may be held once the Preliminary Treatment and Public Involvement plans are approved. The purpose of public educational meetings held during this stage is to inform the public that the use of piscicides is the preferred alternative for the project, disclose information about piscicides, seek public input, and answer questions or concerns raised by the public. These meetings are not associated with the NEPA process; they are not public scoping meetings held in conformance with NEPA. When significant controversy exists during a public educational meeting, more public meetings may be necessary to try to inform and resolve the issues before moving forward to the intermediate planning stage. The need for additional public education meetings will be determined by the project supervisor.

Following a public education meeting, submit one Piscicide Project Public Meeting Briefing to the Nongame Branch Chief, Fisheries Chief, and Regional Supervisor for approval before

moving forward with intermediate planning. This briefing may summarize the outcome of multiple meetings.

At each meeting, include and/or consider the following:

1. Describe the current problem and the desired condition/objective.
2. Describe the project as it relates to fisheries management objectives.
3. Discuss alternatives considered and why piscicide application is preferred as the fish removal method. If prior-treatments to this area have been unsuccessful, thoroughly discuss the reasons and justification for moving forward with future treatment.
4. Thoroughly discuss piscicide and neutralization use impacts to humans, the environment, and non-target organisms.
5. Describe potential benefits if the project moves forward.
6. Describe the geographic area.
7. Identify recreational activities and interests in the watershed.
8. Identify water uses in the project area (including livestock use).
9. Describe prior public participation activities undertaken in developing the project (if applicable).
10. Identify partners.
11. Describe the process steps and general timeframe for the project.
12. Allow sufficient time for questions and answers.

### ***Stage 3. Intermediate Planning and Public Involvement Procedures***

The intermediate planning stage can be initiated after the following criteria are met: 1) Preliminary Treatment and Public Involvement plans have been approved; and 2) the Piscicide Project Public Meeting Briefing for any public meeting held during the preliminary planning stage has been approved.

Prior to submitting the Piscicide Project Intermediate Planning and Public Involvement Proposal for approval, it should be reviewed internally by at least two individuals with piscicide application experience.

## **Piscicide Project Intermediate Planning and Public Involvement Proposal Template (for New Treatments)**

The Piscicide Project Intermediate Planning and Public Involvement Proposal must be reviewed and approved by the Wildlife Management Assistant Director and Field Operations Assistant Director at least two months prior to treatment. The Assistant Directors will brief the Director and Commission if a project is approved or denied.

For *any* public meeting held during the intermediate planning stage, submit one Piscicide Project Public Meeting Briefing to the Assistant Directors with the Piscicide Project Intermediate Planning and Public Involvement Proposal. There will most likely be at least one NEPA related public meeting during this planning stage and others if determined necessary. A briefing may summarize the outcome of multiple meetings.

See the Rotenone SOP Manual (2010; Appendix C) and product label for guidance. Please provide sufficient detail for each step.

Include the following for the Intermediate Planning and Public Involvement Proposal:

1. Project supervisor(s) and crew leader responsibilities and training (include contact information (ensure the project supervisor(s) and crew leader(s) have the appropriate training per the SOP; see SOP 2, pages 33-36):
2. Project location (attach map) including description and length of treatment area (if lake, provide volume of water; if stream, provide stream miles), include description of developed areas within treatment area (if applicable), and include land ownership (see SOP 6, pages 65-66):
3. Project background, intended outcome, and statement of purpose (include threat of targeted species; see Rotenone SOP Manual for guidance, page 14; Appendix C):
  - a. Is this proposed project an emergency rapid response? Provide criteria (See Appendix B).
  - b. If the project area has been treated with piscicides in the past, provide a justification on why the treatment was unsuccessful and why the proposed treatment would be successful.
4. Project species:
  - a. Target species for fish removal:
  - b. Target species for reintroduction:

- c. List the non-target species within treatment area (include aquatic and terrestrial species that may be impacted by the treatment; may use HDMS):
5. Fisheries management objectives or target species recovery plan (description of how project ties into management objectives, recovery plan, or equivalent; attach if applicable; “Fisheries Management Plan” in SOP):
6. Project partners and primary roles (include contact information):
  - a. Describe meetings/contact among partners related to project (include dates and outcomes):
7. Alternative methods evaluation (describe why piscicide application is preferred method for fish removal and other tools evaluated):
8. Attach the Piscicide Project Internal Review and Approval form, the Piscicide Project Public Involvement Plan, and any Piscicide Project Public Meeting Briefings (attach):
9. Piscicide application plan (make any necessary updates to refine the Piscicide Project Preliminary Treatment Plan (see Rotenone SOP Manual chapters 5-14 and product labels for guidance; attach). Include the following:
  - a. Application rates for rotenone, antimycin, and potassium permanganate and how these were determined. Include calculations for estimated site volumes, surface acres, and water flows and methods for measuring flows, water volumes, travel times, and for calibrating neutralization equipment to achieve effective concentration of potassium permanganate. Estimate total volume of piscicide and permanganate required for the project. List criteria to determine when neutralization can be safely discontinued. Identify piscicide and neutralization products and attach labels).
  - b. Proposed treatment dates and duration (identify if there will be multiple treatments).
  - c. Estimated crew size and logistics description.
10. Site safety plan:
  - a. Include details on the planned hazard communication briefing to those involved in piscicide treatment (see SOP 3, pages 37-39). Identify person(s) involved in presenting the briefings. Identify how MSDS sheets will be distributed.
    - i. Describe Personal Protective Equipment that is required per the label that will be distributed to treatment staff.
    - ii. Include in briefing all training requirements listed in SOP 3, page 40.

- b. Include a spill contingency plan (use criteria in SOP 4, pages 56-57; attach):
11. Communications/site security plan (use guidance in SOP 1, pages 29-31):
- a. Include information on notification and monitoring requirements when a hydrologic connection between treatment water and domestic wells may exist (see product label and SOP 16, pages 121-122).
  - b. Treatment area closures; include information on proposed area closures and notification plans.
12. Fish removal and disposal plan (if applicable; see SOP 15, pages 119-120):
13. Crisis management plan (use criteria in SOP, page 22; attach)
14. Post-treatment monitoring and evaluation (see SOP, page 23-24). Describe plans to conduct post-treatment monitoring to determine project success and methods for critique. The post-treatment evaluation report will be due 60 days after the final treatment.
15. Applicable laws and regulations:
- a. Arizona Pollutant Discharge Elimination System (AZPDES) permit (see Appendix A for guidelines):
    - i. Prepare and attach Notice of Intent (NOI) and Pesticide Discharge Management Plan (PDMP) (if applicable; may develop the draft NOI and PDMP during this planning stage, but they cannot be submitted to ADEQ until project has final approval).
  - b. National Environmental Policy Act (NEPA) analysis:
    - i. Project scoping notice description, dates, and outcome. Describe public concerns, support, and/or opposition to the proposed project:
    - ii. Biological Assessment, Environmental Assessment (EA), and Pesticide Use Plan (describe process, list meeting dates, attach when completed):
      - 1) Ensure sufficient public outreach during public comment on draft EA; ensure local informative meeting(s); ensure public comments are addressed and the final EA is accurate (describe; attach final EA):
      - 2) FWS Biological Opinion – ensure the BO supports the best EA alternative (describe and provide issuance date; attach):

- 3) Finding of No Significant Impact (FONSI) or Record of Decision (ROD)(if Environmental Impact Statement) – ensure the FONSI or ROD supports the best EA alternative (describe and provide decision date; attach):
  - 4) Public notice on final EA, BO, and FONSI/ROD – ensure sufficient public notice on finalization of environmental documents (describe and provide dates; attach):
  - 5) If there is a formal request for an appeal, conform with appeal comment period in cooperation with federal action agency (describe and provide dates):
16. AGFD Environmental Assessment Checklist (EAC) completion (provide approval date; attach):
    - a. FWS Section 7 approval (provide signature date; attach if applicable):
  17. Department issues media release and publishes planned action decision (e.g., FONSI)(describe and provide dates). For guidance on media release subject content, see SOP 1, page 29.
  18. List the names of at least two individuals with piscicide application experience that reviewed the intermediate plan.
  19. Arizona Game and Fish Commission (Commission) petition process. If an appeal is petitioned, ensure Commission endorsement before proceeding with the project. If Commission does not endorse the project, cease action on proposed treatment and reconsider other fish removal options to achieve the desired fishery management objective.
  20. Include a signature page for the Wildlife Management Division and Field Operations Division Assistant Directors.

### **Public Scoping Meetings (during NEPA process)**

When preparing an Environmental Assessment (EA), the federal agency has discretion as to the level of public involvement required. For most piscicide applications that have occurred in Arizona, the agencies for the most part have mirrored most of the public scoping and comment periods that are found in the Environmental Impact Statement process. The public will be offered a 30-day period to review a pre-decisional EA. Persons who offer oral or written comments on the EA or who otherwise express an interest in the project will have the right to appeal a subsequent decision on its implementation following a published legal notice of the

decision. Public scoping meetings may also be held to solicit input on the proposed project and alternatives.

For all public meetings held during the intermediate planning stage that are held during the NEPA process, submit one briefing to the Assistant Directors with the Piscicide Project Intermediate Planning and Public Involvement Proposal. This briefing may summarize the outcome of multiple meetings.

## ***Stage 4. Project Implementation and Evaluation***

### **Project Implementation**

1. Finalize project logistics, staff needs, treatment dates, and alternative dates (describe).
2. Issue general press release(s) to media outlets within the watershed and adjoining areas a maximum of three weeks and a minimum of one week in advance to treatment (see SOP 1, page 29, for information to include in press release).
3. Notify known users of domestic wells within the treatment area (including neutralization zone) of impending treatment at least 7-14 days prior to treatment (see SOP 16, pages 121-122 for water monitoring requirements, and page 2)(attach notification and/or communication records and dates and include in the Piscicide Project Evaluation Report).
4. Adequately notify permittees and landowners within treatment area (including neutralization zone) of impending treatment at least 7-14 days prior to treatment (attach notification and/or communication records and dates and include in the Piscicide Project Evaluation Report).
5. Implement project per treatment plan (follow-up as described below).

### **Project Evaluation**

The post-treatment evaluation is a critical part of the project to determine success of the treatment, plan for additional renovations if the treatment was not successful, plan for restoration of fish and other aquatic organisms if the treatment was successful, and to help the Department better plan and implement future projects.

### ***Piscicide Project Evaluation Report Template***

The Piscicide Project Evaluation Report must be completed and submitted to the Nongame Branch Chief, Fisheries Chief, and Regional Supervisor within 60 days after the final treatment. Submit a copy of the evaluation report to the Water Quality Program Manager who will submit it

to ADEQ as required. The evaluation report should be written when a project is completed, not following each treatment if multiple treatments are planned for one project.

The Piscicide Project Evaluation Report will include the following components (see pages 23-24 in the Rotenone SOP Manual):

1. Describe posted signage, closures, notification of domestic well users (if applicable), notification of permittees and landowners within treatment area (if applicable), and any public contact in the treatment area during treatment.
2. For the post-treatment summary, include:
  - a. Dates of treatment(s) and length of time area was closed to the public.
  - b. Names of project manager and crew leaders. Number of participants.
  - c. Treatment and neutralization description (include duration of treatment/neutralization, amount of piscicide and oxidizer used, and concentration applied).
  - d. Conditions at the time of the project, explanation of problems encountered, recommendations for future treatments, and other observations noted by the participants. Include any changes to the treatment plan and the explanation (e.g., due to changes in weather, environmental conditions).
  - e. Describe post-treatment monitoring (including water quality tests if applicable) and treatment success.
3. Report findings to involved parties including ADEQ PDP reporting as required.

## **CHAPTER 4. PISCICIDE PROJECT PLANNING AND PUBLIC INVOLVEMENT – FOR RE-TREATMENTS, EMERGENCY RAPID RESPONSE TREATMENTS, AND NEW PROJECTS ALREADY COVERED UNDER AN APPROVAL PROCESS**

This chapter includes the planning procedures required for the following treatment types:

1. Re-treatments. Re-treatments include any treatment that must occur after the planned project has been implemented and was unsuccessful, and is currently covered under an existing approval process (e.g., EA, FONSI, EAC). Re-treatments do not include multiple treatments planned for one project; re-treatments are typically necessary when a barrier fails, due to an illegal stocking, or due to a partial fish kill.
2. Emergency rapid response treatments: projects meeting emergency rapid response criteria (see Appendix B).
3. New treatments already covered under an existing approval process (e.g., EA, FONSI, and EAC). These are projects that have never been implemented, yet were covered by NEPA previous to the development of this planning manual.

### ***Stage 1. Piscicide Project Internal Review and Approval***

Emergency rapid response treatments, re-treatments, and new projects already covered under an existing approval process (e.g., NEPA) must receive internal review and approval before moving forward with the preliminary planning and public involvement stage.

### **Piscicide Project Internal Review and Approval Template**

Submit to the Nongame Branch Chief, Fisheries Branch Chief, and Regional Supervisor for approval. Executive Staff and the Commission will be sent a briefing.

Include the following for Internal Review and Approval:

1. Project supervisor(s):
2. Project location (including description of proposed treatment area):
3. Proposed project timeline (month and year):
4. Statement of purpose (include threat of target species on surrounding waters):
5. If this project is a retreatment, provide justification for the need to re-treatment. Include why prior treatments were unsuccessful, when they occurred, why the proposed treatment would be successful, and how the need for future treatments will be avoided. Describe

the environmental compliance completed to date and attach with this form when submitted for approval.

6. If emergency rapid response treatment, Is this re-treatment an emergency rapid response treatment? If yes, check the criteria below and describe how each is met.
  - Alternative control practices are not feasible.
  - Involves invasion of a nonnative species new to state or specific area.
  - The situation will cause significant economic loss.
  - The situation will present significant risks to an ecosystem or wildlife.
7. If this is a new project already covered under an existing approval process, describe the environmental compliance completed to date and attach with this form when submitted for approval.
8. Target species for removal:
9. List any conflicts with management objectives, recovery plans, etc.
10. Sensitive, endemic, and listed species potentially impacted by the project:
11. Fish removal alternatives considered:
12. Proposed piscicide to be used and method of application (include neutralization chemical and application method if applicable):
13. Land ownership:
14. Current use of water body (describe angling, recreational, and agricultural use) and water uses potentially affected by the project:
15. Interested parties potentially affected by the project:
16. Downstream areas potentially affected by project:
17. Likely supporting and opposing groups and individuals:
18. Supporting and regulatory agencies affected. Describe communication and coordination with partner agencies about the proposed re-treatment.
19. Chance of success and number of treatments/years required for success (chance for eradication):

20. Include a signature page for the Nongame Branch Chief, Fisheries Chief, and Regional Supervisor.

## ***Stage 2. Preliminary Planning and Public Involvement***

### **Piscicide Project Preliminary Treatment Plan Template**

The Preliminary Treatment Plan can be initiated after the following criterion is met: the Piscicide Project Internal Review and Approval form is signed.

The Piscicide Project Preliminary Treatment Plan and Piscicide Project Public Involvement Plan must be reviewed and approved by the Nongame Branch Chief, Fisheries Chief, and Regional Supervisor before moving forward with intermediate planning. Executive Staff and the Commission will be sent a briefing.

See the Rotenone SOP Manual (2010; Appendix C) and product label(s) for guidance. Please provide sufficient detail for each treatment plan step.

Include the following for the Preliminary Treatment Plan:

1. Project supervisor(s):
2. Treatment location and project area (see SOP 6, pages 65-66). Attach map of project area (one map can include information from #2-#4).
3. Physical and chemical characteristics of the water body (see SOP, page 15). Attach map of system highlighting these characteristics.
4. Barriers, ownership, and obstructions (see SOP, pages 15-16). Describe barriers and obstructions to fish (hydrological) and human movement (topographical and legal). Attach maps.
5. Piscicide and neutralization formulation to be used and how concentrations will be determined (see SOP and product labels).
  - a. Neutralization is mandatory for all flowing water treatments.
6. Identify public and commercial interests of those that use the water body (see SOP, page 16). Document land ownership of land surrounding treatment areas.
  - a. Document/investigate permittees/landowners/water users within treatment area and identify users of domestic wells or ponds within treatment area (see SOP, page 29):
7. Interagency responsibilities (see SOP, page 16):

8. Determination of applicable laws and regulations the project will require (identify if environmental compliance issues may exist; see SOP, page 15):
9. Protocols and monitoring plan for groundwater or surface water connections to treatment area (if applicable; see SOP 16, pages 121-123):
10. Logistics and preliminary schedule:
  - a. Methods of operation (piscicide application plan; see SOP chapters 5 - 14) including neutralization (note that neutralization is mandatory for all flowing water treatments). Include planned methods of application (e.g., drip station, spray unit) and where each method will be used in project area. Include planned methods of neutralization for flowing water applications.
  - b. Staff needs:
  - c. Equipment needs:
  - d. Required permits and approvals:
  - e. Biological and chemical monitoring required (see SOP 14, pages 115-117):
  - f. Project schedule (for each major milestone and expected project start and end dates):
11. Restocking plan. Describe restocking plan and include any description of monitoring that will occur to determine when conditions are best for restocking.
12. Project budget. Identify costs for equipment, staff, environmental compliance, chemical, etc.
13. Include a signature page for the Nongame Branch Chief, Fisheries Chief, and Regional Supervisor.

### **Public Involvement Plan**

A Public Involvement Plan will apply to these types of projects, but sometimes may involve less public engagement than a new project. This will be determined on a case-by-case basis by the project supervisor. The purpose of the Public Involvement Plan is to create public awareness relative to the project goals, objectives, and process, while providing opportunities for public participation in decisions relating to wildlife management, human health, and the environment in reference to the proposed project. For projects already covered under NEPA, if during the initial public scoping process for the original treatment there was sufficient public engagement, this must be documented in the Piscicide Project Public Involvement Plan. No matter what, at least

one public educational meeting should be held for emergency rapid response treatments, re-treatments, and new treatments already covered under an existing approval process.

The Public Involvement Plan can be initiated after the following criterion is met: the Piscicide Project Internal Review and Approval form is signed.

### ***Piscicide Project Public Involvement Plan Template***

The Piscicide Project Public Involvement Plan must be submitted with the Piscicide Project Preliminary Treatment Plan for approval by the Nongame Branch Chief, Fisheries Chief, and Regional Supervisor before initiating the Piscicide Project Intermediate Planning and Public Involvement Procedures. Public educational meetings may be held once the Piscicide Project Public Involvement Plan is developed.

Include the following for the Public Involvement Plan:

1. Describe proposed project:
2. Describe public outreach conducted for the previous treatment, if applicable (include number of meetings):
  - a. What was the public feedback from previous public meetings?
  - b. What is the anticipated level of conflict, controversy, opportunity or concern about the proposed project or piscicide use for a re-treatment?
  - c. How much do the major stakeholders care about the issues or project?
3. Determine and describe the level of public participation necessary for the project. The number of public meetings will be dependent on the public outreach conducted for the original treatment, the size and location of the project, as well as perceived public opinions on the project. Small re-treatment piscicide projects (e.g., stock ponds) may not require a significant level of public participation.
  - a. There should be at least one public meeting scheduled before an emergency rapid response treatment, re-treatment, or new treatment already covered under an existing approval process is implemented.
4. Identify stakeholders:
  - a. Identify key interest individuals, groups, stakeholders, area public officials, and agencies. Extending an open invitation for participation to the general public is not enough to secure broad representation of public interests. A diverse and broad group of stakeholders must be targeted to ensure the process isn't dominated by any single interest group.

5. Describe public involvement tools (e.g., meeting type – open-house style, large meetings, neighborhood meetings). Be very careful, thoughtful, and strategic about the tools you select because every public participation activity either builds a bridge or barrier for the proposed and future projects. Take into consideration outreach methods to audiences not engaged in public networks.
6. Schedule of public participation activities:
7. Add a signature page for the Nongame Branch Chief, Fisheries Chief, and Regional Supervisor.

### **Public Educational Meetings (non-NEPA related)**

Public educational meetings may be held once the Preliminary Treatment and Public Involvement plans are approved. At least one public educational meeting must be held before moving forward with the intermediate planning stage, and it must be held *after* the Preliminary Treatment and Public Involvement plans are approved. The purpose of public educational meetings held during this stage is to inform the public that the use of piscicides is the preferred alternative for the project, disclose information about piscicides, seek public input, and answer questions or concerns raised by the public.

These meetings are not associated with the NEPA process; they are not public scoping meetings held in conformance with NEPA. When significant controversy exists during a public educational meeting, more public meetings may be necessary to try to inform and resolve the issues before moving forward to the intermediate planning stage. The need for additional public education meetings will be determined by the project supervisor.

Following a public education meeting, submit one Piscicide Project Public Meeting Briefing to the Nongame Branch Chief, Fisheries Chief, and Regional Supervisor for approval before moving forward with intermediate planning. This briefing may summarize the outcome of multiple meetings.

At each meeting, include and/or consider the following:

1. Describe the current problem and the desired condition/objective.
2. Describe the project as it relates to fisheries management objectives.
3. Discuss alternatives considered and why piscicide application is preferred as the fish removal method. If prior-treatments to this area have been unsuccessful, thoroughly discuss the reasons and justification for moving forward with future treatment.
4. Thoroughly discuss piscicide and neutralization use impacts to humans, the environment, and non-target organisms.

5. Describe potential benefits if the project moves forward.
6. Describe the geographic area.
7. Identify recreational activities and interests in the watershed.
8. Identify water uses in the project area (including livestock use).
9. Describe prior public participation activities undertaken in developing the project (if applicable).
10. Identify partners.
11. Describe the process steps and general timeframe for the project.
12. Allow sufficient time for questions and answers.

### **Piscicide Project Public Meeting Briefing Template**

The Piscicide Project Public Meeting Briefing template should be used to describe the outcome of *all* public meetings.

Include the following in every briefing:

1. Date, time, and location of the meeting.
2. Number of participants.
3. Stakeholders invited and the method of publication notification of the meeting.
4. Briefly describe meeting format and information presented.
5. Document public, staff, landowner, permittee, and downstream user support, opposition, concerns, and/or feedback from the meeting. Also include:
  - a. Number of previous public meetings held in association with the project.
  - b. Feedback from previous public meetings if applicable. Compare with feedback from the current public meeting.
  - c. Are more public meetings necessary?
  - d. If stakeholders chose not to become involved at the meeting, or did not show up at a meeting, please document. If another public meeting is necessary, describe how

the meeting and/or communication strategy will be adjusted to better engage stakeholders.

6. Briefly justify why the project is ready to move forward to the next planning stage, or why more public meetings may be necessary before moving forward to the next planning stage. Describe the project type (e.g., emergency rapid response, re-treatment) and give sufficient details to inform the public of the circumstances surrounding the proposed treatment.
7. Include a signature page for the Nongame Branch Chief, Fisheries Chief, and Regional Supervisor.

### ***Stage 3. Intermediate Planning and Public Involvement Procedures***

The intermediate planning stage can be initiated after the following criteria are met: 1) Preliminary Treatment and Public Involvement plans have been approved; and 2) the Piscicide Project Public Meeting Briefing for any public meeting held during the preliminary planning stage has been approved.

Prior to submitting the Piscicide Project Intermediate Planning and Public Involvement Proposal for approval, it should be reviewed internally by at least two individuals with piscicide application experience.

### **Piscicide Project Intermediate Planning and Public Involvement Proposal Template**

The Piscicide Project Intermediate Planning and Public Involvement Proposal must be reviewed and approved by the Wildlife Management Assistant Director and Field Operations Assistant Director at least two months prior to treatment. The Assistant Directors will brief the Director and Commission if a project is approved or denied.

For any public meeting held during the intermediate planning stage, submit the Piscicide Project Public Meeting Briefing(s) to the Assistant Directors with the Piscicide Project Intermediate Planning and Public Involvement Proposal. For re-treatments and new treatments already covered under an existing approval process, because NEPA compliance was already completed and a public scoping meeting was previously held, any public meeting during this planning stage would not be NEPA-related. Public meetings held during this planning stage for emergency rapid response treatments would most likely be NEPA related.

See the Rotenone SOP Manual (2010; Appendix C) and product label for guidance. Please provide sufficient detail for each step.

Include the following for the Intermediate Planning and Public Involvement Proposal:

1. Project supervisor(s) and crew leader responsibilities and training (include contact information (ensure the project supervisor(s) and crew leader(s) have the appropriate training per the SOP; see SOP 2, pages 33-36):
2. Project location (attach map) including description and length of treatment area (if lake, provide volume of water; if stream, provide stream miles), include description of developed areas within treatment area (if applicable), and include land ownership (see SOP 6, pages 65-66):
3. Project background, intended outcome, and statement of purpose (include threat of targeted species; see Rotenone SOP Manual for guidance, page 14; Appendix C):
  - a. Is this proposed project an emergency rapid response? Provide criteria (See Appendix B).
  - b. If the project area has been treated with piscicides in the past, provide a justification on why the treatment was unsuccessful and why the proposed treatment would be successful.
4. Project species:
  - a. Target species for fish removal:
  - b. Target species for reintroduction:
  - c. List the non-target species within treatment area (include aquatic and terrestrial species that may be impacted by the treatment; may use HDMS):
5. Fisheries management objectives or target species recovery plan (description of how project ties into management objectives, recovery plan, or equivalent; attach if applicable; “Fisheries Management Plan” in SOP):
6. Project partners and primary roles (include contact information):
  - a. Describe meetings/contact among partners related to project (include dates and outcomes):
7. Alternative methods evaluation (describe why piscicide application is preferred method for fish removal and other tools evaluated):
8. Attach the Piscicide Project Internal Review and Approval form, the Piscicide Project Preliminary Treatment Plan, the Piscicide Project Public Involvement Plan, and any Piscicide Project Public Meeting Briefings (attach):

9. Piscicide application plan (make any necessary updates to refine the Piscicide Project Preliminary Treatment Plan (see Rotenone SOP Manual chapters 5-14 and product labels for guidance; attach). Include the following:
  - a. Application rates for rotenone, antimycin, and potassium permanganate and how these were determined. Include calculations for estimated site volumes, surface acres, and water flows and methods for measuring flows, water volumes, travel times, and for calibrating neutralization equipment to achieve effective concentration of potassium permanganate. Estimate total volume of piscicide and permanganate required for the project. List criteria to determine when neutralization can be safely discontinued. Identify piscicide and neutralization products and attach labels).
  - b. Proposed treatment dates and duration (identify if there will be multiple applications).
  - c. Estimated crew size and logistics description.
10. Site safety plan:
  - a. Include details on the planned hazard communication briefing to those involved in piscicide treatment (see SOP 3, pages 37-39). Identify person(s) involved in presenting the briefings. Identify how MSDS sheets will be distributed.
  - b. Describe Personal Protective Equipment that is required per the label that will be distributed to treatment staff.
  - c. Include in briefing all training requirements listed in SOP 3, page 40.
  - d. Include a spill contingency plan (use criteria in SOP 4, pages 56-57; attach):
11. Communications/site security plan (use guidance in SOP 1, pages 29-31):
  - a. Include information on notification and monitoring requirements when a hydrologic connection between treatment water and domestic wells may exist (see product label and SOP 16, pages 121-122).
  - b. Include information on proposed area closures and notification plans.
12. Fish removal and disposal plan (if applicable; see SOP 15, pages 119-120):
13. Crisis management plan (use criteria in SOP, page 22; attach)

14. Post-treatment monitoring and evaluation (see SOP, page 23-24). Describe plans to conduct post-treatment monitoring to determine project success and methods for critique. The post-treatment evaluation report will be due 60 days after the final treatment.
15. Applicable laws and regulations:
  - a. Arizona Pollutant Discharge Elimination System (AZPDES) permit (see Appendix A for guidelines):
    - i. Prepare and attach Notice of Intent (NOI) and Pesticide Discharge Management Plan (PDMP) (if applicable; may develop the draft NOI and PDMP during this planning stage, but they cannot be submitted to ADEQ until project has final approval).
  - b. National Environmental Policy Act (NEPA) analysis:
    - i. Attach completed Biological Assessment, Environmental Assessment (EA), Biological Opinion, FONSI, and Pesticide Use Plan.
16. AGFD Environmental Assessment Checklist (EAC) completion (update if necessary; provide approval date; attach):
  - a. FWS Section 7 approval (update if necessary; provide signature date; attach if applicable):
17. Department issues media release (describe and provide dates). For guidance on media release subject content, see SOP 1, page 29.
18. List names of at least two individuals with piscicide application experience that reviewed the intermediate plan.
19. Arizona Game and Fish Commission (Commission) petition process. If an appeal is petitioned, ensure Commission endorsement before proceeding with project. If Commission does not endorse project, cease action on proposed treatment and reconsider other fish removal options to achieve the desired fishery management objective.
20. Include a signature page for the Wildlife Management Division and Field Operations Division Assistant Directors.

### **Public Scoping Meetings (during NEPA process)**

These meetings will most likely apply to emergency rapid response treatments because environmental compliance through the NEPA process will be necessary if the treatment will occur on federal land and if federal funds are used for the project.

When preparing an Environmental Assessment (EA), the federal agency has discretion as to the level of public involvement. For most piscicide applications that have occurred in Arizona, the agencies for the most part have mirrored most of the public scoping and comment periods that are found in the Environmental Impact Statement process. The public will be offered a 30-day period to review a pre-decisional EA. Persons who offer oral or written comments on the EA or who otherwise express an interest in the project will have the right to appeal a subsequent decision on its implementation following a published legal notice of the decision. Public scoping meetings may also be held to solicit input on the proposed project and alternatives.

For all public meetings held during the intermediate planning stage that are held during the NEPA process, submit one briefing to the Assistant Directors with the Piscicide Project Intermediate Planning and Public Involvement Proposal. This briefing may summarize the outcome of multiple meetings.

#### ***Stage 4. Project Implementation and Evaluation***

##### **Project Implementation**

1. Finalize project logistics, staff needs, treatment dates, and alternative dates (describe).
2. Issue general press release(s) to media outlets within the watershed and adjoining areas a maximum of three weeks and a minimum of one week in advance to treatment (see SOP 1, page 29, for information to include in press release).
3. Notify known users of domestic wells within the treatment area (including neutralization zone) of impending treatment 7-14 days prior to treatment (see SOP 16, pages 121-122 for water monitoring requirements, and page 2)(attach notification and/or communication records and dates and include in the Piscicide Project Evaluation Report).
4. Adequately notify permittees and landowners within treatment area (including neutralization zone) of impending treatment 7-14 days prior to treatment (attach notification and/or communication records and dates and include in the Piscicide Project Evaluation Report).
5. Implement project per treatment plan (follow-up as described below).

##### **Piscicide Project Evaluation Report Template**

The post-treatment evaluation is a critical part of the project to determine success of the treatment, plan for additional renovations if the treatment was not successful, plan for restoration of fish and other aquatic organisms if the treatment was successful, and to help the Department better plan and implement future projects.

The Piscicide Project Evaluation Report must be completed and submitted to the Nongame Branch Chief, Fisheries Chief, and Regional Supervisor within 60 days after the final treatment. Submit a copy of the evaluation report to the Water Quality Program Manager who will submit it to ADEQ as required.

The Piscicide Project Evaluation Report will include the following components (see pages 23-24 in the Rotenone SOP Manual):

1. Describe posted signage, closures, notification of domestic well users (if applicable), notification of permittees and landowners within treatment area (if applicable), and any public contact in the treatment area during treatment.
2. For the post-treatment summary, include:
  - a. Dates of treatment(s) and length of time area was closed to the public.
  - b. Names of project manager and crew leaders. Number of participants.
  - c. Treatment and neutralization description (include duration of treatment/neutralization, amount of piscicide and oxidizer used, and concentration applied).
  - d. Conditions at the time of the project, explanation of problems encountered, recommendations for future treatments, and other observations noted by the participants. Include any changes to the treatment plan and the explanation (e.g., due to changes in weather, environmental conditions).
  - e. Describe post-treatment monitoring (including water quality tests if applicable) and treatment success.
3. Report findings to involved parties including ADEQ PDP reporting as required.

## **APPENDIX A. ARIZONA POLLUTION DISCHARGE ELIMINATION SYSTEM PERMIT PROCESS**

The Environmental Protection Agency (EPA) and states with delegated authority under Section 402 of the Clean Water Act have developed General Permits for the discharge of Aquatic Pesticides. The Arizona Department of Environmental Quality (ADEQ) has developed an Arizona Pesticide General Permit (General Permit) that became effective on October 31, 2011. For all piscicide projects, work through the Water Quality Program Manager on General Permit requirements and contact with ADEQ. The General Permit is guided by the template developed by the EPA:

- Permit coverage is required for treatments on Waters of the United States, including waters classified as aquatic and wildlife (warm or cold water), an impaired water, an Outstanding Arizona Water, an effluent dependent water, or as part of a specific approval.
- The permit does address the use of piscicides.
- Virtually all of the piscicide treatments conducted by the Department would require coverage under the General Permit with a Notice of Intent (NOI).

### **Guidelines**

1. The Arizona Pollutant Discharge Elimination System (AZPDES) relies on one type of General Permit that will cover piscicide treatments.

The General Permit covers multiple activities within a specific category for a specific period of time (not to exceed 5 years; expires in 2016). In order for a piscicide treatment to be covered under the General Permit, an NOI must be submitted to ADEQ to obtain coverage. The NOI serves as a promise that there will be compliance with the General Permit conditions. See the following link for NOI format and other AZPDES information: <http://www.azdeq.gov/environ/water/permits/pgp.html>.

2. A Pesticide Discharge Management Plan (PDMP) must be submitted with an NOI for ALL Department piscicide applications. In particular, a PDMP is mandatory if a pesticide discharge activity exceeds one or more thresholds identified by ADEQ, including:
  - a. More than 80 acres of treatment area in any given year (does not include waters treated multiple times).
  - b. More than 20 linear miles of treatment area at water's edge in any given year (does not include waters treated multiple times).

- c. For discharges to impaired waters or Outstanding Arizona Waters, a PDMP is always required.
- d. Contents of the PDMP include documentation of the following: 1) a pesticide discharge management plan team; 2) a description of the pest problem; 3) a description of control measures; 4) schedules and procedures for application rate and frequency, pest surveillance, assessment of environmental conditions, spill prevention and response, equipment maintenance, adverse incident response, and pesticide monitoring; and 5) any eligibility considerations under other federal laws (see the ADEQ Pesticide General Permit Fact Sheet, pages 60-63 for guidance and PDMP requirements and format; <http://www.azdeq.gov/environ/water/permits/pgp.html>).

3. Timelines:

- a. Project managers must submit their NOI and PDMP per proposed pesticide application at least 60 days prior to treatment. Submit the NOI and PDMP to the Water Quality Program Manager and they will forward to ADEQ.
- b. ADEQ will notify operators required to submit a NOI within 7 calendar days (for discharges to waters designated as aquatic and wildlife, and effluent dependent waters) or 31 calendar days (for discharges to impaired waters and Outstanding Arizona Waters) before the planned discharge.
- c. Discharges within an Outstanding Arizona Water (see list; [http://www.azsos.gov/public\\_services/Title\\_18/18-11.htm](http://www.azsos.gov/public_services/Title_18/18-11.htm)) or impaired water (see list; [http://www.azdeq.gov/environ/water/assessment/download/2008/2006\\_2008.pdf](http://www.azdeq.gov/environ/water/assessment/download/2008/2006_2008.pdf)) must submit a copy of the PDMP with the NOI to ADEQ for review.
- d. Submit NOIs to ADEQ at the following address:
  - i. Arizona Department of Environmental Quality, Surface Water Section/Stormwater and General Permits Unit; 1110 W. Washington Street, 5415A-1; Phoenix, AZ 85007

4. Monitoring and Reporting for the PGP:

- a. Visual monitoring assessments are required as a means of identifying, for example, impacts to non-target organisms or the disruption or degradation of wildlife habitat. This requirement consists of visually monitoring the area to and around where pesticides are applied for possible and observable adverse incidents. This monitoring is required when feasibility and safety allow.

- b. Visual monitoring must also be conducted post-application to determine the efficacy of the application.

\*For Department assistance with the NOI or PDMP contact the Water Quality Program Manager.

## **APPENDIX B. EMERGENCY RAPID RESPONSE PROJECT CRITERIA**

Definition: An emergency rapid response condition is an urgent, non-routine situation that requires the use of a piscicide and meets the following criteria:

- No alternative control practices are feasible.
- The situation involves the invasion of a nonnative species new to the state or specific area.
- The situation will cause significant economic loss.
- The situation will present significant risks to the ecosystem or wildlife (including threatened or endangered species).

Exemptions: If emergency rapid response criteria are met, the following include exemptions to the Department piscicide application policy:

- Emergency rapid response treatments may submit an NOI to ADEQ 7 days prior to treatment and complete a PDMP to keep on file. Project managers will not need to submit the NOI and PDMP 60 days prior to treatment. Project managers must contact ADEQ to notify them of the emergency treatment.
- Emergency rapid response treatments do not need to hold initial public meetings to obtain project support. Other public meetings may need to be held and this should be determined when developing the Public Involvement Plan.
- Emergency rapid response treatment plan policy does not need to be submitted for internal approval 60 days prior to treatment, but it must have approval before implementation.

## **APPENDIX C. ROTENONE AND ANTIMYCIN STANDARD OPERATING PROCEDURES MANUALS**

### **Rotenone Standard Operating Procedures Manual**

Finlayson, B., R. Schnick, D. Skaar, J. Anderson, L. Demong, D. Duffield, W. Horton, and J. Steinkjer. 2010. Planning and standard operating procedures for the use of rotenone in fish management--rotenone SOP manual. American Fisheries Society, Bethesda, Maryland. 214 pp.

[www.fisheriessociety.org/rotenone/rot.pdf](http://www.fisheriessociety.org/rotenone/rot.pdf)

### **Antimycin Standard Operating Procedures Manual**

Moore, S., M. Kulp, B. Rosenlund, J. Brooks, and D. Propst. 2008. A field manual for the use of antimycin A for restoration of native fish populations. National Park Service, Natural Resource Report NPS/NRPC/NRR – 2008/033. 149 pp.

\*This manual was written prior to the finalization of the Antimycin RED and will likely be rewritten when Aquabiotics starts producing Fintrol again under the new use restrictions developed by the EPA.

[http://www.nature.nps.gov/water/FisheriesReports/NPS\\_Antimycin\\_SOP\\_2008\\_reformat.pdf](http://www.nature.nps.gov/water/FisheriesReports/NPS_Antimycin_SOP_2008_reformat.pdf)