

DRAFT

Alaska Department of Fish and Game
Division of Commercial Fisheries

Invertebrate Restoration and Enhancement Guidelines

Updated February 20, 2013

The Alaska Department of Fish and Game (department) is expected, under AS 16.05.092, to encourage investment by private enterprise in the technological development and economic use of Alaska's fisheries resources, and under AS 16.05.020, to manage, protect, maintain, and improve these resources in the interest of the economy and general well-being of the state. The department is also governed, under AS 16.05.730, to manage enhanced fish stocks in a manner consistent with sustained yield of wild fish stocks, recognizing the need to protect wild stocks, as they are the store of genetic and adaptive diversity for future harvests and broodstock.

The purpose of this document is to guide applicants and department staff through the steps needed to initiate projects aimed at invertebrate stock restoration or enhancement. Restoration and enhancement are defined as follows. **Restoration projects** use cultured stock to increase the size of a natural single-species population until the population can sustain a fishery. **Enhancement projects** use cultured stock to increase the size of the natural single-species population on an ongoing basis to support harvests, which may not be sustainable without continued enhancement.

The department considers several criteria to guide development and permitting of restoration or enhancement operations, and to prevent adverse effects on wild stocks and existing uses:

- genetic risks¹, e.g., inbreeding or hybridization;
- risks from disease;
- effects on other species and their habitats;
- evaluation tools to assess projects;
- impacts on other fisheries or user groups;
- public review, input, and support; and
- harvest management².

These guidelines cover a range of restoration and enhancement development and operation activities, including introductory laboratory studies, contained field studies, open-release field studies, and small or large-scale production operations, all which require varying degrees of project planning, oversight, and permitting. Three project categories are defined in the guidelines as follows:

¹ Stocking cultured individuals into the environment may pose genetic risks, including loss of natural genetic diversity due to hybridization with genetically different hatchery stock, and genetic swamping associated with restoration or enhancement activities.

² Harvest management considerations include subsistence, personal use, sport, and commercial use interactions, differential wild fish stock and enhanced stock harvest rates, harvest allocation, cost recovery, mixed stock issues, and general common property considerations.

DRAFT

Category I – Contained Research and Feasibility Testing

Category II – Open-water Release

Category III – Production Operation

Category I projects involve experimental research and feasibility testing that support restoration or enhancement development (Category I) and require permitting under the department's Fish Resource Permit (FRP) or FRP/Fish Transport Permit (FTP) review process (appendices C and D).

Category II projects involve field experiments with open releases³ or involve small-scale³ production operations with releases into the environment that require additional permitting under the Invertebrate Transport Permit (ITP) review process (Appendix E) as described in these guidelines.

Category III projects involve large-scale production operations with releases into the environment and will require additional permitting under the ITP review process (Appendix E) as described in these guidelines. Category III projects may also require an Invertebrate Hatchery Operation Permit (IHOP) modeled after the salmon hatchery program. In addition, these production operation projects may require possible statutory and/or regulatory provisions, including future updates to these guidelines. A flow chart outlining the permit process for each project category is provided in Appendix A.

Category I: Contained Research and Feasibility Testing. This category includes experimental research and feasibility-testing project studies conducted under contained systems either in a facility such as a hatchery or university, or in the natural environment. Information resulting from these projects might be used to initiate a restoration or enhancement project (Category III).

Projects where organisms are contained within a facility and are not released into natural waters are referred to as *Contained-Laboratory* projects (**Category Ia**). Projects placing organisms the environment using containment apparatus (cages or restraining devices)

³ Small-scale or open-release projects are those that are low risk (how do we define low risk to wild stocks? Page one states "prevent" harm to wild stocks?) to the invertebrate wild stock in the area (I suggest that "in the area" be defined as the area the Category II project release occurs AND the area during the lifespan of animal released. For example, the release may occur in a specific bay, however, released animals might migrate to a wider management area or management district during their lifespan. of intended release based on four factors: 1) the size of the release to the size of the wild stock (again the area considered needs to be clear); 2) the life stage released; 3) number of released animals; and 4) impact from acquisition of broodstock. Generally, small-scale projects for research and site suitability in Category II are those that propose to release amounts intended to result in less than or equal to 5,000* adults. If projects propose to release more than this threshold, the project would be a large-scale project and need to adhere to Category III requirements. Variation from this maximum threshold may occur for different invertebrate species based on the proposed project risk factors listed above.

*Note to workgroup – 5,000 is in the FRP policy and is for adult salmon and may not be applicable to invertebrates. This is up for discussion.

DRAFT

that prevent release of organisms into the environment are *Contained-Field* projects (**Category Ib**).

Category I projects are permitted under the department's Fishery Resource Permit (FRP) and Fishery Transport Permit (FTP) processes. The permitting process for Category I projects include the following:

1. *Fish Resource Permit application and supporting materials.* The applicant completes an FRP application (Appendix C), including a project study plan describing the type of experiment(s) proposed, including where broodstock will be collected, reared, and studied, final disposition of animals, why project is needed, and project length. Supporting materials include a Project Category I Checklist that requests details on broodstock source, location, and wild population status, and milestones and timelines for the research project.
2. *Department review.* The department will assess information submitted to determine permit stipulations.
3. *Project Permitting.* If a project is approved, the department issues: a) an FRP or b) an FRP/FTP.

Category II: Open-water Release. Category II projects are those that release small-scale artificially-spawned or cultured individuals into the environment without containment. Category II projects will be one of two types: experimental or those intended for enhanced harvest opportunities or stock restoration. The second type of project would be research supporting a future stock restoration or enhanced harvest opportunity production project (Category III). Open-water releases have the potential to affect wild stocks and therefore, require additional risk evaluation in the permitting review and approval process.

Permitting of Category II projects are reviewed and permitted under the department's FRP and ITP. Permitting for Category II projects includes the following:

1. *Invertebrate Transport Permit application and supporting materials.* The applicant completes an ITP application (Appendix E) that includes a project study plan describing the type of experiment(s) proposed, including where broodstock will be collected, reared, and studied, why project is needed, and project length. Supporting materials include a map of the release location(s), literature review, and Category II Checklist. The literature review summarizes research completed on the species of interest to date. The Category II Checklist requests details on the literature review, project feasibility, experimental research release effects and fates of organisms, public scoping, and agency review, comments, and permitting.
2. *Department review.* The department will assess the information submitted to determine whether it is complete and permit review criteria have been addressed. The department will conduct a risk assessment, including:
 - a) the risk of the project to the wild stock populations in the area;

DRAFT

- b) the need for project;
 - c) the physical and environmental suitability of the location for stock restoration or enhancement;
 - d) proximity of release site to existing fisheries uses; and
 - e) availability and status of broodstock.
3. *Project Permitting*. If a project is approved, the department issues: a) an FRP and b) an ITP to release cultured individuals into the environment for research purposes. Depending on the specific project, other local, state, federal permits or authorizations may be required.

Category III: Production Operation. Restoration and enhancement operation projects will not adversely impact wild stocks in the short or long-term, require community and public comment, and evaluation techniques and monitoring plans. Permitting for production operations may proceed when these criteria are satisfied. Some projects may require development of harvest and allocation regulations for management of enhanced stocks. A review framework, similar to that for salmon enhancement and the regional planning team process, may need to be established to facilitate public comment and review, and final permitting of small or large-scale production. Additional department reviews will occur periodically to assess success of the restoration or enhancement operation.

Permitting of Category III projects are reviewed and permitted under the department's ITP and Invertebrate Hatchery Operation Permit (IHOP). The permitting process for Category III projects includes the following:

1. *Draft Invertebrate Hatchery Operation Permit preapplication, Invertebrate Hatchery Conceptual Plan, and supporting materials*. The applicant completes an IHOP that includes details on the hatchery operation, including artificial propagation protocol and performance standards, production plan, and release strategy, location, and schedule. Supporting materials include the socio-economic impact assessment and conceptual plan.

The socio-economic impact assessment provides details on the potential socio-economic impacts of the restoration or enhancement project on a fishery and how it might influence management of the affected species of interest.

The conceptual plan provides information on: a) why the restoration or enhancement operation project is needed; b) relevant socio-economic considerations; c) a description of how the project will proceed into production operations based on previous research and technical feasibility results for the specific species or literature findings; and d) identification of specific details necessary for field experiments requiring open releases, including plans for artificial propagation development, project release evaluation tools and methods, and analysis of genetic and disease risk.

Department staff is available to provide preapplication assistance.

DRAFT

2. *Invertebrate Transport Permit application and supporting materials.* The applicant completes an ITP application (Appendix E) that includes a project study plan describing the type of experiment(s) proposed, including where broodstock will be collected, reared, and studied, and why the project is needed. Supporting materials would include a map of the release location, literature review, and Category III Checklist. The literature review summarizes the research that has been completed on the species of interest to date, including scientific evidence on the efficacy of the enhancement or restoration methodology to be used. The Category III Checklist requests details on what is in the literature review, project feasibility, research release effects and fates of organisms, socio-economic impacts, and public and agency review, comments, and permitting.
3. *Department review/Management Feasibility Analysis (MFA).* The department will assess information submitted to determine whether it is complete and permit review criteria have been addressed. The department will conduct a risk assessment to evaluate the risk of the project to wild stock population(s) in the area. The following items will also be reviewed: a) need for project, b) physical and environmental suitability of the location for stock restoration or enhancement, c) proximity of release site to proposed harvest area and other fisheries uses; d) availability of suitable broodstock.

Within 120 days of receipt of a complete application, the department will complete a MFA that details and analyzes information contained in the conceptual plan and additional factors for consideration.

4. *Final Invertebrate Hatchery Operation Permit application.* Based on the department's MFA and recommendations, a final IHOP application will be submitted and reviewed by the department for completeness and acceptance. Upon acceptance, the 60-day period for processing an invertebrate hatchery application begins.
5. *Invertebrate Planning Team (IPT) review.* A statewide invertebrate planning team comprised of three members of the public (including academia) and three members of the department will review each IHOP using the following criteria:
 - (a) the contribution the proposed hatchery would make to the common property fishery;
 - (b) the provision for protection of wild stock from adverse effects which may originate from the proposed hatchery;
 - (c) compatibility of the proposed hatchery with the goals and objectives of the comprehensive invertebrate enhancement and restoration plan for the state; and
 - (d) whether or not the proposed hatchery would make the best use of the site's potential to benefit the common property fishery.An applicant may review the IPT's determination and comment on it by letter to the commissioner.

DRAFT

6. *Draft Basic Management Plan development.* The department will review the production plan and with assistance from the applicant, develop a draft BMP. The draft BMP is the basis for public review and comment.
7. *Public review/hearing.* The department will conduct a public hearing on each completed permit application to obtain public testimony and answer questions on all aspects of the proposed facility. Notice will be given 25 days before the public hearing. (Note: Refer to 5 AAC 40.210 for possible public hearing procedures.)
8. *Final Basic Management Plan development (applicant and department).*
9. *ACMP/DGC consistency review (DNR).*
10. *Issuance/denial of Invertebrate Hatchery Operation Permit.* If the project is approved by the commissioner, the department will issue an IHOP and ITP that authorizes release of cultured individuals into the environment. If modifications to the original production plan are made, a permit amendment can be requested. If the project is denied, the applicant will be notified that the decision constitutes final action and of the right to appeal the decision to superior court under Rule 602(a)(2) of the Alaska Rules of Appellate Procedure.
11. *Monitoring.* Permittee monitors the variables (i.e., survival or growth of released individuals or reproductive success) established as part of the production plan to determine success of the restoration or enhancement operation on wild stock populations, effects on other species, and on the environment.
12. *Evaluation.* Review of the enhancement or restoration production operation project includes either a final, if a one-time production release, or an ongoing evaluation, if annual release, are planned using criteria in the approved BMP. The degree of success of the restoration or enhancement operation and any adverse effects on other species or the environment will be considered in further permitting.

Department Contacts

Questions regarding these guidelines or the application processes described herein should be directed to the department at:

Alaska Department of Fish and Game
Attn: _____
Division of Commercial Fisheries
1255 W. 8th Street/PO Box 115526
Juneau, AK 99811-5526
(907) 465-____ Phone

DRAFT

Appendices

- Appendix A: Permit Review Process Flowchart
- Appendix B1: Category I Checklist
- Appendix B2: Category II Checklist
- Appendix B3: Category III Checklist
- Appendix C: Fish Resource Permit Application
- Appendix D: Fish Transport Application
- Appendix E: Invertebrate Transport Permit
- Appendix F: Invertebrate Hatchery Operation Permit
- Appendix G: Invertebrate Conceptual Plan template (to be developed)