

CALIFORNIA DEPARTMENT OF FISH AND GAME

**Application for Take Coverage for Anadromous Fish Research and Monitoring Activities
Authorized Under the Endangered Species Act 4(d) Rule Research Limit for the period
January 1, 2007 to December 31, 2007**

The National Marine Fisheries Service is in the process of granting our request for an extension of the Department's 4(d) Rule take authorization through 2007 for the Department's threatened anadromous fish research and monitoring projects. Please review the instructions below and fill-out the following template accordingly. You are encouraged to cut and paste from your 2006 application wherever possible, but please do not change the format (format follows the requirements of the 4d rule, so it cannot be changed).

When complete,

email and send hardcopy to:

**Qinqin Liu (qliu@dfg.ca.gov)
Department of Fish and Game
Fisheries Branch
830 S Street
Sacramento, CA 95814**

All projects covered under the 2006 DFG 4(d) Rule take authorization (see attached spreadsheet) must follow the instructions below. Projects that are already covered under an existing Section 7 or Section 10 take permit do not need to comply with this request. For projects with different objectives, there should be a separate application for each project.

Instructions

NOTE: All new projects and all projects (except projects that have ended this year) currently covered under the 2006 DFG 4d Rule take authorization (see attached spreadsheet) must fill out the entire application. For projects that are currently covered, please use the exact title as shown on the attached spreadsheet.

1. If your project has ended and you do not need take authorization for 2007, then check "project ended" (Item 3d). You do not need to fill out the remainder of the application template.
2. If your present take authorization is adequate for calendar year 2007 and your project description has not changed, then put an X on the line next to "No changes from 2006" under "Application type (Item 3a). Please fill out the remainder of the application template.
3. If you need a modification of your take authorization for 2007 or your project description has changed appreciably (methods, locations, etc.), then
 - 1) put an X on the line next to "Modification" under "Application type";
 - 2) fill out the rest of the application template (please cut and paste from your 2006 application for items that haven't changed); and
 - 3) highlight all changes from your 2006 project description or take estimates.
4. If it's a new project, then
 - 1) Put an X on the line next to "New Project" under "Application type";
 - 2) Fill out the rest of the application template.
5. If your project needs a Scientific Collecting Permit, you must provide the status of the permit (Item 11), which is required for inclusion in the DFG 4d research program.

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1. **Project Title:** California Statewide Fish Disease Monitoring Program

2. **Principal Investigator (PI) or contact person:**

Name: William T. Cox
Address: Fish Health Lab, 2111 Nimbus Road, Rancho Cordova, CA 95670
Phone number: 916-358-2827
E-mail: wtcox@dfg.ca.gov

Co-Investigators (Co-PIs):

Name(s): Mark Adkison, Mark Clifford, Joe Maret, Jim Moore, Mark Okihiro, Thea Robbins, Tresa Veek

3. **Application type (choose one):**

- a. No changes from 2006
- b. Modification
- c. New Project
- d. Project ended

4. **Summary of research background for PI and Co-PI** (or attach resume' or CV for PI and Co-PI to the application)

Disease outbreaks in wild fish populations are an unpredictable but recurrent theme in California wild fishes. When outbreaks occur investigations into the causative factors are necessary to enable judicious fish management decisions. An investigation into the infectious causative factors is performed by the Department's Fish Pathologists. Procedures require lethal sampling of a small number of fish from the affected population. The frequency of examinations is entirely event driven, so there may be several years without the need for pathological examination in some watersheds (this would be the norm). Watersheds with poor water quality, or on the extremities of the species range are likely to require more frequent attention. The number of fish required for examination would typically be 20 or fewer.

5. **Project funding source**

Sport Fish Restoration Act (SFRA)
Hatchery and Inland Fishery Fund (HIFF)
Non-Dedicated Fish and Game Preservation Fund
Army Corps of Engineers

6. Project is within the following salmon Evolutionarily Significant Unit(s) or steelhead Distinct Population Segment(s) (see attached):

Statewide, including:

Southern Oregon-Northern California Coast (SONCC) coho ESU
California Coastal (CC) Chinook ESU
Northern California (NC) steelhead DPS
Central California Coast (CCC) steelhead DPS
South-Central California Coast (SCCC) steelhead DPS
Central Valley steelhead and spring Chinook ESU

7. Provide beginning and projected end date, and indicate if study is ongoing:

Fish Disease Monitoring is a continual ongoing Statewide program which is event driven by observation of elevated fish mortality or morbidity. Pathological investigations are generally at the request of a Regional Fishery Biologist (PI).

8. Time of year and frequency of sampling (e.g., Jan – Jun; 3 days per week):

Potentially year round. Practically speaking, mortality events are more frequent during late spring to the first rains in early winter.

9. Indicate river basin(s) to be sampled, and approximate latitude and longitude of sampling sites:

Statewide.

10. Briefly describe how all take estimates, including mortalities, were derived:

Take estimates will be a sufficient number of fish to conduct conclusive diagnostic examinations. This is estimated at under 20 animals per event.

11. Provide the following information regarding your Scientific Collecting Permit (for NON-Department of Fish and Game projects) N/A

- 1) Permittee's name:
- 2) Scientific Collecting ID number:
- 3) Scientific Collecting Permit application date:
- 4) Scientific Collecting Permit expiration date

12. Identify any federal permits that authorize take of listed anadromous salmonids for the project (e.g., federal scientific research permit # to take endangered Sacramento River Winter-run Chinook salmon or Central California Coast coho salmon). Please provide the permit number and expiration date.

ESA take coverage for coho salmon in the Southern Oregon/Northern California Coast coho (SONCC) ESU and Central California Coast coho (CCC) ESU are covered under the California Department of Fish and Game's (DFG) Federal ESA Section 10 Permit 1067 Modification 2 (issued August 31, 2001), expiration date is June 30, 2007.

13. Estimated Take (#s):

Take is defined as “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.” This does not include snorkel surveys or other strictly observational surveys, but does include dead fish that are handled, sampled or retained ¹.

Species and ESU/DPS	Adult Carcasses ¹	Adult				Juvenile				Total Take ⁵
		Non-lethal	Lethal		Percent Un-intentional Mortality ⁴	Non-lethal	Lethal		Percent Un-intentional Mortality ⁴	
			Intentional ²	Unintentional ³			Intentional ²	Unintentional ³		
Coho salmon										
So. Oregon/No. Calif. Coasts	20		20	0	0	0	20	0	0	60
Chinook salmon										
Central Valley spring-run	20	0	20	0	0	0	20	0	0	60
California Coastal	20	0	20	0	0	0	20	0	0	60
Steelhead										
Northern California	20	0	20	0	0	0	20	0	0	60
Central California Coast	20	0	20	0	0	0	20	0	0	60
South-Central Calif. Coast	20	0	20	0	0	0	20	0	0	60
California Central Valley	20	0	20	0	0	0	20	0	0	60
Green Sturgeon										
Southern DPS ⁶		0		0		0		0		0

1. Example: carcasses handled/marked/sampled during carcass surveys.
2. Example: killing steelhead to obtain otoliths or other tissue.
3. Fish that are killed unintentionally by monitoring or research activity. Example: fish inadvertently killed as a result of electrofishing.
4. Number of lethal unintentional take/ (nonlethal take + lethal unintentional take).
5. Take of adults plus juveniles.
6. Provide an estimate of Southern DPS green sturgeon that may be encountered during salmonid research projects ONLY. Since there is no 4d rule take prohibitions for Southern DPS green sturgeon, intentional or direct take of green sturgeon cannot be authorized under this program at this time.

14. Provide a brief description of the study design and objectives:

To investigate the causes of mortality or morbidity in a watershed an estimated 20 fish maximum from each (adult dead, adult live, juvenile dead, juvenile live) class of fish will be collected for necropsy and laboratory testing. An investigation will be conducted only if there is cause to do so, such as elevated and unexplained mortality. Disease investigations on threatened or endangered fish will not be conducted without a triggering event.

15. Briefly explain the need to take listed anadromous salmonids:

Information on the pathogens contributing to disease and causing mortality can only be obtained by examination of the affected animal. Currently non-lethal examination methods are either unavailable

or unreliable, so lethal monitoring to obtain specimens for examinations are needed. Information on the pathogens responsible for disease can be very important in fishery management decisions.

16. Provide a brief description of the techniques and methods to be used:

All fish will be examined using procedures outlined in the American Fisheries Society, Fish Health Bluebook, Suggested Procedures for the Detection and Identification of Certain Finfish and Shellfish Pathogens, 2005, J Thoesen ed.

Briefly, after collection fish will be euthanized by an overdose of anaesthetic, necropsied and examined grossly for pathological lesions. Bacterial isolations will be attempted from sterile tissues such as kidney; viral isolations will be attempted from suspect tissues or from kidney/spleen samples; tissues for immunological diagnostic methods will be prepared if deemed prudent; tissues for DNA diagnostic methods may also be taken; examinations of tissues for protozoan or metazoan parasites will be done by direct microscopy or from tissues otherwise prepared; histological specimens will be taken as appropriate.