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State Water Resources Control Board

Division of Water Rights

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Arnold Schwarzenegger
Governor

MEMORANDUM

TO: Gerald W. Bowes, Ph.D.
Chief, Toxicology and Peer Review Section
DIVISION OF WATER QUALITY

FROM: *Karen Niiya*
Karen Niiya
Senior Water Resource Control Engineer
DIVISION OF WATER RIGHTS

DATE: FEB 22 2007

SUBJECT: REQUEST FOR EXTERNAL PEER REVIEW OF PROPOSED STATE WATER BOARD POLICY FOR INSTREAM FLOWS IN NORTHERN CALIFORNIA COASTAL STREAMS

The Division of Water Rights requests that reviewers be identified and assigned to provide an external peer review of a proposed State Water Resources Control Board (State Water Board) policy per the requirements of Health and Safety Code section 57004.

The State Water Board is required to adopt by January 1, 2008, a policy for maintaining instream flows in northern California coastal streams (Water Code Section 1259.4). The proposed North Coast Instream Flow Policy will be administered by the Division of Water Rights (Division), and will be applicable to water diversions in a 3-million acre geographic area encompassing coastal watersheds from the Mattole River in Humboldt County southward through Mendocino, Sonoma, Napa, and Marin Counties, and ending at San Francisco Bay in Marin County and San Pablo Bay in Napa County. The policy will contain criteria for protection of instream beneficial uses, with emphasis on anadromous fish, that may applied to the administration of water right applications; small domestic use and livestock stockpond registrations; and change petitions.

A proposed policy and supporting technical reports will be ready for peer review by April 16, 2007. The State Water Board has a statutory requirement to adopt a policy by January 1, 2008. Public workshops will be held between the time of peer review and the time of State Water Board adoption; so we request that the peer reviewers provide comments within 30 days of receipt of the documents.

FEB 22 2007

Dr. Gerald W. Bowes

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We recommend that peer reviewers be solicited who have the following essential expertise: fisheries biology, instream flow evaluations, hydrology, hydrologic modeling, geomorphology, hydrogeology, and geology. Technical knowledge in the following areas would be helpful: wetlands, resource/wildlife management, conservation biology, soils, climate, aquatic and terrestrial resources, ecology, resource and agricultural economics, agronomy, crop irrigation practices, and geographic information systems (GIS).

Additional background information for the proposed policy is provided in Attachment 1. Scientific issues to be addressed by the peer reviewers are listed in Attachment 2. Individuals involved in the development of the proposed policy are identified in Attachment 3.

If you have any questions regarding this request, please contact me at (916) 341-5365, or via e-mail at kyniia@waterboards.ca.gov.

Attachments

Attachment 1

Proposed North Coast Instream Flow Policy

Summary of Proposed Action

I. Summary

The State Water Board is required to adopt by January 1, 2008 a policy for maintaining instream flows in northern California coastal streams (Water Code Section 1259.4). The policy will be administered by the Division of Water Rights (Division), and will be applicable to water diversions in coastal watersheds ranging from the Mattole River in Humboldt County southward through Mendocino, Sonoma, Napa, and Marin Counties, and ending at San Francisco Bay in Marin County and San Pablo Bay in Napa County. The policy will contain criteria for protection of instream beneficial uses, with emphasis on anadromous fish, that may be applied to the Division's administration of water right applications; small domestic use and livestock stockpond registrations; and change petitions.

II. Rationale

In 1996, the California Department of Fish and Game (DFG) and the National Marine Fisheries Service (NMFS) listed Coho salmon as threatened under the state and federal Endangered Species Acts. NMFS also listed Steelhead trout as threatened. Coho were recently upgraded to endangered status. In 1997, a Division of Water Rights staff report proposed a methodology for establishing instream flow requirements and season limitations for proposed water diversions in the Russian River watershed for protection of threatened and endangered fish species. From 1997 through 2002, Division staff, DFG, NMFS, and Trout Unlimited held numerous meetings to discuss modifications to the methodologies contained in the 1997 staff report. In 2002, DFG and NMFS released their draft "Guidelines for Maintaining Instream Flows to Protect Fisheries Resources Downstream of Water Diversions in Mid-California Coastal Streams."

In January 2005, Assembly Bill 2121 added Water Code Sections 1259.2 and 1259.4 requiring the State Water Board to adopt principles and guidelines for maintaining instream flows in northern California coastal streams as a state policy for water quality control for purposes of water right administration. AB 2121 states that the North Coast Instream Flow Policy must be adopted by January 1, 2008.

The Division is preparing a North Coast Instream Flow Policy that will be designed to ensure that instream flows necessary for resource protection are maintained. Adoption of a State Water Board policy is a certified regulatory program, similar to the adoption of a Basin Plan Amendment. In addition to preparing technical reports documenting the scientific basis of the proposed policy, the Division is also preparing a Substitute Environmental Document (SED) that will evaluate any feasible policy alternatives, the

potential environmental effects of the proposed policy, and any mitigation measures necessary to minimize any significant environmental effects.

III. Methodology

The Division administers water rights for a wide variety of applications. Persons requesting water rights can vary from large vineyard owners and large municipalities, to small diverters, such as people who divert water for domestic use. The Division is preparing a policy that will provide a general approach for evaluating the effects of water diversions in the north coast region of California. The proposed policy will also contain guidance on site-specific studies that could be undertaken if water diverters choose not to follow this approach.

The proposed policy will likely include the following technical elements: 1) seasonal limitations on water diversions; 2) minimum bypass streamflow criteria for maintaining anadromous fish habitat, 3) water availability analysis for proposed water diversions, including those that may be located on ephemeral streams; 4) cumulative effects analysis for estimating the effects of proposed diversions coupled with existing diversions on downstream beneficial uses; 5) criteria for allowing onstream dams to remain onstream; and 6) guidance on the site-specific studies that could be undertaken as an alternative.

The public scoping process has generated alternatives for some of the individual policy elements. Staff is evaluating these alternatives for their relative protectiveness to anadromous fish habitat and instream flows. The evaluation relies on previous studies, research, and existing literature. Additionally, new field data has been collected and is being evaluated in combination with hydrologic modeling to complete the assessment of the protectiveness of the policy element alternatives to spawning habitat, incubation habitat, and fish passage.

Attachment 2

Proposed North Coast Instream Flow Policy

Description of Scientific Issues to be addressed by Peer Reviewers

The statutory mandate for external scientific peer review (Health and Safety Code Section 57004) states that the reviewer's responsibility is to determine whether the scientific portion of the proposed rule is based upon sound scientific knowledge, methods, and practices.

We request that you make this determination for each of the following issues that constitute the scientific basis of the proposed regulatory action. An explanatory statement is provided for each issue to focus the review.

1. Setting seasonal limits on diversion

Freshwater life stages for anadromous fish consist of upstream migration, spawning, incubation, emigration, and rearing. These life stages occur at various times of the year, and are specific to the type of fish. Stream flows needed for adequate life stage development can be different for each life stage, and minimum stream flows needs for one life stage might not be adequate for another. Stream flows naturally vary over the course of the year. In order to maintain instream flows protective of anadromous fish life stage development, the proposed policy will contain seasonal limits on diversion.

2. Establishing minimum bypass flow requirements

Adequate sustained stream flows are needed to protect salmonid reproduction, i.e., spawning and incubation. These biological processes can take up to several weeks to occur. Ephemeral habitats created during episodic high flow events cannot support salmonid reproduction if they are of insufficient duration to support incubation. The proposed policy contains proposed minimum bypass flow criteria, expressed as the minimum stream flow that must be bypassed at a point of diversion before diversion at that point is allowed.

3. Providing passage for fish migration and requiring screening of water diversion intakes

There are a wide range of existing human-caused barriers to fish migration within the geographic area of interest. These include large onstream reservoirs used for storing municipal water supplies, as well as small onstream dams for small water diverters. The proposed policy will contain recommendations for construction of fish passage facilities for water diversion projects.

Improperly screened diversion facilities can adversely affect fish because they can be drawn into the diversion facilities or can impinge on the screens. The proposed policy will contain recommendations for construction of fish screens at water diversion facilities.

4. Analyzing for water availability

The Water Code requires that a determination be made that water is available prior to issuance of a water right. Estimation of flow in streams in the geographic region of interest is complex. Streams in the northern California coastal area can vary from ephemeral streams on hilly terrain to perennial streams in flatter regions. The proposed policy will contain methods for estimating water availability for these varied conditions.

5. Protecting the natural hydrograph and assessing cumulative impacts

The natural hydrograph of a watershed contains streamflow variability that is important for maintaining stream ecosystem function and protecting fisheries. Migratory movements of fish are aided by intermediate flows that occur at the onset and for a few days after significant precipitation. Episodic, short-lived high streamflows are needed for maintaining stream channel geomorphology, and they also provide signals for migratory movement of fish. Cumulative effects of multiple diversions on a watershed should be evaluated to ensure that the natural hydrograph is maintained, and to estimate whether adequate streamflow is available to sustain anadromous fish migration and maintain stream channel geomorphology. The proposed policy will contain methods and metrics used to evaluate cumulative impacts from multiple diversions on a watershed.

6. Minimizing effects of onstream dams on instream flows and beneficial uses.

Onstream dams can be barriers to fish migration, can affect stream geomorphology and anadromous fish spawning by interrupting stream bedload transport, can impede downstream flows by attenuating peak flows through collection and storage, result in elimination of free flowing stream habitat, and may support non-native plant and animal species that could become invasive to native species.

The proposed policy will propose methods for evaluating whether proposed onstream dams may be constructed onstream or must be constructed offstream, and whether existing unauthorized dams would need to be removed. It will also contain a stream classification system that can be applied to the evaluation of onstream dams.

7. Delineating subterranean streams

Anticipated impacts resulting from the adoption of the policy include the possibility that water diverters might alter their projects by constructing wells for diverting groundwater, instead of diverting water from surface streams. Subterranean streams that are flowing

in known and definite channels are considered to be within the jurisdiction of the State Water Board. The policy will contain criteria to be followed in the delineation of subterranean streams and in assessing whether pumping from these subterranean streams or percolating groundwater depletes streamflow. The policy will contain delineations of subterranean streams associated with watersheds in the geographic region covered by the policy and a methodology for assessing depletion of streamflow from pumping.

8. Conducting site-specific studies

The policy will provide the option of conducting site-specific studies to evaluate whether alternative criteria would still be protective of anadromous fish habitat and instream flows. The policy will detail the procedures for the site-specific studies.

The Big Picture

Reviewers are not limited to addressing only the specific issues presented above, and are asked to contemplate the following questions.

- (a) In reading the staff technical reports and proposed implementation language, are there any additional scientific issues that are part of the scientific basis of the proposed rule not described above? If so, please comment with respect to the statute language given above.**
- (b) Taken as a whole, is the scientific portion of the proposed rule based upon sound scientific knowledge, methods, and practices?**

Reviewers should also note that some proposed actions may rely significantly on professional judgment where available scientific data are not as extensive as desired to support the statute requirement for absolute scientific rigor. In these situations, the proposed course of action is favored over no action.

The preceding guidance will ensure that reviewers have an opportunity to comment on all aspects of the scientific basis of the proposed Board action. At the same time, reviewers also should recognize that the Board has a legal obligation to consider and respond to all feedback on the scientific portions of the proposed rule. Because of this obligation, reviewers are encouraged to focus feedback on the scientific issues that are relevant to the central regulatory elements being proposed.

Attachment 3

Individuals Involved in the Development of the North Coast Instream Flow Policy

Consultants

Stetson Engineers – James Reilly, Tracey Kenward, Oliver Page
R2 Resource Consultants – Paul DeVries, Dudley Reiser, Tim Nightengale
North State Resources – Tim Reilly, Kerri Mikkelsen-Rose, Wirt Lanning, Steven
Towers

State and Federal Agencies

National Marine Fisheries Service – William Hearn, Staci Li, Steve Edmondson
California Department of Fish and Game – Linda Hanson, William Cox, Mary Lisa Lynch
US Fish and Wildlife Service – Gordon Russell
California Department of Water Resources - Jerry Johns, Andy Chu
US Geological Survey – Michael P. Mann
State Water Resources Control Board – Steve Herrera, Eric Oppenheimer, Karen Niiya,
Rich Satkowski, Jule Rizzardo, Frank Roddy, Ernie Mona

Technical Reviewers of Intermediate Work Leading to the Policy

Peter Moyle, UC Davis
G. Mathias Kondolf, UC Berkeley
Hal Beecher, Washington Department of Fish and Wildlife
William Trush, consultant
Scott McBain, consultant
John Williams, consultant