
**REGULATORY STEPS NEEDED TO
PROTECT AND CONSERVE WETLANDS
NOT SUBJECT TO THE CLEAN WATER ACT**

**Report to the Legislature
Supplemental Report of the 2002 Budget Act
Item 3940-001-0001**

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**STATE WATER RESOURCES CONTROL BOARD
CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY**

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ACRONYMS

401 Program	SWRCB/RWQCB Water Quality Certification Program
ANPR	Advanced Notice of Proposed Rulemaking
BASIN PLAN	Water Quality Control Plan
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CRB	California Research Bureau
CWA	Clean Water Act
DFG	California Department of Fish and Game
FESA	Federal Endangered Species Act
FY	Fiscal Year
LID	Low-impact Development
NRC	National Research Council
OPA	Oil Pollution Act
PORTER-COLOGNE	Porter-Cologne Water Quality Control Act
PY	Personnel Year
RARE	Rare, Threatened, or Endangered Species Beneficial Use Category
RWQCB	Regional Water Quality Control Board
SWANCC	Solid Waste Agency of Northern Cook County
SWRCB	State Water Resources Control Board
TMDL	Total Maximum Daily Load
USACOE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USNMFS	U.S. National Marine Fisheries Service
WDR	Waste Discharge Requirement

I.

INTRODUCTION

A. Legislative Directive

The Supplemental Report of the 2002 Budget Act requires that the State Water Resources Control Board (SWRCB):

“... report to the Legislature not later than April 1, 2003, on the projected workload, personnel requirements and regulatory steps needed to implement a water quality permitting program to protect and conserve wetlands that are not subject to regulation pursuant to the Clean Water Act (33 U.S.C. Sec. 1251 et seq.).”

We have responded to this direction, in consultation with legislative staff,¹ by scoping and organizing this report to include:

1. A general review of steps needed to protect wetlands and other waters from activities which are not subject to CWA.
2. A general discussion of steps needed to address limitations in SWRCB's current wetland protection approach, based on the California Research Bureau's (CRB) February 2002 report, *The U.S. Supreme Court Limits Federal Regulation of Wetlands: Implications of the SWANCC Decision* and on the preceding general review.
3. A more detailed discussion of steps needed to replicate the federal role in protecting "isolated" waters removed from federal CWA jurisdiction by the U.S. Supreme Court's January 9, 2001 decision in *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers (SWANCC)*,² including the projected workload, personnel requirements, and regulatory measures.

The Supplemental Report language quoted above uses the term “wetlands” broadly, not specifying any of the available technical or regulatory definitions. We therefore also use the term broadly in this report to include riparian areas,³ tidal mudflats, and other areas which provide wetland values in California but may not meet CWA regulatory criteria. This does not affect our discussion, which applies to wetlands however defined. In this context, we note that the limitations on CWA authority discussed in this report, including the *SWANCC* decision, are not specific to wetlands and apply generally to all the waters of the state.

B. The General Problem of Wetland Protection

1. The Unique Value of Wetlands

It is nowadays well recognized that wetlands are among our most valuable, most heavily impacted, and most threatened natural resources. California has lost 90 percent of its historical wetland endowment, the highest rate of loss of any state. The rate of loss has greatly slowed in recent decades, but continued conversion of land uses will result in further destruction of wetlands, and recent information calls into question achievement of the state and federal “no net loss” goals.⁴

Wetlands store and gradually release water, cycle nutrients⁵, retain sediment, remove pollutants, and support an extraordinary range of plants and animals, including many of our endangered species. Streams, lakes, and other water body types also provide some of these services, but none as broadly or to the degree as do wetlands. Wetlands are also unique in sustaining the hydrologic, chemical, and ecological integrity of the broader aquatic systems of which they are a part.

"Isolated" wetlands, which may not be subject to federal CWA jurisdiction according to the *SWANCC* decision, are ecologically, chemically, and hydrologically (at least through groundwater connections) connected to their watersheds and generally provide the same values as do other wetlands.⁶

2. The Unique Challenges in Protecting Wetlands

The exceptional value of wetlands is derived from their transitional position between land and water. But their singular location in the landscape also poses unique challenges in protecting them.⁷ In devising management strategies, it is useful to recognize that wetlands are uniquely transitional along hydrogeologic, legal, and governance axes:

a. Hydrogeologic

The most fundamental characteristic of wetlands is their unique intermediary place between terrestrial and aquatic ecosystems. This transitional landscape position is the reason wetlands provide irreplaceable functions, but it also complicates their protection by making them difficult to define and delineate. Moreover, because wetlands are linked equally to water and to land, the functions they perform and the values they provide cannot always be conserved by protecting only individual wetlands or by replacing lost wetlands in other locations.

Because of their location in the landscape, wetlands mediate the hydrologic, chemical, and biotic interactions between land and water and do this in a way that benefits the living communities of both ecosystems. Life first colonized the land in wetlands, life on earth has evolved to a significant

degree around the presence of wetlands, and some species are entirely dependent on them.

Wetlands are highly dynamic systems over all scales of space and time, adjusting in response to natural changes in topography and hydrology. Small changes in wetland water levels expose or inundate land surface, transforming the character of the habitat and producing an ever-changing mosaic of ecological niches that can be characterized as "kaleidoscopic." This variability is particularly marked where water availability varies widely seasonally and from year to year, as in California. The continuous shifting of the habitat mosaic, the effectiveness of wetlands in retaining nutrients, and their ability to provide habitat for both land and water plants and animals help explain why wetlands are among the most diverse and productive bio-communities on Earth. However, their ever-shifting boundaries and the continuity of the hydrologic, soil, biotic, and other gradients which occur between land and water make defining and delineating wetlands difficult and ultimately somewhat arbitrary, complicating their protection and management.

A unique and important feature of wetlands is their close functional connection to the watershed in which they are located.⁸ They are simultaneously very sensitive to changes in the watershed and capable of moderating those changes, so that the values of some wetland functions – including pollutant removal, flood attenuation, and habitat connectivity – are expressed not at the location of the wetland but elsewhere in the watershed. Regulating potential threats to such off-site wetland values requires watershed-level perspective and analysis because wetland functions are sometimes intrinsic to their specific location in the landscape and are not reproducible elsewhere.⁹

b. Legal

The unique hydrologic and ecological role wetlands play as a result of their transitional place in the landscape is related to their unusual legal status. Wetlands are simultaneously water bodies protected by federal and state water quality laws, and real property protected under the Fifth Amendment. They thus straddle a legal boundary between public resource and private property. This dual legal status often makes wetland protection controversial.

c. Governance

Finally, wetlands are at the interface between federal and state authority for water quality protection, and local government's responsibility to plan and guide land use. The primary threats to wetlands are associated with changes in land use. In California, population growth is projected to continue at a rapid rate into the future.¹⁰ Management of foreseeable land development and of the potential impacts on wetlands is primarily within the regulatory purview of local government. The lack of institutional mechanisms to coordinate water

quality and land-use regulation confounds management efforts which require both.

3. Problems in Using Water Quality Legislation to Protect Wetlands

In California, the primary regulatory tools available to protect wetlands are CWA and the Porter-Cologne Water Quality Control Act (Porter-Cologne, California Water Code section 13000 et. seq.).¹¹ These statutes establish permitting programs to regulate discharges to water. They were not designed to conserve wetlands and neither law includes any specific reference to wetlands. Their use for wetland protection is an expedient driven largely by an increasing appreciation of wetlands values since these statutes were enacted. As a consequence, their protection of wetlands is often problematic and incomplete. The extraordinary amount of litigation associated with federal wetland regulation is in part due to lack of a clearly articulated legislative mandate to protect wetlands.¹²

II.

STEPS NEEDED TO PROTECT WATERS NOT SUBJECT TO CWA

For the most part, the jurisdictional limitations of CWA apply generally to all waters. The following discussion begins with a general review of waters which are not subject to federal jurisdiction and then focuses on limitations to wetland protection under CWA section 404.

A. Waters Not Protected by CWA

CWA regulates the "discharge" of "pollutants" to "waters of the United States" as physiographically defined. Interpretations of these definitions, and others such as "dredged or fill material," continue to be a subject of active litigation, especially in the context of wetland protection. Waters may be excluded from CWA jurisdiction for any of the three reasons outlined below.

I. Waters Excluded as not "Waters of the United States"

For purposes of CWA, "waters of the United States" have been defined to be the same as "navigable waters." Definitions of the terms which are key to a determination of "waters of the United States" are found in 33 Code of Regulations (CFR) 328.3. Excluded areas are by definition not "waters of the United States" and are not subject to CWA jurisdiction. Such excluded waters include:

a. Waters Above "Line of Ordinary High Water"

The boundary of "waters of the United States" is demarcated by "...that line on the shore established by the fluctuations of water and indicated by physical characteristics...." (33 CFR 328.3(e)). This definition is generally adequate to protect Eastern aquatic systems, but works less well for riparian functions in many parts of California because of the highly variable hydrologic regimes of arid and semi-arid regions. In the East, the physical indicators demarcating "waters of the United States" correlate with the portion of the floodplain providing wetland and riparian functions; in more arid regions, they do not. Much of Californian riparian function is delineated out of federally-jurisdictional waters in most years.¹³

b. "Isolated" Waters

The SWANCC decision and its potential interpretation suggest that many "isolated" waters may be excluded from federal jurisdiction (a more detailed discussion of the SWANCC decision appears later in this report and in Appendix B). Because the term "isolated" has no definitive scientific or regulatory meaning, considerable uncertainty exists concerning how broadly SWANCC is to be interpreted and a number of cases are in litigation. In the absence of federal guidance, U.S. Army Corps of Engineers (USACOE) districts have made case-by-case determinations based on relevant case law and past practice. In current regulatory practice, "isolated" waters are generally intrastate, not navigable, and not part of a tributary surface flow system in "normal" rain years. Actual determination of the hydrologic criterion, especially in areas with highly variable precipitation and flow regimes like California, is often problematic. Examples of "isolated" water bodies in California include ephemeral streams, swales, vernal pools, desert seeps and springs, and dry lakes (playas).¹⁴ In Southern California, at least one perennial stream is "isolated."¹⁵

As noted in the Introduction of this report, most "isolated" waters are hydrologically connected via groundwater to other water bodies, all are ecologically connected to the ecosystem in which they are imbedded, and "isolated" wetlands generally perform the same functions as do other wetlands.

2. Waters Affected by Discharges not Requiring Permits

- a. CWA does not directly regulate nonpoint source discharges.
- b. CWA regulates discharges of fill or dredged materials¹⁶ to "waters of the United States;" however, dredge and fill discharges from specified activities do not require a permit, including:
 - (1) Normal farming, silvicultural, and ranching activities;
 - (2) Maintenance of structures;
 - (3) Construction of farm or stock ponds, temporary sedimentation basins, and construction of roads to move mining equipment.¹⁷

A "recapture clause" brings these activities back into jurisdiction under certain circumstances.¹⁸

3. Waters Affected by Activities not Involving a Discharge

The functions and beneficial uses of waters may be affected by activities which do not involve discharges and are therefore not regulated by CWA. Such activities include:

a. Vegetation Removal

Removal of vegetation from within jurisdictional waters which involves only incidental fallback of earth into the jurisdictional area does not need a

permit. Removal of riparian vegetation can impair the uses of the water body by directly destroying habitat, raising water temperature, decreasing pollutant removal in the riparian buffer zone, and destabilizing the channel.

b. Draining

Wetland draining which involves only incidental fallback of earth into the jurisdictional water body does not need a permit even if the result is to eliminate the water body entirely.

c. Changes in Hydrology

Water bodies, especially wetlands, are in an equilibrium with their hydrologic regimens. Increased flows resulting from urban development¹⁹ can force channel changes that impair beneficial uses. Lowering the water table through diversions or groundwater pumping can kill riparian vegetation and dry up wetlands.

B. Wetland Protection Under CWA: Section 404

1. CWA Section 404(b)(1) Guidelines

Protection of wetlands under CWA hinges on USACOE's regulation of dredging and filling under CWA section 404. CWA section 404(b)(1) directs the U.S. Environmental Protection Agency (USEPA) to publish regulatory guidelines, in consultation with USACOE, for evaluation of proposed dredge or fill discharges. These are generally referred to as "CWA 404(b)(1) Guidelines"²⁰ and provide the framework for federal wetlands protection.

a) Guideline Requirements

CWA 404(b)(1) Guidelines prohibit discharge of dredged or fill material to waters of the United States if:

- (1) There is a practicable alternative;
- (2) There would be a violation of state water quality standards, toxicity standards, endangered species protection, or requirements designed to protect federally designated marine sanctuaries;
- (3) There would be significant degradation of waters;
- (4) All appropriate and practicable measures to protect the aquatic ecosystem have not been taken.

b) Special Aquatic Sites

CWA 404(b)(1) Guidelines provide more stringent criteria for discharges to "special aquatic sites," defined as including wetlands, mudflats, vegetated shallows, and riffle and pool complexes. For such "special aquatic sites:"

- (1) Permitted discharges must represent the least environmentally damaging practicable alternative;

- (2) There is a rebuttable presumption that, for non-water-dependent activities, practicable alternatives exist;
- (3) There is a rebuttable presumption that possible alternatives are less environmentally damaging.²¹

CWA 404(b)(1) Guidelines present detailed guidance on conducting the evaluation to determine compliance with the above requirements, including consideration of secondary and cumulative impacts. They also require that steps are taken to minimize the potential adverse impacts of any discharge and identify a range of potentially appropriate mitigation measures.²² USEPA and USACOE further articulated mitigation policies and procedures in a 1990 Memorandum of Agreement.²³

2. Wetland Definition and Delineation

As noted above, CWA jurisdiction is linked to "waters of the United States" as physiographically defined, and "special aquatic sites" such as wetlands are granted a more rigorous level of protection than are other waters. For regulatory purposes under CWA, it is therefore necessary to define what a wetland is and to provide a delineation protocol to allow consistent field determination of the extent of a wetland. However, as discussed in the Introduction of this report, the ever-moving boundaries of wetlands and the continuous gradients found in nature between land and water make defining and delineating wetlands difficult and ultimately somewhat arbitrary. For CWA regulatory purposes, wetlands have been defined as possessing characteristic hydrology, vegetation, and soils – the so-called "three-parameter test."²⁴ USACOE has developed technical protocols to help practitioners determine whether the requisite three parameters are present at any given place and time.²⁵ The regulatory definition and USACOE's protocols have experienced considerable controversy and criticism over the years. In California, some sensitive areas arguably deserving of enhanced protection do not meet the three-parameter test, including mudflats (because they do not support vegetation) and some riparian areas (because the streamside environment is too dynamic over time to allow the development of hydric soils). The California Department of Fish and Game (DFG) and the U.S. Fish and Wildlife Service (USFWS) both use another, more inclusive, definition which requires the presence of only one of the three parameters cited above – the so called "one-parameter test."²⁶

3. Compliance with Antidegradation Requirements

Federal regulations require that each state adopt an "antidegradation policy" which at a minimum is consistent with specified criteria, including a requirement that "... instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected."²⁷ An apparent conflict exists between requirements of the antidegradation policy and the section 404 permitting program. The discharge of fill to wetlands and other water bodies can altogether eliminate the beneficial uses of the filled

water body by converting it to dry land. To resolve this discrepancy, fill permitted under CWA section 404 is deemed to not violate federal and state antidegradation policies if the fill is discharged in compliance with the requirements of CWA 404(b)(1) Guidelines.²⁸

C. Limitations to Section 404's Protection of Wetlands

1. Wetlands not Subject to CWA

Wetlands can be exempted from federal jurisdiction for the same reasons as other waters, as reviewed above, i.e., because they are (1) by definition not "waters of the United States," (2) affected by discharges not requiring a permit, or (3) affected by activities not involving a discharge.

"Isolated" wetlands are a subset of the first category. The value of "isolated" wetlands is briefly discussed in the Introduction of this report, and regulatory steps needed to protect them are discussed in the following sections.

2. Watershed-Level Wetland Functions not Protected by CWA

As discussed in the Introduction of this report, wetlands are uniquely effective in mediating and moderating the movement of water and nutrients through the watershed and in supporting biodiversity. At least three important wetland functions are expressed primarily at the watershed or landscape level rather than at the site of a particular wetland. These three functions are: (1) floodwater retention, (2) pollutant removal, and (3) habitat connectivity. The ability of a wetland to provide these functions is highly dependent on their location within the watershed. However, usual regulatory practice is focused on protecting only onsite wetland values and does not routinely or systematically protect these watershed or landscape level functions. The National Research Council (NRC) has concluded that this is one of the reasons that the national "no net loss" goal is not being met and also noted that the establishment of wetland *structure* does not necessarily restore all the *functions* of a wetland ecosystem. The federal government has recently responded to the NRC's recommendations.²⁹

The ability of wetlands to retain floodwaters and remove pollutants is well known and is referenced elsewhere in this report. "Habitat connectivity" refers to the need for plant and animal populations to have some mobility over the landscape, i.e., to avoid becoming "isolated" or "disjunct."³⁰ In recent decades a large body of research has demonstrated that such "isolated" populations face a high probability of eventual extinction, even if their immediate habitats are spared.³¹ In general, the smaller such an isolated population, the more quickly it will die out. Urban development typically fragments habitat by creating artificial landscapes which are movement barriers for most species. Unless mitigation measures are taken, isolated, non-viable populations are created as buildings, roads, and landscaping cut off lines of movement.

In the context of wetlands, "habitat connectivity" refers to three related phenomena:

- a. The need of some animals to have access to both wetland and upland habitats at different parts of their life cycle. Some wetland animals, e.g., some amphibians and turtles, require access at different seasons and/or at different life stages to both wetland and to nearby upland. Preserving the wetland but not access to upland habitat will locally exterminate such species.³²
- b. The ecological relationship between separate wetlands. Some wetland communities and their associated species comprise networks of "patches" throughout a landscape. Wetland plants and animals are adapted to the presence of wetland complexes within a watershed and are dependent on moving among the wetlands within the complex, either regularly or in response to environmental stressors such as flood or drought, local food shortage, predator pressure, or influx of pollution. Removing one such water from the complex will reduce the biological quality of the rest, and at some point the simplified wetland complex will be incapable of supporting at least some of the species, even though some wetlands remain.³³
- c. The role wetlands and riparian corridors play in allowing larger-scale movements. Some strategically located wetlands and especially continuous strips of riparian habitat along streams facilitate connectivity at watershed and regional scales for terrestrial as well as aquatic and amphibious species.

As noted above, habitat connectivity is critical to biodiversity maintenance, and will become more so because of global warming. Significant range shifts and other responses to global warming have already occurred. The ability of biotic populations to move across the landscape may be critical to their survival in coming decades.³⁴

D. Steps to Address Limitations to Section 404

Based on the above discussion, a general approach to avoiding the limitations of section 404 would:

1. Explicitly mandate wetland protection in a constitutionally sound manner;
2. Focus on regulating effects on wetland functions and values rather than on whether a "discharge" of "pollutants" to "water" had occurred – recognizing that wetland protection is related, but not identical to, traditional water quality permitting;
3. Recognize and protect landscape-level wetland functions;
4. Protect wetland functions from whatever human activities threaten them.

These steps are similar to those needed to address the limitations of California water quality law in protecting wetlands, as reviewed in the next section of this report.

III.

STEPS NEEDED TO ESTABLISH AN SWRCB WETLAND PERMITTING PROGRAM

A. Current State Regulatory Framework

1. CWA Section 401

CWA section 401 requires that any applicant for a federal license or permit for any activity which could result in a discharge to waters of the United States must obtain from the state in which the discharge could occur a certification that the discharge will not violate specified sections of CWA, in effect state water quality standards.³⁵ In the absence of such a certification (or state waiver of certification), the federal agency may not issue the license or permit. The state may condition its certification as necessary to insure compliance with state water quality standards. State conditions of certification must be included in the federal permit or license and are enforceable by the federal permitting agency. Section 401 certification is an important state tool to protect wetlands and riparian areas because it allows the state to issue, deny, or condition proposed dredge and fill discharges which need USACOE CWA section 404 permits. Dredge and fill discharges often affect wetlands. However, because it is linked to a federal permit or license, section 401 can only be used to protect waters which are within federal jurisdiction. Many states, including California, use section 401 as their primary regulatory tool to regulate dredge and fill discharges and to protect wetlands and non-wetland riparian areas.

2. Porter-Cologne

Porter-Cologne provides a comprehensive framework to protect water quality in California. It identifies the state's nine major hydrologic basins, mandates the formation of a Regional Water Quality Control Board (RWQCB) with responsibility for each basin, and directs that each RWQCB adopt a water quality control plan (basin plan). Each basin plan identifies the beneficial uses of all waters in the basin, specifies numeric and narrative water quality objectives needed to protect the uses, and presents an implementation strategy. Porter-Cologne requires that anyone who plans to discharge waste where it might affect waters of the state must first notify the RWQCB, which must impose such requirements on the discharge as are necessary to protect water quality. Porter-Cologne mandates an enforcement program and provides a variety of civil and criminal enforcement tools. Porter-Cologne regulatory authority can be used to regulate discharges of dredge and fill material but has generally been used as a back-up for CWA section 401 to protect wetlands and riparian areas.

3. Similarities Between CWA and Porter-Cologne

CWA and Porter-Cologne were both adopted in 1972, and Porter-Cologne is linked to and references CWA in recognition of the state-federal water quality partnership established by CWA. Both statutes establish permitting programs to protect water quality by regulating discharges. Neither law was specifically designed to protect wetlands and neither includes any specific reference to wetlands. Under both laws wetlands and other water bodies are protected by using permitting authority to protect beneficial uses. Appendix D illustrates how wetland functions may be correlated with beneficial uses. Neither CWA nor Porter-Cologne regulates activities which do not involve a discharge, even if the activity impairs water quality or wetlands.³⁶

4. Differences Between CWA and Porter-Cologne

a) Differences in Jurisdiction

Porter-Cologne has a broader regulatory purview than CWA in that it has authority over groundwater and over nonpoint source discharges. Porter-Cologne also mandates regulation of discharges, including discharges of dredged and fill material, from normal agricultural, silvicultural, and grazing operations, and from other activities exempted from CWA jurisdiction, as discussed in Section II.A of this report.

b) Differences in Federal and State Regulatory Approaches

As noted in Section II.A of this report, federal law regulates "discharges to waters," specifically to "waters of the United States" and defines "waters of the United States" and wetlands with specific physical delimiters (the line of ordinary high water and the wetland three-parameter test). Except as otherwise excluded from federal jurisdiction, any discharge within the line of ordinary high water or to a wetland is, by definition, a discharge to "waters of the United States." A discharge of fill or dredged material to such a delineated federal water will *ipso-facto* impair the beneficial uses of that water body by diminishing its reach. In order to federally regulate the discharge, it is not necessary to otherwise assert jurisdiction or demonstrate any other adverse impact. Conversely, if the discharge is not to a United States water, there is no federal authority.

While this bright-line approach simplifies some aspects of determining jurisdiction, it deprives federal regulators of the ability to address some discharges that threaten beneficial uses. Discharges to dry land, for instance, may percolate to groundwater and be ultimately conveyed to waters of the United States. However, since the discharge may not be deemed a discharge to waters of the United States, it may not be subject to regulation under federal law.

Porter-Cologne, on the other hand, is not limited to regulating "discharges to waters." It regulates discharges "that could affect the quality of the waters of the state."³⁷ Porter-Cologne defines "waters of the state" very broadly to include "any surface water or groundwater, including saline waters, within the boundaries of the state."³⁸ There are no statutory or regulatory criteria for defining or delineating wetlands or other waters of the state, and there is no legal distinction made between "water body" and "upland." Under this broader grant of authority, the regulatory situation is less clear. The state cannot simply rely on a jurisdictional determination of "water" but needs to demonstrate potential effects on water quality. This presents a number of technical issues. In California, flows are highly variable from season to season and year to year. The wetted area of a riverbed, pond, or wetland often varies greatly between winter and summer and between wet and dry years. Beneficial uses supported during the wet season and during wetter years may be impaired by discharges to a site which is dry much of the time.

Discharges of fill or excavated material to a dry area upslope of open water, or to a dry area which is periodically inundated, can directly and indirectly impair beneficial uses, for example by:

- (1) placing fill where it will be eroded by high-water, causing turbidity;
- (2) placing fill where it will be eroded and transported to a water body by storm water runoff, causing turbidity and channel destabilization;
- (3) increasing storm water runoff volumes and rates from the filled area,³⁹ affecting the hydrology and channel stability of the receiving water;
- (4) reducing groundwater recharge and thus decreasing stream baseflow;
- (5) removing riparian vegetation, degrading water quality as discussed in section II.A.3.a of this report;
- (6) directly changing channel physical characteristics, causing hydrogeomorphic adjustments and disrupting beneficial uses elsewhere in the system;
- (7) allowing increased generation of urban pollutants from associated urban development.

B. SWRCB's Wetland Permitting Approach

SWRCB has no "wetland permitting program" as such. As noted above, California uses CWA section 401 as its primary tool to protect wetlands. The following information pertains to the SWRCB/RWQCB Water Quality Certification Program (401 Program).

1. Current Staffing and Resources

Statewide staffing for the 401 Program is budgeted at \$1.2 million, equivalent to 11.7 personnel years (PYs). Most of this staff is allocated to RWQCBs. In

Fiscal Year (FY) 2001-02 the 401 Program received an augmentation of \$1.324 million from the Waste Discharge Permit Fund for contracts for compliance monitoring, assisting developers design less-impacting projects, and staff training and technical support. However, due to the state's financial difficulties, that funding was not available.

2. Current Workload and Data on Permitted Activities

In calendar year 2001, SWRCB/RWQCB's certified 992 discharges, of which 250 involved federally jurisdictional wetlands and 130 involved federally jurisdictional riparian areas. Appendix F provides further detail on the location, type, and magnitude of these discharges.

C. **Limitations of SWRCB's Wetland Permitting Approach**

1. Administrative Limitations

At the request of the Legislature, CRB prepared a comprehensive report on the implications of the SWANCC decision.⁴⁰ The report focused on "isolated" wetlands affected by the SWANCC decision, but its observations on SWRCB's wetland approach apply to state wetland protection in general. CRB's report noted that although among state environmental protection statutes only Porter-Cologne is broad enough to protect wetlands, "... there are some significant administrative hurdles to using Porter-Cologne as a wetlands regulatory statute." Five administrative issues identified in CRB's report are discussed below.⁴¹

a. SWRCB Does Not Have a Statewide Wetlands Policy

CRB's report accurately notes that SWRCB has not adopted a wetlands policy. SWRCB's *de facto* policy is the state wetland policy⁴² which, among other things, establishes a "no net loss" goal. Because SWRCB and RWQCBs' wetland regulation has been conducted through CWA section 401, and thus under the umbrella of federal policy, the state's permitting actions have generally been consistent with the state/federal "no net loss" policy and with CWA 404(b)(1) Guidelines, but with little independent assertion of state policy.⁴³

b. There is Incomplete Communication and Coordination Between Agencies Involved in Wetland Regulation, Including Local Governments

CRB accurately observes that there has been relatively little systematic coordination between SWRCB and federal, other state, and local agencies on administering or improving the state's wetland program. Ad hoc communication channels have been developed among individuals at the various agencies and most communication has focused on project-specific issues. State 401 staff have recognized this as an issue and included the goal of improving interagency coordination in SWRCB's 2002 *401 Program Scope and Strategy* document (Appendix H).⁴⁴

SWRCB staff has undertaken recent initiatives to improve interagency coordination. In November 2002, SWRCB and USACOE staffs started jointly developing a Memorandum of Understanding to formalize some aspects of their coordination, and SWRCB and RWQCB staff members participated in developing and attended USACOE's December 2002 5th Annual Regulatory Conference. One outcome of the conference was to have USEPA staff attend the SWRCB/RWQCB quarterly 401 Program meeting in January 2003. We expect further participation in the meetings by USEPA and USACOE staff in the future.

Significant potential for coordination exists between SWRCB's 401 Program and DFG's Stream and Lakebed Alteration Program.⁴⁵ Many discharges are regulated under both programs and the agencies have somewhat overlapping mandates. Appendix E compares section 1600 and CWA authorities. Opportunities for enhanced coordination include consultation during review of the California Environmental Quality Act (CEQA) documents, shared training, and providing an organizational framework for field level working relationships.

The need to coordinate with local agencies was partially addressed in an "Outreach" goal specified in the *401 Program Scope and Strategy* document to encourage low-impact development design. The location and form of land development is primarily the responsibility of local agencies, and guiding new development to avoid wetlands and maintain their functions will be the most critical factor in conserving them as California grows.

c. There is No Statewide Beneficial Use Designation for Wetland Functions

Beneficial use designations are a mandated element of the state's water quality standards and are the foundation of the state's protection of water quality. The state has 26 officially defined beneficial use categories. RWQCBs' basin plans identify the beneficial uses actually or potentially supported by each water body and include narrative and numeric objectives designed to protect the uses. Permit conditions are designed to protect the uses from specific discharges and to ensure compliance with the objectives. CRB correctly states the absence of a statewide beneficial use category specifically covering wetland functions. Appendix D of this report correlates wetland and riparian functions with beneficial use categories. As noted in Appendix D, some wetland functions are at least partially covered by existing beneficial use categories. In some cases, however, the current statewide beneficial use categories only indirectly cover wetland functions, including the three important functions of pollutant removal, flood retention, and habitat connectivity. This confuses, complicates, and weakens the state's wetlands protection efforts.

d. Project Proponents May Not Realize Their Responsibilities Under State Law

CRB correctly notes that project proponents and consultants are accustomed to dealing with CWA sections 404 and 401 processes. RWQCBs have considered a request for 401 certification to fulfill the requirement for a report

of waste discharge under Porter-Cologne. When potential dischargers conclude (either in consultation with USACOE or on their own) that their discharge will be exempt from federal regulation and section 401 requirements, they may be unaware of their responsibility to submit a report of waste discharge to RWQCB. Some RWQCBs have conducted *ad hoc* outreach, and USACOE is reminding project proponents of state regulatory requirements when they have the opportunity. However, there has been no systematic or statewide effort to advise dischargers of state requirements. Consequently, some discharges may be going unregulated because dischargers are in unwitting violation of state law.

e. **SWRCB Needs to Develop General Permits to Replace USACOE Nationwide Permits**

USACOE has adopted and periodically re-issues a number of general permits which apply nationally.⁴⁶ SWRCB has issued blanket section 401 certification for the activities authorized by some of these nationwide permits, but is unable to pre-certify most projects authorized by the nationwide permits because they may individually and cumulatively have significant environmental impacts and have not been subjected to analysis under CEQA. Such uncertified projects now apply to RWQCBs for individual certification.

A somewhat analogous situation applies to discharges to "isolated" waters. Because of the January 1, 2003 expiration of RWQCB waiver policies under Water Code section 13269, RWQCBs' only tool to regulate fill discharges to "isolated" waters is issuance of waste discharge requirements (WDRs). Because issuance of WDRs is a lengthy and staff-intensive process, SWRCB is developing general waste discharge requirements that will facilitate regulation of low-threat dredge and fill discharges.

2. **Regulatory Limitation: The Land Use/Water Quality Disconnect**

Maintaining water quality and protecting the beneficial uses of water depends largely on land use decisions made by local government. The primary threat to wetlands is land development. The relationship between land use and water quality will become increasingly critical given California's projected population growth and urbanization. The primary adverse impacts of poorly planned urbanization on waters are:

- The direct physical impacts to aquatic, wetland, and riparian habitat and connectivity;
- Generation of construction-related and post-construction urban pollutants; and
- Alteration of flow regimes and groundwater recharge as a result of impervious surfaces and storm drain collector systems.

These factors have historically resulted in a destructive cycle of fragmented habitat, destabilized streams, poor quality water, and engineered solutions to disrupted flow patterns, culminating in loss of natural functions and values in the effected basins.

Attempted management of these impacts forms a large part of the workload of SWRCB's and RWQCBs' nonpoint source, storm water, and water quality certification programs, as well as their efforts to establish total maximum daily loads (TMDLs) for impaired water bodies. However, after-the-fact regulatory control is at best a partial substitute for resource-sensitive planning which avoids environmental degradation.

All water bodies respond to changes in their watersheds, but none so directly and immediately as wetlands because of their intimate connection with land. As noted in Section I.B.2 of this report, the unique transitional location of wetlands in the landscape is the reason they perform functions which are so valuable, but also presents challenges to their protection. Just as wetlands are uniquely transitional between land and water and therefore highly sensitive to land use changes, they are simultaneously land and water, uniquely subject to both federal and state water quality protection and to local land use regulation.

California will continue to grow.⁴⁷ Only local government has the authority to guide that growth in a way that will protect and conserve wetland functions. The disconnect between water quality and land-use regulation results in chronic permitting conflicts, costly regulatory delays, and inadequate resource protection.

3. Statutory Limitation: Wetland Impacts Not Involving Discharges

As discussed in Sections II.A and III.A of this report, both Porter-Cologne and CWA establish permit programs to regulate "discharges," and, in the absence of a discharge, neither has jurisdiction to protect wetlands or other water bodies, even if beneficial uses are impaired or eliminated. The discussion of this issue presented in Sections II.A.3 and II.D of this report generally applies to Porter-Cologne as well as to CWA.

4. Technical Limitation: Difficulties in Quantifying Wetland Functions

Rational wetland protection must be based on the best scientific understanding of what local, watershed, and landscape-level functions specific wetlands are providing, the impacts associated with loss of those functions, and opportunities for replacing or enhancing those functions through compensatory mitigation. These evaluations are at the cutting-edge of wetland science and landscape-ecology. The need for developing practical tools to provide these analyses is widely recognized and technical understanding and techniques are advancing rapidly. However, resource constraints inhibit the state's ability to integrate and apply emerging science and to modify technical advances from other regions to California conditions.

D. Steps Needed to Establish SWRCB's Wetland Program

1. Administrative Steps

The following administrative steps are directly linked to the "hurdles" cited in the above discussion of "Administrative Limitations:"

a. Adoption of an SWRCB Wetlands Policy

Adoption of a state analog of the federal CWA 404(b)(1) Guidelines would support more effective state protection of wetlands and would coordinate state and federal regulatory approaches. Adoption of a state analog of CWA 404(b)(1) Guidelines is identified in Section IV.C of this report as a regulatory step needed to replicate USACOE's pre-SWANCC protection of "isolated" waters.

b. Enhance Interagency Communication and Coordination

SWRCB and RWQCB staffs will continue strengthening their interagency coordination.

c. Adopt Statewide Beneficial Use Designation for Wetland Functions

Adoption or modification of beneficial use categories to explicitly recognize wetland functions and values would clarify, simplify, and strengthen state wetlands protection.

d. Advise Project Proponents of Their Responsibilities Under State Law

A modest outreach effort conducted in collaboration with relevant trade and professional associations would reduce confusion and misinformation regarding state requirements, provide a "level playing field," and help ensure appropriate protection of "isolated" waters. Such outreach is identified in Section IV.C. of this report as a regulatory step needed to replicate USACOE's pre-SWANCC protection of "isolated" waters.

e. General Permits and USACOE Nationwide Permits

As discussed above, state general permits to replace USACOE Nationwide Permits do not seem necessary; however, a state general permit to facilitate regulation of low-threat dredge and fill discharges to "isolated" waters is being developed and general permits may also be appropriate for other purposes.

2. Regulatory Step: Encourage Local Land Use/Water Quality Linkage

As noted in Sections I.B.2.c and III.C.2 of this report, local land use decisions are central to wetland protection but there are few institutional mechanisms to coordinate land use and water quality authorities, at least in the context of wetland protection. The following three regulatory steps would encourage greater consideration of water quality in local land use decisions:

a. Pre-Application Guidance

Local governments and builders currently receive little technical guidance on compliance with wetland regulatory requirements. Developers commit time and money to project designs which meet local requirements but which may conflict with state and federal wetland protection mandates, e.g., CWA Section 404(b)(1) Guidelines. RWQCBs have no ready references to assist them. The CEQA review process is the statutory mechanism through which permitting agencies should advise local agencies and project proponents of the environmental and alternatives analyses needed to protect environmental quality,⁴⁸ but SWRCB and RWQCBs typically do not participate in CEQA's process. Development of review protocols and systematic participation in CEQA's process would encourage development that is more sensitive to water quality and wetland protection.

b. Outreach Regarding Low-Impact Development

"Low-Impact Development" (LID) refers to urban development which avoids or minimizes habitat degradation, generation of pollutants, and hydrologic impacts. It is closely related to other contemporary models of urban development such as "smart growth," "new urbanism," and "neo-traditional design" which provide alternatives to "sprawl" development, and this report uses the term "LID" to include these similar ideas. LID is of broad interest because it provides benefits in areas as diverse as water quality, air quality, energy conservation, transportation and other infrastructure efficiency, farmland preservation, open space and habitat conservation, and public health. Numerous federal and state agencies and industry organizations support LID, and several other states have LID-related policy initiatives.⁴⁹ This broad interest in and support for LID provides opportunities for SWRCB to partner with other agencies and organizations to present relevant information to developers and local government officials.

c. General Permits and Local Wetland Conservation Plans

One way to support local governments in integrating wetland protection into their planning and development approval processes would be to issue general permits/401 certifications for projects conducted in accordance with approved wetland conservation plans, thus facilitating permitting for such projects. Precedents for such general permitting include municipal storm water permits, local permitting of septic systems, management agency agreements for nonpoint source management, and local coastal plans. A general scheme for such permitting would include:

- (1) State develops regulatory criteria and guidelines.
- (2) State provides grant and loan funding to support local planning.
- (3) Local government develops wetland conservation plan, implementing mechanisms, and supporting environmental analyses to include:

- (a) assessment of resources, including onsite, watershed and landscape values;
 - (b) identification of areas for conservation;
 - (c) requirement for LID to minimize development impacts;
 - (d) compensatory mitigation which enhances local and landscape-level wetland values, and an adaptive management plan for compensation sites;
 - (e) incorporation of plan elements into local general plans, zoning, and development standards;
 - (f) a local development review and approval process which ensures compliance; and
 - (g) reporting to the state on implementation.
- (4) State certifies environmental document and issues general permit for projects consistent with the wetland conservation plan.
 - (5) Local agency implements the plan.
 - (6) State provides oversight.
 - (7) Permit is periodically reissued; contingent on required findings by the state regarding implementation and wetlands conservation.

3. Statutory Steps: Protect Wetland Functions

As discussed previously in this report, both CWA and Porter-Cologne are similarly limited in their ability to protect wetlands. In order to protect wetland functions from activities which do not involve discharges, such as vegetation clearing and draining, regulatory authority over such activities would have to be mandated.⁵⁰ Such a mandate could be justified by the unique nature of wetlands which makes them vulnerable to activities not regulated under traditional water quality authorities, by the unique values of wetlands, by the role of wetlands in maintaining the quality of other waters, and by the fact that California has only a small fraction of its wetlands remaining.

4. Technical Tool Development - Use of Best Available Science

As discussed in Section III.C.4 of this report, California could better protect and conserve its wetlands by applying the best currently available science and by adapting or developing new understanding and techniques.

IV.

STEPS NEEDED TO PROTECT “ISOLATED” WETLANDS

A. The *SWANCC* Decision

On January 9, 2001, by a 5-4 vote, the United States Supreme Court issued a decision in *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers* (2001) 121 S.Ct. 675 (*SWANCC*) that cast a broad question upon the scope of federal authority over United States waters. Despite the Court’s numerous strong statements suggesting a dramatic rollback in federal Constitutional authority over what it termed “isolated, intrastate, and nonnavigable waters,” the holding itself was rather narrow. Specifically, the Court held that the language of CWA could not be interpreted as conferring authority for the federal government to regulate such waters merely because migratory birds may frequent them. On January 25, 2001, the Office of Chief Counsel of SWRCB released a legal memorandum clarifying that under Porter-Cologne, notwithstanding what the ultimate scope of federal protection may be, discharges to wetlands as “waters of the state” have been and remain subject to state regulation. A copy of the memorandum is attached as Appendix B.

B. Interpretation of the *SWANCC* Decision

The broad language of the decision, coupled with its extremely narrow holding, has resulted in dramatically diverse interpretations of the implications of the decision. Some examples follow.

1. Federal Guidance

a. USEPA/USACOE Legal Memorandum

On January 19, 2001, the General Counsel and Chief Counsel of USEPA and USACOE, respectively, issued a joint legal memorandum intended to explain to their agencies’ field offices “that most CWA jurisdiction remains basically intact after the *SWANCC* decision.” Specifically, the memorandum states that the decision:

- (1) Only relates to waters that are “non-navigable, isolated, and intrastate;”
- (2) Upheld the regulation of all “traditionally navigable waters, interstate waters, their tributaries, and wetlands adjacent to each;”
- (3) Did not specifically address what other connections with interstate commerce might support the assertion of CWA jurisdiction over “nonnavigable, isolated, intrastate waters.” The memorandum suggested that other connections with interstate commerce, either by

themselves or in conjunction with the presence of migratory birds, might present a sufficient nexus for regulation;

- (4) Reserved the issue of what "other waters" were intended to be available for state administration of the section 404 program by Congress when it adopted section 404(g)(1). The memorandum suggested that these other waters could include waters whose destruction could affect other waters of the United States, or whose destruction could affect interstate or foreign commerce.

Notwithstanding the legal memorandum, subsequent federal interpretations of the scope of the SWANCC decision have varied dramatically.

b. Recent Guidance

On January 10, 2003 USEPA AND USACOE issued a joint memorandum clarifying guidance regarding the SWANCC decision.⁵¹ The memorandum reviews current case law and indicates that federal staff should "assert jurisdiction over traditional navigable waters (and adjacent wetlands) and, generally speaking, their tributary systems (and adjacent wetlands)." The memorandum questions the presence of federally-listed species or the use of waters for irrigation of crops sold in interstate commerce as a basis for asserting jurisdiction. Finally, the memorandum indicates that field staff may not use the commerce clause grounds cited in 33 CFR section 328.3(a)(3)(i)-(iii)⁵² without formal headquarters approval.

2. Advanced Notice of Proposed Rulemaking

On January 10, 2003 USEPA AND USACOE issued an Advanced Notice of Proposed Rulemaking (ANPR)⁵³ proposing to revise existing regulations to clarify the current scope of "waters of the United States." The ANPR requests public comment prior to formal promulgation of draft regulatory language on two questions:

1. Should commerce clause factors currently listed in federal regulation continue as a basis for CWA jurisdiction (i.e., use of waters by interstate/foreign travelers, presence of fish or shellfish that could be sold in interstate commerce, use of water for industries in interstate commerce; 33 CFR 328.3(1)-(iii))?
2. Should federal regulation define "isolated waters" and if so, how?

In answering these questions, ANPR asks for comment regarding:

- a. environmental impacts, and the functions and values of waters that may be affected;
- b. impacts on commerce;
- c. other related regulatory changes which should be made;
- d. the availability and effectiveness of other Federal or state programs to protect aquatic resources;

e. the effect on implementation of TMDLs.

Diminishing the reach of CWA-jurisdictional waters would affect programs operating under sections 303 (water quality standards), 311 (oil and hazardous substance spills), 401 (water quality certification), 402 (National Pollutant Discharge Elimination System), and 404 (dredge and fill permits). These sections comprise the regulatory core of CWA protection of water quality. Waters that could be withdrawn from federal jurisdiction include:

- Wetlands not immediately adjacent to navigable waters;
- Ephemeral and intermittent waters;
- Waters upstream of manmade conveyances.

California waters could be heavily affected because of the state's highly seasonal hydrology and its extensively engineered fluvial systems. Given the importance of the above-cited regulatory sections, programmatic effects could be significant.

3. Current Litigation

Lawsuits across the country have been and are being litigated that implicate the scope of the *SWANCC* decision. So far, most of the decisions have been in the federal district courts. As of January 2003, approximately 18 cases were working through the federal system. Two Circuit Court of Appeals decisions have been rendered which demonstrate the anticipated divergence amongst the Circuits that is expected about the scope of the *SWANCC* decision.

In *Headwaters, Inc. v. Talent Irrigation District* (2001) 243 F. 3d 526, the 9th Circuit held that non-navigable irrigation canals, that could be closed off from exchanging waters with navigable rivers and lakes were not isolated and were connected as tributaries to other "waters of the United States," because they "receive water from natural streams and lakes, and divert water to streams and creeks." The Court concluded that even tributaries that flow intermittently are "waters of the United States." The Court's holding was based in part upon the rationale that it was not necessary for a discharge to be immediate or continuous to cause environmental damage. "The Clean Water Act is concerned with the pollution of tributaries as well as with the pollution of navigable streams, and it is incontestable that substantial pollution of one not only may but very probably will affect the other." (Internal quotes and citations omitted.)

In *Rice v. Harken Exploration Co.* (2001) 250 F.3d 264, the 5th Circuit interpreted *SWANCC* as holding that the Oil Pollution Act (OPA) (whose jurisdiction is also conferred over "navigable waters") and CWA authority exists "if the body of water is actually navigable or is adjacent to an open body of navigable water." The Court then held that since the Rices could not present evidence that the ephemeral streams were "sufficiently linked to an open body of navigable water" they were not subject to regulation under the CWA or OPA.

Thus, in the 5th Circuit, ephemeral streams may or may not be subject to federal regulation, depending upon whether there is evidence to prove they are navigable, adjacent to navigable waters, or "sufficiently linked to an open body of navigable water." That question requires a fact-specific inquiry.

4. California Waters Subject to the SWANCC Decision

There is a great deal of uncertainty regarding the extent of "isolated" waters because there is no formal hydrologic or other scientific definition of the term. In the context of CWA, "isolated" waters are not bona fide navigable and/or interstate waters and are not tributary or adjacent to such waters. Generally, then, "isolated" waters have no surface hydrological connection to the ocean or intrastate waters. In practice, this definition raises many questions regarding the volume, duration, frequency, geographic length, state of human modification, and other characteristics of a hydrologic connection required to make the connected water body "non-isolated." In addition, hydrologically "isolated" waters may still remain within CWA jurisdiction because of the federal power to regulate interstate commerce; for example, use of the water by interstate or foreign travelers for recreation or other purposes, the presence of fish or shellfish that could be taken and sold in interstate commerce, the use of the water for industrial purposes by industries in interstate commerce, or other factors.⁵⁴ However, SWANCC has confused the applicability of these "commerce clause" factors. In California, vernal pools, swales, ephemeral or intermittent streams and rivers, desert washes, terminal lakes, desert springs, playa lakes, diked wetlands, and salt ponds may be subject to SWANCC.⁵⁵

To estimate workload associated with potential state protection of "isolated" waters, SWRCB staff reviewed the following two data sets relating to the number and acreage of such waters:

a. USFWS Estimates

USFWS conducted a nationwide spot-survey of wetlands to attempt to quantify the number and acreage subject to SWANCC. The survey applied three sets of criteria to each survey site, representing restrictive to broad interpretations of what could be deemed "isolated." In California, USFWS studied one location each in the Sacramento Valley (Sacramento), Sacramento-San Joaquin Delta (Birds Landing), and south coast (La Mesa). The three California study areas varied from 120,000-149,000 acres. All three sites had inland wetlands, and Birds Landing and La Mesa also included estuarine wetlands. USFWS found that 3 to 48 percent of the wetland acreage and 22 to 72 percent of the individual wetlands in the California study areas were "isolated."⁵⁶

It is difficult to project workload from these estimates of "isolated" wetlands because of the wide data variations among the sites, because there were only three sites, and because USFWS did not attempt to project what percent of the studied wetlands would be subject to development and would thus require regulatory attention within the foreseeable future.

b. USACOE Jurisdictional Disclaimer Letters

USACOE documents its determinations that waters are "isolated" pursuant to SWANCC in "jurisdictional disclaimer" letters sent to applicants for CWA section 404 permits. USACOE provides SWRCB and RWQCBs copies of these letters, and SWRCB has recorded key information in a database. During calendar year 2002, the three USACOE districts operating in California determined that 82 water bodies or groups of water bodies were "isolated," comprising more than 314 acres of waters.⁵⁷ Of these water bodies, 61 were wetlands comprising more than 194 acres, and 17 involved riparian areas comprising more than 61 acres. (Desert washes were cataloged as riparian. Some projects involved both wetlands and riparian.) Appendix G presents these data in greater detail. The data reflect only waters specifically proposed for fill or dredge discharges, not associated "isolated" waters which were not at immediate risk.

It is possible to project workload from these data; however, in doing so it is important to note that USACOE staff has indicated:

- (1) there appear to be numerous circumstances in which consultants have advised clients that certain waters were no longer jurisdictional and USACOE was never asked to make an official determination, and
- (2) a small percentage of USACOE letters may have not been sent to SWRCB and would not be reflected in these data.⁵⁸

5. Potential Further Reductions in Federal Wetland Jurisdiction

At the time of this writing, the status of federal protection of wetlands is in flux. As cited above, further reductions in the pre-SWANCC level of protection could result from federal reinterpretation of existing regulations, new rulemaking, and/or judicial findings in the Circuit Court cases cited above or from the numerous other cases currently in U.S. District courts. While some reduction of federal jurisdiction may be likely, assessing its future effect would be speculative.

C. Steps to Replicate USACOE Protection of "Isolated" Waters

The following five regulatory steps would replicate USACOE's pre-SWANCC role in protecting "isolated" wetlands, riparian areas, and other waters and would reestablish pre-SWANCC regulatory protection.

1. Advise Dischargers of Need to Report Discharges

Outreach to potential dischargers would reduce confusion and misinformation regarding state requirements and would help ensure appropriate protection of "isolated" waters.

2. Develop and Implement Endangered Species Coordination with Resource Agencies

Beneficial uses of waters of the state include support of threatened and endangered species ("RARE").⁵⁹ In protecting the RARE use from potential impacts of dredge and fill discharges, the state has in the past generally deferred to USACOE consultation with USFWS and/or the U.S. National Marine Fisheries Services (USNMFS) pursuant to section 7 of the federal Endangered Species Act (FESA). For "isolated" waters, there will be no section 7 nexus, and the state will need to independently verify that discharges will not harm state or federal-listed species. SWRCB and RWQCBs will still rely on the expertise of the resource agencies with primary responsibility to protect the species at risk but will need to invest more time in coordinating directly with the resource agencies and in ensuring that the applicant is properly consulting with them. The California Endangered Species Act (CESA) requires that state agencies consult with DFG before authorizing or carrying out activities which could harm state-listed species. If a project affects both state and federal listed species, compliance with FESA could satisfy CESA if DFG determines that the federal permit to "take" an endangered species is consistent with CESA.⁶⁰ FESA and CESA provide for both "informal" and "formal" consultation processes. SWRCB will need to develop internal guidance, in consultation with the resource agencies, to help staff to efficiently and effectively protect the RARE use and meet CESA consultation requirements. Staff time subsequently needed to review the project, coordinate with USFWS, USNMFS, and/or DFG, and develop appropriate protective conditions would depend on the number of listed species involved and the magnitude of the project's impact on RARE critical habitat (e.g., acres of impact).

3. Adopt a State Wetland Definition

As discussed previously in this report, California does not require a regulatory definition of wetlands to protect them under Porter-Cologne; however, the state would need a definition to help determine compensatory mitigation requirements and to help document compliance with the "no net loss" policy.

4. Adopt State Analog of CWA 404(b)(1) Guidelines

Adoption of a state analog to the CWA 404(b)(1) Guidelines would provide a state policy framework for wetland regulation, would coordinate state and federal regulatory approaches, and would address compliance with the state's antidegradation policy.

5. Implement Wetland Permitting for "Isolated" Waters

State regulatory protection of "isolated" waters would include pre-application consultations, review of applications and technical evaluations of potential project impacts, public notification, endangered species consultations, coordination with other resource and permitting agencies, development of regulatory conditions

and regulatory orders, compliance inspections, enforcement, and review of appeals.

D. Projected Workload

1. Number of Regulatory Actions

The estimated workload in this report of 82 projects per year discharging to "isolated" waters is based on the historic workload documented in USACOE's 2002 jurisdictional disclaimer letters, as discussed previously in this report and displayed in Appendix G. This is a conservative basis because (1) some jurisdictional disclaimers may not have been reported to SWRCB, (2) it is likely that a number of projects which should have been subject to state regulation were never reported to USACOE or to RWQCBs, and (3) it is possible that federal regulatory scope will be diminished in the foreseeable future. However, we have not attempted to adjust the historic basis upward to compensate for these factors because we are unable to estimate with reasonable accuracy the number of unreported projects or the number of additional projects which in the future may fall out of federal jurisdiction. As new information becomes available, it will be possible to revise the projected number of projects, and the associated workload, as appropriate.

2. Regulatory Actions Involving Listed Species

USACOE estimates that 60 to 80 percent of projects permitted under CWA section 404 involve endangered or threatened species.⁶¹ In developing workload, we have assumed 75 percent of discharges to "isolated" waters will involve listed species, including state-only listed species which are not included in USACOE's estimates. Table 1 projects the workload required to regulate such discharges in hours.

Table 1
Endangered Species Protection: Workload

Project Category	Project Review (Hrs)	Resource Agency Coordination (Hrs)	Total Hours
Simple Project	12	7	19
Complex Project	60	16	76

"Simple projects" generally involve 1 to 2 species and small impact area.

"Complex projects" generally involve 3 or more species and large impact areas.

E. Estimated Personnel Requirements

A "workload standard" is a calculation of how many times a specified activity will be conducted on an annual basis. A "unit cost factor" is the average amount of time it takes to perform a specified activity. Workload standards and unit cost

factors, when applied to the total project workload of 82 projects per year, may be used to project personnel requirements. SWRCB developed workload standards and unit cost factors for core regulatory programs in 2000 in accordance with FY 1999/00 budget language.⁶² Except as otherwise noted, these previously developed standards are used in this report.

Appendix A displays the regulatory steps needed to replace pre-SWANCC USACOE regulatory protection for isolated waters and the associated personnel and contract requirements. The total resource need is 17 PYs, of which 5.55 PYs are for one-time tasks; and \$1.5 million of contract authority.

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- U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, and U.S. Departments of Commerce, Interior, Agriculture, and Transportation, *National Wetlands Mitigation Action Plan*, December 24, 2002.

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NOTES

¹ At legislative staff's request, SWRCB staff met on November 21, 2002 with Ms. Linda Barr from Assemblyman Joe Nation's office, Mr. Gil Topete from Assemblywoman Christine Kehoe's office, and other proponents of the Supplemental Report language.

² *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers*, (2001) 121 S.Ct. 675.

³ Riparian areas perform most or all of the functions associated with wetlands and have special ecological and hydrologic values in the arid and semi-arid West. Like wetlands, they have been drastically reduced in historic times and are vulnerable to ongoing urban development. Because they do not always meet the CWA regulatory definition of "wetland" they are less well protected. For informational purposes we have appended to this report a brief review of the values of riparian areas (Appendix C).

⁴ National Research Council, "Values of Riparian Areas," in *Compensating for Wetland Losses Under the Clean Water Act*, Committee on Mitigating Wetland Losses, National Academy Press, Washington, D.C., 2001, pp. 2, 102.

⁵ The transport and transformation of chemicals in ecosystems, known as biogeochemical cycling, involves a great number of interrelated physical, chemical, and biological processes. The unique and diverse hydrological conditions in wetlands markedly influence biogeochemical processes. The standing water or intermittent flooding of wetlands causes some processes to be more dominant in wetlands than in either upland or deep aquatic ecosystems. More nutrients in wetlands are tied up in organic deposits and are lost from ecosystem cycling as peat deposits and/or organic export. This process of "carbon sequestration" helps counteract global warming by moderating human-caused increases in atmospheric carbon dioxide. Wetlands are also very effective in removing excess nutrients and other pollutants from aquatic systems, through chemical transformation, plant uptake, deposition, and other mechanisms. See:

S. Mark Dennison and James F. Berry, *Wetlands: Guide to Science, Law and Technology*, Noyes Publications, Park Ridge, New Jersey, 1993.

J. William Mitsch and James G. Gosselink, *Wetlands* (2nd edition), Van Nostrand Reinhold, New York, 1993.

⁶ The functions and values of "isolated" wetlands have been well documented. See for example:

National Research Council, *op. cit.*, 2001, p. 43.

Jennifer Ruffolo, *The U.S. Supreme Court Limits Federal Regulation of Wetlands: Implications of the SWANCC Decision*, California Research Bureau, California State Library, February 2002, p. 14.

Ralph W. Tiner, Herbert.C. Bergquist, Gabreal B. DeAlessio, and Matthew J. Starr, *Geographically Isolated Wetlands: A Preliminary Assessment of their Characteristics and Status in Selected Areas of the United States*, U.S. Department of the Interior, Fish and Wildlife Service, Northeast Region, Hadley, MA, June 2002, pp. 2-6.

⁷ Much of the following discussion is borrowed from Jon A. Kusler, William J. Mitsch, and Joseph S. Larson, "Wetlands," *Scientific American*, January 1994, pp. 64-70.

⁸ See for example:

Kusler, *op. cit.*

Nature Conservancy, *Landscape-Scale Wetland Management and Restoration Site Conservation Roundtable*, Ecological Management and Restoration Program, Conservation Science Division, July 2000, pp. 5, 7.

Nature Conservancy, *Wetland Ecology from a Landscape Perspective*, Wetland Management Network; Summary of Workshop #1, Ecological Management and Restoration Program, September 2001, pp. 5-7, 12.

National Research Council, *Riparian Areas: Functions and Strategies for Management*, Committee on Riparian Zone Functioning and Strategies for Management, National Academy Press, Washington, D.C., 2002, pp. 3, 8, 123-127.

⁹ National Research Council, *op. cit.*, 2001, pp. 38-44, 49-50.

¹⁰ California Department of Finance's official projections are for 15 percent population growth by 2010, 31 percent by 2020, and 69 percent by 2040, *County Population Projections with Age, Sex, and Race/Ethnic Detail*, December 1998.

¹¹ California Fish and Game Code section 1600 *et seq.* is also a valuable wetland protection tool. However, it provides only quasi-regulatory protection, working through contracts between the Department of Fish and Game and proponents of projects which will disturb stream or lakebeds. Disagreements are settled through binding arbitration rather than through an enforcement process. It does not apply to wetlands not associated with streams or lakes (e.g., many isolated wetlands and tidal wetlands), to wetland functions not directly supporting fish and game (e.g., floodwater retention, groundwater recharge, recreation) or to projects conducted by federal agencies. Appendix E compares section 1600 and Porter-Cologne authorities.

¹² Comments of Lance D. Wood, Assistant Chief Counsel, Environmental Law and Regulatory Programs, U. S. Army Corps of Engineers at "Wetlands Protection and Enforcement: A State/Federal Conference," U.S. Department of Justice, National Advocacy Center, Columbia, South Carolina, December 9, 2002.

¹³ Dynamic hydrologic regimes result in reduced CWA protection because the physical characteristics - scour lines, flood debris, etc. - used to delimit "waters" are left by frequently recurring floods, whereas riparian functions can be supported by less frequent floods. In the East, this is unimportant because seasonal and annual flow variations are muted. For example, the increase in flow between the one-year and 50-year flood in a Pennsylvania watershed is 2.5 times (i.e., the 50-year flood carries 2.5 times as much water as the one-year flood). Western dryland systems, however, are

much more variable. The same figure in a dryland stream is 280, and in small southern California dryland basins the 50-year flood may carry 400 times as much water as the one-year flood. Western riparian vegetation has adapted to establish and survive in portions of the floodplain inundated relatively infrequently, beyond the boundary of physical characteristics left by the frequent flood events and hence outside of federal CWA jurisdiction. Aaron Allen and D. Malanchuk, *Guidelines for Jurisdictional Determinations for Waters of the United States in the Arid Southwest*, June 2001, USACOE, South Pacific Division; and Allen, A., remarks at 5th Annual California Regulatory Coordination Conference, USCOE South Pacific Division, Sacramento, California, December 18, 2002.

¹⁴ Jennifer Ruffolo, *op. cit.*, pp. 13-18.

¹⁵ Aaron O. Allen, *Factsheet: Jurisdictional Determination for Amaragosa Creek*, USACOE, Los Angeles District, February 26, 2001.

¹⁶ The regulatory definitions of dredged and fill material are found at 33 CFR 323 and 40 CFR Part 232.

¹⁷ 33 CFR 323.4.

¹⁸ 33 CFR 323.4(c).

¹⁹ Increases in runoff from urban areas are becoming regulated in some parts of the state under provisions of CWA section 402(p) stormwater permits.

²⁰ 40 CFR 230.

²¹ Generally, the practicable alternative that involves the least amount of filled waters will be considered least damaging. "Practicable" alternatives are not unreasonably costly but may produce less return on investment than desired by the permit applicant. Such alternatives are considered available if they are owned by the applicant or can be obtained or used during project planning or permitting. The project purpose and the geographic scope of the analysis must be broad enough to reasonably consider all environmentally preferable sites. Alternatives analysis performed early can reduce costs, increase certainty, and result in wetland avoidance and protection. This review is borrowed from Thomas G. Yocum, Robert A. Leidy, and Clyde A. Morris, "Wetlands Protection Through Impact Avoidance: A Discussion of the 404(b)(1) Alternatives Analysis," *Wetlands* 9(2), 1989, pp. 283-297.

²² 40 CFR 230.10(d), 40 CFR 230 Subpart H.

²³ U.S. Environmental Protection Agency and U.S. Army Corps of Engineers, *The Determination of Mitigation Under the Clean Water Act Section 404(b)(1) Guidelines*, Memorandum of Agreement Between the Department of the Army and the Environmental Protection Agency, February 6, 1990.

²⁴ "Wetlands consist of areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions." (40 CFR 230.41)

²⁵ U.S. Army Corps of Engineers, Environmental Laboratory, *Corps of Engineers Wetlands Delineation Manual*, Technical Report Y-87-1. Waterway Experiment Station, Vicksburg, Miss., 1987.

²⁶ Lewis M. Cowardin, Virginia Carter, Francis C. Golet, and Edward T. LaRoe, *Classification of Wetlands and Deepwater Habitats of the United States*, FWS/OBS-79/31; Office of Biological Services, U.S. Fish and Wildlife Service, Washington D.C., 1979: "For purposes of this classification wetlands must have one or more of the following three attributes: (1) at least periodically, the land supports predominantly hydrophytes, (2) the substrate is predominantly undrained hydric soil and (3) the substrate is nonsoil and saturated with water or covered by shallow water at some time during the growing season of each year."

²⁷ 40 CFR 131.6(d), 131.12.

²⁸ U.S. Environmental Protection Agency, "Questions and Answers on Antidegradation", Appendix A to Chapter 2, "General Program Guidance", *Water Quality Standards Handbook*. Office of Water Regulations and Standards, 1983: "Since a literal interpretation of the antidegradation policy could result in preventing the issuance of any wetland fill permit under section 404 of the Clean Water Act, and it is logical to assume that Congress intended some such permits to be granted within the framework of the Act, EPA interprets §131.12(a)(1) of the antidegradation policy to be satisfied with regard to fills in wetlands if the discharge did not result in 'significant degradation' to the aquatic ecosystem as defined under section 230.10(c) of the 404(b)(1) guidelines."

²⁹ See: National Research Council, *op. cit.*, 2001, pp. 22, 30, 39-44, 50.

U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, and U.S. Departments of Commerce, Interior, Agriculture, and Transportation, *National Wetlands Mitigation Action Plan*, December 24, 2002; and

U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, Regulatory Guidance Letter, *Guidance on Compensatory Mitigation Projects for Aquatic Resource Impacts Under the Corps Regulatory Program Pursuant to Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act of 1899*, December 24, 2002.

The NRC notes that landscape position provides a necessary context to assess potential functions of compensatory wetlands but is not a usual regulatory performance standard; and recommends that site selection for compensatory wetlands should be analyzed at a watershed scale. In response, the federal government recently initiated changes to federal policy regarding compensatory mitigation for wetlands. The changes include a "National Wetlands Mitigation Action Plan" which, among other things, directs USEPA and USACOE to develop guidance on the use of compensatory mitigation in the watershed context. USACOE simultaneously reissued its regulatory guidance on compensatory mitigation, directing that, "Districts will use watershed and ecosystem approaches when determining compensatory mitigation requirements, consider the resource needs of the watersheds where impacts will occur, and also consider the resource needs of

neighboring watersheds A watershed-based approach to aquatic resource protection considers entire systems and their constituent parts."

³⁰ Such mobility may occur at the level of the individual organism (e.g., a bird or turtle travelling between separated wetlands) and/or of the population (e.g., a plant species colonizing a new wetland through seed dispersal); and over different time scales.

³¹ For the effects of habitat fragmentation and population isolation on the survival of plants and animals, see for example:

K. L. Knutson and V.L. Naef, *Management Recommendations for Washington's Priority Habitats: Riparian*, Washington Dept. of Fish and Wildlife, Olympia, WA, December 1997, p. 71.

R.F Noss and A.Y Cooperrider, *Saving Nature's Legacy; Protecting and Restoring Biodiversity*, Washington, D.C., Island Press, 1994, pp. 33-34, 50-54, 59-62, 61-62.

D.E. Saunders, R.J. Hobbs, and C.R. Margules, "Biological Consequences of Ecosystem Fragmentation: A Review," *Conservation Biology* 5(1), March 1991, pp. 18-32.

Michael E. Soulé, "Land Use Planning and Wildlife Maintenance, Guidelines for Conserving Wildlife in an Urban Landscape," *Journal of the American Planning Association* 57(3), 1991, pp. 313-323.

Michael E. Soulé, "The Effects of Habitat Fragmentation on Chaparral Plants and Vertebrates," *Oikos* 63, 1992, pp. 39-47.

United States Federal Interagency Stream Restoration Working Group, *Stream Corridor Restoration: Principles, Practices, and Processes*, October 1998, [Online]. Available from: http://www.usda.gov/stream_restoration. Printed copy available from: National Technical Information Service (NTIS), Springfield, VA, pp. 2-80, 2-82.

³² Regarding the relationship between wetland and upland habitats, see for example:

Vincent J. Burke and J. Whitfield Gibbons, "Terrestrial Buffer Zones and Wetland Conservation: A Case Study of Freshwater Turtles in a Carolina Bay," *Conservation Biology* 9(6), 1995, pp. 1365-1369;

C. Kenneth Dodd, Jr. and Brian S. Cade, "Movement Patterns and the Conservation of Amphibians Breeding in Small Temporary Wetlands," *Conservation Biology* 12(2), 1998, pp. 331-339;

Raymond D. Semlitsch, "Biological Delineation of Terrestrial Buffer Zones for Pond Breeding Salamanders," *Conservation Biology* 12(4), 1997, pp. 1113-1119.

³³ Regarding the ecological relationship between separated wetlands, see for example:

C. Scott Findley and Jeff Houlahan, "Anthropogenic Correlates of Species Richness in Southeastern Ontario Wetlands," *Conservation Biology* 11(4), 1997, pp. 1000-1009;

Lisa A. Joyal, Mark McCollough, and Malcom L. Hunter, Jr., "Landscape Ecology Approaches to Wetland Species Conservation: A Case Study of Two Turtle Species in Southern Maine," *Conservation Biology* 15(6), 2001, pp. 1755-1762;

Raymond D. Semlitsch and J. Russell Bodie, "Are Small, Isolated Wetlands Expendable?" *Conservation Biology* 12(5), 1998, pp.1129-1133;

National Research Council, *op. cit.*, 2001, p. 42;

Nature Conservancy, *op. cit.*, July 2000, p. 10.

- ³⁴ Two recent reports comprehensively review observed effects of global change on plant and animal range shifts, advancement of spring events, and other responses. See:

Terry L. Root, Jeff T. Price, Kimberly R. Hall, Stephen H. Schnieder, Cynthia Rosenzweig, and Alan Pounds, "Fingerprints of Global warming on Wild Animals and Plants," *Science* 421:2, January 2003, pp. 57-60.

Camille Parmesan and Gary Yohe, "A Globally Coherent Fingerprint of Climate Change Impacts cross Natural Systems," *Science* 421:2, January 2003, pp. 37-42.

- ³⁵ CWA section 401(a)(1).

- ³⁶ Some such impacts may be subject to SWRCB's administration of water rights in California.

- ³⁷ California Water Code section 13260(a)(1).

- ³⁸ California Water Code section 13050(f).

- ³⁹ Filling and associated development activities can increase runoff by increasing ground surface impermeability, decreasing vegetative retention, and decreasing flood storage in local terrain features and ephemeral channels. See for example:

C.L. Arnold, P.J. Boison, and P.C. Patton, "Sawmill Brook: An Example of Rapid Geomorphic Change Related to Urbanization," *Journal of Geology* 90:155-166; 1982.

T. Dunne and L.B. Leopold, *Water In Environmental Planning*, San Francisco: W.H. Freeman and Co.; 1978, pp. 275, 327, 517, 687, 693-695.

G.M. Kondolf, and E.A. Keller, "Management of Urbanizing Watersheds," *California Watersheds at the Urban Interface: Proceedings of the Third Biennial Conference*, University of California Water Resources Center, Report No. 75. Watershed Management Council, April 1991.

Jeffrey F. Mount, *California Rivers and Streams*, Berkeley: University of California Press; 1995, pp. 287-292.

T. Schueler, *The Importance of Imperviousness*, Watershed Protection Techniques, 1(3), 1994 Fall. [Online]. Available from:
<http://www.pipeline.com/~mrrunoff/imperv.htm>.

U.S. Federal Interagency Stream Restoration Working Group, *Stream Corridor Restoration: Principles, Practices, and Processes*; [Online]. Available from: http://www.usda.gov/stream_restoration. Printed copy available from: National Technical Information Service (NTIS), Springfield, VA, pp. 1-15, 2-12, 3-15, 3-22, 3-23.

⁴⁰ Jennifer Ruffolo, *op.cit.*

⁴¹ *Ibid*, pp. 72, 74-76.

⁴² *California Wetlands Conservation Policy*, Executive Order W-59-93, August 23, 1993.

⁴³ However, the CRB report also notes that the San Francisco Bay and Lahontan RWQCBs have adopted wetland policies, based on the 404(b)(1) guidelines, *op. cit*, p. 75.

⁴⁴ SWRCB, *401 Program Scope and Strategy*, Division of Water Quality, December 19, 2002, p 5. The *Scope and Strategy* document clarifies the 401 Program's scope, presents SWRCB and RWQCBs' staffs' collective vision for a more effective program and articulates program goals and objectives. The document was reviewed and approved by state and regional program staffs at meetings on August 1, 2001, November 7, 2001, and October 30, 2002, and was further revised and approved by the RWQCB Assistant Executive Officers at their November 18, 2002 meeting. Regarding interagency coordination, the key agencies identified in the *Scope and Strategy* document were the California Department of Fish and Game, USACOE, USEPA, and the U.S. Fish and Wildlife Service.

⁴⁵ California Fish and Game Code, section 1600 *et seq.*

⁴⁶ There are currently 44 such Nationwide Permits, including one "reserved" number. The current permits became effective on March 18, 2002 and will remain in effect until March 18, 2007.

⁴⁷ California Department of Finance, *op. cit.*

⁴⁸ *Guidelines for Implementation of the California Environmental Quality Act*, California Code of Regulations, Title 14, section 15096.

⁴⁹ States with LID-related policies include Pennsylvania (<http://www.21stcentury.state.pa.us/2001/announcement.htm>) and Maryland (<http://www.op.state.md.us/smartgrowth/>).

⁵⁰ A wetland protection and conservation mandate could be added to the Water Code by either broadening the requirements of sections 1320 *et seq.* to include persons proposing to undertake projects that could involve impacts to wetlands, or by adopting a new Article in Chapter 4 establishing a permit system for those proposing such projects.

⁵¹ Robert E. Fabricant, General Counsel, U.S. Environmental Protection Agency and Steven J. Morello, General Counsel, Department of the Army, joint memo clarifying guidance regarding the Supreme Court's decision in *Solid Waste Agency of Northern Cook County v. the United States Army Corps of Engineers*, January 10, 2003.

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- ⁵² Use of water by interstate or foreign travelers, the presence of fish or shellfish that could be taken and sold in interstate commerce, and use for industrial use in interstate commerce.
- ⁵³ U.S. Environmental Protection Agency, *Advance Notice of Proposed Rulemaking on the Clean Water Act Regulatory Definition of "Waters of the United States,"* January 10, 2003. Available online at <http://www.epa.gov/owow/wetlands/swanccnav.html>.
- ⁵⁴ 33 CFR 328.3(a).
- ⁵⁵ Jennifer Ruffolo, *op. cit.*, pp. 81-97.
- ⁵⁶ R.W. Tiner, *op. cit.*, Within each of the three sites there was much less variability; e.g., at Birds Landing, with the lowest proportion of "isolated wetlands", from 3.1-3.4 percent of the wetland area was "isolated; at Sacramento, with the highest proportion, from 40.1-47.6 of the wetland area was "isolated."
- ⁵⁷ The cited acreage figures represent known proposed impacts. Because of incomplete reporting the actual figures are larger by some unknown amount. For example, of the 61 projects involving wetlands, the impact area for 10 projects (16 percent) was not reported. Of the 17 projects involving riparian areas, the impact area for 6 projects (35 percent) was not reported.
- ⁵⁸ Pers. comm., Michael Jewell, Acting Chief, Regulatory Branch, Los Angeles District, USACOE January 2, 2003 e-mail; and Andrew Rosenau, Chief, Regulatory Branch, Sacramento District, USACOE, remarks at USACOE South Pacific Division 5th Annual California Regulatory Conference, December 17-18 2002.
- ⁵⁹ The "RARE" beneficial use is defined as follows: "Rare, Threatened, or Endangered Species (RARE) - Uses of water that support habitats necessary, at least in part, for the survival and successful maintenance of plant or animal species established under state or federal law as rare, threatened or endangered."
- ⁶⁰ California Fish and Game Code section 2081.1; may be viewed online at the DFG Habitat Conservation Planning Branch's Endangered Species Website: <http://www.dfg.ca.gov/>
- ⁶¹ Andrew J. Rosenau, Chief, Regulatory Branch, Sacramento District, USACOE and Calvin C. Fong, Chief, Regulatory Branch, San Francisco District, USACOE, pers. comms., January 13, 2003 e-mails.
- ⁶² State Water Resources Control Board. *Report to the Legislature as Required by FY 1999/00 Budget Act Supplemental Language - Core Regulatory Program's Needs Analysis*, submitted to the Legislature in March 2001.