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Sent: Monday, July 28, 2014 10:52 PM
To: BDCP.Comments@noaa.gov
Subject: Fw: Done
Attachments: Comment Letter for BDCP w attach_CWIN, CSPA, AQUALLIANCE.pdf

From: Michael Jackson
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Very truly yours,

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COMMENT LETTER OF C-WIN, CSPA, AND AQUALLIANCE

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RE: Comment Letter No. 1: - BDCP and Associated EIR/EIS Related to Habitat Restoration and Conservation Measures

Dear Mr. Wulff,

C-WIN, CSPA, and AquAlliance submit the following comments on the Bay Delta Conservation Plan. We incorporate by reference the comments submitted by Bill Jennings for CSPA and the comments of the Central Delta Water Agency, the County of San Joaquin, the Environmental Water Caucus, Friends of the River, and the South Delta Water Agency.

INTRODUCTION

The Bay Delta Conservation Plan (BDCP) is currently being developed to create a fifty (50) year conversation plan with the co-equal goals of restoring the Sacramento-San Joaquin Delta ecosystem and securing California water supplies. The plan, made of up "conservation measures" aims to improve the Delta ecosystem. Of the twenty-two conservation measures (CMs), the first conversation measure, or CM1, is the construction of a massive water delivery system known as the "twin tunnels." The theory behind CM1 is that through the construction and operation of the twin tunnels, the ecological health of the Delta would improve. Our organizations believe just the opposite – that the construction of the twin tunnels would be the final blow to an already exhausted and impaired Delta ecosystem. Our comments are aimed at demonstrating the very real harm and imminent risk of this project's approval and implementation.

The Delta water system is made up of inflow and outflow of water from several waterways through various tributaries and out through the San Francisco Bay. Flow of water – at specific times, at specific temperatures, and at specific rates – is critical habitat to a plethora of fish and wildlife living within the estuary. The BDCP proposes to increase water supply reliability by diverting the Sacramento River through twin 40-foot tunnels under the Delta for export to the San Joaquin Valley and Southern California. It also proposes creation of approximately 150,000

acres of new habitat in the Delta to restore the estuary and offset adverse impacts from diverting vast quantities of water around the Delta. The BDCP Conservancy Strategy also identifies some 222,902 acres of existing conservation lands in the plan area. These include properties managed by conservancies and land trusts, agency restoration sites, designated biological mitigation sites, wetlands owned or managed by agencies or private parties, conservation easements, parks, and lands associated with implementation of HCPs and NCCPs.[1] The costs of tunnel infrastructure will be paid by the state and federal water contractors while the vast majority of habitat restoration costs will be borne by the general public.

Delta Habitat

Delta aquatic habitat has been greatly altered by 150 years of reclamation. Between 1930 and 1943, an average of 82% of estimated unimpaired flow reached San Francisco Bay. In recent years, unimpaired flow has declined to less than 50%.[2] The majority of the tidal marsh, slough, and open water habitats were reclaimed or altered by a vast system of levees and connecting sloughs by the second decade of the last century. More recently, two major ship channels were carved through the Delta. However, these changes have only exacerbated the vast alteration of natural habitat thanks to water diversions through the Central Valley Project (CVP) and State Water Project (SWP). Massive diversions of water through the CVP and SWP to the San Joaquin Valley and Southern California preceded a precipitous decline in pelagic and anadromous species, including numerous species listed as endangered under State and Federal laws. A number of fishery scientists now refer to the Delta as being in a state of perpetual drought. The number of years of critically low inflow to the Bay has more than tripled to 62% of the time since the 1930s.[3]

In 2010 the State Water Board convened a comprehensive proceeding, mandated by the State Legislature, to study the development of flow criteria for the Delta. The proceeding included testimony and evidence by agency and independent scientists, academia, water agencies and public interest groups.[4] The conclusion found by the State Board was that 75% unimpaired flow is needed to protect public trust resources and estuarine health. The California Department of Fish and Wildlife, under a similar legislative mandate, reached similar conclusions.[5]

The BDCP proposes approximately 150,000 acres of habitat restoration, focusing primarily on tidal marsh restoration. Tidal marsh is proposed to provide direct and indirect benefits to Delta fish through the food web and as habitat for various fish species or specific life stages. However, Native Delta species depend heavily on the Delta habitats, especially in drier years when flows are insufficient to move their young downstream to the Bay. Delta smelt are pelagic species found predominantly in shoal and open water, and benches near the open water. Young smelt and salmon rear in brackish water in what is called the Low Salinity Zone or LSZ. This zone is

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[1] Public Draft, Bay Delta Conservation Plan: Chapter 3, Conservation Strategy, Table 3.2-2, page 3.2-20.
[2] Swanson, C., WATER-Freshwater Inflow Indicators and Index, Technical Appendix, State of San Francisco Bay 2011, Appendix B, page 73.
[3] Swanson, C., The Power of Measurement, Part II: Projected Freshwater Inflow to the San Francisco Bay Estuary with the Bay Delta Conservation Plan, Swanson's Blog, NRDC Switchboard, 17 December 2013, page 2.
[4] State Water Resources Control Board, Development of Flow Criteria for the Sacramento-San Joaquin Delta Ecosystem, 2010, page 5.
[5] CDFG, Quantifiable Biological Objectives and Flow Criteria for Aquatic and Terrestrial Species of Concern Dependent on the Delta, 2010.

typically defined as 0.5 to 6.0 ppt salinity (or roughly 500-10,000 EC conductivity). The LSZ is important because it provides slightly brackish water, frequently suitable water temperatures, and abundant prey for the young fish. X2, the center of the LSZ, is measured at 2 ppt salinity. LSZ and X2 move throughout the year. The main rearing period for the young of both smelt species is late winter into early summer. After spawning upstream in freshwater, by summer the smelt tend to concentrate at X2. In drier years the LSZ and X2 are found mainly in the Delta. Therefore, it is critically important that habitat be restored and developed within or near the LSZ if the expected benefits to smelt and other pelagic fishes are to be achieved.

Young salmon begin entering the Delta as fry soon after emerging from river spawning gravels from late winter to early spring. Fry and fingerlings (25-75 mm) concentrate in shoreline areas and adjacent margin habitats including tidal marshes, sloughs, and channels. Smolt salmon (80 mm +) are often collected in open channels migrating westward toward the ocean generally in winter and early spring, but are also found feeding in margin habitats. Therefore, it is important that habitats be restored and developed along their Delta migration pathways to ensure successful passage from the river to the Bay. BDCP proposes to restore only about twenty miles of channel margin habitat over a span of thirty years.

Uncertainties of Habitat Restoration

New habitat creation is often used to mitigate adverse impacts to wildlife. When habitat is land, other land can occasionally be purchased and managed to mimic that of the land from which the animal or animals are displaced. However, this becomes increasingly difficult when the habitat in question is a precise *flow of water*. Water - flowing at a specific rate, at a specific temperature, and through specific ecosystem conditions - has no substitute.

As a preliminary matter, developing comprehensive and detailed comments on this version of the BDCP is a difficult task because of the significant and numerous flaws contained in the BDCP itself. There are few details on specific habitat restoration projects. The BDCP EIR/EIS analyzes the tunnels to a project specific level, while habitat restoration has only been analyzed at a programmatic level. The lack of any well-defined operating plan for the proposed north Delta intakes, errors in hydrologic modeling, modeling for an effects analysis that violates the very rules contained in the BDCP itself, and an effects analysis based on this flawed modeling leaves the public in a position of trying to correct the significant flaws in the document and trying to recreate what the true impacts of the project are going to be. If the intent of the BDCP is to satisfy the requirements of the Delta Reform Act, fulfill the co-equal goals, and fulfill the Department of Water Resources' (DWR) public message about the BDCP, the BDCP should do a better job of articulating the specifics of all conservation measures in the plan – not only the single conservation measure that provides DWR's contractors with a reliable water supply. The purpose of a Habitat Conservation Plan should never be to implement an environmentally destructive private construction project like CM-1 (the twin tunnels).

Fishery agencies and scientists have bluntly questioned the likelihood that habitat creation will be as successful as claimed by BDCP proponents or whether habitat restoration can realistically offset the projected adverse consequences from increased exports and reduced outflow to San Francisco Bay. For example, the Delta Independent Science Board, in its review of the Draft

BDCP EIR/EIS and Draft BDCP Plan observed, "Many of the impact assessments hinge on overly optimistic expectations about the feasibility, effectiveness, or timing of the proposed conservation actions, especially habitat restoration."[6] "Positive and timely benefits of habitat restoration are highly uncertain. Failure to realize these benefits will invalidate the final conclusion of no net negative effect."[7] Likewise, the Panel Review of the Draft Bay Delta Conservation Plan, prepared for the Nature Conservancy and American Rivers said, "BDCP is too optimistic about benefits of tidal marsh and floodplain restoration for smelt, particularly the extent of food production."[8]

The National Marine Fisheries Service, in comments on the Draft EIR/EIS said, "There is too much benefit to steelhead smolts assumed from habitat restoration in the Delta."[9] The U.S. Fish and Wildlife Services wrote, "Scientific literature cited in the plan, new analyses provided by DWR, and conclusions of the independent scientific review panel have reinforced our concern that the BDCP restoration plan has not been carefully thought out and has uncertain prospects for benefiting native aquatic estuarine species, particularly delta smelt and longfin smelt."[10] Habitat restoration cannot adequately offset the loss of flow due to diversion of massive quantities of fresh water around the estuary and succeed in restoring severely degraded fisheries. In comments on the Administrative Draft EIR/EIS, the U.S. Environmental Protection Agency wrote that:

> [t]here is broad scientific agreement that existing Delta outflow conditions are insufficient for protecting the aquatic ecosystem and multiple fish species, and that both increased freshwater flows and aquatic habitat restoration are needed to restore ecosystem processes in the Bay Delta and protect T & E fish populations. This includes statements from lead federal agencies.

Habitat restoration projects have historically been fraught with problems. Much of the historical and BDCP habitat restoration has been focused on restoring tidal marsh, with recent scientific debate focused on the relative merits of tidal marsh restoration on the shallow water and pelagic food web of the Delta. The key questions are: whether smelt and young salmon use the tidal marsh habitats, whether tidal marshes contribute to food production in the preferred smelt and salmon open water (pelagic) and channel margins (shoreline) habitats of the Delta, and whether restoration projects themselves create deleterious effects and the uncertainties of funding and actual implementation.

One key BDCP hypothesis is that tidal marshes export nutrients and food web production to adjoining pelagic habitats. However, recent scientific reports question that hypothesis. The 2013 Panal Review of the Draft Bay Delta Conservation Plan, prepared for the Nature Conservancy and American Rivers, found that "[t]idal marshes can be sources or sinks for phytoplankton and

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[6] Delta Independent Science Board, Review of the Draft BDCP EIR/EIS and Draft BDCP, May 2014. Page 3.
[7] *Id.* Page A-25.
[8] Mount J., et al., Panel Review of the Draft Bay Delta Conservation Plan, prepared for the Nature Conservancy and American Rivers, September 2013, page 109.
[9] National Marine Fisheries Service, Federal Agency Comments on Consultant Administrative Draft EIR-EIS, July 2013, Page 8.

[10] U.S. Fish and Wildlife Service Staff BDCP Progress Assessment, 2013, Page 7.

zooplankton. Most appear to be sinks, particularly for zooplankton."[11] Further "even under the most highly favorable assumptions, restored marshes would have at best a minor contribution of plankton production in smelt rearing areas."[12] In the work, "The Role of Tidal Marsh Restoration in Fish Management of the San Francisco Estuary (2014), the author found that

> "[m]ovement of plankton from a tidal marsh (beyond the immediate area of tidal exchange) is likely to be limited and to decrease strongly with distance. Even under ideal circumstances, plankton in water discharged from tidal marsh cannot greatly affect the standing crop of plankton in large, deep channels. Feeding by clams and other introduced species can further reduce contributions of marsh plankton to open-water food webs."[13]

As the Delta Independent Science Board recently wrote, "[w]hether or not any increases in primary production will be transferred to zooplankton and on to covered species that may reside in the restored area or outside of it is largely unknown."[14] There is also the looming question of whether the proposed habitat can be created without exacerbating methylmercury problems. As the National Marine Fisheries Service (NMFS) found:

> There is no indication that the kinds of habitat restoration that can meaningfully contribute to estuarine fish viability can be created or restored without also methylating the ubiquitous mercury in the system because the management tools available conflict with these fishes' habitat needs. Minimization of water depth and reduction of turbidity to control mercury methylation conflict with the direct habitat needs of delta and longfin smelt and will in some locations favor invasive species such as sunfishes and water hyacinth. However, minimization of water depth and turbidity will maximize the potential for algal production and algal production will generate dissolved organic carbon (DOC). If, as the ADEIS implies, restoration sites will also be designed to minimize the export of DOC from restoration sites to minimize anoxic conditions (reducing methylation opportunities) these designs will also reduce their potential food web benefits.[15]

Despite these concerns, BDCP's preferred alternative would increase mercury concentrations and exceed tissue toxicity thresholds in largemouth bass in the Delta.[16] Increases in mercury loading resulting from habitat restoration projects would only exacerbate the problem.

This issue is not limited to mercury. Marshes are often sinks for organic contaminates like PCBs, PAHs, organochlorine compounds and organophosphate and pyrethroid insecticides.

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[11] Mount J., et al., Panel Review of the Draft Bay Delta Conservation Plan, prepared for the Nature Conservancy and American Rivers, September 2013, page 109.
[12] Id.
[13] Herbold, B. et al., The Role of Tidal Marsh Restoration in Fish Management in the San Francisco Estuary, 2014, page A-11. http://www.escholarship.org/uc/item/1147j4nz

[14] Delta Independent Science Board, Review of the Draft BDCP EIR/EIS and Draft BDCP, May 2014. Page B-39.
[15] National Marine Fisheries Service, Federal Agency Comments on Consultant Administrative Draft EIR-EIS, July 2013, Page 10.
[16] Bay Delta Conservation Plan, Appendix 8I, Mercury, Tables I-7a, I-15Aa, I-11Ba, I-11Ca, I-11Da.

Selenium is a serious problem. NMFS commented on the BDCP EIR/EIS, and noted that "[a]n expected increase in contribution of San Joaquin River water to the Delta will increase selenium loading in the Delta, especially in the southern Delta and Suisun Bay where bioaccumulation by bivalves is assured (Stewart et al. 2004). This in turn represents an increased risk of deleterious reproductive effects caused by selenium accumulation in fish and wildlife."[17] Despite this, BDCP's preferred alternative would increase annual average selenium concentration in sturgeon over the existing conditions and no action alternatives.[18]

There is also serious concern that diverting flow around the Delta and reducing outflow will expand the range of overbite clams. The Delta Science Program, in analyzing the Conservation Measures (CM) of the Bay-Delta Conservation Plan, stated that:

> Only adverse effects are indicated resulting from conservation measures in the context of invasive mollusks. CM1 [the twin tunnels project] may increase Corbula habitat by moving X2 upriver, assuming greater freshwater diversion. Given that Corbula is the more effective trophic competitor with covered planktivorous fish, this suggests degradation of habitat characteristics due to CM1. Restoration involved in CM4 (tidal wetland), CM5 (seasonally inundated floodplain), and CM6 (channel margin habitat) may increase potential benthic habitat for Corbula and Corbicula, overall exacerbating the impacts of these competitors. Tidal and shallow water habitat restoration, if invaded by Corbula or Corbicula may result in phytoplankton sinks actually worsening circumstances for fish.[19]

Tidal energy is another area of uncertainty for habitat restoration. The Independent Science Board observed that "[t]idal energy coming from outside the Golden Gate is another limited resource in the development of habitat in the Delta and its larger estuary. A major effect of many of the proposed habitat restoration activities (as well as potential island failures in the future) is likely to be the changes in tidal amplitude and mixing. This will affect the suitability of certain characteristics for restoration."[20] A number of agencies have expressed concerns that changes in tidal amplitude caused by creation of more open tidal habitat will increase salt intrusion in the Delta.

Given the programmatic level analysis of proposed habitat restoration, there is significant uncertainty that large-scale restoration projects will actually be implemented or implemented in a timely manner. The Independent Science Board acknowledged these concerns, noting that

> Construction and flow operations may have impacts immediately, whereas the restoration impacts and benefits may lag a decade or more after construction…If proposed habitat restoration actions are not implemented in a timely fashion or are not as effective as assumed in the DEIR/DEIS, then the positive impacts of those

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[17] *Id.*
[18] Bay Delta Conservation Plan EIR/EIS, Appendix 8M, Selenium in Sturgeon, Tables 8M-2, 8M-3, Page 8M-9.
[19] Delta Science Program, Review Panel Summary Report, Bay Delta Conservation Plan (BDCP) Effects Analysis, May 2012, page 60.
[20] Delta Independent Science Board, Review of the Draft BDCP EIR/EIS and Draft BDCP, May 2014. Page B-17.

> actions would no longer be present, and the final assessment of a net positive or no net negative effect would not be valid…The literature strongly suggests, however, that there are significant time lags between construction of a new habitat and its full functionality. This means that the benefits of habitat restoration may not occur for a long time and that the benefits may be too late for some species if negative impacts come first…Even if all acres are acquired and restoration actions are taken in a timely manner, whether those actions will deliver the anticipated benefits or not is also uncertain.[21]

The lack of funding commitments for BDCP's proposed restoration projects creates major uncertainties. Habitat restoration is extremely expensive. Many previously proposed restoration projects have been unable to be implemented due to lack of funding. Even when property is purchased for restoration, the inability to secure funding can stop implementation. Previous projects that have been constructed have failed because they lacked sufficient funding to maintain or adaptively manage the habitat.

Native species like salmon, steelhead, Delta and longfin smelt, splittail, threadfin shad, native phytoplankton and zooplankton, and several species introduced in the 1800s like striped bass and American shad are collapsing. While these native species are collapsing, invasive predatory species like inland silversides, bluegill, largemouth bass, overbite clams and troublesome invasive plants like water hyacinth, arundo, Brazilian waterweed, parrots feather and potamogeton are flourishing.

It is unclear whether habitat restoration can meet the physical goals and objectives of restoration. Further, it is unclear whether the contemplated restoration habitats would be appropriate for smelt and salmon. After four decades of sampling fish in Delta habitats, it is unclear whether altered habitats after levee breaching, channel digging, and vegetation planting are functioning. Further, it is unclear whether water quality been sufficient to support fish, or whether non-native invasive plants and fish have taken over these new restored habitats.

BDCP Habitat Evaluations, Conservation Goals and Conservation Measures

As discussed more fully below, the Bay Delta Conservation Plan (BDCP) conservation measures to improve important aquatic communities and habitats in the Delta Plan Area are wholly inadequate to mitigate for the expected effects of the BDCP. Furthermore, proposed conservation measures do not include protection and enhancement of the most important and affected habitat in the Delta: the low salinity zone and freshwater pelagic habitats of the Delta on which many Delta native fishes including Delta Smelt depend. These habitats are unproductive because they are quickly exported in drier years and summers of most years at the existing south Delta export facilities and thus lack the necessary residence time, nutrients, and water quality to sustain pelagic fish production.

The West Delta Restoration Opportunity Area (ROA) especially lacks emphasis for many important aquatic habitat types despite its overall importance and sensitivity to Delta exports.

[21] *Id,* page B-38, B-39.

There is no Central Delta ROA as this Delta region's habitat appears to have been largely ignored by BDCP planners for restoration despite its central location in the area affected most by the North and South Delta exports. Conservation Zone 1 and 2, the center and northern Yolo Bypass also lack emphasis and are not included in any ROA.

CM1 is essentially a water conveyance project masquerading as a conservation measure. It will reduce outflow and exacerbate already poor Delta hydrological habitat that is essential for key fish species and their critical habitats. Conservation measures CM 2-21 are only analyzed at a programmatic level, lack assured funding and are highly unlikely to achieve the predicted results. There are no assurances that proposed habitat protections and enhancements will be able to overcome the long-term detrimental effects of excessive Delta water diversions or the proposed new North Delta conveyance facilities. Indeed, the programmatic nature of the conservation measures precludes anyone from identifying the number and extent of impacts to biological resources, water quality, and other beneficial uses; let alone determining whether the conservation measures will effectively mitigate impacts.

Our review of the BDCP Conservation Measures and supporting documents provides the following specific conclusions:

Continuation of South Delta exports with higher use in drier years and seasons will continue recent population declines and will not contribute to recovery of the species, because of further degradation of existing habitats.

Wetlands proposed predominantly in Suisun Marsh, East Delta (Cosumnes/Mokelumne ROA), and Cache Slough areas will have marginal benefit to key Delta foodwebs because of isolation from the Low Salinity Zone and key pelagic habitats. Invasive clams limit foodweb production in Suisun Bay and Marsh. Reductions in North and East Delta inflows from proposed North Delta exports would reduce net transport of water and foodweb contributors from Cache Slough and East Delta. No changes to water quality standards will mean that the Cosumnes/Mokelumne ROA will become more isolated from Delta inflows from the Sacramento River than under present conditions.

CM1 lacks focus on Delta hydrodynamic factors that would provide benefits to the pelagic foodweb that would otherwise continue being devastated by North and South Delta exports. Specifically, Delta outflow remains the most critical factor in Suisun Bay and Delta portions of the Low Salinity Zone nursery areas of smelt and other pelagic organisms; under the BDCP, Delta outflows would further decline in drier year types and seasons to the detriment of the Low Salinity Zone pelagic habitat.

CM2 focuses on the Yolo Bypass, Cache Slough, and Ship Canal habitats but offers little potential improvements to existing poor water quality conditions (mainly high water temperature and low dissolved oxygen) in these areas especially during spring and summer when these areas are important salmon and smelt nursery areas. In drier years, spring-summer habitats will suffer from reduced freshwater inflow to Cache Slough because of the proposed North Delta exports. There is no mention of the reducing amount of "stormwater" pollutants that degrade the smelt and salmon habitats in existing or proposed new habitat areas.

CM3 lacks focus and actions on West and Central Delta tidal wetland improvements.
There is lack of treatment of the linear shoreline habitats throughout the Delta. Smelt and salmon rearing are far more concentrated in shoreline and nearby open-water habitats than in tidal marshes.

The is a lack of specifics as to habitats, locations, and timing of habitat improvements relative to the needs of each of the target native fishes in the Delta

There are no actions offered to replace the millions of acre-feet of pelagic habitat that will be exported from the North and South Delta each year under the BDCP.

There is no mention of the detailed habitat improvement actions presented in the smelt, salmon, and steelhead state and federal recovery plans.

There are repeated references to adaptive management actions that will adjust habitat improvement actions of the BDCP but virtually no details on how adaptive management will actually be implemented or funded. Adaptive management programs have frequently failed throughout the nation, as have decades of adaptive management actions on dozens of failed habitat mitigation projects that were constructed in the Delta.

Many of the specific habitat actions proposed in the BDCP already exist and will likely be implemented in the future without the BDCP. These actions should not be included in the BDCP's portfolio of habitat mitigation actions, but instead should be considered part of the baseline (or no-action alternative).

The conservation measures are insufficient in amount and quality of aquatic habitat to meet the goals and objectives of the BDCP.

Habitat Conservation Planning and the ESA

The purpose of the habitat conservation planning process and subsequent issuance of incidental take permits is to authorize the incidental take of threatened or endangered species, not to authorize the underlying activities that result in take. Section 9 of the Endangered Species Act of 1973, as amended (ESA), prohibits the "take" of any fish or wildlife species listed under the ESA as endangered; under Federal regulation, take of fish or wildlife species listed as threatened is also prohibited unless otherwise specifically authorized by regulation. Take, as defined by the ESA, means "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct."

In the 1982 amendments to the ESA, Congress established a provision in section 10 that allows for the "incidental take" of endangered and threatened species of wildlife by non-Federal entities. Incidental take is defined by the ESA as take that is "incidental to, and not the purpose of, the carrying out of an otherwise lawful activity." Section 10(a)(2)(A) of the ESA requires an applicant for an incidental take permit to submit a "conservation plan" that specifies, among other things, the impacts that are likely to result from the taking and the measures the permit applicant will undertake to minimize and mitigate such impacts. Conservation plans under the ESA have come to be known as "habitat conservation plans" or "HCPs" for short. The Bay/Delta