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S-CDFW



October 13, 2015

Mr. Philip D. Smith, District Manager
 Marin Sonoma Mosquito & Vector Control District
 595 Helman Lane
 Cotati, California 94931

Dear Mr. Smith:

Subject: Marin Sonoma Mosquito & Vector Control District Integrated Vector Management Program, Draft Programmatic Environmental Impact Report, SCH #2012052066, Marin and Sonoma Counties

The California Department of Fish and Wildlife (CDFW) has reviewed the draft Programmatic Environmental Impact Report (PEIR) for the Marin Sonoma Mosquito & Vector Control District (District) Integrated Vector Management Program (Project). CDFW is providing comments on the draft PEIR as a Trustee Agency and Responsible Agency. On September 11, 2015, CDFW received your approval to extend the comment period for CDFW to October 14, 2015.

As Trustee for the State's fish and wildlife resources, CDFW has jurisdiction over the conservation, protection, and management of the fish, wildlife, native plants, and the habitat necessary for biologically sustainable populations of such species for the benefit and use by the people of California. CDFW also acts as a Responsible Agency pursuant to the California Environmental Quality Act (CEQA) CEQA Section 15381 if a project requires discretionary approval, such as issuance of a California Endangered Species Act (CESA) Incidental Take Permit (ITP) (Fish and Game Code section 2080 *et seq.*), or Lake or Streambed Alteration Agreement (LSAA) (Fish and Game Code section 1600 *et seq.*).

CDFW is submitting comments on the draft PEIR to inform the District of our concerns over potential impacts, recommend changes to the District's Best Management Practices (BMPs), and suggest changes in the document.

Project Location and Description

The proposed Project area for the draft PEIR consists of the District's Service Area boundaries, and includes all lands located within Marin and Sonoma Counties, and the four adjacent counties of Napa, Lake, Mendocino, and Solano where service may be provided upon request. The proposed Project area includes watersheds, such as but not limited to, the Russian River, Petaluma River, Sonoma Creek, Lagunitas Creek, Corte Madera Creek and San Pablo Bay. Vector control activities are conducted at a wide variety of locations and sites throughout the District's Service Area, including tidal marshes, duck clubs, other diked marshes, lakes and ponds, rivers and streams, vernal pools and other seasonal wetlands, stormwater detention basins, flood control channels, spreading grounds, street

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drains and gutters, wash drains, irrigated pastures, and agricultural ditches, as well as animal troughs, artificial containers, tire piles, fountains, ornamental fishponds, swimming pools, liquid waste detention ponds, and non-natural harborage (such as covered wood piles, residential and commercial landscape, trash receptacles).

The District undertakes vector control activities through its Program to control and/or provide information on the following vectors of disease and/or discomfort in the Program Area: mosquitoes, cockroaches, fleas, flies, rats, mice, ticks, and yellow jackets. The District also performs vegetation management (including control of noxious and/or invasive plants) to facilitate access to vector habitat, improve efficiency and effectiveness of mosquito control operations, and as a source reduction measure.

The proposed Project consists of the following “tools” or components, which are described as alternatives: surveillance, physical control, vegetation management, biological control, chemical control, and nonchemical control/trapping. The proposed project is a combination of these alternatives with the potential for all of these alternatives to be used in their entirety along with public education.

General Comments

Best Management Practice (BMP) A-2 states that ‘wildlife studies’ will be included in communication with resource agency staff, please outline any proposed wildlife studies. The PEIR should assume presence of special-status species where suitable habitat occurs unless protocol-level surveys are conducted. The PEIR should include the specific survey protocols that will be used in each habitat type and associated special-status species. *Survey and Monitoring Protocols and Guidelines* are available at CDFW’s website: https://www.dfg.ca.gov/wildlife/nongame/survey_monitor.html.



Many of the District’s BMPs rely on future input, training, and coordination with and from CDFW and other regulatory agencies. CDFW highly encourages coordination with CDFW land managers on CDFW-owned land, but recommends that the District’s BMPs be refined to avoid or reduce reliance on CDFW staff. For example, BMP E-3 relies on CDFW to inform District staff of the locations of endangered plants for flagging and District staff avoidance. For lands outside of CDFW ownership, the District should implement rare plant surveys performed by a qualified botanist or coordinate with independent qualified botanists to determine species occurrences and locations. Moreover, CDFW would discourage the flagging of species occurrence due to the inadvertent attention it may bring them.



Proposed BMPs A-7 and H-10, rely on positive occurrences databases such as the California Natural Diversity Database (CNDDDB) for site screening. The CNDDDB only represents the data that have been submitted and does not provide an exhaustive list of species or habitat type, and therefore, the CNDDDB does not provide an exhaustive list of species distribution. It is unclear in BMP H-10, how suitable habitat will be determined. CDFW recommends that the potential presence of special-status species at Project sites be based on a detailed assessment of suitability of habitat for fish and wildlife species using



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various methods such as aerial imagery, historical and recent survey data, field reconnaissance, site-specific surveys, scientific literature and reports, as well as “positive occurrence” databases such as CNDDDB.



CDFW considers the migratory bird nesting season in Sonoma and Marin counties to be February 1 through August 31. BMP F-6 should be changed to reflect this nesting season.

4

The District should clarify in BMP A-10 and B-4 that the possible spread and transmission of fungal pathogens from worker footwear, tools and ATV's that causes Chytridiomycosis would be addressed by decontamination of wetland/vernal pool work equipment. Chytridiomycosis is an amphibian fungal disease caused by *Batrachochytrium dendrobatidis*. Chytridiomycosis has been implicated as an important factor in the decline of amphibians worldwide. To prevent the potential spread of this amphibian fungal pathogen throughout Marin and Sonoma County wetlands, a decontamination protocol for District field workers and their equipment should be implemented. As such, BMP-10 should be revised to state that field equipment, worker boots and vehicles that have been in contact with wetlands, shall be decontaminated before and after entering wetlands in different watersheds. For guidance and further detail please refer to “*Interim Guidance on Site Assessment and Field Surveys for Determining Presence or a Negative Finding of the California Tiger Salamander*,” October 2003 (https://www.dfg.ca.gov/wildlife/nongame/survey_monitor.html#Amphibians).

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Additionally, CDFW is concerned with the spread of invasive upland and aquatic non-native weeds. Weed seeds may be transported from property to property on District field equipment, especially vehicles such as ATV's. Invasive weeds typically produce homogenous stands that out-compete native plants and reduce overall biodiversity. The District's BMP list should include a provision that details the removal of weed seeds from field equipment including the undercarriages of vehicles (e.g. by using an air compressor) between properties entered on the same day to further reduce the spread of invasive and nonnative plants and animals.

6

Surveillance Alternative

The draft PEIR states that activities associated with the Surveillance Alternative would have a less-than-significant impact (page 4-76 and 77). This Surveillance Alternative includes activities such as maintaining paths and long-term clearing of vegetation to allow access, which may have an impact to Biological Resources. Within the Project area, direct and indirect impacts on special-status species may be significant due to habitat loss, physical crushing by motorized vehicles or consistent disturbance. For example, regular vegetation maintenance in tidal marsh habitats may be a significant impact on salt-marsh harvest mouse (*Reithrodontomys raviventris*), California black rail (*Laterallus jamaicensis coturniculus*) and California clapper rail (*Rallus obsoletus obsoletus*), all identified as Fully Protected pursuant to Fish and Game Code sections 3511 and 4700. Fully Protected species may not be taken or possessed at any time and no licenses or permits may be issued for their take except for collecting these species for necessary scientific research. Since the extent of salt marsh vegetation removal is unknown, the actual impact on species is also unknown.

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To avoid any impacts to salt marsh harvest mouse, CDFW recommends that BMP C-2 state that vegetation removal will be done by hand and BMP A-8 state that no vehicles shall be driven within salt marsh habitat. Vehicles, either mounted mowers or ATV off-road vehicles, do not allow time for salt marsh species to move into adjacent areas.

8

CDFW recommends changing District's BMP D-3 and G-3 work window for California clapper rail avoidance to September 1 through January 15 to avoid courtship activities and behavior that begin prior to the onset of the breeding season.

9

CDFW is concerned that the proposed project has the potential to impact the California tiger salamander (CTS), a state-threatened species. The PEIR should determine the habitat location and quantify what the impacts are to CTS, and then present biological measures, such as take avoidance and minimization measures. The PEIR should identify mitigation for any impacts to potential breeding and/or upland habitat to conclude that the impacts have been mitigated to less-than-significant levels. CDFW recommends that BMP F-10 state that no motor vehicles be operated in vernal pool habitat during California tiger salamander (CTS) (*Ambystoma californiense*) breeding and rearing season and during rare plant growth and blooming seasons. Any access through or across vernal pools and swales should be done by foot. The draft PEIR states that District staff would cross hydrologic connection (swales) with permission from regulatory agencies. If the swale contains CTS or state listed plants, an Incidental Take Permit may be needed. It should therefore be stated in the draft PEIR that an Incidental Take Permit may be needed when working in threatened or endangered species habitats. In addition, because CTS is a federally listed species, we recommend contacting the U.S. Fish and Wildlife Service regarding impacts to this species.

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CDFW discourages aerial treatments (helicopter and fixed wing) over vernal pool and salt marsh habitats. According to District BMP H-13, appropriate agencies will be notified in advance of large scale treatments to sensitive areas. Salt marsh and vernal pool habitats are sensitive habitats, and CDFW should be notified of any planned large scale treatment.

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Physical Control Alternative

Section 4.2.4 of the draft PEIR addresses the physical control alternative which deals with modifying the landscape to reduce vector habitat. These landscape modifications are described as filling of nonfunctional water circulation ditches, reconnecting backwaters or isolated pools on floodplains, and increasing drainage rates and areas in managed wetlands. It further states that draining areas of shallow freshwater habitat to reduce the amount of standing water or reduce the amount of time such water remains standing may be required in some circumstances. The draft PEIR outlines BMPs in Table 4-6 Section G for water structures in Waters of the U.S., yet the exact impacts of each site are unknown. CDFW recommends that the District evaluate potential impacts and provide feasible and foreseeable avoidance, minimization, and mitigation measures in the PEIR, and not defer mitigation to consultation with agencies. CDFW also recommends including jurisdictional state waters to Section G.

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If specifics are not available at this point to be analyzed within the scope of this draft PEIR then all future landscape modifications under the Physical Control Alternative should be independently analyzed under separate CEQA review.

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Food Web Impacts

Sections 4.2.2.6 and 5.2.2.2.4 of the draft PEIR discuss ecological food webs in broad concepts. Aquatic invertebrates, including mosquito larvae, serve as food resources for fish, including salmonids as well as amphibians. Vector control techniques, such as the use of a mosquito larvacide can result in a loss of available prey, which could affect fish and amphibian growth, reproduction (Lawrenz 1984) and survival. The draft PEIR, Page 4-75 acknowledges that mosquito larvae control by the District likely reduces the amount of available prey for amphibians; however, states that no impact is expected to occur to amphibians because vector controls are applied over a "small area" and other prey species are available to amphibians. The Sonoma County population of CTS occupies a very restricted area limited to vernal pools on the west side of the city of Santa Rosa. CDFW is aware that many vernal pools occupied by CTS have been treated with mosquito larvacide, despite the lack of information on the potential adverse impact of prey removal on CTS. CDFW recommends that the PEIR address this potentially significant impact. Natural predators should be used as the first line of defense on larvae. The District should develop abundance thresholds in sensitive habitats (i.e. vernal pools) that guide treatment. Intensive monitoring should be conducted to demonstrate exponential growth patterns prior to treatment of vernal pools.

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CDFW Coordination

CDFW recognizes and appreciates the District's intent to coordinate with CDFW Environmental Scientists and Land Managers with regard to District activities on CDFW-owned land. BMP G-2 should include a meeting with CDFW and the District annually, prior to the onset of the rainy season, to discuss, among other things: access, sensitive resources, weed and pathogen spread, treatment alternatives, and treatments applied. In addition, the annual report should detail what properties were accessed and when, vector survey results, and treatments implemented on CDFW properties during the prior year.

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California Endangered Species Act

CDFW has regulatory authority over projects that could result in the "take" of any species listed by the State as threatened, endangered or candidate, pursuant to Fish and Game Code §2050 et seq. and or plants protected by the Native Plant Protection Act. Please be advised that a CESA Permit, pursuant to Fish and Game Code §2050 et seq., must be obtained if the Project has the potential to result in take of species of plants or animals listed under CESA, either during Project activities or over the life of the Project. Issuance of a CESA Permit is subject to CEQA documentation; therefore, the PEIR must specify impacts, mitigation measures, and a mitigation monitoring and reporting program. If the proposed Project will impact CESA-listed species, early consultation with CDFW is encouraged, as significant modification to the Project and mitigation measures may be required in order to obtain a CESA Permit. More information about the CESA permit process can be found on the CDFW website at <https://www.wildlife.ca.gov/Conservation/CESA>.

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Lake and Streambed Alteration Agreement

CDFW may require an LSAA, pursuant to Fish and Game Code §1600 et seq. Notification is required for any activity that will divert or obstruct the natural flow, change the bed, channel, or bank including associated riparian or wetland/marsh resources, use material from the stream/channel bed, or substantially adversely affect fish and wildlife resources. Issuance of an LSAA is subject to CEQA. CDFW, as a Responsible Agency under CEQA, will consider the CEQA document for the Project. Therefore, the CEQA document must specify impacts, mitigation measures, and include a mitigation monitoring and reporting program. More information about the LSAA process can be found on the CDFW website at <https://www.wildlife.ca.gov/Conservation/LSA>.

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CDFW appreciates the opportunity to provide comments on the draft PEIR for the proposed Project and is available to meet with you to further discuss our concerns. If you have any questions, please contact Timothy S. Dodson, Environmental Scientist, at (707) 944-5513; or Ms. Karen Weiss, Senior Environmental Scientist (Supervisory), at (707) 944-5525.

Sincerely,



Scott Wilson
Regional Manager
Bay Delta Region

cc: State Clearinghouse

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Literature Cited

Lawrenz, R.W. 1984. The response of invertebrates in temporary vernal wetlands to Altosid SR-10 used in mosquito abatement programs. *Journal of the Minnesota Academy of Sciences* 50(3): 31-33.

Comment Letter S-CDFW**California Department of Fish and Wildlife****Scott Wilson, Regional Manager****October 13, 2015*****Response 1***

Given the size of the District's Service Area and the hundreds of individual surveillance and control sites that the District covers, it is infeasible for the District to perform "protocol" surveys at all locations for surveillance and for every treatment. Moreover, protocol level surveys at all treatment locations are not necessary to ensure that impacts on special-status (listed) species and their habitats would be less than significant. Implementation of the protective measures included through the BMPs are sufficient to ensure that the District's ongoing program activities will not have a substantial adverse effect on special-status species or their habitats. For example, see Response 9 for BMPs to avoid or minimize disturbances to salt marsh harvest mouse.

The PEIR analysis assumes that presence will be determined before physical or vegetation management "treatment" is conducted based on the BMPs. For selected Physical Control or Vegetation Management treatments, i.e., those which may require permits from CDFW, USFWS, USACE, or RWQCB, species occurrence information will be obtained using the latest databases (CNDDDB and District), published reports, and consultation with resource agency staff. MSMVCD will assume presence for surveillance activities and implement avoidance measures to prevent take of state-listed species.

MSMVCD understands that CDFW wants assurance that the biological surveys will adequately determine presence of a special-status species. Surveys would be species-specific (i.e., fish, frogs, salamanders, various birds, plants, etc.) and somewhat habitat-specific and could be generalized for many groups of organisms (i.e., floristic surveys for plants in the appropriate seasons; possible protocol surveys for those species for which they are available such as CRLF and CTS; visual surveys for birds). However, it is known and understood that protocol surveys can be quite intensive, time-consuming (over multiple seasons or years), and costly, and the District does not have the financial resources to do them for its ongoing vector management activities throughout Marin and Sonoma counties (in contrast to the permanent, construction-related activities of land development or utility pipeline projects where protocol surveys are most often performed at site-specific locations). For some species, a survey may require capture of the species, which would require special permits (i.e., CTS larvae in waters with low visibility), which would be infeasible in light of the time-sensitive nature of the District's vector management activities when preparing for mosquito control outside of the wildlife refuges/management areas. Inside the federal and state wildlife refuges, District staff contact and work with the appropriate refuge staff to review control activities to be performed and rely on the refuges' surveys and data to augment literature/database information for special-status species.

The District did participate in an informal biological evaluation (IBE) of mosquito source reduction activities in tidal habitats of the San Francisco Bay Area. This IBE was completed for the renewal process of the District's nationwide mosquito source reduction permit under the regulatory authority of the US Army Corps of Engineers (USACE). The San Francisco Bay Conservation and Development Commission (BCDC) and the San Francisco Bay Regional Water Resources Control Board (RWQCB) are also permitting agencies for his work. The District analyzed the potential impacts of physical control/mosquito source reduction work on special status species in tidal marshes. This document has been reviewed by the USACE and US Fish and Wildlife Service (USFWS).

Specific survey protocols/methods for special-status species and their habitats can be developed for those specific sites determined to require such surveys and in consultation with CDFW. A District staff biologist with approved training for a particular species (or other professional biologist) would conduct the initial evaluation for sites that may require protocol surveys. Protocol surveys would need to be done by an

agency-approved biologist. Criteria for the initial evaluation would be developed in consultation with CDFW (and USFWS and NMFS as needed) and could be incorporated into the Mitigation Monitoring Program (MMP) for this PEIR. District staff will meet with CDFW to review sites most often requiring physical/vegetation control measures and develop a plan for determining presence of special-status species or presuming presence of such species and what additional protection measures (if any) are needed.

Response 2

The District visits hundreds of natural sites each year. Conducting surveys for and mapping of sensitive species for all these sites, particularly large expanses of private land and tidal marsh, is not feasible or appropriate for a programmatic analysis. To visit all of these sites at the appropriate time for vector control surveillance and treatment, and to avoid impacts on special-status species, the District provides training for all staff using information from CDFW materials, professional biologists, existing databases, and aerial photographs (Google Earth). Staff are provided pictures of rare plants and special status species, and calls of special-status bird species (e.g., rails) are put on their computers to raise awareness. All of the District's technical staff are required to take 40 hours of Continuing Education every 2 years that covers chemicals used in vector control, biology of species, and environmental sensitivity. BMP E3, which provide measures for the protection of the special-status plant species soft bird's beak, states that the District will coordinate with CDFW for activities at the Napa-Sonoma Marshes Wildlife Area, which encompasses 15,200 acres of baylands, tidal sloughs and wetland habitat. This does not imply that CDFW would be responsible for providing locations of soft bird's beak, but only that the District would use any available data CDFW has for locations of this plant within the Wildlife Area.

Flagging of soft bird's beak locations is a valid concern for vector control actions in or adjacent to areas regularly used by the public. However, this species generally is not expected to occur in areas heavily used by the public. Flagging could attract people to see what is being flagged with the potential for trampling of sensitive plant species. In areas not frequented by the public, flagging plant locations would assist the District and allow workers to avoid accidental damage to the plants. As noted above, staff are trained on how to identify special-status species, and this species will be included in their training when areas that could support soft bird's beak are to be visited by MSMVCD staff. Plant locations can be mapped when flagging occurs so staff know where they are likely to be in low public use areas. In high public use areas, staff will use maps of known locations and photos of the plants to avoid impacts.

For areas outside CDFW ownership, the District relies on existing data for soft bird's beak and other sensitive plant locations where such data are available. Sources of data include CNDDDB, other plant databases (California Consortium of Herbaria), and local experts/botanists that may have unpublished data. If no data are available for new sites, and the vector control activities have the potential to adversely affect special-status plants (i.e., if suitable habitat is identified), specific surveys by a professional biologist would be performed. Plant locations can be recorded using GPS for mapping and future reference.

Response 3

Regarding comments on the District's approach to the evaluation of special-status species occurrence, the District acknowledges that lack of identification in CNDBB or other databases is not conclusive evidence that no sensitive species are present in potential treatment areas, or that they necessarily would not be there in the future. Suitable habitat referenced in BMP H10 will be determined using methods such as recent aerial photographs, results of previous survey data from scientific literature or reports, site-specific survey data, and databases such as CNDDDB. The District presumes presence where suitable habitat occurs based on those biological investigations, which may include some protocol surveys at selected locations where District activity is of greatest concern. Moreover, visual observations by staff in the field can assist in assessing habitat suitability and in implementing measures to avoid or minimize impacts. For state-listed species, measures to avoid take will be implemented unless take cannot be avoided and a CESA permit has been obtained from CDFW. BMP H10 is modified as indicated below:

Special-Status Aquatic Wildlife Species:

- > Suitable habitat will be determined using methods such as recent aerial photographs, results of previous survey data from scientific literature or reports, site-specific survey data, and databases such as CNDDDB.
- > A CNDDDB search was conducted in 2012 and the results incorporated into Appendix A for this PEIR. An update was completed in November 2014 and the results incorporated into Section 4.1.2 of this PEIR. District staff communicates with state, federal, and county agencies regarding sites that have potential to support special status species. Many sites where the District performs surveillance and control work have been visited by staff for many years and staff is highly knowledgeable about the sites and habitat present. If new sites or site features are discovered that have potential to be habitat for special status species, the appropriate agency and/or landowner is contacted and communication initiated.
- > Use only pesticides, herbicides, and adjuvants approved for aquatic areas or manual treatments within a predetermined distance from aquatic features (e.g., within 15 feet of aquatic features). Aquatic features are defined as any natural or man-made lake, pond, river, creek, drainage way, ditch, spring, saturated soils, or similar feature that holds water at the time of treatment or typically becomes inundated during winter rains.
- > If suitable habitat for special status species is found, including vernal pools, and if aquatic-approved pesticide, herbicide, and adjuvant treatment methods have the potential for affecting the potential species, then the District will coordinate with the CDFW, USFWS, and/or National Marine Fisheries Service (NMFS) before conducting treatment activities within this boundary or cancel activities in this area. If the District determines no suitable habitat is present, treatment activities may occur without further agency consultation.

Given the large size of the Program Area and the number and diversity of sites treated, it is not feasible for the District to conduct detailed surveys at every location. The District is doing everything feasible short of this to determine the potential presence of special-status species through advance research and onsite visual observations by trained staff at the time of surveillance and control/treatment. The District also is implementing every feasible precaution and BMP to avoid or minimize impacts on special-status species.

Information from databases is just one tool to assess potential impacts. Because the PEIR covers a long-term, ongoing program over a vast area (1.5 million acres or 2,300 square miles), it is not feasible to know now whether a protected species will be present in a potential treatment area at the time treatment is proposed. For this reason the Draft PEIR identifies the types of species that may be present in the Program Area and their habitat (Tables 4-3 and 4-4), and impacts are evaluated by habitat type and type of activity, based on the species that could occur in those habitat types.

District policy is that its Integrated Vector Management Program (IVMP) be an adaptive management program protecting sensitive species and habitats while also providing effective vector management that uses IVM principles. BMPs, which are an integral part of the Program, are designed to ensure that the potential for special-status species to occur is assessed on an ongoing basis throughout the life of the IVMP, relying on a combination of tools including database searches, individualized habitat assessment and, where indicated based on habitat type, site-specific inspection and/or surveys, as warranted, as well as ongoing discussion of the District's activities with resource agencies. BMPs are regularly reviewed and updated to reflect the best available information and science. Furthermore, it is District policy that new BMPs be developed and added as needed to address new species and habitats of concern.

Response 4

BMP F6 specifies that vegetation management work will be conducted between October 1 and April 30 to minimize the potential for impacts on sensitive species, especially breeding birds. This is the “seasonal work period” contained in the District’s Lake or Streambed Alteration Agreement (No. 1600-2010-0253-R3, dated October 6, 2010, and amended in 2012 and 2013). The District is aware that the migratory bird nesting season is considered to be February 1 through August 31. BMP F6 has been revised below to reflect these dates. The District will perform vegetation management as indicated in agency issued work permits.

Vegetation management work will be generally confined to October 1 to April 30 to minimize potential impacts to sensitive species, especially breeding birds. ~~When~~if work is expected to occur between February 1 and ~~April 30~~ August 31 (nesting season for migratory birds), additional consultations will occur with appropriate resource agencies to help identify locations of active nests of raptors or migratory birds as well as any additional protection measures that will need to be implemented prior to commencement of work.

Response 5

BMP A10 has been revised to include invasive animal species such as New Zealand mud snails and amphibian pathogens such as the chytrid fungus. District staff will be trained in locations where these are known or expected to occur and in equipment decontamination methods if such areas cannot be avoided.

Properly train all staff, contractors, and volunteer help to prevent spreading weeds and ~~pests~~invasive animal species (e.g., New Zealand mud snails) or pathogens (e.g., the fungus that causes chytridiomycosis in amphibians) to other sites. The District headquarters contains wash rack facilities (including high-pressure washers) to regularly (in many cases daily) and thoroughly clean equipment to prevent the spread of weeds. In addition, MSMVCD will provide equipment, such as an air compressor, to clean equipment in the field when there is a concern about the transfer of weed seeds. Decontamination methods to clean equipment and personnel clothes, such as boots, of invasive species and pathogens will be included in worker training and be implemented when working in wetlands in different watersheds.

For invasive plants, equipment such as ATVs are cleaned of visible plant material in the field before moving to another area. Staff are trained regarding known locations of invasive plants, and work is scheduled for noninfested areas prior to infested areas whenever feasible. Vehicles and equipment are cleaned using high-pressure wash racks at the District’s equipment storage location behind the District office.

Response 6

We agree that the spread of invasive plant species is a concern when vehicles and equipment move from one location to another. The concern is not related to property boundaries, however, because ecological characteristics that drive weed infestations do not necessarily follow property lines. The District takes this concern very seriously, and supervisory staff regularly educate field staff about highly invasive species such as pepperweed (*Lepidium latifolium*) that are frequently encountered. In addition, the District coordinates closely with Refuge staff regarding weed infestations and how to avoid their spread. We have provided assistance with and have partnered in invasive plant control investigations (e.g., pepperweed and *Ludwigia* spp.). Staff are instructed to clean equipment after exposure to weed infested areas to limit seed dispersal. More detail has been added to BMP A10 (shown above under Response 5) to address training that is conducted on this topic.

The District is not aware of any weed infestations that have occurred due to their activities. To the contrary, the District regularly supports invasive plant/weed removal efforts for private landowners (e.g., pepperweed and *Ludwigia* spp.).

In addition, several of the BMPs protect lands from invasive plant species: see BMPs A10: training, cleaning protocol and cleaning equipment; B4: cleaning vehicles and gear prior to entering marshes; G16: side cast materials inspected for weed infestations and abatement procedures. We anticipate that better results are achieved from these highly focused activities in specific areas that support invasive species than would be achieved by routinely cleaning equipment after each property.

Response 7

The type of vegetation removal under the Surveillance Alternative is limited to maintaining access to sites regularly monitored rather than modifying mosquito-breeding habitat, which is part of the Vegetation Management Alternative. Maintenance of paths to facilitate sampling and to provide access to vector habitat is described under Section 2.3.1.1 on page 2-9. In comments on MSMVCD activities under the Surveillance Alternative, CDFW should note that:

- > Most of the access ways are preexisting, and few new access pathways are created in any year.
- > Access ways are only 3 to 6 feet wide (page 4-75 of the Draft PEIR).
- > Vegetation is only trimmed when necessary to allow access for vector management activities, and only overhanging limbs generally 3 inches in diameter or less are cut.

We disagree that impacts on special-status species may be significant due to habitat loss or consistent disturbance from surveillance activities. The CEQA definition of substantial adverse change/significant impact vs less-than-significant impact (minor, short term, limited effects) is based on the physical change to the environment over the existing condition (i.e., May 25, 2012, when the NOP was issued). Habitat loss is extremely limited because few new access ways would be created in natural areas and because of the small size of these access ways (see above). The area of disturbance is extremely small in relation to the total potential sensitive species habitat area. No access has been wider than 6 feet and, as stated in the Draft PEIR (page 4-75) is usually about 3 feet wide and only what is the minimum needed.

Surveillance is a monitoring activity that focuses on sampling, not habitat alteration. Vegetation trimming to facilitate surveillance by itself would have a less-than-significant impact on habitat and the species depending on that habitat, especially since vegetation is being trimmed/maintained and not completely removed or cleared. As described in Section 2.3.1.1, of the PEIR, paths will be maintained only when other alternatives for access do not exist, and paths typically will range in width between 3 and 6 feet. The District also disagrees that Program activities would result in consistent disturbance or that any such activities would result in significant impacts. As explained on pages 4-76 and 5-39 of the Draft PEIR: "These disturbances would be very minor and of short duration, so would likely not cause these animals to abandon the area, but rather move away from the activity while it is occurring." Surveillance is also an infrequent activity. In any given area, District staff would typically be on site to conduct surveillance activities less than once every six days, and then only when necessary for mosquito control treatments and follow-up surveillance. These surveillance and control activities are also seasonal or seasonally reduced depending on habitat and potential for production of a particular mosquito species. For example, during the winter months, mosquito surveillance and control ceases or is substantially reduced in seasonal wetlands (including vernal pools), creeks, and tidal marshes. Quantifying number and timing of mosquito breeding periods annually is problematic as weather patterns and site conditions (temperature, rainfall, tidal regimes, hydroperiod, etc.), species of vector, time of year, and ease of access all play an important role in determining surveillance patterns, frequency of site visits, and time spent on the site. Frequency and duration of visits will vary and must vary in order to properly and effectively implement IPM principles and integrated vector management practices. Vector control is by its very nature an adaptive integrated ecosystem management process.

There are times when many large areas are flooded at the same time, and the limitation of time and staff may require that they access known historical mosquito breeding sites with ATVs to facilitate timely monitoring and effective least toxic treatment if mosquito production is found. There is a narrow time window for many of the materials the District uses to effectively manage vectors (i.e., Bti and Bs work on immatures, typically first through early fourth instar, a stage of larval development before metamorphosis into pupae; methoprene works on larvae only and certain instars depending on formulation, etc.). Other factors such as weather conditions, temperature (ambient and water), access issues, and limited staffing necessitate the occasional use of methods of access other than walking for monitoring and treatment. Without this approach, the District is relegated to adulticiding large areas (to a much greater extent than at present), a method that is least desired by the District and the public that it serves.

The PEIR has specific BMPs to protect the salt marsh harvest mouse (C1 through C8) and Ridgeway's rail (D1 through D8). The latter would also protect the California black rail. The impact analysis in the Draft PEIR relied on these measures to reach the preparers' determination that surveillance activities would have a less-than-significant impact on special-status species and their habitats.

Response 8

CDFW cites a concern regarding the potential for disturbance in tidal marsh habitat for salt marsh harvest mouse. MSMVCD engages in the following BMPs to avoid or minimize disturbance:

- > When working in state or federally managed wildlife refuges, the District informs and/or coordinates its surveillance (and treatment) activities with the appropriate resource agency staff to minimize impacts (BMPs A1 and A2).
- > District staff receives training from USFWS and CDFW biologists regarding special-status species (BMP A4) and uses existing access routes whenever available (BMP A3).
- > Most of the other BMPs cited in Table 2-6 and included as part of the project minimize impacts on special-status species or their habitats in areas where they are likely to occur. These BMPs are implemented in all areas where special-status species have the potential to occur, not just the wildlife refuges/management areas.
- > BMPs B1 through B6, C1 through C8, D1 through D8, and E1 through E4 were specifically developed to avoid impacts on tidal marshes and associated special-status species including Ridgeway's rail and salt marsh harvest mouse. These measures were developed in cooperation with regulatory agency staff and based on the latest USACE permit requirements.

CDFW recommends the District only remove salt marsh vegetation using hand tools (note, this activity is part of the Vegetation Management Alternative, not Surveillance).

- > The District already implements this recommendation (see BMPs C5, D3, E4, F2).
- > Pickleweed is typically removed from small order channels and ditches to facilitate access for sampling, improve water circulation, and reduce use of pesticides. This work is typically done with hand tools and is performed infrequently and in line with permitting from state and federal agencies. The District does use heavy equipment at times for larger ditch clearing work, which does entail pickleweed removal. CDFW has the opportunity to review these projects prior to execution.
- > In addition, vegetation removal within tidal marshes is often planned and performed cooperatively with CDFW or USFWS staff to address areas that have drainage issues and known sources of mosquito production. These agencies are typically in favor of this work because, of its benefits to special-status species habitat, such as the salt marsh harvest mouse and Ridgeway's rail.
- > It is the District's understanding that CDFW staff use vehicles to travel out near to a desired site and then walk in from where the vehicle was parked. District staff essentially do the same thing, whenever

possible and reasonable. Thus the District's ongoing occasional use of vehicles is consistent with ongoing wildlife area management activities and would not represent a substantial adverse change that is reasonably likely to have a significant impact on protected species or their habitat.

When it is necessary to move through salt marsh habitat using vehicles (e.g., it is not always practical to avoid use of motorized equipment for access given the large size of some sites), vehicles are kept on pre-existing access ways as much as practicable (BMPs A3, B2) and are operated in a manner to minimize impacts (BMPs A8, B2).

Response 9

CDFW recommends that the window for vector control activities be shortened from September 1 through January 31 to January 15 in BMPs D3 and G3. However, these BMPs are for physical control and not surveillance to which this comment is directed. This would shorten the work window for physical control by 16 days. The aforementioned BMPs were developed in agreement with permits for mosquito source reduction/physical control work by other regional, state, and federal agencies (USACE, SWRCB, RWQCB, and BCDC). The District will take this CDFW recommendation into consideration for vector control activities other than surveillance if not in conflict with other District permits and when considering other environmental factors such as tides.

Response 10

As noted in Response 3 above and BMP A7, the District uses multiple sources to determine the potential for special-status species, including CTS, to be present in areas where vector control activities are needed. If CTS are known or likely to breed in vernal pools or other water bodies, the District would evaluate the need for these activities and their timing, as well as the likelihood that CTS are present.

For vector control work in vernal pool areas, a low ground pressure vehicle is used to go straight across the connective swale between pools. This is done infrequently and only when there is no alternative option in efficiently navigating a given site. No turns are made in the swales. District staff have had on site meetings with professional biologists to discuss the District's vernal pool, CTS, and vernal pool plant related BMPs. The biologists were in agreement with the BMPs implemented by the District including the infrequent crossing of connective swales. It was readily apparent that cattle grazing at sites containing vernal pools was impacting the grade and condition of the connective swales and was causing far more concern than that of the District's operations. Given the low ground pressure of ATV's utilized by the District and the stipulation that turns would not be made within the swales, the biologist stated that they had no concerns. District staff have also discussed this issue with the vernal pool mitigation Interagency Review Team and Army Corps of Engineers staff. District staff also met with CDFW biologists at the Region 3 Headquarters and discussed this issue and the vernal pool BMPs implemented by the District, equipment use on sites containing vernal pools, mosquito control in vernal pool habitat and the infrequent need to cross vernal pool connective swales. District staff have discussed the District's operations pertaining to sites with vernal pools over the phone with CDFW staff on several occasions. District staff met with a CDFW Biologist in the field on March 9, 2010, at the Swift site to discuss the District's operations on sites containing vernal pools, and the Biologist was in agreement with that protocol for traversing the area. The District demonstrated the use of ATVs and application equipment and the thought process and methods employed in crossing connective swales, if necessary. The CDFW Biologist agreed that crossing the swales is necessary at times and if done carefully and in the most strategic locations is not an issue. District management followed up with the CDFW Biologist after the meeting and confirmed CDFW's opinion. The District does not drive vehicles through vernal pools but stays a minimum of approximately 3 feet outside the pool margin. The majority of the time the distance is substantially greater than 3 feet. This protects CTS breeding in the pools as well as state-listed plants associated with these habitats during their growth and blooming period.

See Response 16 below for permitting of take.

Response 11

The District has never conducted aerial applications over vernal pools, and the potential for this to occur in the future is very low because the pools are separated in space, and thus would require precise application just over each pool, which is not an efficient way to work. Aerial application of larvicide by helicopter is regularly conducted over expanses of tidal habitat and freshwater habitat other than vernal pools. The District notifies the land managers when mosquito production is too high or the acreage of the problem area is too great for hand or land-based equipment application. When aerial application is needed, the area to be treated is recorded by GPS and then the pilot uses the GPS data to perform the application.

Response 12

CDFW is concerned about site-specific unknown impacts that could occur under the Physical Control Alternative and wants the District to evaluate potential impacts at each site and provide feasible, foreseeable avoidance, minimization, and mitigation measures in the PEIR. The physical control water circulation activities are covered as a group of related maintenance activities organized by habitat type so that impacts can be determined in the context of habitat conditions. The analysis of physical control activities is for a programmatic EIR because of the large scope of these activities within the two-county Service Area. The District has been performing these minor drainage and circulation modification activities under a USACE source reduction permit and permits from the San Francisco Bay Development Commission and the Water Resources Regional Water Quality Control Board (see Section 2.8.1.4), which contain conditions to avoid substantial adverse environmental effects and the permits have served as the basis for development of several of the BMPs, primarily those under the following categories:

- > A. General BMPs
- > B. Tidal-Marsh-Specific BMPs
- > G. Maintenance / Construction and Repair of Channels, Tide Gates, and Water Structures in Waters of the U.S. and State

The District also had a LSAA with CDFW (CDFW 2010) that covered work in habitats under CDFW jurisdiction under Section 1600 of the Fish and Game Code at 97 sites in Sonoma and Marin Counties. The 2010 LSAA listed 59 sites in Sonoma County and 28 sites in Marin County, mostly riparian zones/creeks, seasonal low areas, drainage ditches, wetlands, and ponds. This LSAA was amended in 2012 and 2013 to add an additional 10 sites. These sites represent areas of active mosquito surveillance and limited vegetation removal. The LSAA covers maintenance of access into riparian zones, and beds and basins of creeks, seasonal depressions and low areas, seasonal wetlands, ponds, and storm water drainage ditches to perform mosquito surveillance, mosquito-borne disease surveillance, and mosquito control at all 97 sites. Covered project activities include:

- > Minor trimming of vegetation (generally 3 inches diameter or less)
- > Trimming of overhanging limbs and brush
- > Removal of small sections of downed trees or limbs within channels
- > Mowing

The permit contains specific avoidance and minimization measures and requires written notification of maintenance projects completed annually with reports due by June 30. It also has requirements that inform the BMPs. Permit requirements state that activities are to be conducted from October 1 through April 30, and the District attempts to complete the work prior to the onset of seasonal rainfall. (CDFW 2010). The LSAA expired December 31, 2014, and will be renewed. A description of this LSAA will be added to the PEIR Section 2.8.1.

In most cases, the District's alterations of both salt and freshwater habitats are for maintenance of these habitats to avoid stagnant water. Section 2.3.2.1 (page 2-11) includes the following text (with typographical errors and omissions corrected).

“The District performs these physical control activities in accordance with all appropriate environmental regulations (e.g., wetland fill and dredge permits, endangered species review, water quality review, streambed alteration permits, see Section 2.78), and in a manner that generally maintains or improves habitat values for desirable species. Major physical control activities or projects (beyond the scope of the District's 5-year regional wetlands permits with the United States Army Corps of Engineers (USACE), San Francisco Bay Regional Water Quality Control Board (RWQCB), State Water Resources Control Board (SWRCB), and San Francisco Bay Conservation and Development Commission (BCDC)) are not addressed under this PEIR (because they are not known at this time). Minor physical control activities (covered by the regional wetlands permits) are addressed in this PEIR. They vary substantially from year to year, but typically consist of up to 10,000 linear feet of ditch maintenance. Under the regional permits, the District's work plans are reviewed annually by trustee and other responsible agencies prior to initiation of the planned work. USACE, USFWS, CDFW, and other responsible agencies can inspect documentation of proposed and completed work.

“The District may request/require landowners and stewards to maintain and clear debris from drainage channels and waterways; excavate built-up spoil material; remove water from tires and other urban containers; cut, trim, mow, and harvest aquatic and riparian plants (but not including any mature trees, special-status plant species¹, or sensitive habitat areas); and perform minor trenching and ditching. The District may provide guidance for mosquito abatement activities to landowners and stewards. However, it will be the responsibility of the landowner to determine and comply with all legal requirements necessary to perform the activity. District policy is that with every recommendation, the District also makes it clear to the landowner the requirement for consultation with resource agencies and acquisition of permits that may be needed prior to commencement of any work.” (page 2-11)

Various methods of physical control are included in the Program. These include removing sediments from water circulation ditches, maintenance of water control structures, and removal of debris in natural channels, among other measures. As stated in the PEIR, physical control is considered the most effective mosquito control technique because it provides a long-term solution by reducing or eliminating mosquito developmental sites and ultimately reduces and potentially eliminates the need for chemical applications. Precise impacts cannot be determined at this time due to the programmatic nature of this analysis. Specific sites where these activities occur have not been defined at this time. However, BMPs include measures to ensure that wetlands and riparian habitat are protected and that permit requirements are met (see BMPs A7, F1, F3, G1, G9, and G12). In addition, BMP G2 requires annual work plans that provide details on proposed work for the upcoming season. The work plans provide wetland delineations and vegetation impact areas as well as maps. Agencies including the USACE, USFWS, NMFS, CDFW, BCDC, and RWQCB are given the opportunity to comment on the work plan. Together the BMPs provide specific performance criteria for work performed in sensitive habitats that, along with the requirements to obtain necessary permits from agencies with regulatory responsibility over natural resources and comply with permit conditions, provide sufficient assurance that District activities will not have a substantial adverse impact on wetlands and riparian habitat.

¹ Special-status species are those that are listed as endangered, threatened or candidate species under the federal Endangered Species Act, endangered or threatened under the California Endangered Species Act, or listed as species of special concern by the State of California.

The title of Best Management Practices, Section G has been changed to “Maintenance/Construction and Repair of Tide Gates and Water Structures in Waters of the US and State.” Also in BMP G9, the second sentence is changed to read “No discharge of unsuitable material (e.g., trash) will be made into waters of the United States or State of California.”

Response 13

Concerning CDFW’s request that “all future landscape modifications under the Physical Control Alternative should be independently analyzed under separate CEQA review,” the District maintains that this is not necessary. The minor modifications covered herein as a group of related activities are the “project” requiring various permits as explained under Response 12. If each minor alteration were evaluated independently under CEQA, then the context in which they occur would be lost. Some commenters could complain that the “project” was being separated into smaller pieces to avoid showing impacts, called “piecemealing.” As noted, the District will need to coordinate with CDFW on the extension of its LSAA. This PEIR will inform the permitting process and the agencies involved, including CDFW. If a particular site poses a special concern to CDFW, the District will consult with CDFW biologists on how to proceed and whether any additional analysis is warranted.

Response 14

Removal of mosquito larvae through vector control activities is unlikely to affect CTS larval food sources, since the mosquito larvae and pupae do not constitute an important part of their diet, nor the diet of their primary prey. CTS larvae consume a variety of food items including aquatic invertebrates, primarily small crustaceans, as well as Pacific chorus frog tadpoles and snails (Anderson 1968). After hatching, larvae feed primarily on small invertebrates, switching to larger prey (tadpoles and snails) within about two weeks to support their rapid growth. Mosquito larvae and pupae were not found in the stomach contents of CTS larvae in this study, which was conducted in Santa Cruz County, California.

The cladocera (crustaceans) consumed by CTS larvae are filter feeders that feed primarily on phytoplankton, algae, bacteria, and dead plant material (Murry Darling Freshwater Research Centre 2013). Chironomid larvae are opportunistic omnivores that feed on algae, fungi, pollen, leaf and wood fragments, detritus, animal remains, and silt (Henriquez-Oliveira et al. 2003).

Chorus frog tadpoles feed on green algae, blue-green algae, bacteria, diatoms, protozoa, and organic and inorganic debris. They feed primarily on the bottom of aquatic habitats but can feed at the surface when pollen or diatoms are present (Rorabaugh and Lannoo 2016).

The mosquito larvicides the District uses in vernal pool habitats (e.g., *Bacillus thuringiensis* and *Bacillus sphaericus*) have been shown to be very specific to mosquito larvae, and nontarget impacts are minimal to nonexistent for invertebrates or amphibians (Glare and O’Callaghan 1998). Lawler and Dritz (2013) report that the larvicide spinosad is an effective treatment for mosquito larvae at recommended doses but that at doses greater than those that kill mosquito larvae, it can kill mayflies and some other nontarget insects that may serve as prey items for other species. Therefore, Lawler and Dritz (2013) indicate that doses that are effective against mosquito larvae are below levels that would even marginally impact nontarget insect populations. If an impact occurs, it would be inconsequential. Even if the spinosad application for mosquito control impacts some individuals in a nontarget insect population, these nontarget populations are reproductively robust and the time to replace the individuals in the population is relatively short (Emlen 1989).

The District does consider mosquito abundance and the mosquito species present in vernal pools prior to larvicide treatment. Mosquito control in vernal pool habitats is indeed surveillance driven and involves significant time and effort by District staff. Constructed vernal pools in the Santa Rosa Plain produce substantial populations of the western encephalitis mosquito (*Culex tarsalis*). *Culex tarsalis* is the primary vector of West Nile virus in California. The vernal pool habitats in the Santa Rosa Plain are in close

proximity to homes and cities that are well within flight range of this mosquito species. Prevention, and early detection of potential health risks through surveillance, followed by treatment, according to IVM principles, is key to protecting the health of both vernal pool species and surrounding communities.

Response 15

CDFW requests that the District modify BMP G2 to include a meeting with CDFW annually, prior to the onset of the rainy season to discuss numerous issues. BMP G2 specifically pertains to submission of project proposals relevant to physical control and the maintenance, construction, and repair of water control structures and tide gates as outlined in the District's previous nationwide permit for mosquito source reduction. The issues that CDFW has suggested for discussion pertain to potential pathogen spread, weed abatement, mosquito control, and District access to CDFW properties. The District agrees that an annual meeting would be appropriate to discuss the aforementioned topics and such a meeting is now also necessary to discuss the implementation of Fish and Game Code Section 1506 (mentioned on page 1-7 of the PEIR). The District can work with CDFW on the scheduling of meetings. The District currently does meet with CDFW staff to discuss several of the topics mentioned and for many years has provided a substantial amount of site access and treatment data attached to quarterly billing statements submitted to CDFW. The District and CDFW can discuss the specifics of further reporting at upcoming meetings, as appropriate.

Response 16

Concerning the comments that a CESA Permit is required for projects that could result in the "take" of any state-listed species, and a CESA Permit being subject to CEQA documentation, the following response is provided.

This Programmatic EIR was not written with the intent of meeting detailed data/site-specific requirements for a CESA permit. The District acknowledges that additional environmental documentation and area specific impact assessments may be required in obtaining permits if necessary, including CESA, ESA, LSAA, and Clean Water Act section 401 and 404 permits. Rather, this PEIR meets CEQA requirements for a Program covering a large area with impact determinations based on thresholds of significance and professional judgment that reflect CEQA's definition of a significant impact – a substantial adverse effect.

Take is defined in Section 86 of the Fish and Game Code as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." Based on the District BMPs and additional mitigation measures included in the Draft PEIR, with modifications based on agency consultations and public comments for this responses to comments component of MSMVCD's Final PEIR, and based on its long history and extensive experience implementing the Program activities, the District does not anticipate that its actions will result in take of any listed species.

Vector control actions could result in some individuals potentially being unintentionally harassed (i.e., prompted or forced to temporarily leave its specific location). The potential for such inadvertent disturbance occurs any time humans come into proximity of protected species, including through visits to or management of wildlife refuges. However, it is not reasonably foreseeable that such disturbance would constitute harm that actually kills or injures fish or wildlife. The potential for impacts associated with maintenance of drainage ditches and limited vegetation management can be avoided or minimized using the BMPs identified in the PEIR. It should also be noted that using chemical treatment is an option if physical control methods were to be avoided. Furthermore, all activity at the refuges to control mosquitoes is coordinated with the refuge manager/staff; and the need to address mosquito populations and breeding habitat at state/county/city parks and lands is also coordinated with the staff of these areas, which further minimizes the potential for any direct or indirect take of species.

Obtaining a CESA permit is not required but would provide the District with immunity from take liability under CESA, if take were reasonably foreseeable. Based on the evidence and analysis in this PEIR, and the District's extensive experience implementing the Program, the District does not believe that it is reasonably foreseeable that any of the Program activities will result in take as defined under CESA. To date, none of the vector control districts involved in the SF Bay Area and Salinas Valley have been required to obtain a CESA permit for ongoing vector management activities. In 2015, CDFW determined that CDPH, and the districts operating under a valid Cooperative Agreement with CDPH to conduct surveillance, prevention, or control of vectors and vector-borne diseases, are not required to obtain a scientific collecting permit (SCP) under Fish and Game Code Sections 1002, 4005(e), and 4011. A SCP is required for any scientific study conducted by or in collaboration with CDPH or local agencies that is not routine surveillance and control activities and includes take of animals or plants (CDFW 2015). MSMVCD has a Cooperative Agreement with CDPH that is described in Section 1.1.3.1.1 of the Draft PEIR and renewed annually.

If it is determined that a CESA permit is required for any Program activities, the PEIR will be revisited as indicated in Section 1.8. The need for any project-level CEQA review at a particular source control/treatment site would be considered at the time the District applied for a CESA permit, if required.

Response 17

Under the California Fish and Game Code, Lake and Streambed Alteration Agreement (LSAA) requirements apply to any activity that will:

- > substantially divert or obstruct the natural flow of any river, stream or lake; or
- > substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake; or
- > deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake; and
- > substantially adversely affect fish or wildlife.

The District does not engage in large-scale operations affecting lakes and streams (e.g., soil movement, removal of vegetation with branches and stems that exceed 4 inches in diameter, removal of large amounts of vegetation), nor does the District request landowners to engage in such activities. Based on its history of implementing the Program alternatives, the District does not anticipate that its physical control and vegetation management activities will result in diversion or alteration of natural flow or modify the bed, channel, or bank except to improve circulation of water and remove vegetation that creates mosquito breeding habitat, and in no event would any such activities be likely to be "substantial" within the meaning of the Fish and Game Code. For example, under surveillance, taking a water sample to check for mosquito larvae would not modify flows or material from the bed, channel, or bank. BMPs G1 through G17 address maintenance activities in channels/water facilities in waters of the US, including management of sidecast spoils in BMP G16. However, the District will confer with CDFW to provide clarifications on Program activities and review CDFW concerns to determine appropriate LSAA coverage as part of its renewal of its existing LSAA. The need for any subsequent project-level CEQA review at a particular source control/treatment site would be considered at the time the District applied for extension of its LSAA permit.

Additional References

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EDMUND G. BROWN Jr., Governor

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September 16, 2015

MRN000081
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 SCH# 2012052066

Mr. Phil Smith
 Marin/Sonoma Mosquito
 And Vector Control District
 595 Helman Lane
 Cotati, CA 94931

Marin/Sonoma Mosquito and Vector Control – Draft Environmental Impact Report (DEIR)

Dear Mr. Smith:

Thank you for including the California Department of Transportation (Caltrans) in the environmental review process for the Marin/Sonoma Mosquito and Vector Control District Integrated Vector Management Program. Our comments are based on the DEIR.

Project Understanding

The proposed program is a management strategy intended to control vector-borne diseases in Marin and Sonoma County by targeting mosquitos, rats, yellow jackets, and ticks. The Marin/Sonoma Mosquito and Vector Control District has proposed several program alternatives which include: surveillance, physical control, vegetation management, biological control (pathogens and predators), chemical control and nonchemical control/trapping. It is noted in the DEIR that the program will include a combination of these vector management strategies.

Biological Impacts

Areas subject to physical, chemical or biological control that are within Caltrans Right of Way (ROW), or Caltrans mitigation sites may contain sensitive biological resources (e.g. wetlands, listed-species habitat, waters, etc.). These resources are regulated by Federal and State agencies. The activities listed may require consultation with the U.S. Fish and Wildlife Service (USFWS)/ National Marine Fisheries Service (NMFS), and may require permits from the U.S. Army Corps of Engineers (USACOE), Regional Water Quality Control Board (RWQCB) and/or California Department of Fish and Wildlife (CDFW). Caltrans Office of Biological Science and Permits recommends that the Marin/Sonoma Mosquito Vector Control District provide environmental clearances for these activities prior to performing them within Caltrans ROW where biological resources may be impacted.



“Provide a safe, sustainable, integrated and efficient transportation system to enhance California’s economy and livability”

S-DOT

Mr. Phil Smith, Marin/Sonoma
Mosquito and Vector Control District
September 16, 2015
Page 2

Mitigation Responsibility

As the lead agency, the Marin/Sonoma Mosquito Vector Control District is responsible for all project mitigation. Where mitigation is a condition of approval, CEQA requires a Mitigation Monitoring and Reporting Program (MMRP). Required information is listed below. Further information on the MMRP is available on the following website:

http://www.dot.ca.gov/hq/tpp/offices/ocp/igr_ceqa.html.

- Lead Agency contact name, address, and telephone number,
- Location, type and implementation schedule for each mitigation measure, and
- Signed and dated certification that the mitigation has been implemented

Should you have any questions regarding this letter or require additional information, please contact Cole Iwamasa at (510) 286-5534 or by email at: cole.iwamasa@dot.ca.gov.

Sincerely,



PATRICIA MAURICE
District Branch Chief
Local Development - Intergovernmental Review

c: State Clearinghouse

"Provide a safe, sustainable, integrated and efficient transportation system to enhance California's economy and livability"

Mr. Phil Smith, Marin/Sonoma
Mosquito and Vector Control District
September 16, 2015
Page 3

S-DOT

bcc:PMaurice/CIwamasa/ChronFile/FMalamod-Roam

*"Provide a safe, sustainable, integrated and efficient transportation
system to enhance California's economy and livability"*

Comment Letter S-DOT**California Department of Transportation****Patricia Maurice, District Branch Chief
September 16, 2015*****Response 1***

The agency requests that the District provide environmental clearances for vector control activities within California Department of Transportation's (Caltrans) right-of-way (ROW) or at Caltrans mitigation sites.

For work on State of California lands and riparian zones, wetlands, or other sensitive habitats, the District coordinates, reviews activities, communicates, and often collaborates with several agencies including the USFWS, CDFW, Marin and Sonoma County agencies, municipalities, and property owners of Marin and Sonoma counties. District staff has long standing cooperative, collaborative relationships with federal, state, and local agencies. Section 2.8 of the PEIR covers the District's permits with other agencies (pages 2-52 through 2-54). The District is aware and understands that new sources of mosquito production found within the Caltrans ROW may contain sensitive habitat and resources and consultation with the appropriate regulatory agencies may be necessary.

As indicated in the Draft PEIR, physical control/source reduction is an important component of the District's Integrated Vector Management Program. This component of the program includes working with property owners and land managers to minimize the potential for mosquito production and vector-borne disease transmission. The California Health and Safety Code (Section 2000 et seq.) clearly delineates property owner responsibility relative to mosquito and vector abatement. It is of the utmost importance that Caltrans properly manages and maintains (e.g., both grade and vegetation) the function of water conveyance features (e.g., roadside water conveyance channels) to minimize and potentially prevent mosquito production and the need for mosquito control operations. The District is aware that Caltrans has worked closely with the California Department of Public Health with regard to identifying the potential for mosquito production and properly maintaining water conveyance features in Caltrans ROWs.

An example of an opportunity for prudent mosquito source reduction exists in the Caltrans ROW east of Black Point and immediately east of the juncture of Atherton Avenue and Highway 37 in Marin County. The ROW is on the immediate north side of Highway 37. District staff have met previously with Caltrans staff on January 7, 2013, to discuss this point. During that January 7, 2013, meeting and in follow up correspondence in January 2014, we explained a significant mosquito control and water conveyance issue within the Caltrans ROW immediately north of Highway 37 and east of Black Point in Marin County. We have yet to receive any feedback regarding any potential solutions to this problem area.

We suggest identifying vector control problem areas with your staff for Caltrans to manage and maintain. As the landowner/land manager, Caltrans should obtain the necessary permits from CDFW for this maintenance activity as part of its overall maintenance program for state ROWs within Marin and Sonoma counties. For Caltrans mitigation areas, we can review those with staff as well. However, State mitigation areas also need to be maintained to avoid becoming mosquito-breeding habitat. If state-owned lands are not maintained and vector problems arise, the District will need to treat the problem expeditiously and not wait for mosquito larvae or pupae to complete their life cycle.

Section 1.1.3 of the PEIR identifies a number of legislative and regulatory actions that form the basis for the District's authority to engage in vector control. The District is a regulatory agency formed pursuant to California Health and Safety Code Section 2000 et seq. In enacting that law the California Legislature recognized the importance to public health and the economy of proactive management of vectors. Furthermore, due to its public health mission, the California Department of Pesticide Regulation's (CDPR's) Pesticide Regulatory Program provides special procedures for vector control agencies that operate under a Cooperative Agreement with the CDPH. The District operates under a Cooperative Agreement with CDPH (CDPH and MARIN/SONOMA 2015) that is renewed annually. The application of

pesticides by vector control agencies is regulated by a special and unique arrangement among the CDPH, CDPR, and County Agricultural Commissioners.

Response 2

The information on mitigation responsibility is understood. As required by CEQA, the District will prepare a Mitigation Monitoring Program (MMP) for our Board to consider prior to Program approval.

Additional References

California Department of Public Health (CDPH) and Marin/Sonoma Mosquito and Vector Control District (MSMVCD). 2014. Cooperative Agreement. November 21.

California Department of Public Health (CDPH) and Marin/Sonoma Mosquito and Vector Control District (MSMVCD). 2015. Cooperative Agreement. October 19.

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State of California • Natural Resources Agency
DEPARTMENT OF PARKS AND RECREATION
Bay Area District
845 Casa Grande Road
Petaluma, CA 94954

S-DPR
Edmund G. Brown Jr., Governor
Lisa Ann L. Mangat, Director

Marin/Sonoma Mosquito & Vector Control District

Rec'd 10-15-2015

October 12, 2015

Marin/Sonoma Mosquito & Vector Control District
595 Helman Land,
Cotati, CA 94931

Subject: Draft Programmatic Environmental Impact Report, SCH #2012052066

California State Parks, Bay Area District, is providing the following comments to the draft EIR referenced above.

1. State Parks supports any surveillance work performed by Vector Control District within California State Park jurisdictions. Currently, scientific collection permits are issued for other Vector Control Districts to enter State Park lands for these activities. The permits allow us to obtain the data collected during their surveys while requiring review of their methodologies and notification of request for access. Obtaining a scientific collection permit prior to continuing surveillance program within any State Park jurisdiction is required.

1

2. State Park policy strictly dictates pest, animal, and insect control, as well as vegetation management within State Parks. In addition, terrestrial and aquatic habitat contain native, rare, State and federal endangered invertebrates, amphibian, and reptile species whose protection is codified by Operations Policy, Mission, as well as State and federal laws. It should be made clear that any pesticide use for vector control, herbicide use for vegetation management, or use of biological control agents, as well as their authority to enter State Park jurisdictions for such purposes, shall be reviewed and approved by State Parks. State Parks will strive to work with Vector Control Districts to provide programmatic approval for maintenance activities. Factors which will be weighed during approval evaluation include level of risk from the mosquito/other pest, species and habitats in the area, public interface, and current scientific data.

2

If you have any questions or comments, please contact Christina Freeman, Environmental Scientist, at 707-769-5652 x209.

Sincerely,

Roy McNamee, Environmental Coordinator (Acting)
Bay Area District

Comment Letter S-DPR**California Department of Parks and Recreation****Roy McNamee, Environmental Coordinator (Acting)****October 12, 2015*****Response 1***

The commenter states support for the District's vector control related work and discussed the function of State Park issued Scientific Collecting Permits. The District has had, and continues to have, excellent communication and a collaborative working relationship with the Bay Area District of the California Department of Parks and Recreation (State Parks). The District is in regular communication with State Parks staff regarding mosquito surveillance and control and for many years has obtained scientific collecting permits (SCPs) for tick collection. As the comment letter requests, District staff provides data and reports annually regarding the District's tick collection and tick-borne disease testing work. The District will continue to foster the working relationships currently in place and obtain SCPs as necessary. The District has a cooperative agreement with the California Department of Public Health (CDPH) explained in the PEIR Section 1.1.3.1.1. Also see Response 2 below on this agreement and SCPs.

Response 2

As indicated in Response 1, the District works closely with State Parks staff regarding the District's operations on State Park lands. The District assists and responds to service requests from State Park staff to minimize mosquito populations, discomfort, and potential injury to State Park staff and visitors.

The District will also continue to communicate with State Parks staff regarding special-status species and their habitats on State Park lands. The commenter's request for State Parks approval for District access and operations has been noted. For the commenter's reference, please see the attached letter from the California Department of Fish and Wildlife to the CDPH regarding the Cooperative Agreements between CDPH and vector control districts and district operations that allow for SCPs. Additionally, it is recommended that the California State Parks Bay Area District review the California Health and Safety Code (CHSC) as it pertains to mosquito and vector control (Division 3, Chapter 1, Article 5, Section 2060 et. al.) with specific reference to property owner responsibilities. Property owner responsibilities regarding mosquito and vector hazards are clearly delineated in the CHSC. The PEIR presents relevant legislative and regulatory actions pertaining to vector control (Section 1.1.3).

It will be very helpful to the District and beneficial to public health for the Bay Area District of California State Parks to manage and maintain facilities (e.g., onsite wastewater management systems, portable toilets etc.), water troughs, water features, and seasonal and tidal wetlands with vector control in mind. This will include vegetation management and maintenance to allow access to water features for mosquito surveillance and control. If the Bay Area District of California State Parks practices mosquito source reduction, then the potential for mosquito production, the need for larval and/or adult mosquito control using chemical treatments, and the potential for mosquito-borne disease transmission to humans, livestock, and wildlife will be minimized. Managing tick habitat immediately adjacent to walking trails and posting informational signs can significantly reduce the potential for the transmission of tick-borne diseases including Lyme disease.



State of California – Natural Resources Agency
 DEPARTMENT OF FISH AND WILDLIFE
 Director's Office
 1416 Ninth Street, 12th Floor
 Sacramento, CA 95814
www.wildlife.ca.gov

S-DPR Attachment

EDMUND G. BROWN JR., Governor
CHARLTON H. BONHAM, Director



April 14, 2015

Karen L. Smith, MD, MPH
 Director and State Health Officer
 California Department of Public Health
 P.O. Box 997377
 Mail Stop 0500
 Sacramento, CA 95899-7377

Attn: Vicki Kramer, Chief
 Vector Borne Disease Section
 P.O. Box 997377, MS 7307
 Sacramento, CA 95899-7377

Dear Dr. Smith:

Re: Department of Fish and Wildlife (CDFW) scientific collecting permits (SCPs) and other authorities pertaining to vector and vector-borne disease surveillance and control

Recently representatives of California Department of Public Health (CDPH) and entities responsible for monitoring and protecting the public from human health risks posed by mosquitoes, ticks, fleas and other vectors met with Senior Policy Advisor Mark Stopher to discuss various sections of the Fish and Game Code (FGC) and their relationship to your work. It is our understanding that recently, when (CDPH) attempted to renew a state park permit for tick collecting, California Department of Parks & Recreation staff stated they now require permit applicants to provide evidence of SCP for terrestrial invertebrates or alternatively, documentation indicating that such a CDFW permit or approval is not needed for the collections/methods in question. This letter is to clarify CDFW's understanding of statutory authorities for vector surveillance and control, as well as interpretation of the Fish and Game Code, including any requirement for a SCP, in the vector surveillance and control context.

The Health and Safety Code (HSC) evidences clear legislative intent to provide broad authority to entities conducting surveillance, prevention and control of mosquitos and other vectors (e.g., HSC §§ 2001 (c), 2040, 2041, 2047 and 2055). Surveillance and control activities typically involve animals described as "vectors" in the HSC § 2002(k). Mammals that are vectors or reservoirs of vector-borne diseases that are commonly subject to surveillance or control activities are typically "non-game mammals" (F&GC § 4150).

The recent increase in West Nile virus activity, and expanding distribution of invasive mosquito species such as *Aedes aegypti*, emphasize the necessity of on-going surveillance to monitor vectors and disease trends to protect public health. These

Conserving California's Wildlife Since 1870

S-DPR Attachment

Karen L. Smith, MD, MPH
Director and State Health Officer
California Department of Public Health
April 14, 2015
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activities are usually, though not always, located in proximity to human populations or developments.

We have also reviewed several examples of Cooperative Agreements developed by CDPH, in partnership with the Department of Pesticide Regulation and Agricultural Commissioners, and signed by local vector control agencies. These demonstrate that CDPH maintains a close relationship with local vector control agencies throughout California for the purpose of maintaining a statewide surveillance and control program (HSC § 116110). This relationship includes consultation, technical assistance, and the certification of vector control technicians. The training and certification requirements are enforced through the Cooperative Agreements that CDPH and local agencies renew annually, under the terms and conditions prescribed by CDPH (HSC § 116180(a)). CDPH conducts regular on-site reviews at local agencies for adherence to the terms of the agreements.

FGC § 1002 sets forth CDFW's authority to issue SCPs. In doing so, the section provides that CDFW may issue permits for the take of animals and plants, for scientific, educational or propagation purposes. FGC § 4005(e) and § 4011 exempt the taking of mammals in certain circumstances relating to control of vectors from the prohibition of FGC § 2000.

In consideration of the above, CDFW has determined that CDPH, and entities which are operating under a valid current Cooperative Agreement with CDPH to conduct surveillance, prevention or control of vectors and vector borne diseases:

- Are not conducting science, educational or propagation activities within the scope of FGC § 1002, and a SCP is not required.
- Are exempt from the requirement for a license to trap fur-bearing or nongame mammals pursuant to FGC § 4005(e) and § 4011.
- Do not require a SCP when taking blood samples from birds when those birds are collected for other purposes by individuals who already have a SCP or bird banding permit for that work.
- Do not require any permit from CDFW when collecting or examining vectors (e.g., fleas or ticks) taken from wildlife which were lawfully collected by another entity including, but not limited to, U.S.D.A. Wildlife Services.

A SCP is required for any scientific study conducted by or in collaboration with CDPH or local agencies which is not routine surveillance and control activities and includes take of animals or plants.

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Karen L. Smith, MD, MPH
Director and State Health Officer
California Department of Public Health
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None of the above is to infer that coordination by vector control agencies with landowners, including CDFW is not necessary. For CDFW lands, it is important for local vector control agencies to coordinate access and actions closely with CDFW to avoid unnecessary conflicts with our operations.

If you have questions, or further coordination on this issue becomes necessary, please contact Senior Policy Advisor Mark Stopher, at 530.225.2275 or at Mark.Stopher@wildlife.ca.gov.

Sincerely,



Charlton H. Bonham
Director

cc: Lisa Mangat, Acting Director
California Department of Parks and Recreation
1416 Ninth Street
Sacramento, CA 95814

ec: California Department of Fish and Wildlife

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Karen L. Smith, MD, MPH
Director and State Health Officer
California Department of Public Health
April 14, 2015
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RE: Comments on the Marin/Sonoma Mosquito and Vector Control District Draft Program Environmental Impact Report

Dear Mr. Smith:

North Marin Water District (NMWD) has reviewed the draft PEIR. The water resources section addresses the use of pesticides and herbicides used to control breeding areas for mosquitos. Although the PEIR is thorough in its description of applying these chemicals according to label requirements and applicable state and federal requirements, NMWD does not believe that these measures are sufficient when chemicals with potentially negative impacts on human health could be used where contamination of drinking water sources is possible. Many of the chemicals used by the Marin Sonoma Mosquito and Vector Control District (MSMAVCD) as outlined in the document are regulated contaminants in drinking water.

North Marin Water District's goal towards protection of our drinking water sources is to lower the risk of contamination to zero. This goal translates to prohibiting the use of herbicides and pesticides that are regulated in drinking water on lands within the Stafford Lake Watershed. We request that the following conditions be adopted by MSMAVCD for the use of pesticides and herbicides on the Stafford Lake Watershed.

1. To completely eliminate the potential for surface water contamination due to runoff or incidental discharge, no pesticides, herbicide, adjuvants, or other chemicals that are regulated contaminants in drinking water shall be used on any part of the Stafford Lake Watershed.
2. When application of any biological or chemical control is indicated by the program and scheduled to take place on the Stafford Lake Watershed, MSMAVCD shall consult with NMWD 5 working days prior to application in order to provide notification and to investigate alternatives.
3. A report of any chemical or biological controls used on the Stafford Lake watershed shall be provided to NMWD at the end of each calendar year. The report should include types of control used, including any biological or chemical components, amounts of chemicals used, and locations of application.

Sincerely,

Chris DeGabriele
General Manager

Cc:

Supervisor Kinsey, 3501 Civic Center Drive Room 329 San Rafael, CA 94903
Supervisor Arnold, 3501 Civic Center Drive Room 329 San Rafael, CA 94903
Krishna Kumar, MMWD GM, 220 Nellen Ave, Corte Madera, CA 94925
Janice Thomas, SWRCB DDW, 50 D Street, Suite 200 Santa Rosa CA 95404

DIRECTORS: JACK BAKER • RICK FRAITES • STEPHEN PETTERLE • DENNIS RODONI • JOHN C. SCHOONOVER
OFFICERS: CHRIS DEGABRIELE, General Manager • KATIE YOUNG, Secretary • DAVID L. BENTLEY, Auditor-Controller • DREW MCINTYRE, Chief Engineer

L-NMWD

Received Tue Oct 6, 2015
late submission
October 2, 2015

Comment Letter L-NMWD**North Marin Water District****Chris DeGabriele, General Manager****October 2, 2015****Response 1**

The NMWD's concern is with the potential for use of pesticides, herbicides, and adjuvants to impact drinking water supply in Stafford Lake because the commenter believes that product label requirements and applicable state and federal requirements are not sufficient to protect human health from possible contamination from vector control activities. According to the NMWD website (http://www.nmwd.com/about_history_novato.php), Stafford Lake provides approximately 20 percent of the City of Novato's water, lies 4 miles west of downtown Novato, and collects runoff from 8.3 square miles of watershed property located upstream at the upper tributary reaches of Novato Creek. The primary water quality issue from testing conducted by NMWD is contamination from animal feedlots and dairies in the watershed. Water from Stafford Lake is drawn by the intake tower and fed by gravity or by pumping (depending on the lake level) into the treatment plant located just below the dam.

The District has, for at least the past 2 decades, taken an integrated systems approach to mosquito and vector control, utilizing a suite of tools that consists of public education, surveillance, source reduction (e.g., physical control, vegetation management, water management), biological controls, and chemical controls. As stated in PEIR Section 2.3, three core tenets are essential to the success of a sound Integrated Vector Management Program (IVMP).

- > First, a proactive approach is necessary to minimize impacts and maximize successful vector management. Elements such as thorough surveillance and a strong public education program make all the difference in reducing potential human vector interactions.
- > Second, long-term environmentally based solutions (e.g., water management, reduction of harborage and food resources, exclusion, and enhancement of predators and parasites) are optimal as they reduce the potential pesticide load in the environment as well as other potential long- and short-term impacts.
- > Lastly, utilizing the full array of options and tools (public education, surveillance, physical control, biological control, and when necessary chemical control) in an informed and coordinated approach supports the overall goal of an environmentally sensitive vector management program.

Historically, the District has focused on mosquito surveillance, with occasional larvicide treatment (with VectoMax FG) and mosquitofish stocking in cattle troughs and areas of open space in the Stafford Lake watershed. The District has sampled mosquito larvae from the lake associated with undesirable vegetation in the lake. However, no adulticides or herbicides were used in this area.

VectoMax FG is a larvicide mixture of the microbial pesticides Bti and Bs. (Bti and Bs are naturally occurring soil bacteria that produce chemicals that bind to receptor cells present in insects, but not mammals.) The USEPA has determined that these microbial pesticides are essentially nontoxic to humans and do not pose risks to wildlife, nontarget species, or the environment when they are used according to label directions (SWRCB 2014).

Additional surveillance, larvicide treatment, mosquitofish stocking, and occasional yellow jacket control have been needed in areas downstream of Stafford Lake. Previous adulticide applications have not occurred in the vicinity of Stafford Lake or the immediate downstream area. Adulticides have been used in heavily populated areas in Novato and near the Hwy 101 corridor, more than 4 miles downstream of the Stafford Lake area, when needed, such as when West Nile virus activity was identified in the Novato area (e.g., dead birds, positive mosquito pools, and a human case). Because of the distance and downstream location, these adulticide applications had little to no potential to affect the Stafford Lake area.

The District's current or future vector control activities in the Stafford Lake watershed are highly unlikely to result in potential impacts to water quality (see Chapter 9, Water Resources) and human health (see Chapter 7, Human Health), as discussed in the PEIR where potential impacts from all of the chemical treatment methods the District uses (or proposes to use in the future) were evaluated. With the exception of the herbicide glyphosate, none of the active ingredients that the District uses (or proposes to use in the future) are regulated by drinking water standards adopted by the EPA or by California (see SWRCB 2016).

As discussed in the PEIR, impacts to water quality and to human health from vector control activities would be less than significant for the following reasons:

- > Most of the vector control activity is for surveillance of mosquito populations within the watershed where District technicians take water samples to look for the number of mosquito larvae present, determine if the numbers are high enough to require intervention, and then determine which alternative treatment method is most appropriate. The specific actions taken in response to current or potential vector activity at a specific place and time depend on factors of vector and pathogen biology, physical and biotic environment, human settlement patterns, local standards, available control methods, and institutional and legal constraints. Surveillance activities are not harmful to the environment, because minimal disruption to habitat and to air quality/greenhouse gas emissions from equipment use occurs as explained in the PEIR (Sections 10.2.3 and 11.2.3).
- > The District also responds to occasional service requests from residents within the developed portions of the watershed for biting mosquito or yellow jacket wasp problems. When responding to a service request, technicians engage in educating the property owner on measures to avoid the problem focusing on source control measures and the use of mosquitofish in isolated fountains and ponds. Chemical methods to reduce mosquito breeding habitat or mosquito larvae/adults are a final method to resolve problems with septic tanks and drain fields, waste ponds, and other problem areas where stagnant water accumulates including seasonal wetlands.
- > The District's Proposed Program is an IVMP. District policy is to identify those species that are currently vectors, to recommend techniques for their prevention and control, and to anticipate and minimize any new interactions between vectors and humans and domestic animals. The District's IVMP employs integrated pest management (IPM) principles by first determining the species and abundance of mosquitoes/vectors through evaluation of public service requests and field surveys of immature and adult mosquito/vector populations and, then, if the populations exceed treatment guidelines, using the most efficient, effective, and environmentally sensitive means of control. This approach minimizes the need for chemical use.
- > Treatment of the lake would not occur unless there was an imminent threat to public health from vector-borne disease. The District does not directly treat drinking water supplies because these supplies do not usually include stagnant areas that encourage algal blooms and mosquito breeding. If such a situation occurred, NMWD would be notified immediately of the problem. No chemical treatment of drinking water supplies would be done without consulting with CDPH.
- > The District does not normally engage in vegetation management involving herbicides in the Stafford Lake watershed. Herbicides are used only when physical methods involving vegetation clearance by hand tools or trimmers are not appropriate given site conditions or if assistance in removing invasive plants/noxious weeds is requested of the District by another agency. For example, vegetation control at winery or other wastewater ponds can involve the use of herbicides. The District will not use herbicides at the margins of a drinking water supply including Stafford Lake.
- > The evaluations of the impacts to human health from all chemical treatment active ingredients and key adjuvants are contained in Chapter 7, Human Health, and were conducted by technical staff with the appropriate qualifications in toxicology and environmental health. These evaluations are based not only on the assessments of the chemical's toxicity and physical fate and transport contained in the scientific literature, included in the PEIR's Appendix B, Ecological and Human Health Assessment

Report (and supplemented in the PEIR chapters with additional material), but also in consideration of the District's application methods including not just the product label requirements but also the context in which the product is used (i.e., field conditions that impact product persistence or "breakdown" in the environment). Most of the chemicals used by the District break down into nonhazardous materials relatively quickly which minimizes the potential for them to be carried by runoff into the lake. Furthermore, the ultra low volume (ULV) method of fogging or aerosol application for adulticiding assists in this degradation of the active ingredient. For example, Section 9.2.7.2.1 contains the following discussion (page 9-36):

"Pyrethrins and pyrethroids quickly adsorb to suspended solids in the water column and partition into the sediment. They adsorb strongly to soil surfaces, and are generally considered immobile in soils and, therefore, are unlikely to leach to groundwater (USEPA 2006c). These materials are relatively nontoxic to mammals and birds, but are highly toxic to fish and invertebrates. The major route of degradation is through photolysis in both water and soil. Pyrethrins and pyrethroids may be persistent in environments free of light, and pyrethroids as a class have been implicated in 303(d) listings of sediment toxicity in urban creeks (BASMAA 2013). However, the ULV applications common to mosquito control and the limited use at ground-dwelling yellow jacket wasp nests (that pose an imminent threat to people or to pets) encourage dissipation rather than persistence in the environment."

Another example of how the District has gone beyond the product label requirements to minimize and avoid possible impacts to the environment and human and ecological health are the use of best management practices (BMPs) developed from permit requirements and the experience of other vector control districts. In Chapter 9, Water Resources, the District is using several BMPs as control measures to avoid and minimize impacts to water resources. See Table 9-3 (pages 9-19 – 9-22), a subset of practices in Table 2-6 in Chapter 2). For example, BMP H2 states: "The District will avoid use of surfactants when possible in sites with aquatic nontargets or natural enemies of mosquitoes present such as nymphal damselflies and dragonflies, dytiscids, hydrophilids, corixids, notonectids, and ephydriids. Surfactants are the only tool that can be used with pupae to prevent adult mosquito emergence. The District will use a microbial larvicide (e.g., Bti, Bs), insect growth regulator (e.g., methoprene) instead, or another alternative when possible."

Further support for the conclusions of less-than-significant impacts, and the likelihood of no impact to drinking water supplies consistent with NMWD's policy of zero contamination, is provided in a 2-year monitoring study conducted for the State Water Resources Control Board by the Mosquito and Vector Control Association of California (MVCAC) monitoring coalition to determine whether vector control activities were contributing contaminants to State waters.

The MVCAC monitoring coalition conducted chemical monitoring for adulticides at 61 locations during 19 application events in 2011 to 2012 and coordinated physical monitoring for 136 larvicide application events in 2012. Samples were collected from agricultural, urban, and wetland environmental settings in both northern and southern California. The adulticides evaluated included pyrethrin, permethrin, sumithrin, prallethrin, etofenprox, naled, malathion, and the synergist piperonyl butoxide. This monitoring study (MVCAC 2013) was conducted in accordance with the Statewide NPDES Vector Control Permit and had the following results:

- > 1 out of 136 visual observations showed a difference between background and post-event samples;
- > 108 physical monitoring samples showed no difference between background and post-event samples; and
- > 6 out of 112 samples exceeded the receiving water monitoring limitation or triggers.

The report concluded that there was no significant impact to beneficial uses of receiving waters due to application of vector control pesticides in accordance with approved application rates. This is consistent

with the primary mandate for vector control districts of protecting public health by reducing vector-borne diseases from mosquitoes and other vectors.

The State Water Resources Control Board evaluated the results of this study (MVCAC 2013) and a concurrent toxicity study conducted by researchers from UC Davis (Philips et al. 2013) and concluded that based on the monitoring data, the application of pesticides in accordance with approved application rates does not impact beneficial uses of receiving waters (SWRCB 2014). Therefore, the monitoring and reporting program for the Vector Control Permit was amended in March 2014 to limit the required monitoring to visual observations, monitoring and reporting of pesticide application rates, and reporting of noncompliant applications (SWRCB 2014).

Response 2

The comment states that the NMWD has a goal of lowering the risk of contamination to drinking water sources to zero and that the use of herbicides and pesticides that are regulated in drinking water are prohibited by NMWD on lands within the Stafford Lake Watershed in order to prevent runoff or incidental discharge. NMWD requests that the District to consult with NMWD 5 working days prior to an application of any biological or chemical control product. Furthermore, NMWD asks that a report each year of materials used in the watershed be provided.

The concern about pesticides' active ingredients reaching the lake from runoff or incidental discharge is addressed in Response 1 above. The District does not directly treat Stafford Lake, but if chemical treatment were needed in the event of a severe threat to public health, both NMWD and CDPH would be notified of the severity of the problem and the proposed chemical to be used. Most of the District's work in the watershed is to conduct surveillance and to respond to public service requests from farmers and residents within the watershed. Between surveillance activity and requests for service, when a vector problem is identified that requires a chemical treatment method, consistent with the District's IVM policies and procedures explained in Response 1, then the District must respond quickly depending on the stage of vector development. The 5 working day notification requirement described in the comment does not reflect the breeding cycle of several mosquito species and the environmental conditions that may speed up this life cycle. The public education and physical control activities to minimize mosquito-breeding habitat are the best methods to minimize the development of a mosquito population density that then requires chemical control, but chemical control cannot be eliminated from the District's IVMP in order to protect the public from vector-borne disease.

NMWD is directed to review PEIR Section 1.1.3, Legislative and Regulatory Actions (pages 1-5 through 1-8), for regulations governing the District's vector control activities. The Legislature granted the District broad powers to address the threat to public health and the economy posed by vectors. State law charges the District with the authority and responsibility to take all necessary or proper steps for the control of mosquitoes and other vectors in the District and specified its duties pursuant to California Health and Safety Code Sections 2040-2045. In accordance with California Health and Safety Code Section 2053, the District may:

- “(b) Subject to the limitations of the United States Constitution and the California Constitution, employees of a district may enter any property, either within the district or property that is located outside the district from which vectors may enter the district, without hindrance or notice for any of the following purposes:
- (1) Inspect the property to determine the presence of vectors or public nuisances.
 - (2) Abate public nuisances pursuant to this chapter, either directly or by giving notice to the property owner to abate the public nuisance.
 - (3) Determine if a notice to abate public nuisance has been complied with.

- (4) Control vectors and treat property with appropriate physical, chemical, or biological control measures.” (page 1-7)

As explained in PEIR Section 1.1.3.1.1:

“Due to their public health mission, the California Department of Pesticide Regulation’s (CDPR’s) Pesticide Regulatory Program provides special procedures for vector control agencies that operate under a Cooperative Agreement with the CDPH. The application of pesticides by vector control agencies is regulated by a special and unique arrangement among the CDPH, CDPR, and County Agricultural Commissioners. CDPR does not directly regulate vector control agencies. CDPH provides regulatory oversight for vector control agencies that are signatory to the Cooperative Agreement. Signatories to the agreement use only pesticides listed by CDPH, maintain pesticide use reports, and ensure that pesticide use does not result in harmful residues on agricultural products. The District maintains a cooperative agreement with CDPH (CDPH and MSMVCD 2014). Its employees are certified by CDPH as vector control technicians, which help to ensure that employees are adequately trained regarding safe and proper vector control techniques including the handling and use of pesticides and compliance with laws and regulations relating to vector control and environmental protection.” (page 1-7)

Concerning the District’s cooperative agreement with CDPH: Section 3CCR 6620 Vector Control Exemption exempts cooperating agencies from 3CCR 6614 (b)(1) (Protection of Persons, Animals, and Property), 6616 (Consent to Apply), and 6618 (Notice). Therefore, cooperating agencies may apply pesticides registered for the purpose of vector control in residential areas even though there may be a reasonable possibility of contamination to nontarget persons or property. In addition, cooperating agencies are not required to get property owner consent or provide notification to a property operator prior to a pesticide application. These exemptions are a most important benefit provided to vector control agencies that are bound by the cooperative agreement. They reflect the general understanding that vector control operations protect public health and that **rapid control or suppression of vectors over wide geographic areas is essential to achieve this protection**. Cooperating agencies have neither the time nor the resources to provide notice or acquire consent prior to the application of a public health pesticide except for the District’s public notification decision on noise generating applications affecting residential areas, as provided in BMP A12, which are most often aerial applications using helicopters. This type of application has occurred in relation to the wildlife refuges at San Pablo Bay and along the Petaluma River in southern Sonoma County, but not at Stafford Lake.

However, to further IVMP principles and use of nonchemical methods first, the District recommends a meeting with NMWD staff to review the lake and potential problem areas within the watershed and discuss source control measures and the other nonchemical alternatives under the IVMP. There is some undesirable vegetation fostering mosquito breeding at the lake, and we recommend that nonchemical vegetation management be performed. The District is ready to inform a designated staff person of the types of vector habitat problems that require proactive nonchemical treatment. For areas that require chemical treatment, the District will advise NMWD about what products are determined appropriate for use based on the mosquito’s stage of development.

Reports of chemical use are provided monthly to the County Agricultural Commissioners. The problem is creating a database that allows for aggregating the daily reports to the Stafford Lake watershed. We can discuss the most feasible method for giving NMWD pertinent information at the meeting with your staff. It should be recognized that there are developed areas within the watershed where private property owners may use pesticides, and these uses could not feasibly be quantified. However, the District’s public education activities and materials on how to avoid vector problems are consistent with the NMWD’s efforts to protect water supplies from improper use of insecticides and herbicides available for private use.

Additional References

- California State Water Resources Control Board (SWRCB). 2014. State Water Resources Control Board Order WQ 2014-0106-DWQ Amending State Water Resources Control Board Water Quality Order 2011-0002-DWQ (as Amended By Orders 2012-0003-DWQ and 2014-0038-EXEC), General Permit No. Cag 990004, Statewide National Pollutant Discharge Elimination System (NPDES) Permit For Biological And Residual Pesticide Discharges To Waters Of The United States From Vector Control Applications. July 2. Available online at http://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2014/wqo2014_0106_dwq_redline.pdf.
- California State Water Resources Control Board (SWRCB). 2016. MCL Review in Response to PHGs. Available online at http://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/MCLReview2016.shtml.
- Mosquito and Vector Control Association of California NPDES Permit Coalition. 2013. MVCAC NPDES Permit Coalition 2011/2012 Annual Report, NPDES Vector Control Permit (Order No. 2012-0003-DWQ). February 22. Available online at http://www.waterboards.ca.gov/water_issues/programs/npdes/pesticides/docs/vectorcontrol/mvcac_2012.pdf.
- Phillips, B.M, B.S. Anderson, J.P. Voorhees, K. Siegler, L. Jennings, M. Peterson, R.S. Tjeerdema, D. Denton, P. TenBrook, K. Larsen, and P. Isorena. 2013. General Pesticide Permit Toxicity Study: Monitoring Aquatic Toxicity of Spray Pesticides to Freshwater Organisms. Draft Final Report. Prepared by University of California, Davis, Department of Environmental Toxicology, United States Environmental Protection Agency, and California State Water Resources Control Board for California State Water Resources Control Board, Agreement Number 10-102-270. July. Available online at http://www.waterboards.ca.gov/water_issues/programs/npdes/pesticides/docs/vectorcontrol/vcp_tox_study_draft_final_july2013.pdf.

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