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California-Nevada Chapter, American Fisheries Society

October 5, 2010

Mr. James Marshall, PE
California Regional Water Quality Control Board –
Central Valley Region
11020 Sun Center Drive, # 200
Rancho Cordova, CA 95670 – 6114

Subject: Renewal of NPDES Permit CA0077682 for Sacramento Regional County Sanitation District's Sacramento Regional Wastewater Treatment Plant

Dear Mr. Marshall:

I am writing on behalf of the California-Nevada Chapter of the American Fisheries Society (AFS). The American Fisheries Society, founded in 1870, is the oldest and largest professional fishery organization in North America. Our membership includes biologists, aquaculturists, academics, consultants, and others committed to science-based fisheries management and conservation. The Chapter consists of 425 members from California, Nevada and other states. AFS has an international reputation as the premier science-based organization dealing with fisheries, and collectively we speak for this resource at every level of government. Because the AFS relies on peer-reviewed science, the public at large knows that when AFS makes a presentation on any particular issue there is no hidden political agenda; our focus is on what is best for the resource. An important aspect of our mission is to promote progress toward sustainable aquatic ecosystems and thus, fisheries. We support protecting fishery resources and their habitat for future generations to enjoy.

The California-Nevada Chapter of the American Fisheries Society (AFS) submits these comments on the tentative NPDES Permit (NPDES Permit No. CA0077682) renewal package for the Sacramento Regional County Sanitation District's (SRCSD) Sacramento Regional Wastewater Treatment Plant (SRWTP), issued September 3, 2010. AFS is concerned about fish and wildlife resources that could be negatively affected by implementation of the final NPDES permit for SRWTP.

The SRWTP provides wastewater treatment service to the Cities of Sacramento, Folsom, West Sacramento and the Sacramento Area Sewer District. The Sacramento Area Sewer District service area includes the Cities of Elk Grove, Rancho Cordova, Citrus Heights, as well as portions of unincorporated areas of Sacramento County. The population served is approximately 1.3 million people. The SRWTP discharges to the Sacramento River just downstream of the Freeport Bridge via an outfall diffuser. Although the current average dry weather flow is approximately 141 mgd, the SRWTP has a design capacity of 181 mgd, and had proposed to expand the treatment plant capacity to 218 mgd but withdrew its request in June 2010.

The Sacramento River at Freeport is within the designated critical habitat for five federally listed fish species, including winter-run and spring-run Chinook salmon (*Oncorhynchus tshawytscha*), steelhead (*O. mykiss*), delta smelt (*Hypomesus transpacificus*), and green sturgeon (*Acipenser medirostris*). Our comments focus on potential negative effects the permit could have on fish and wildlife, particularly the decline of pelagic organisms (a.k.a. POD) in the Sacramento-San Joaquin Delta.

AFS recommends that acute and chronic water quality criteria for most toxicants be met at the discharge point and that acute and chronic mixing zones not be permitted, particularly for ammonia. Recent studies suggest that the form and quantity of anthropogenic nitrogen are concerns for the health of the Delta. The SRWTP discharges approximately 14 tons of ammonia daily to the Sacramento River. Although there is little evidence of current ammonia-caused acute or chronic toxicity to fish, low levels of ammonia can

inhibit nitrate uptake and possibly reduce spring algal blooms in the Delta. If production and standing biomass of diatoms are reduced in Suisun Bay, energy availability at the base of the Delta food web would also be reduced. According to some experts, nitrogen levels in the Delta now favor blue-green algae and flagellates, and still other experts have shown that the algal community in the Delta has already changed from primarily diatoms to mostly flagellates and blue-green algae.

Because of the large design capacity for discharge (181 mgd) and the probable negative effects from ammonia on ecology of the Sacramento-San Joaquin Delta, AFS supports the need for tertiary (nitrification, denitrificaiton, and filtration) treatment for the SRCSD SRWTP. Other POTWs with less discharge and impact potential already incorporate tertiary treatment. Tertiary treatment will reduce or remove ammonia, reduce the oxygen demand of the effluent, reduce nitrosoamines, reduce nitrate, and reduce total organic carbon, copper, mercury, phosphorus, and TSS.

These improvements to the SRWTP effluent stream will require significant upgrades. It is reasonable to expect these upgrades to take 10 years to complete.

Consistent with your request, our comments are summarized in the attached table. We appreciate the opportunity to comment on this tentative NPDES Permit renewal package. We look forward to the opportunity to comment on future actions associated with this permit. If you have any questions or comments about this letter, please contact Chuck Knutson at (916) 441-4414.

Sincerely,

Mark Gard

Mark Gard, President
California-Nevada Chapter
American Fisheries Society

Attachment

Commenter:California Nevada Chapter of American Fisheries Society		
Comment No.	Topic (i.e., ammonia, Title 22 tertiary, dilution, etc.)	Summarized Comment
1	Tertiary Treatment	AFS supports the need for tertiary treatment of the discharge from the SRCSD SRWTP because its large size (181 mgd) and its large potential to significantly impact water quality downstream in the Sacramento-San Joaquin Delta. Other POTWs with less discharge and potential already incorporated tertiary treatment as best practical treatment. Tertiary treatment will reduce or remove ammonia, reduce the oxygen demand of the effluent, reduce nitrosoamines, reduce nitrate, and reduce total organic carbon, copper, mercury, phosphorus, and TSS all of which will improve water quality.
2	Ammonia	The SRWTP discharges approximately 14 tons of ammonia daily to the Sacramento River. Although there is little evidence of current ammonia-caused acute or chronic toxicity to fish, low levels of ammonia can induce inhibition of nitrate uptake and may lead to prevention of spring algal blooms in the Delta with reduced diatom production and standing biomass in Suisun Bay. According to some experts, the nitrogen levels in the Delta now favor blue-green algae and flagellates, and others have determined that the algal community in the Delta has changed from diatoms to flagellates and blue-green algae. AFS supports the removal of ammonia via full nitrification because: (1) It can be toxic to fish and aquatic invertebrates at sufficient concentrations, and it is likely that the SRCSD SRWTP will not be able to comply with the draft proposed EPA criteria for freshwater mussels when these are implemented; (2) Recent research has demonstrated that ammonia is inhibiting nitrogen uptake in diatoms in Suisun Bay, potentially changing the food web in Suisun Bay of the Sacramento-San Joaquin Delta;

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		(3) It consumes oxygen as it is oxidized to nitrite and nitrate, lowering dissolved oxygen levels in the Sacramento-San Joaquin Delta; and (4) Numerous other PTOWs that discharge into the Sacramento-San Joaquin Delta with significantly less volume than SRCSD SRWTP practice full nitrification as the best practical treatment.
3	Nitrate	AFS supports nitrate removal through the treatment process of denitrification because excessive nitrogen can contribute to excessive or changed algae growth in a water body and change the ratio of nitrogen to phosphorus, and likely the ecology of a water body.
4	Filtration	AFS supports Title 22 (or equivalent) tertiary filtration. Filtration will reduce heavy metals, total organic carbon, BOD, TSS and phosphorus in effluent, resulting in better water quality for aquatic life in the Sacramento-San Joaquin Delta.
5	Dilution and Mixing Zones	AFS does not support dilution credits being allowed to develop the WQBELs for: Ammonia – Acute and chronic aquatic life criteria (see comment 2); and Chlorpyrifos – Chronic aquatic life criteria because of its impact on aquatic invertebrates.
6	Temperature	AFS supports the proposed current thermal limits on the discharge and river conditions in the permit and the need for a study to determine if permitted conditions are protective of delta smelt and other native Sacramento River biota.
7	Whole Effluent Toxicity Testing	AFS supports the use of rainbow trout as the test species in flow-through acute toxicity tests because of their increased sensitivity to ammonia. AFS also supports conducting monthly chronic toxicity testing of the whole effluent.