by reference.

As set forth below in the Conservation Groups' comments on the PAD and in their Study Requests, both of which are incorporated herein by reference, the Conservation Groups believe that a number of additional studies will be required in order for the Commission to adequately conduct environmental review for the Project in compliance with NEPA. The Conservation Groups join in the study requests submitted by the resource agencies, and also list additional Study Requests below, which are included in Appendix A and incorporated herein by reference.

Finally, the Conservation Groups note that FERC held two scoping meetings for the proposed license renewal. Both were in Ukiah, California on June 28, 2017. While Ukiah is convenient to many stakeholders in the Russian River watershed who may have a financial interest in the continued operation of the Eel River dams and diversion, it is many hours drive from most population concentrations in the Eel River watershed. During scoping meetings for Klamath Dam relicensing, FERC held scoping meetings in Redding, Yreka, and Ashland, then added a meeting in Eureka in response to public demand. The Conservation Groups respectfully request that FERC convene a public scoping meeting in Eureka for this Project.

II. The Draft EIS Must Adequately Describe and Consider the Environmental Setting.

An evaluation of the environmental effects of a project requires that the Draft EIS consider not only the impacts of the project but also the setting in which those impacts will occur. In the present case, the Draft EIS must consider information regarding the environmental setting on both the Eel and Russian Rivers.

A. The Eel River Context

The Eel River holds special status and is subject to various protections under both state and federal law. As noted, with the exception of the upper mainstem above Cape Horn Dam, the entire Eel River watershed is designated a Wild and Scenic River under both the 1968 federal Wild and Scenic Rivers Act and under California's 1972 Wild and Scenic Rivers Act, which was passed to insure that "certain rivers which possess extraordinary scenic, recreational, fishery, or wildlife values shall be preserved in their free-flowing state, together with their immediate environments, for the benefit and enjoyment of the people of the state." CA Pub Res

Code § 5093.50 (2016). It should be apparent that the "recreational, fishery, [and] wildlife values" of the Eel River are knitted together around salmon and steelhead. The Wild and Scenic River designation has the primary consequence of barring the construction of dams and or diversion projects like Cape Horn and Scott Dams and the Potter Valley diversion works. If the Potter Valley Project and its structures did not exist or were removed, it is very likely that the outstanding resource values – particularly coldwater fisheries habitat – which led to the designation of the rest of the Eel River under the state and federal WSRAs would again be found in the upper mainstem as well.

Further, the Eel River is listed under §303(d) of the Clean Water Act for sediment and temperature throughout the watershed, and the Lake Pillsbury reservoir is listed for mercury.

Although it has lost some native species, the Eel River is still home to surviving native fish populations, which include sea-run salmonids (coastal cutthroat trout, summer steelhead, winter steelhead, coho salmon, fall-run chinook) as well as resident rainbow trout.[2]

CalTrout in conjunction with UC Davis recently published a study that details the status of all salmonids in California. Here, we highlight the status of anadromous salmonids found in the Eel River, all of which are listed as Threatened under the federal Endangered Species Act: California Coastal chinook, Coastal cutthroat trout, Northern California winter steelhead, Northern California summer steelhead, and Southern Oregon Northern California Coast Salmon (SONCC).[3] Coho salmon are also listed as Threatened under the California Endangered Species Act in the Eel River.

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[2] Summer and winter steelhead, and rainbow trout are all classified as *O. mykiss*. The best available science indicates that summer and winter steelhead are genetically distinct. Both summer and winter steelhead can move to and from the resident rainbow trout life history. Rainbow trout in the mainstem Eel include both planted stocks in the Lake Pillsbury reservoir and native populations in the tributaries above the reservoir.

[3] Northern California steelhead were first listed as threatened in 1997 (62 FR 43937), a decision reaffirmed in 2006 (71 FR 834). California coastal chinook were listed as threatened in 1999 (64 FR 50394), and confirmed in 2005 (70 FR 37160).

We emphasize that the authors strongly suggest that current federal and state listing statuses do not accurately capture the level and nature of the threats that salmonids face in the Eel River. They assess California Coast Chinook at a "high" level of concern (2.9), but Southern Oregon/Northern California Coho, also listed as Threatened under the federal ESA, as facing a "critical" level of threat (1.7). Similarly, while the National Marine Fisheries Service ("NMFS") treats all steelhead in the Eel as a single entity, listed as Threatened, Moyle et al. assess Northern California Summer Steelhead as facing a "critical" threat level (1.9), while Northern California Winter Steelhead's situation is merely "moderate" (3.3). *See* Moyle, P., Lusardi, R., Samuel, P., and J. Katz. 2017. *State of the Salmonids: Status of California's Emblematic Fishes, 2017. 555 pp. San Francisco, CA.*

California Coastal chinook (2.9, High level of concern)

- "The CC Chinook ESU includes salmon that spawn in coastal watersheds from Redwood Creek (Humboldt County) to the Russian River (Sonoma County). In general, small coastal streams within this range can support CC Chinook salmon as long as they have open estuaries during peak migration times (fall through spring). In the Eel River watershed, CC Chinook salmon could historically access habitat up to natural boulder roughs on the upper mainstem Eel River, but they are currently blocked from accessing this habitat by Scott Dam and Lake Pillsbury (Lake County)."
- Threats include:
    - "Climate change is likely to lead to increased temperatures and reduced snowpack in the headwaters of the Eel River, which will make managing the release of cold water from dams and reservoirs to support salmonids even more difficult in the future."
    - "Scott Dam, Coyote Valley Dam, and Warm Springs Dam reduce water quality and quantity across the CC Chinook salmon range. The timing of water transfers from the upper Eel River into the Russian River watershed at Pacific

Gas & Electric's Potter Valley Project reduces habitat suitability for Eel River salmonids."

Coastal cutthroat trout (2.7, High level of concern)

- "Coastal Cutthroat trout range from Prince William Sound, Alaska, to tributaries of the Salt River (Eel River, Humboldt County). They inhabit most coastal tributaries of major rivers open to the sea and lagoons between the Smith River (Del Norte County) and the Eel River (Humboldt County) in a relatively broad band along the coast. However, updated distribution surveys are needed for this species, as they often inhabit disconnected headwater streams that are now upstream of man-made barriers such as dams, diversions, and culverts."
- Threats:
    - Coastal Cutthroat trout's reliance on cold, oxygenated water makes them extremely vulnerable to increased stream temperatures and variability in precipitation likely to occur as the climate changes. Recent drought has caused the juvenile migration peak to shift from June-July to May in Redwood Creek (Humboldt County), indicating rapid shifts to changing environmental conditions are possible.

Northern California winter steelhead (3.3, Moderate level of concern)

- "Northern California winter steelhead are in a state of long-term decline over much of their range due to land use practices that reduce habitat for juveniles, such as diversions that desiccate nursery tributaries during summer months."
- "The Northern California winter steelhead includes all naturally spawning populations in California coastal river basins from Redwood Creek (Humboldt County) to the Gualala River (Mendocino County). This distribution includes the Eel River, the third largest watershed in California, with its four forks (North, Middle, South, and Van Duzen) and their extensive tributaries."

- Threats:
    - "Northern California winter steelhead are highly vulnerable to climate change due to juvenile reliance on small, headwater tributaries for nursery habitat. Reductions in suitable coldwater are also expected to result in local extirpations and range contractions for NC steelhead, as higher gradient headwater streams that could provide refuge are inaccessible behind waterfalls, boulder fields, or dams."
    - "Scott Dam on the Eel River blocks access to an estimated 290 km (180 mi.) of potential habitat, while Matthews Damon the Mad River blocks nearly a third of historical steelhead habitat. In addition, these dams reduce streamflows during important migration windows for adult and juvenile steelhead."

Northern California summer steelhead (1.9 Critical level of concern)

- "Northern California (NC) summer steelhead are in long-term decline and this trend will continue without substantial human intervention on a broad scale. They are vulnerable to extinction by 2050 due to their reliance on cold water during the warmest months and are critically susceptible to climate change."
- "Historically, NC summer steelhead ranged from Redwood Creek (Humboldt County) in the north to the Mattole River (Mendocino County) in the south. Today, only a few select watersheds still support summer steelhead, including Redwood Creek and the Mad, Eel, and Mattole rivers. They can be found in the mainstem, upper mainstem, North, Middle, and South forks of the Eel River."
- Threats:
    - "Climate change is likely to alter precipitation and streamflows and lead to warmer temperatures, which reduces suitable habitat and places further stress on small populations of NC summer steelhead. Any reductions in streamflows or increases in water temperature are likely to disproportionately affect NC summer steelhead due to their run timing."

- "Scott Dam on the upper mainstem Eel River blocks access to an estimated 463 km (285 mi.) of potential spawning, migration, and nursery habitat, while Matthews Dam blocks over a third of potential steelhead habitat in the Mad River."

Southern Oregon and Northern California coast coho salmon (1.7, Critical level of concern)

- "Southern Oregon/Northern California Coast Coho are critically vulnerable to extinction as wild fish within the next 50-100 years. There has likely been 95% or more decline in numbers since the 1960s in California due to dam construction and habitat degradation from various land use practices."
- "SONCC Coho salmon are distributed widely across the North Pacific, from northern Japan to California. SONCC Coho are found in the Rogue River (Oregon) to the Mattole River (Mendocino County). Historically, SONCC Coho occupied numerous coastal basins with high quality habitat in the lower portions of watersheds."
- Threats:
  - "Climate change will lead to increased stream temperatures, more frequent and prolonged drought, and reduced streamflows that will negatively impact survival of SONCC Coho in the future."
  - "Irrigation diversions in many streams reduce flows during critical juvenile growth and feeding periods in the summer months, especially from illegal marijuana cultivation."

The Eel is also still home to its namesake fish, the Pacific Lamprey. Lamprey are not yet listed under the federal ESA, though their populations on the West Coast have suffered declines as severe as salmonids, which have received ESA protection. This decision reflects substantial differences between lamprey and salmonid reproductive and evolutionary biology: where salmon adapt to specific streams, and display astonishing fidelity in returning to their natal waters, adult lamprey return to freshwater streams that contain the pheremone signature of

juvenile lampreys. Thus, the West Coast population of lamprey does not appear to display the same level of adaptive variation as salmon.

However, lamprey appear to be more vulnerable to some forms of anthropogenic disturbance than salmonids. Their filter-feeding juvenile stage, the ammocoete, remains buried in stream substrates for multiple years, where they are particularly vulnerable to drought. The ammocoete stage appears to be especially prone to accumulating mercury in higher levels than even other filter feeders. This means both that ammocoetes may be a good way to characterize mercury contamination issues in the upper Eel, but they may also be at significant risk from that mercury burden.

The last relicensing for the Project took place against a backdrop of rising concern about the decline of salmon and steelhead in the Eel River and across the West Coast. After Eel River steelhead and chinook were federally listed, the National Marine Fisheries Service ("NMFS") shortly determined that continued operation of the Eel River dams and Potter Valley diversion tunnel under the then-existing flow release schedule threatened to jeopardize chinook salmon and steelhead in the Eel River. (NMFS, Biological Opinion for the proposed license amendment for the Potter Valley Project, 2002.) That is to say, chinook and steelhead were at risk of being driven to extinction in the mainstem Eel River by dam and diversion operations.

Dam operations and diversions were thereafter constrained by the Reasonable and Prudent Alternative ("RPA"), which was recommended in the 2002 NMFS Biological Opinion, and later adopted by FERC in 2004 as part of the PVP operating license. The RPA imposed flow schedules for the mainstem Eel River (varying by the type of water year and time of year) and required additional mitigation measures. While the RPA has insured higher summer flows in the mainstem Eel below the dams than were required under the previous license, it has now become clear that the RPA will never be fully and successfully implemented.

As is clear in the FERC record for the Project, the historic drought of the last five years, and the buildup of silt in the Lake Pillsbury reservoir behind Scott Dam, together with unanticipated weaknesses in the infrastructure of the dam itself, resulted in the dam operator being unable to meet the RPA's flow targets for dry season flows in successive years. These

flows are important to assist upriver migration, especially of adult chinook salmon.

As well, the RPA required that the dam operator undertake mitigation efforts to reduce the incidence of pikeminnow, an invasive species that benefits from the slower, warmer waters created by the dams, and which preys on both chinook and steelhead juveniles. Unfortunately, the combination of threatening interference from illegal marijuana growers and the potential for pikeminnow control techniques to harm listed steelhead have thus far resulted in the lack of implementation of pikeminnow control programs. Indeed, PG&E has effectively abandoned these RPA requirements, leaving Eel River salmonids in further jeopardy.

Thus, the RPA has never been, and is not expected to be, fully implemented. Because the RPA was required in order to prevent the risk of jeopardy to the Eel River's fisheries caused by the Eel River dams, this leaves the Eel River's ESA-listed fish struggling to survive without even the minimal level of support that NMFS had determined the fish require to avoid the threat of extinction created by the diversion of water to the Russian River and the dams built to facilitate it.

Thus, greater provisions for fisheries will probably need to be made in future than has been made to date. Meanwhile, the system is steadily losing, not gaining, flexibility to meet such needs in future years.

Whether the RPA restrictions have been adequate to provide necessary protections for Eel River fisheries, they have clearly dramatically affected power production and diversion for consumptive use in Potter Valley and the Russian River.

While we are not privy to PG&E's accounting of the maintenance costs associated with the Eel River dams and Potter Valley diversion works, we have reason to believe that they are relatively high as a function of the actual power production associated with the PVP. Such a cost-benefit analysis of PVP power production would also have to take into account the seasonality and nature of the power which the PVP does produce under current operational procedures.

As discussed more fully below, we have a number of concerns about the safety and reliability of the Eel River dams, particularly with respect to seismic stability generally, and with

conditions around the left abutment of Scott Dam. Those questions raise additional substantial issues with respect to the potential costs and benefits associated with the Eel River dams and Potter Valley diversion.

On virtually every front, then, it is evident is that the status quo is not viable.

B. The Russian River Context

At the same time that is clear that the Eel River and its fisheries have historically lacked and currently lack sufficient flows under Project operations, NMFS has found that listed fish species in the Russian River have been harmed by flows that are too high. *See* NMFS Biological Opinion for Water Supply, Flood Control Operations, and Channel Maintenance conducted by the U.S. Army Corps of Engineers, the Sonoma County Water Agency, and the Mendocino County Russian River Flood Control and Water Conservation Improvement District in the Russian River watershed (September 24, 2008) ("Russian River Bi-Op"). As a result, the Sonoma County Water Agency ("SCWA") has proposed modifications to the State Water Resources Control Board's ("State Board") Decision 1610 ("D-1610"), which controls flows in the Russian River.

SCWA's proposal is currently undergoing CEQA review. *See* SCWA, Draft Environmental Impact Report for Fish Habitat Flows and Water Rights Project (SCH #2010092087) ("Fish Flow DEIR"). As detailed in SCWA's Fish Flow DEIR and FOER's comments thereon, *there is insufficient evidence to support the hypothesis that diversions from the Eel River through the PVP are necessary for the protection of aquatic species or recreational resources on the Russian River*.[4] Further, SCWA is proposing a new hydrological

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[4] The Fish Flow DEIR is available at http://www.scwa.ca.gov/files/Fish%20Flow%20DEIR%20Full%20Document.pdf the Errata at http://www.scwa.ca.gov/files/FishFlow_DEIR_Errata_012617_FINAL_Remediated.pdf (footnote continued)

index for its operations on the Russian River; in this index, the proposed water year types (or "schedules") are no longer tied to inflows to Lake Pillsbury. The Draft EIS for the Project must take this environmental setting and SCWA's proposed changes to D-1610 into account in assessing the Project's environmental impacts. As noted in the PAD (PAD 4-42), the last amendment to the Project's license, Article 58, states that "FERC reserves authority to require modifications to the Project license as may be necessitated by modification by the California State Water Resources Control Board of its Decision 1610."

The EIS should also include a detailed description of the water rights associated with the Project. While SD1 generally describes PG&E's claimed water rights, it does not provide data or evidence of PG&E's actual beneficial use of water. Nor does it discuss PVID's contract for irrigation purposes based on actual water rights, or the legal status of the Project's abandoned water in the Russian River. *See* PAD comments, *infra*. Understanding Project water rights is critical to an adequate evaluation of the Project's impacts and feasible mitigation measures and alternatives. Not only must the EIS consider the relative values and efficiencies of the various uses of finite water resources, but the agency must also evaluate whether alternative sources of water could supply those uses, or whether alternative uses could secure substantial benefits while using significantly less water.

III. The EIS Must Include a Larger Geographic Scope of Project Review.

The Conservation Groups believe SD1 improperly limits the geographic scope for Project analysis. For the Eel River, SD1 limits the geographic scope to the River from Lake Pillsbury downstream to the confluence with the Middle Fork Eel River. In the last sentence of last sentence in Section 3.3.3, the PAD states, "*Below the Middle Fork Eel River, potential hydrologic effects of the Project are significantly diminished due to inflow from the Middle, South and North Forks of the Eel River, and the Van Duzen River*." As noted in the Kamman

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Friends of the Eel River's comments on the Fish Flow DEIR can be found at https://eelriver.org/wp-content/uploads/2017/04/FishHabitatFlowsDEIR-FOER_Comments-0309017.pdf.