Pacific Fishery Management Council

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Dorothy M. Lowman, Chair| Donald O. McIsaac, Executive Director

May 29, 2015

Mr. Tom Howard
Executive Director
State Water Resources Control Board
P.O. Box 100
Sacramento, CA 95812-0100

Mr. Ron Milligan
Operations Manager, Central Valley Project
U.S. Bureau of Reclamation
3310 El Camino Avenue, Suite 300
Sacramento, California 95821

Re: Conservation of Sacramento River Winter Chinook

Dear Mr. Howard and Mr. Milligan:

The Pacific Fishery Management Council (Pacific Council) is greatly concerned about the freshwater habitat conditions for the 2015 brood of Sacramento River winter Chinook. We request that you consider our input on management of Central Valley Project water supplies in the spirit of providing optimal habitat protection for this important salmon stock, given the severe drought conditions. We address this letter to both of your agencies, the California State Water Resources Control Board (SWRCB) and Bureau of Reclamation (Reclamation), in acknowledgement of your shared roles in managing water in the Sacramento River and throughout California.

We understand that considerable effort has been expended in trying to develop a water management plan for much of the remainder of 2015 to optimize competing objectives. While many of the proposed measures managing Central Valley Project water supplies target an objective of providing proper flow and temperature regimes for critical salmon habitat in the Sacramento River below Shasta Dam, and are laudable, the status of the plan is unclear and the substance of the plan may need additional measures to elevate the chances of success. The Pacific Council is concerned that the plan does not provide adequate protection of this important brood of Sacramento River winter Chinook relative to future production, and further, that the benefits of fisheries restrictions adopted by the Pacific Council for Sacramento River winter Chinook may not be realized. Thus, we ask that you consider the following comments in refining and optimizing such a plan.

The Pacific Council was established by the Magnuson-Stevens Fishery Conservation and Management Act of 1976 (MSA), and has jurisdiction over more than 119 fish species in Federal waters off Washington, Oregon, and California. The MSA charges the Pacific Council to protect the habitat these fish depend on during all stages of their life cycle, and includes provisions to identify, conserve, and enhance essential fish habitat (EFH) for those managed species.

The MSA requires Federal agencies (in this case, Reclamation) to consult with the National Marine Fisheries Service on all proposed actions that may adversely affect EFH (MSA §305(b)(2)). The Pacific Council is also authorized under the MSA to comment on and make recommendations to Federal agencies regarding EFH protection. Furthermore, for activities that the Pacific Council believes are likely to substantially affect the habitat of the salmon fishery, the Pacific Council is obligated to provide comments and recommendations (MSA §305(b)(3)).

As you are aware, Sacramento River winter Chinook are listed as endangered under both Federal and California law. The Federal Endangered Species Act (ESA) requires the Pacific Council to implement fisheries restrictions to conserve this run. These restrictions constrain commercial and recreational salmon fisheries south of Pt. Arena, California through a combination of area and time closures and other regulatory restrictions. In light of the current dire drought situation, the Pacific Council has additionally committed to manage 2015 fisheries to be more constrained than the ESA requirements.

2014 Water Management Effects

It is disappointing that water management practices in 2014 had such a deleterious effect on Sacramento River winter Chinook. In 2014, we understand a loss of control over the temperature in the Sacramento River resulted in high mortality for Sacramento River winter Chinook when management of the temperature control device at Shasta Dam failed to provide cold water from below the reservoir's thermocline, despite the fact that very low reservoir levels were expected to occur. The objective had been to maintain water temperatures at 56°F or less at the Clear Creek temperature control point; however, in September the average temperature above the Clear Creek temperature control point reached above 60°F[1]. As the Sacramento River Temperature Task Group found, 100 percent of winter brood year 2014 redds were exposed to temperatures above the 56°F threshold at some time period during the 2014 water year. Water temperatures exceeded 62ºF[2], far above the adopted threshold, and high enough that the scientific consensus is that the 2014 brood suffered excessive mortality prior to emergence from the gravel. Further, water flow management caused additional stress on the 2014 brood, with regard to variable flows causing redd de-watering during and just after spawning periods and juvenile fish stranding in shallows off the main river channel during the fry emergence and pre-smolt rearing period. While the negative effects of these temperature and flow conditions from a neutral baseline cannot be

[1] Sacramento River Temperature Task Group, Annual Report of Activities, October 1, 2013 through September 30, 2014 (http://tinyurl.com/lcwytye), Figure 4.

[2] Report to State Water Resources Control Board, Initial Hindcast of Temperature Performance Sacramento River 2014, March 2015. U.S. Bureau of Reclamation Mid-Pacific Region Central Valley Operations Office.

precisely quantified at this time, and won't be clearly demonstrated until the adult fish return, the temperature exceedance information alone points to the lowest egg-to-fry survival since reasonable record-keeping began about 20 years ago.[3]

Based on the unfortunate habitat conditions in 2014, it is clear that a solid, reliable water management plan is needed to protect the freshwater habitat for the 2015 brood of Sacramento River winter Chinook now beginning to spawn in the upper Sacramento River. This plan should ensure that the deleterious water management impacts of 2014 are not repeated in 2015, and that the freshwater habitat for this brood of Sacramento River winter Chinook is optimized from the spawning phase until the juveniles out-migrate in the spring of 2016.

Protection in Ocean Salmon Fisheries

The current ocean salmon fishery restrictions under the ESA have been in place to protect Sacramento River winter Chinook since 2004, resulting in protective measures for multiple brood years, including the currently troubled 2014 brood. Ocean salmon fisheries south of Point Arena target healthy salmon stocks, such as Sacramento River and Klamath River fall Chinook stocks, not winter stocks, which comprise a tiny portion of the aggregate salmon abundance in the area. The current ocean salmon fishery consultation standard under the ESA for Sacramento River winter Chinook is a two-part standard. The first part is implemented through season and other regulatory restrictions, and the second is an impact control rule that caps overall ocean salmon fishery-caused mortality based on recent-year escapement.

Ocean salmon fisheries in 2013 were restricted to protect winter Chinook, particularly those fish destined to spawn in 2014. Under the existing fishery impact control rule, 2013 ocean commercial and recreational salmon fisheries south of Point Arena, California were held to a maximum fishery impact rate of 12.9 percent. This restrictive policy resulted in increased escapement to spawning areas, but came at a cost in terms of ocean salmon fishing opportunity. Thus, it is particularly disappointing to then have inadequacies in freshwater management practices apparently nullify the fisheries conservation actions benefitting the 2014 brood, and even cause further population depression including and beyond the loss of fish conserved in ocean salmon fisheries.

In 2014, ocean salmon fisheries were held to the same ESA consultation standard and an overall maximum fishery impact rate of 15.4 percent, again intended to minimize fishery impacts on winter Chinook, allow fishery access to more abundant stocks, and to increase Sacramento River winter Chinook spawning escapement in 2015. The fish conserved from this action are part of the 2015 brood that is the subject to the water management plan this letter addresses. Thus, it is very important to optimize the spawning success of the 2015 brood and its subsequent juvenile production and outmigration in the spring of 2016.

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[3] Lindley, Steve. 2015. Agenda Item F.1 Attachment F.1.c., March 2015 Pacific Fishery Management Council Meeting, http://tinyurl.com/px3lugv

In 2015, although harvest control rule established a maximum allowable exploitation rate of 19 percent, the Pacific Council, with particular urging from the California Department of Fish and Wildlife, worked with the fishing community to implement voluntary fishing restrictions to further protect winter Chinook and brought the anticipated 2015 fishery impact rate down to 17.5 percent at a considerable cost to both commercial and recreational ocean salmon fisheries. These constraints will primarily benefit the 2013 brood of winter Chinook that will spawn primarily in 2016, but will also offer some minor degree of additional protection to the troubled 2014 brood while they are in the ocean.

Current Water Management Planning

Although we understand the plan to protect the current brood of winter Chinook is still being discussed and some measures may have more solidity than others, it appears Reclamation's draft plan[4] calls for a laudable goal: to consider temporarily modifying the operation of the Central Valley Project and, together with State authorities, State Water Projects to provide the best possible conditions for the Sacramento winter and spring runs, given current environmental conditions and non-discretionary water demands. Among other things, the plan calls for Reclamation to integrate the operations of the Trinity[5], Clear Creek, and Shasta complex to make maximum use of cold water reserves in each reservoir, with a focus on maintaining cold water temperatures to protect Sacramento River winter Chinook; to work with water contractors to achieve temperature objectives in the upper Sacramento River; to prioritize protection of winter Chinook salmon; and to manage Shasta Reservoir operations to conserve as much water storage as possible during the winter and spring to provide cold water releases for salmonids later in the season, and attempt to provide carryover storage for the next water year. This includes bypassing the power penstocks at times in order to help access or preserve the remaining cold water pool.

While the intent of the 2015 plan is admirable, and we support many of the proposed measures, we feel additional actions should be considered to further protect the 2015 brood throughout its freshwater phases in light of the unfortunate 2014 water management results. Sacramento River winter Chinook migrate upstream in late winter and spawn in the upper mainstem Sacramento River from mid-April through August, with peak spawning in May and June. Fry emerge from mid-June through mid-October[6], and rear in the Sacramento River for several months. The primary smolt out-migration to the ocean is in the late winter and early spring months. The Pacific Council recommends you consider the following in managing water resources for the benefit of the 2015 brood throughout its early freshwater life history stages.

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[4] Bureau of Reclamation: Draft Project Description for April – September 2015 Drought Response Actions To Support Endangered Species Act Consultations, http://tinyurl.com/oy3ws5y

[5] The Pacific Council is not in favor of any additional use of Trinity River water resources beyond the reduced use currently contemplated, in recognition of the special needs in the Klamath River basin for its fall Chinook salmon run that will enter the river later this year.

[6] BOR, based on NMFS 1997 - https://www.usbr.gov/mp/cvo/OCAP/sep08_docs/OCAP_BA_005_Aug08.pdf

Spawning and Egg Incubation Period

With regard to advancing better temperature conditions, we agree with the plan's call to manage for a water temperature objective to allow for a margin of safety in case of unexpected warming events. However, the plan is unclear exactly how that will be accomplished. In addition, rather than aiming for a target of 56°F or less where Clear Creek joins the Sacramento, we recommend the SWRCB insist on, and Reclamation actively manage for, a maximum temperature of 56°F at the Airport Road bridge, the next compliance point downstream. Reclamation should also carefully monitor thermal and flow conditions throughout the Shasta/Keswick system, and develop contingency plans for in-season adjustments necessary to accomplish this temperature goal as needed. It is unclear as to the water withdrawal strategy from Lake Shasta that will best preserve cold water reserves for use later in the year; we recommend that strategic use of a combination of surface water and water at different temperatures at depth be planned for, to serve this purpose. We also recommend you examine how stabilizing the flows at a reasonably low level, such as 3,500 cfs, can also serve to strengthen cold water reserves.

During the mid-April to October time frame, it is not clear that the plan calls for a flow regime that will not result in stranding of redds. Flows should not be increased to the point where shallow water nesting occurs, and then dropped before the eggs hatch and emerge as fry. Stabilizing flows at a reasonably low level can achieve the best protection against higher egg and alevin mortality, as well as providing ancillary benefits as described above and later in this letter.

We agree that it is vitally important to conserve storage in Shasta Reservoir, particularly the cold water pool, in order to provide for the needs of Sacramento River winter Chinook eggs and alevin throughout the spawning and egg incubation season. However, this should be undertaken with due consideration to protecting Trinity River water resources in order to protect the needs of Klamath River fall Chinook. Again, setting a reasonably low flow level and maintaining it at a stable level may best conserve water for the needs of the 2015 brood Sacramento River winter Chinook throughout its full freshwater phase duration.

Juvenile Rearing and Outmigration Period

Rearing in the upper Sacramento between the fry stage and the smolt outmigration stage are critical to survival through the downstream trip and ocean entry phase. Although the draft plan's time frame currently ends on November 15, the needs of smolts through the 2016 smolt outmigration period need to be considered and must include both adequate flows and temperature to achieve at least average smolt survival. Thus, we recommend that you alter the draft plan to include the full time frame that the 2015 brood is subject to water management results prior to entering the ocean phase, and that the plan have specific, hard controls to achieve flow and temperature objectives throughout the life of the plan.

We recommend you look into water flow strategies that stabilize the river, such that stranding of juvenile fish rearing in river side channels and dead end bays does not occur, and that when any lowering of flows occurs, the draw-downs be gradual. Water temperature management is necessary as fish begin rearing in the late summer through the fall until Shasta reservoir

temperatures cool with the season change. Lastly, we recommend, as the draft water plan is extended, to plan for the best habitat possible for the 2015 brood of Sacramento River winter Chinook through to the outmigration stage, and that enough water must be maintained in the reservoir to allow for an artificial freshet to help move the fish from the rearing areas through the Delta.[7] Again, a conservative flow stabilization strategy at a reasonably low level, and not increasing flows as we understand may be occurring now, will promote the kind of water savings needed to accomplish an artificial freshet next April-May.

Conclusions

In closing, the Pacific Council urges the SWRCB and Reclamation to finalize a strong plan to limit discharges from Shasta Reservoir in order to retain an adequate cold water pool and provide optimal flows for the 2015 brood Sacramento River winter Chinook throughout its freshwater phase, including spawning, egg incubation and emergence, and juvenile rearing and out-migration. As demonstrated by the 2014 loss of temperature control, finalizing a solid plan that includes contingent in-season management is necessary to properly protect the Sacramento winter Chinook salmon. The Pacific Council urges the SWRCB to critically evaluate Reclamation's operations and plans for 2015 and deny any requests, including a recent petition, that would jeopardize the retention of adequate cold water reserves or a reserve of reservoir water for a late winter freshet stimulation. We ask that the SWRCB ensure that Reclamation's actions are consistent with the conservation of Sacramento winter Chinook salmon. We ask that Reclamation similarly put protection of this 2015 brood at the front of the line when making decisions about competing uses of scarce water resources.

Looking to the future, the Pacific Council advocates for consistent application of conservation principles for this important stock of salmon—including both fishery management and freshwater habitat management. While it is well-known that the salmon fishing industry was not responsible for the collapse of the Sacramento winter Chinook salmon run, the Pacific Council will continue to execute a conservation burden to improve the status of these fish. With this in mind, the Pacific Council urges the SWRCB and Reclamation to take all action within their authority to protect and optimize the freshwater habitat for the 2015 brood Sacramento winter Chinook salmon.

Thank you for your consideration in this important issue. We invite both of your agencies to send a representative to our September Habitat Committee meeting (tentatively scheduled for September 10 in Sacramento, California) to present the latest information on the protection of winter Chinook in the upper Sacramento River. Please contact Ms. Jennifer Gilden (Jennifer.gilden@noaa.gov) with any questions about this invitation or to make arrangements.

[7] Lindley, Steve. 2015. Agenda Item F.1 Attachment F.1.c., March 2015 Pacific Fishery Management Council Meeting, http://tinyurl.com/px3lugv

We look forward to hearing from you at your earliest convenience.

Sincerely,

D. O. McIsaac, Ph.D.

Executive Director

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cc: Pacific Council Members
Pacific Council Habitat Committee
Pacific Council Salmon Technical Team
Pacific Council Salmon Advisory Subpanel
Mr. Mark Cowin, Director, California Department of Water Resources
Ms. Maria Rea, Asst. Regional Administrator, California Central Valley Office, NMFS
Mr. Chuck Bonham, Director, California Department of Fish and Wildlife
Mr. David Murillo, Regional Director Mid-Pacific Region, Bureau of Reclamation
Dr. Steve Lindley, Director, Fisheries Ecology Division, NOAA
Mr. Don Hansen, Pacific Council Staff
Mr. Chuck Tracy, Pacific Council Staff
Mr. Mike Burner, Pacific Council Staff
Ms. Jennifer Gilden, Pacific Council Staff