From: Kennon Meyer
To: Wr401program
Cc: Tom Wilmoth
Subject: Patagonia Works Comments to DEIR
Date: Tuesday, February 26, 2019 10:48:42 AM
Attachments: Patagonia Works Comment for Klamath Dam Removal Project.pdf

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To Whom It May Concern,

Please see the attached comment of Patagonia Works to the Draft Environmental Impact Report for the Lower Klamath Project License Surrender Federal Energy Regulatory Commission Project No. 14803.

Thank you-

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February 26, 2019

VIA ELECTRONIC MAIL
WR401Program@waterboards.ca.gov

Ms. Michelle Siebal
State Water Resources Control Board
Division of Water Rights - Water Quality Certification Program
P.O. Box 2000
Sacramento, CA 95812-2000

RE: Public Comment of Patagonia Works for the Draft Environmental Impact Report for the Lower Klamath Project License Surrender Federal Energy Regulatory Commission Project No. 14803.

Dear Ms. Siebal:

This firm represents Patagonia Works, a certified B-corporation incorporated in the State of California. Attached please find Patagonia Works' comment in response to the Draft Environmental Impact Report for the Lower Klamath Project License Surrender Federal Energy Regulatory Commission Project No. 14803. If you have any questions about this comment, please contact me using the contact information provided on this letterhead.

Sincerely,

/s/ Thomas R. Wilmoth

TRW:KM/sm
Enclosure

1023 Lincoln Mall, Suite 201, Lincoln, NE 68508-2817, Main: (402) 475-7080; Facsimile: (402) 475-7085

PUBLIC COMMENTS OF PATAGONIA WORKS ON THE DRAFT ENVIRONMENTAL IMPACT REPORT FOR THE LOWER KLAMATH PROJECT LICENSE SURRENDER FEDERAL ENERGY REGULATORY COMMISSION PROJECT NO. 14803

FEBRUARY 26, 2019

VIA ELECTRONIC MAIL TO:

WR401Program@waterboards.ca.gov

Ms. Michelle Siebal
State Water Resources Control Board
Division of Water Rights- Water Quality Certification Program
P.O. Box 2000
Sacramento, CA 95812-2000

I. Introduction

Patagonia Works ("Patagonia") appreciates the opportunity to provide comments on the Draft Environmental Impact Report ("DEIR") for the Proposed Lower Klamath Project License Surrender Federal Energy Regulatory Commission ("FERC") Project No. 14803 for water quality certification pursuant to section 401(a)(1) of the Clean Water Act ("CWA")[1] for the removal of the J.C. Boyle, Copco No. 1, Copco No. 2 and Iron Gate dams (together, the "Dams").[2]

Patagonia is an outdoor apparel company with a 40-year history of environmental activism. Protecting and preserving the environment is a core business tenet as reflected in the Company's mission statement: "Patagonia is in business to save our home planet." In 2012, Patagonia became a California benefit corporation, enshrining its blended goals of business and conservation into its Articles of Incorporation. Patagonia believes deeply in the urgent shared responsibility to protect the environment. The future of Patagonia's business depends on the health of the wild places that its customers explore.

Patagonia has been involved with dam removal efforts since 1993.[3] The company has dedicated substantial time and resources to promoting the restoration of watershed ecosystems. The contribution of dams to fishery deterioration, declines in water quality, and the impoverishment of adjacent native communities have all inspired Patagonia to encourage the removal of hydropower dams and diversions. Patagonia has donated millions of dollars to over 3,000 groups fighting to protect America's rivers. Patagonia has also invested company resources to amplify its grantees' message, using its own marketing platforms and employee time to advocate for the health of river ecosystems.

In 2014, Patagonia released a feature length film entitled "Damnation", highlighting the destructive effect of obsolete dams on healthy river ecosystems and fish populations that are cut off from native spawning habitat. On May 7, 2014, Patagonia's founder, Yvon Chouinard, wrote an op-ed in the New York Times entitled "Tear Down 'Deadbeat' Dams" arguing that "[d]ams degrade water quality, block the movement of nutrients and sediment, destroy fish and wildlife habitats, damage coastal estuaries and in some cases rob surrounding forests of nitrogen. Reservoirs can also be significant sources of greenhouse gas emissions."[4]

Patagonia supports the DEIR decommissioning and removal of the Dams because it will improve water quality, benefit threatened native fish species, eliminate a major source of greenhouse gases ("GHG"), and help return these stretches of the river to their natural conditions. However, the DEIR fails to adequately address the negative impacts of hatcheries on wild fish

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[1] 33 U.S.C. §1341.

[2] California State Water Resources Control Board, *Lower Klamath Project License Surrender Draft Environmental Impact Report,* Prepared by State Water Resources Control Board, Sacramento, CA (December 2018). ("DEIR").

[3] *Patagonia on Dams and Dam Removal* (2014), https://www.patagonia.com/on/demandware.static/Sites-patagonia-us-Site/Library-Sites-PatagoniaShared/en_US/PDF-US/DamNation_Statements_v1.pdf

[4] Yvon Chouinard, *Tear Down 'Deadbeat' Dams* (May 7, 2014), https://www.nytimes.com/2014/05/08/opinion/tear-down-deadbeat-dams.html

populations, and more broadly the Klamath River Basin. The California State Water Resources Control Board ("State Water Board") has failed to properly consider the full removal of hatcheries from the Lower Klamath River, which would ultimately benefit the project's objective of advancing the long-term restoration of the native fish populations in the Klamath Basin.[5] The overwhelming evidence, as is broadly summarized within this comment, demonstrates that hatcheries have negative impacts on native fish populations in addition to a number of other negative environmental impacts. In fact, the DEIR analysis itself sets forth evidence establishing that the No Hatchery Alternative provides more benefits to native fish species than an 8-year ongoing operation of hatchery facilities. For the reasons set forth below, Patagonia asks that the State Water Board reevaluate the Proposed Project's hatchery analysis within the DEIR to include sufficient consideration of all potential environmental impacts and to adopt the No Hatchery Alternative.

II. Patagonia Supports the Proposed Project's Full Dam Decommissioning and Removal as Set Forth in the DEIR

The State Water Board is tasked with preparing basin plans that designate the beneficial uses of waters to be protected and establish water quality objectives necessary to protect those uses.[6] The California Environmental Quality Act ("CEQA"), Cal. Pub. Res. Code § 21000 *et seq*. and the CEQA Guidelines, 14 Cal. Code Regs. §15000 *et seq*. require that the State Water Board prepare an EIR that evaluates potential impacts of proposed modifications and continued operation of the Dams to water quality and other resources within California.

In drafting the EIR, the State Water Board is responsible for considering both the short-term and long-term effects of the proposed action.[7] Further, the CEQA guidelines mandate that the lead agency balance the social and environmental benefits of a proposed project with the unavoidable adverse environmental effects.[8] The State Water Board is not permitted to carry out a project for which an EIR was prepared unless the project will not have significant effects on the environment or the agency has eliminated or substantially lessened all significant effects on the environment where feasible.[9] Procedurally, with respect to the proposed dam removal, the current DEIR satisfies the CEQA requirements by sufficiently considering the long-term and short-term environmental benefits of dam removal on the Klamath. However, as explained further below, the DEIR falls short of the CEQA standard by failing to sufficiently consider and mitigate all adverse effects of continuing hatchery operations.

Removing dams is a helpful tool to combat river ecosystem deterioration. "Aging infrastructure coupled with growing interest in river restoration has driven a dramatic increase in the practice of

[5] DEIR at ES-4.
[6] 33 U.S.C. § 1313; Cal. Wat. Code §§ 13240 and 13241.
[7] Cal. Code Regs. Title 14, §15126.2.
[8] *Id*. at § 15093(a)–(c).
[9] *Id*. at §15092(b).

dam removal."[10] The average age of dams in the United States according to the National Inventory of Dams, is 57 years[11] and eventually by the year 2030, over 80 percent of dams in the United States will be at least 50 years old.[12] Research and actual experience demonstrates that the removal of dams is a viable option when the cost of keeping a dam in place is higher than the expense of the dam's removal, particularly when the possibility for river restoration is high. According to the organization American Rivers, however, only 1,384 dams have been removed since 1912 out of the 90,000 estimated dams in the United States.[13]

Additionally, the full removal of all four Dams and their associated facilities most adequately satisfies the State Water Board's Proposed Project Objectives as set forth in the DEIR.[14] The removal of the Dams will improve the long-term water quality conditions in the Klamath River, assist in advancing the long-term restoration of the native fish populations in the Klamath Basin, begin to restore volitional fish passage to viable habitat, and combat high disease rates among Klamath River salmonids. However, as developed further below, removing hatcheries from the Klamath more completely achieves the Proposed Project Objectives.

III. The No Project Alternative Should be Rejected

A No Project Alternative would result in a denial of certification of license surrender, which would then return the Klamath Hydroelectric Project Dams to the relicensing proceedings. However, PacificCorp has already withdrawn its request with FERC for certification of a new license application and, as such, this result would be problematic. The DEIR specifically identifies that the Dams currently do not have operating licenses and the proposal to decommission the Dams has already been submitted to FERC.[15] Further, the Klamath Hydroelectric Settlement Agreement requires the deconstruction of the Dams, adding another layer of complexity with the No Project Alternative.[16] For these reasons, the State Water Board should reject the No Project Alternative, as it is inherently insufficient.

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[10] Bellmore J. Ryan, Duda Jeffrey J., Craig Laura S., Greene Samantha L., Torgersen Christian E., Collins Mathias J. & Vittum Katherine, *Status and trends of dam removal research in the United States*, WIREs Water (2017) 4: null. doi: 10.1002/wat2.1164

[11] National Inventory of Dams, https://nid-test.sec.usace.army.mil/ords/f?p=105:113:9687174234512::NO::: (Last visited February 26, 2019).

[12] M.L. Langseth, M.Y. Chang, Jennifer Carlino, J.R. Bellmore, D.D. Birch, Joshua Bradley, R.S. Bristol, D.D. Buscombe, J.J. Duda, A.L. Everette, T.A. Graves, M.M. Greenwood, H.S. Govoni, H.S. Henkel, V.B. Hutchison, B.K. Jones, Tim Kern, Jennifer Lacey, R.M. Lamb, F.L. Lightson, J.L. Long, R.A. Saleh, S.W. Smith, C.E. Soulard, R.J. Viger, J.A. Warrick, K.E. Wesenberg, D.J. Wieferich & L.A. Winslow, Community for Data Integration 2015 annual report: U.S. Geological Survey Open-File Report 2016–1165 (2016). http://dx.doi.org/10.3133/ofr20161165.

[13] *Restoring Damaged River*, American Rivers, https://www.americanrivers.org/threats-solutions/restoring-damaged-rivers/

[14] DEIR at ES-4.

[15] DEIR at 4-15.

[16] *Klamath Hydroelectric Settlement Agreement* (February 18, 2010 as amended April 6, 2016 & November 30, 2016), available at https://www.waterboards.ca.gov/waterrights/water_issues/programs/water_quality_cert/docs/lower_klamath_ferc14803/20161231_executed_and_amended_final_khsa.pdf

IV. Removal of the Dams Supports Fisheries in the Klamath River Basin

The Klamath River watershed once produced large runs of Chinook salmon and steelhead in addition to significant runs of other anadromous fish, including coho salmon, green sturgeon, eulachon, coastal cutthroat trout, and Pacific lamprey.[17] Accounts of early explorers, images from turn-of-the-century photographers, historical newspapers, and information from archaeologists indicate that salmon historically migrated to the Klamath Upper Basin.[18] "Prior to dam construction, anadromous fish runs accessed spawning, incubation, and rearing habitat in hundreds of miles of river and stream channel above the site of Iron Gate Dam."[19] Now, this dam is the current limit of upstream passage.[20]

Currently, the Klamath River Basin supports Chinook salmon, coho salmon, and steelhead populations. However, the anadromous fish populations have declined substantially in abundance.[21] Significant habitat still exists upstream of the Iron Gate Dam that is not being utilized. The Dams act as an unnatural barrier to these valuable but unreachable habitats. Today, all anadromous runs of salmon and steelhead, once abundant in the upper basin, cannot pass Iron Gate Dam.[22]

There has been a decrease in fish populations in the Klamath River Basin from the numbers of fish that were first observed in the early 1900s.[23] Steelhead populations that were thought to exceed one million fish prior to the 1900s fell to 400,000 by 1960. Similarly, coho salmon returns declined by 70% since the 1960s according to National Resource Council research conducted in 2008.[24] As a result of these dwindling numbers, coho salmon in the Klamath River Basin were listed as threatened under the Endangered Species Act ("ESA") in 1997 and then were listed as threatened under the California Endangered Species Act in 2004.[25]

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[17] John B. Hamilton, Gary L. Curtis, Scott M. Snedaker & David K. White, *Distribution of Anadromous Fishes in the Upper Klamath River Watershed Prior to Hydropower Dams—A Synthesis of the Historical Evidence,* Fisheries, 30:4, 10-20 (2005). DOI: 10.1577/1548-8446(2005)30[10:DOAFIT]2.0.CO;2.

[18] J.B. Hamilton, D.W. Rondorf, W.R. Tinniswood, R.J. Leary, T. Mayer, C. Gavette & L.A. Casal, *The persistence and characteristics of Chinook salmon migrations to the upper Klamath river prior to exclusion by dams,* Oregon Historical Quarterly, 117 (3), pp. 326-377 (2016). https://www.scopus.com/inward/record.uri?eid=2-s2.0-84987926795&partnerID=40&md5=4df21c6e9edabddc9c9c6c400fea5ec9

[19] *Supra* note 17.

[20] *Id*.

[21] *Klamath River Basin*, NOAA Fisheries – West Coast Region, https://www.westcoast.fisheries.noaa.gov/klamath/ (last visited February 20, 2019).

[22] *Bring the Salmon Home: The Karuk Tribe's effort to remove Klamath Dam,* available at https://www.nijc.org/pdfs/Subject%20Matter%20Articles/Environment/Bring%20the%20Salmon%20Home.pdf

[23] Klamath Dam Removal Overview Report for the Secretary of the Interior: An Assessment of Science and Technical Information Version 1.1 (March 2013), available at https://klamathrestoration.gov/sites/klamathrestoration.gov/files/Full%20SDOR%20accessible%20022216.pdf

[24] *Id*.

[25] 16 U.S.C. § 1531 *et seq*.

"Once spring-run Chinook salmon disappear, they are not likely to re-emerge," but prompt conservation action "could preserve spring-run Chinook, as well as their evolutionary potential."[26] There are a number of factors that are currently contributing to the decline of anadromous fish populations on the Klamath River, including blockage of upstream migration by dams, rampant disease due to poor water quality, and dangerously high water temperatures.

a. The Dams Currently Pose a Number of Threats to Fisheries.

Currently, the Dams block access to hundreds of miles of migration, spawning, and rearing habitat for native steelhead, Chinook salmon, and coho salmon.[27] The Dams attempt to mitigate these losses by offering assistance through the use of fish passage facilities such as fish ladders, which are currently located at Iron Gate and J.C. Boyle dams.[28] However, fish ladders are often an inadequate tool to assist salmonids migration. Fish have difficulty utilizing the infrastructure, and the success rates of fish that do navigate their way through the facilities are typically low. Finally, the fish that do successfully utilize the infrastructure do so in much lower quantities than historic abundances. A free flowing river without the physical barriers of dams would allow the fish to repopulate upstream of the current dam blockage.

Second, both adults and out migrating juvenile anadromous fish in these reaches of the Klamath River are suffering as a result of increased disease and parasites that are currently plaguing the populations. [29][30] "Severe infection by the myxozoan parasite Ceratomyxa shasta has, in large part, been responsible for the declining numbers of juvenile Klamath River fall Chinook and coho salmon and subsequent impacts on later adult returns."[31] Over the past decade, as many as half of the juvenile Chinook salmon migrating annually toward the ocean through the Klamath River have suffered from severe infections by the myxozoan Ceratomyxa shasta.[32] Additionally, as identified in the DEIR, algae produced in the Upper Klamath reservoirs may be deleterious to the health of aquatic organisms in the Klamath River.[33] Stagnant reservoirs are the leading cause

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[26] *Human actions impact wild salmon's ability to evolve: Spring-run Chinook's decline and loss connected to specific gene variation*, University of California - Davis ScienceDaily, ScienceDaily (December 4, 2018), <www.sciencedaily.com/releases/2018/12/181204143900.htm>.

[27] *Supra* note 23.

[28] DEIR at 2-8 and 2-13.

[29] J. D. Williamson & J. S. Foott, *Diagnostic Evaluation of Moribund Juvenile Salmonids in the Trinity and Klamath Rivers,* Anderson, California, USDI Fish and Wildlife Service, California-Nevada Fish Health Center, pp. 1-30 (June-Sept 1998).

[30] K. Nichols & J.S. Foott, *FY 2004 lnvestigational Report: Health Monitoring of Juvenile Klamath River Chinook Salmon*, Anderson, CA, USFWS-CA/Nev Fish Health Center, Anderson, CA (2005). Available at http://www.fws.gov/canvfhc/reports.asp.

[31] *Disease Reduction in Klamath River Salmon,* Oregon State University Department of Microbiology, https://microbiology.science.oregonstate.edu/content/disease-effects-wild-populations (last visited February 20, 2019).

[32] *Linking Parasite Abundance with Biological Effects on Salmon in the Klamath* River, USDA Research, Education & Economics Information System, https://portal.nifa.usda.gov/web/crisprojectpages/0207448-linking-parasite-abundance-with-biological-effects-on-salmon-in-the-klamath-river.html (last visited February 20, 2019).

[33] DEIR at 3-249.

of these high concentrations of toxic parasites. Allowing the Klamath River to run naturally free by removing the cesspool-creating Dams will assist the resurrection of native fish populations.

Rampant infection of disease was especially apparent during the Klamath River Fish Kill of 2002. In 2002 a relatively robust run of adult fall Chinook entered the Klamath at a time of low flow rates and volume. The combination of crowded river conditions and warm water temperatures created a situation in which parasites and bacterial pathogens spread rapidly.[34] Fish became infected at alarming rates. In the end, the California Department of Fish and Game estimated that more than 65,000 fish died.[35] Researchers have demonstrated that low flow from Iron Gate Dam was a substantial causative factor in this historic fish kill.[36]

Finally, the Dams have increased water temperatures in the Klamath River. Alterations to natural river flows through dam construction and water diversions have altered seasonal temperature patterns in the Klamath River, which ultimately result in harmful elevated temperatures during the crucial fall spawning season.[37] Water temperature associated with multiple mainstem hydropower facilities might be one of many factors responsible for depressing Klamath salmon stocks.[38] [39]

The DEIR itself identifies that the North Coast Regional Water Quality Control Board has determined that existing receiving water temperatures in the Klamath River are already too warm to support migration of aquatic organisms and cold freshwater habitats.[40] Higher water temperatures, especially during the summer months, will likely postpone spawning migration which will then hinder egg development. In addition, elevated water can increase adult fish mortality through stress and crowding. As such, the removal of the Dams will allow the river to self-regulate temperature control rather than heat and cool at the mercy of hydropower facilities.

b. <u>The Dams Create Harmful Methane Emissions Contributing to Climate Change Further Harming Fisheries.</u>

Not only do dams and their reservoirs create hazards for fish and other species, there is growing evidence that dams and reservoirs are also a hazard to the earth's climate. Studies show

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[34] Michael Belchik, Dave Hillemeier, & Ronnie M. Pierce, *The Klamath River Fish Kill of 2002; Analysis of Contributing Factors*, (February 2004).
https://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/california_waterfix/exhibits/docs/PCFFA&IGFR/part2/pcffa_155.pdf

[35] Kristen Boyles, *The Legacy of the Klamath River Fish Kill*, Earth Justice, available at https://earthjustice.org/features/the-legacy-of-the-klamath-river-fish-kill (last visited February 20, 2019).

[36] *Supra* note 34.

[37] *Klamath Basin Water Quality*, Water Education Foundation, available at https://www.watereducation.org/aquapedia/klamath-basin-water-quality

[38] John M Bartholow, Sharon G Campbell, & Marshall Flug, *Predicting the Thermal Effects of Dam Removal on the Klamath River,* Environmental management, 34. 856-74 (2005). 10.1007/s00267-004-0269-5.

[39] John M. Bartholow, *Recent Water Temperature Trends in the Lower Klamath River*, California, North American Journal of Fisheries Management, 25:1, 152-162 (2005). DOI: 10.1577/M04-007.1.

[40] DEIR at 3-21.

that large amounts of GHG emissions come from reservoirs.[41] In fact, some studies estimate that as much as 7% of anthropogenic global warming equivalents come from methane emitted from man-made reservoirs alone.[42] These emissions are then further provoked in hotter climates.[43] Human alterations of the aquatic landscape, which occur directly through the construction of large hydroelectric reservoirs, contributes to carbon emissions.[44]

These emissions come from the impoundment of water, the plant matter decay in and around the artificial bodies of water, and the high concentrations of algae accumulating in stagnant reservoirs. Methane produced by the decomposition of organic materials bubbles to the surface of the water emitting GHG into the atmosphere. Additionally, the fluctuations in water level that reservoirs experience also exacerbates the emission production. The drops in hydrostatic pressure during water level drawdowns enhance methane bubbling.[45] Emissions can also be released via degassing at turbines and spillways.[46]

GHG from human activities are the most significant driver of observed climate change since the mid-20th century.[47] As such, it is critically important to analyze the GHG emissions from hydroelectric technology and the associated reservoirs.

As identified in the DEIR, the power plant operations and maintenance of the Lower Klamath hydroelectric facilities are no exception, as they also act as a source of GHG emissions. Specifically, using estimates presented by the Karuk Tribe, the DEIR establishes that the reservoirs behind the Lower Klamath Project dam facilities and developments emit 4,000 to 14,000 metric tons of methane annually.[48] "With the removal of the Lower Klamath Project reservoirs, this source of methane emissions would be eliminated."[49]

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[41] W. M. J. Rudd, R. Harris, C. A. Kelly & R. E. Hecky, *Are hydroelectric reservoirs significant sources of greenhouse gases?*, Ambio 22, 246–248 (1993).
[42] V. L. St. Louis, C. A. Kelly, É. Duchemin, J. W. M. Rudd, & D. M. Rosenberg, *Reservoir surfaces as sources of greenhouse gases to the atmosphere: A global estimate*, BioScience, 50, 766–775 (2000).
[43] *Reservoir Emissions*, International Rivers, https://www.internationalrivers.org/campaigns/reservoir-emissions (last visited February 20, 2019).
[44] Lars Tranvik, John Downing, James Cotner, Steven Loiselle, Robert Striegl, Thomas J. Ballatore, Peter Dillon, Kerri Finlay, Kenneth Fortino, Lesley B. Knoll, P.L. Kortelainen, Tiit Kutser, S. Larsen, I. Lurion, Dina Leech, S. Mccallister, Diane Mcknight, J.M. Melack, Erin Overholt, & G.A. Weyhenmeyer, *Lakes and reservoirs as regulators of carbon cycling and climate,* Limnology and Oceanograph,. 54. 2298-2314 (2009). 10.4319/lo.2009.54.6_part_2.2298.
[45] Bridget R. Deemer, John A. Harrison, Siyue Li, Jake J. Beaulieu, Tonya DelSontro, Nathan Barros, José F. Bezerra-Neto, Stephen M. Powers, Marco A. dos Santos, & J. Arie Vonk, *Greenhouse Gas Emissions from Reservoir Water Surfaces: A New Global Synthesis*, BioScience, Volume 66, Issue 11, Pages 949–964 (November 1, 2016), https://doi.org/10.1093/biosci/biw117
[46] B. R. Deemer, J.A. Harrison, S. Li, J.J. Beaulieu, T. DelSontro, N. Barros, J.F. Bezerra-Neto, S.M. Powers, M.A. d. Santos, & J.A. Vonk, *Greenhouse Gas Emissions from Reservoir Water Surfaces: A New Global Synthesis*, BioScience, 66 (11) 949– 964 (2016). DOI: 10.1093/biosci/biw117
[47] IPCC (Intergovernmental Panel on Climate Change), *Climate change 2013: The physical science basis,* Working Group I contribution to the IPCC Fifth Assessment Report. Cambridge, United Kingdom: Cambridge University Press (2013). www.ipcc.ch/report/ar5/wg1.
[48] DEIR at 3-718.
[49] DEIR Appendix O at O-5.

A recent study assessed the potential climate change impacts to recreational freshwater fishing across the coterminous US and found that the resulting higher air temperatures, and to a lesser extent changes in streamflow, will alter fish habitat. Patagonia's business depends on its customers having access to wild places to pursue outdoor activities such as fishing. Additionally, Patagonia's mission to save our home planet demands that the company dedicate itself to fighting the climate crisis, including by providing financial support to grassroots environmental groups seeking to protect these fish habitats, and using the company's own platform to amplify their issues. A decline in more desirable recreational fish species as a result of climate change will directly harm Patagonia through both its customer base and its organizational conservation mission. As such, Patagonia again encourages the removal of the dams to eliminate GHG emissions.

V. The DEIR Should Address the Negative Impact of Hatcheries on Fish Populations and River Health.

While Patagonia supports the DEIR's full removal and decommissioning of the Dams and their facilities, the company also simultaneously contends that the DEIR unreasonably relies on the artificial production of fish through the use of hatcheries. Patagonia strongly opposes the DEIR's proposal to maintain the Fall Creek and Iron Gate Hatcheries. A strong scientific consensus shows that hatcheries create significant risks to wild fish species, rather than help supplement dwindling populations as initially thought- a proposition supported by the DEIR itself.[50]

Further, although the CEQA requires that the DEIR include a detailed analysis of the environmental impacts of the proposed project, the DEIR fails to consider the full extent of the environmental impacts of the hatchery operations.[51] Instead, the DEIR fails to recognize the benefit of the No Hatchery Alternative.

a. Klamath River Hatcheries.

As previously set forth, the Klamath River Basin was historically home to a number of wild fish species. Starting in the early 1990s many Pacific salmon populations in the United States were listed as threatened or endangered species under the ESA.[52] In response to the rapid declines of these native fish species, hatcheries began popping up in river basins all over the Western United States. Originally, scientists thought this artificial supplementation of fish would assist to increase wild fish populations to mitigate for the loss of spawning grounds upstream of dams. However, studies show that anadromous salmonid populations in the Klamath River Basin are becoming increasingly dependent on hatchery propagation, a pattern that can threaten population

[50] *See* DEIR at 4-307 to 4-323.

[51] *See* Cal. Pub. Res. Code § 21000 et seq.

[52] Kostow, Kathryn, *Factors that contribute to the ecological risks of salmon and steelhead hatchery programs and some mitigating strategies*, Reviews of Fish Biology and Fisheries, 19, 9-31 (2009). 10.1007/s11160-008-9087-9.

persistence.[53] This includes the Iron Gate Hatchery in the Klamath River Basin which produce spring and fall-run Chinook salmon, coho salmon, and steelhead.[54] With the removal of the Dams, there is a unique opportunity to regain these historical spawning grounds, lessening the need to use hatcheries to supplement Klamath fisheries.

The DEIR provides that while some of the Iron Gate Hatchery facilities would be removed along with the dam, its operational components would be retained and modified to continue operation at a reduced rate for Chinook salmon.[55] Additionally, the Fall Creek Hatchery would be reopened and maintained.[56]

The Iron Gate Hatchery currently releases close to 8 million hatchery salmon and steelhead annually to mitigate the habitat lost between the Iron Gate and Copco dams, which doesn't take into consideration the hundreds of miles of upstream habitat that will be available when those dams are removed.[57] While the Proposed Project would lower the existing production goals at the hatcheries, there would still be another eight years of hatchery production dumped into the Klamath causing irreversible damage to the native populations.[58] Further investment into this hatchery is a waste of both time and resources. Given the overwhelming scientific data that shows native fish populations fare better without hatcheries, the DEIR is falsely premised on the necessity of these structures.

b. <u>Hatcheries Have Negative Impacts on Wild Fish Populations.</u>

These traditional mitigation policies of replacing wild populations with hatchery fish are not consistent with modern conservation goals, environmental values, and scientific theories.[59] While hatcheries are capable of temporarily maintaining higher numbers of fish populations, they are incapable of replacing lost habitat and the natural populations that historically rely on it. "The optimism of early salmon hatchery practitioners to increase abundance[60] has been tempered in

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[53] R.M. Quiñones, M.L. Johnson, & P.B. Moyle, *Hatchery practices may result in replacement of wild salmonids: adult trends in the Klamath basin,* California Environ Biol Fish, 97: 233 (2014). https://doi.org/10.1007/s10641-013-0146-2

[54] Klamath Dam Removal Overview Report for the Secretary of the Interior: An Assessment of Science and Technical Information (October 2012).
http://klamathrestoration.gov/sites/klamathrestoration.gov/files/2013%20Updates/
Final%20SDOR%20/0.Final%20Accessible%20SDOR%2011.8.2012.pdf]

[55] DEIR at ES-7.

[56] *Id*.

[57] *Questions remain for Iron Gate Hatchery as we prepare for Klamath River dam removal in 2021*, Native Fish Society (August 7, 2018), https://nativefishsociety.org/news-media/questions-remain-for-iron-gate-hatchery-as-we-prepare-for-klamath-river-dam-removal-in-2021

[58] DEIR at 2-80.

[59] A. Appleby, H.L. Blankenship, D. Campton, K. Currens, T. Evelyn, D. Fast, T. Flagg, J. Gislason, P. Kline, C. Mahnken, B. Missildine, L. Mobrand, G. Nandor, P. Paquet, S. Patterson, L. Seeb, S. Smith, & K. Warheit, *On the Science of Hatcheries: An updated perspective on the role of hatcheries in salmon and steelhead management in the Pacific Northwest*, HSRG (Hatchery Scientific Review Group), June 2014; revised October 2014.

[60] Lichatowich JA, *Salmon without rivers: a history of the Pacific salmon*, Island Press, Washington, DC (1999).

recent decades by studies indicating unintended negative effects hatcheries can have on wild Pacific salmon and steelhead.[61],[62]

Hatcheries jeopardize threatened and sensitive populations of native fish species, including the once-abundant salmon species. It is now clear that the widespread use of traditional hatchery programs has actually contributed to the overall decline of wild populations. "The historical use of artificial propagation for harvest mitigation has frustrated the successful integration of management directives and created regional economic inefficiencies."[63] Scientists across the globe have studied the impact of hatchery fish on native populations and continually discover the negative impacts of hatcheries. The following are a few conclusions from studies conducted involving hatchery implications:

- Hatchery coho salmon 14 months after release into a stream did not reach the body composition of the wild salmon in time for downstream migration and had lower ocean survival.[64]

- Available data suggest progressively declining fitness for natural rearing with increasing generations in the hatchery. The reduction in survival from egg to adult may be about 25% after one generation in the hatchery and 85% after six generations. Reduction in survival from yearling to adult may be about 15% after one generation in the hatchery and 67% after many generations.[65]

- Hatchery production has been reduced to a small fraction of the natural-origin production. Nickelson (2003) found that reduced hatchery production led directly to higher survival of naturally produced fish, and Buhle et al. (2009) found that the reduction in hatchery releases of Oregon coast coho salmon in the mid1990s resulted in increased natural coho salmon abundance.[66] [67]

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[61] Naish KA *et al.*, *An evaluation of the effects of conservation and fishery enhancement hatcheries on wild populations of salmon*, Advances in Marine Biology, Adv Mar Biol 53:61–194 (2008).
[62] Peter Rand, Barry Berejikian, Todd N. Pearsons, & David Noakes, *Ecological interactions between wild and hatchery salmonids: An introduction to the special issue*, Environmental Biology of Fishes. 94. 1-6 (2012). 10.1007/s10641-012-9987-3.
[63] *On the Science of Hatcheries: An updated perspective on the role of hatcheries in salmon and steelhead management in the Pacific Northwest*, Hatchery Scientific Review Group Pacific Salmon Hatchery Reform (June 2014, updated October 2014). http://hatcheryreform.us/wp-content/uploads/2016/05/On-the-Science-of-Hatcheries_HSRG_Revised-Oct-2014.pdf
[64] E.M. Wood, W. T. Yasutake, J. E. Halver, & A. N. Woodall, *Chemical and histological studies of wild and hatchery salmon in fresh water,* Transactions of the American Fisheries Society, Volume 89, Issue 3 pp. 301-307 (July 1960).
[65] R.R. Reisenbichler, *The risks of hatchery supplementation,* The Osprey, Issue No. 27 (June 1996).
[66] Tom Nickelson, *The influence of hatchery coho salmon on the productivity of wild coho salmon populations in Oregon coastal basins*, Can. J. Fish. Aquat. Sci. 60: 1050-1056 (2003).
[67] E. R. Buhle, K. K. Holsman, M. D. Scheuerell, & A. Albaugh, *Using an unplanned experiment to evaluate the effects of hatcheries and environmental variation on threatened populations of wild salmon*, Biological Conservation 142:2449-2455 (2009).

- Hatchery fish reproductive success is poor; there is a large-scale negative correlation between the presence of hatchery fish and wild population performance; hatchery fish reproductive success is lower than for wild fish and this is true for both supplementation and production hatchery programs…[68]

As such, according to the Hatchery Scientific Review Group, scientists and policymakers have identified a need to reform the hatchery system based on growing concerns about the potential effects of artificial propagation on the viability of salmon and steelhead in their natural habitats.[69] "The combined effects of large-scale hatchery programs, habitat loss and degradation and high harvest rates have replaced historically abundant wild salmon with hatchery-produced salmon in many areas."[70] This includes the Klamath River Basin. Domestication in hatchery facilities alters predator avoidance, feeding behavior, genetics, and physiology.[71] The DEIR should be focused on avoiding these well documented negative impacts rather than voluntarily submitting the river and its inhabitants to another eight years of ecology deterioration.

c. <u>Hatchery Fish Pose Ecological Harm to Native Fish Species.</u>

"Ecological risks occur when the presence of hatchery fish affects how wild fish interact with their environment or with other species."[72] There are a number of detrimental ecological interactions that can take place between hatchery and wild fish. These include competition for food and territory, predation by larger hatchery fish preying on smaller wild cohorts, and negative social interactions when large numbers of hatchery fish are released on top of small numbers of wild fish.

Hatchery fish typically have short-term physical advantages over wild fish that disrupt the natural interactions of wild fish. Larger sized juveniles, more aggressive and dominant juveniles, and different spawning times by adults all contribute to the ecological risks to native populations.[73] Larger hatchery juveniles tend to win more competitions by virtue of their size, which then places naturally proportional wild juveniles at a disadvantage.[74] As previously pointed out by the Native Fish Society in their comments on the draft water quality certification for the Klamath River Renewal Corporation's Lower Klamath Project No. 14083, due to the food distribution and rearing strategies necessary to make artificial production cost effective, hatchery fish become surface oriented, causing them to become more susceptible to predators.[75] Releasing young hatchery fish

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[68] Michael Ford, *Some trends in hatchery effects science*, Presentation to the N.W. Power Planning and Conservation Council (September 2010).
[69] *Supra* note 59.
[70] *Supra* note 52.
[71] M. Chilcote *et al.*, *Reduced recruitment performance in natural populations of anadromous salmonids associated with hatchery-reared fish*, Can. J. Fish. Aquat. Sci. 68: 511–522 (2011).
[72] *Supra* note 52.
[73] JI Deverill, CE Adams & CW Bean, *Prior residence, aggression and territory acquisition in hatchery-reared and wild brown trout,* J Fish Biol 55:868–875 (1999).
[74] *Supra* note 52.
[75] Native Fish Society Group Comments on Draft Water Quality Certification for Klamath River Renewal Corporation's Lower Klamath Project No. 14803 (July 23, 2018), available at https://www.scribd.com/document/385701693/Final-NFS-Group-Comments-for-Draft-Water-Quality-Certification-Lower-Klamath-Project-No-14803#download&from_embed citing Hillman, T. W., and J. W. Mullan. 1989. Effect of hatchery releases on the abundance and behavior of wild juvenile salmonids. Pages

into a wild stream could result in their domination of wild fish, which would then leave wild fish reduced to less favorable rearing habitats.[76]

Further, a number of studies have demonstrated that hatchery juveniles can show more aggressive behaviors than wild juveniles.[77] This aggression then leads to decline in native fish population only to be replaced by hatchery fish that have a lower overall survival rate. "Therefore, while hatchery juveniles released into natural streams have a competitive advantage over wild fish due to increased aggression, size, or sheer number, their impaired ability to survive to adulthood and breed successfully can translate into an overall reduction in salmon population size."[78] While some short-term advantages may initially benefit the hatchery fish, in the long-term they will eventually lead to poorer survival or lower reproductive success in the hatchery fish themselves. This creates precisely the opposite impact intended by hatcheries in the first place.

d. Hatchery Fish Cause Genetic Harm to Native Fish Species.

Genetic risks occur when hatchery and wild fish interbreed.[79] Studies show that hatcheries can cause genetic changes in salmon populations after just a single generation.[80] Research and experimental studies conducted across the years have demonstrated that artificial breeding will likely reduce genetic diversity and cause higher rates of genetic drift as a result of small effective population sizes. Wild fish have diverse genetic variances while hatchery fish have very limited genetic variances, which then yields limited genetic diversity. Continued interbreeding with hatchery-origin fish of lower fitness can lower the fitness of the wild population. [81]

Hatchery fish that do not return to the hatchery but instead spawn naturally may potentially transfer maladaptive genetic changes into the wild population. "Generally, large, long-term hatchery programs that dominate production of a population are a high-risk factor for certain viability criteria and can lead to increased risk for the population."[82] The Iron Gate Hatchery is no exception. Genetic variation and uniqueness are key to the success of fish populations. As previously identified by the Native Fish Society and Patagonia, the ability of salmon to migrate to the ocean and return to their natal stream has profound implications on population structure and has encouraged fine scale genetic adaptations to specific habitats used throughout their lifecycle

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265-285 in Don Chapman Consultants Inc., Summer and winter ecology of juvenile chinook salmon and steelhead trout in the Wenatchee River, Washington. Final report submitted to Chelan County Public Utility District, Washington.

[76] Melanie Kleiss, *The Salmon Hatchery Myth: When Bad Policy Happens to Good Science*, 6 Minn. J.L. Sci. & Tech. 431 (2004). Available at: https://scholarship.law.umn.edu/mjlst/vol6/iss1/17

[77] *Supra* note 52.

[78] *Supra* note 76.

[79] *Supra* note 52.

[80] M. R. Christie, M. L. Marine, R. A. French, & M. S. Blouin, *Genetic adaptation to captivity can occur in a single generation*, Proceedings of the National Academy of Sciences (2011). DOI: 10.1073/pnas.1111073109.

[81] DamNation (Patagonia 2014).

[82] Michelle McClure, Fred M. Utter, Casey Baldwin, Richard W. Carmichael, Peter F. Hassemer, Phillip J. Howell, Paul Spruell, Thomas D. Cooney, Howard A. Schaller & Charles E. Petrosky, *Evolutionary effects of alternative artificial propagation programs: implications for viability of endangered anadromous salmonids,* Blackwell Publishing Ltd. 356-375 (2008).

and geographic range.[83] As such, it is essential that these fish populations are able to maintain their authentic genetic variations.

"There is about a 40% loss in reproductive fitness for each generation of fish that spend their lives in a hatchery."[84] Hatchery fish produce fewer returning adults when they spawn with one another compared to more successful wild fish, or when a hatchery fish spawns with a wild fish.[85] As one study succinctly summarized:

> The implication is that hatchery salmonids could be gradually reducing the fitness of the wild populations with which they interbreed. Those hatchery fish provide one more hurdle to overcome in the goal of sustaining wild runs, along with problems caused by dams, loss or degradation of habitat, pollution, overfishing and other causes. Aside from weakening the wild gene pool, the release of captive-bred fish also raises the risk of introducing diseases and increasing competition for limited resources."[86]

Wild salmon species must preserve their genetic diversity if they are going to maintain their ability to adopt to changing environmental pressures. Hatcheries undermine this goal.

e. **Hatchery Infrastructure Harms Wild Fish Populations.**

While there are undoubtedly genetic and ecological effects on native species as a result of artificial hatchery fish, the physical infrastructure of the hatchery operations harm wild fish populations. "The physical existence of the factory represents a permanent, negative impact on the surrounding environment and can also pose serious harm to fish populations both in and outside of the facility."[87]

Currently up to 50 cfs of water is diverted from the Iron Gate reservoir to supply the fish ladder and raceways that operate at the Iron Gate Hatchery.[88] Water that is withdrawn from the river's flow and then utilized by hatcheries in turn reduces river flow and causes water temperatures to fluctuate unnaturally.[89] In addition to flow reductions, these withdrawals displace other stream-dwelling organisms that are crucial to the aquatic food web and dewater natural

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[83] Native Fish Society Group Comments on Draft Water Quality Certification for Klamath River Renewal Corporation's Lower Klamath Project No. 14803 (July 23, 2018), available at https://www.scribd.com/document/385701693/Final-NFS-Group-Comments-for-Draft-Water-Quality-Certification-Lower-Klamath-Project-No-14803#download&from_embed

[84] Michael Blouin, *Hatchery Fish May Hurt Efforts To Sustain Wild Salmon Runs*, Science Daily (June 13, 2009).

[85] *Scientific Evidence on Adverse Effects of Steelehead Hatcheries,* Wild Fish Conservancy Northwest, http://wildfishconservancy.org/what-we-do/advocacy/steelhead-hatchery-reform/scientific-evidence-on-adverse-effects-of-steelhead-hatcheries (last visited February 20, 2019).

[86] *Supra* note 84.

[87] *Hatchery Reform*, Native Fish society, https://nativefishsociety.org/science/hatcheries (last visited February 20, 2019).

[88] DEIR Appendix B: Definite Plan for Lower Klamath Project at 69.

[89] *Supra* note 85.

spawning and rearing areas.[90] Further, as admitted in the DEIR itself, "Hatcheries potentially alter water temperature through increasing exposure to direct sunlight (e.g., in raceways or settling ponds) and ambient air temperatures. Hatcheries also potentially increase suspended material, turbidity, and nutrients in streams by discharging water containing organic solids from uneaten commercial pelletized feed and fish waste."[91]

Hatcheries are also susceptible to technical difficulties that leave millions of hatchery fish at the mercy of unreliable modern technology. Power outages, machinery malfunctions, and human error are a few of the risk factors that hatcheries pose to reared fish populations. Most recently, in December 2018, more than 6.2 million Chinook salmon died when a power outage occurred at Minter Creek Hatchery in Gig Harbor, Washington.[92] Deadly hatchery power outages as a result of storm power line damage or faulty electric problems is not uncommon.[93][94] Spending eight years putting financial resources into a facility that is susceptible to extreme technical difficulties, potentially leading to mass fish casualties, is a poor investment of time and capital.

Additionally, large releases of hatchery fish have been associated with decreases in fish survival as a result of increased predation by piscivorous fish, birds, and mammals.[95] These predators are attracted to the high concentrations of fish that are released from hatcheries. "Not only is there an increased number of prey available to attract predators, but hatchery fish also tend to out-migrate in unnatural, concentrated groups compared to the more dispersed and variable behavior of wild fish."[96] Further, the carrying capacities of rivers is often exceeded during outmigration of hatchery smolts, which causes a decrease in food availability.[97]

Finally, the physical presence of hatchery infrastructure along the river creates an aesthetically displeasing and unnatural disturbance to the historic natural beauty of the Klamath River Basin. Hatchery buildings, tanks, and filters insert an artificial presence in what should be a peaceful wilderness environment. Patagonia's customers are deeply interested in the preservation of wild spaces, as it is the area they utilize for their recreational, spiritual, and personal needs. The removal of the hatcheries along with the Dams will help preserve the original natural wonder of the area.

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[90] *Supra* note 83.
[91] DEIR at 3-164.
[92] *Power outage causes death of 6.2 million chinook salmon fry at state-run hatchery*, The News Tribute (December 18, 2018), https://www.thenewstribune.com/news/local/article223255580.html
[93] *Equipment Failure At Adirondack Hatchery Hits Salmon Stocks*, Adirondack Almanack (May 23, 2018), https://www.adirondackalmanack.com/2018/05/equiptment-failure-at-adirondack-hatchery-hits-salmon-stocks.html
[94] Stephanie Hull, *Thousands of fish killed by pump failure at Thermalito hatchery*, KRCR News Channel 7 (May 11, 2017), https://krcrtv.com/news/butte-county/thousands-of-fish-killed-by-pump-failure-at-thermalito-hatchery
[95] *Supra* note 52.
[96] KE Kostow, *Differences in juvenile phenotypes and survival between hatchery stocks and a natural population provide evidence for modified selection due to captive breeding*, Can J Fish Aquat Sci 61:577–589 (2004).
[97] Joshua Israel, *Life History, Ecology, and Status of Klamath River Steelhead* (2019).

f. The DEIR Fails to Adequately Consider the Harms of Hatcheries.

Although the Proposed Project would remove the cold-water supply and aerator for the hatchery, the operational components of Iron Gate Hatchery would still be retained and modified to continue operations in addition to the reopening of Fall Creek Hatchery for eight years following the dam removal.[98] If the Dams are being removed to benefit the health of the Klamath River, the continuation of hatchery operations stands in direct contrast to that objective. Although the proposed plan will lower hatchery production over the eight-year period, the mere reduction of total hatchery production goals is not enough to mitigate the damage hatchery operations will continue to have on the Klamath.

In addition to the continued operation of the hatcheries, the Definite Plan authored by the Klamath River Renewal Corporation proposes the construction of additional hatchery facilities, including a new spawning facility, circular tanks, and a UV treatment system.[99] Additional expenditures on hatchery infrastructure stands in bold contrast to the proposed plan's objective of advancing the long-term restoration of the native fish populations. Instead of dedicating resources to the unnatural and ultimately destructive operation of hatcheries, the DEIR should reallocate these resources to the restoration of native fish populations.

The DEIR identifies that reopening the Fall Creek Hatchery will increase hatchery-related discharges which would potentially alter water temperature downstream. In fact, the DEIR provides a list of "potential negative effects" that include genetic risks, competition and predation, hatchery facility effects on water quality, effects of weirs and other hatchery infrastructure, masking of current wild population status due to the presence of large numbers of hatchery-origin fish, incidental fishing pressure, and disease transfer from hatchery to wild fish.[100] This direct recognition of the negative impacts of hatchery operations demonstrates that the State Water Board has not properly considered the full range of environmental impacts associated with hatchery removal.

g. The DEIR No Hatchery Alternative Itself Identifies the Positive Impacts of Hatchery Removal.

The DEIR does indeed provide a No Hatchery Alternative which would result in the permanent removal of the Iron Gate Hatchery and avoid the refurbishing and reopening of the Fall Creek Hatchery. However, this alternative is falsely caveated by the assertion that these actions would fail to meet the Proposed Project's Objective 2, to "advance the long-term restoration of the natural fish population in the Klamath Basin with particular emphasis on restoring the salmonid fisheries used for subsistence, commerce, tribal cultural purposes, and recreation" as quickly as under the Proposed Project.[101]

This conclusion stands in bold contrast to the analysis of the No Hatchery Alternative, which actually reveals that the No Hatchery Alternative will be beneficial for coho salmon and

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[98] DEIR at 2-77.
[99] DEIR Appendix B: Definite Plan for Lower Klamath Project at 289.
[100] DEIR at 3-248.
[101] DEIR at ES-20.

fall-run and spring-run Chinook salmon populations in the long term.[102] The DEIR states, "The Chinook salmon released to the Klamath River annually also likely result in deleterious effects on natural-origin populations, including competitive pressure between hatchery-derived and natural-origin fish in the limited habitat areas (e.g., thermal refugia) used by rearing juveniles in the Klamath River (NMFS 2010a)."[103] Further, "Negative hatchery effects due to competition, leading to displacement and lower growth, are well documented (Flagg et al. 2000, McMichael et al. 1997)."[104] As a result, the DEIR itself asserts that the removal of hatcheries "could increase survival of natural-origin Chinook salmon at a faster rate than with continued hatchery operations under the Proposed Project"[105] and "ending hatchery operations under this alternative may result in a more rapid increase in the spring-run Chinook salmon adult population as a result of dam removal than under the Proposed."[106] Thus, it's difficult to comprehend how the No Hatchery Alternative would "fail to meet Objective 2" when the DEIR provides ample evidence that hatchery removal will advance the long-term restoration of native fish populations – the very purpose of Objective 2.

In addition to the benefits to native fish populations, the DEIR also directly identifies that the No Hatchery Alternative will result in lower GHG emissions than the Proposed Project. "[U]nder the No Hatchery Alternative, operational emissions from the hatcheries would be lower (zero) than those under existing conditions."[107] Moreover, the DEIR states that the No Hatchery Alternative "would further the underlying purpose and most of the project objectives" and "reduce construction-related impacts of reopening Fall Creek Hatchery and making modifications at Iron Gate Hatchery."[108] The full removal of the hatcheries in conjunction with the dam removal, as opposed to waiting eight years, would save time and resources by eliminating the need to engage in two different deconstruction phases. Instead of expending energy relocating fish trapping and holding facilities and balancing the repurposing of the facilities, the dam and hatchery deconstruction activities can occur simultaneously so to eliminate a second wave of construction activities. This would eradicate the need for a subsequent disruption of the aquatic habitats rehabilitating in the river post-dam removal.

The No Hatchery Alternative provides more environmental benefits to native fish populations, results in overall less GHG emissions, eliminates aesthetically displeasing infrastructure, and thus undoubtedly meets the Project objectives. As such, Patagonia strongly urges the State Water Board to consider adopting the No Hatchery Alternative in the long-term interest of native fish populations.

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[102] DEIR at 3-308 to 313.
[103] DEIR at 4-305.
[104] DEIR at 4-305.
[105] DEIR at 4-307.
[106] DEIR at 4-309.
[107] DEIR at 4-317.
[108] DEIR at 4-6.

VI. Conclusion

While Patagonia supports the removal of the Dams from the Klamath River Basin, the company also strongly opposes the continued operation of the Iron Gate and Fall Creek Hatcheries due to their detrimental impacts on native fish populations. Patagonia urges the State Water Board to adopt the No Hatchery Alternative to better protect the ecological health of the Klamath River Basin and fully embrace the project's objective of restoring native fish populations, particularly the restoration of salmonid fisheries used for subsistence and recreation. The State Water Board should reconsider and reevaluate the impact of hatcheries on the Proposed Project in an attempt to benefit the longevity of all anadromous fish species and restoration of viable river habitat.