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A Road Map to Restoring Rivers: How the Klamath Basin Restoration Agreement Might Influence Future Dam Removal and River Restoration Projects

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HOW THE KLAMATH BASIN RESTORATION AGREEMENT MIGHT INFLUENCE FUTURE DAM REMOVAL AND RIVER RESTORATION PROJECTS.

ABSTRACT

Throughout the United States dams are approaching the terminus of their original licensing periods and are undergoing re-licensing by the Federal Energy Regulatory Commission. This period of review has prompted extensive studies in these basins to determine the cost-benefits associated with keeping these dams, versus removing and restoring the natural ecosystems that are currently inundated. In situations where a dam is deemed to be no longer economically relevant, and/or a detriment to endangered species or their critical habitat, an agreement for removal and restoration is often proposed as the next step in the management of that basin's water resources. However, agreements to remove dams and restore aquatic habitat have been difficult to draft and finalize due in part to the wide spectrum of positions held by stakeholders, along with the incredible financial cost and liability involved with such an undertaking. This paper discusses the past, present, and future outlook of four such dams on the Klamath River in California and Oregon. In particular, this paper analyzes several revolutionary tactics that were used in drafting the final agreement between parties which have the potential to improve the process of future negotiations and subsequent agreements in other basins around the United States.

The Western United States has a unique and complicated history with dams. With its dramatically varying climates and low levels of annual precipitation, the arid West would not have developed into the agricultural powerhouse that it is today, nor would some of the largest cities in the nation such as Las Vegas, Los Angeles, or Phoenix exist as they do today, without dams that provide drinking water, irrigation, and power to millions.[1] Many of the large, well-known western dams such as Grand Coulee, Shasta, Hoover, and Glen Canyon were built by the federal government to support western expansion. Created by the signing of the 1902 Reclamation Act, the U.S. Reclamation Service (later renamed the Bureau of Reclamation) would become

1. *See generally* Water in the West, Bureau of Reclamation Historic Dams and Water Projects, Managing Water in the West, *available at* https://www.nps.gov/nr/testing/ReclamationDamsAndWaterProjects/Water_In_The_West.html.

the federal agency synonymous with the West and would go on to construct 492 dams, becoming the largest wholesale water supplier and the second largest producer of hydroelectric power in the United States.[2] Public utility companies followed suit, constructing dams with the mission of generating hydroelectric power for households and municipalities. During the Great Depression, construction of dams by the federal government became a central piece of the "prime the pump" economic stimulus initiative to re-energize the American economy.[3]

Dams built in the American West became symbols of American pride, progress, and a national realization of Manifest Destiny in the early decades of 20th century.[4] However, for many, dam development was the beginning of largescale environmental degradation. John Muir famously fought the construction of the O'Shaughnessy Dam, which was planned to be built in one of the most stunning valleys of the West. Often called the twin of Yosemite Valley, Hetch Hetchy Valley was renowned for its stunning granite walls, diverse wildlife, and the Tuolumne River which teamed with native fish.[5] The O'Shaughnessy Dam was approved by Congress in 1913, and was completed in 1923.[6] Despite the efforts of Muir and the Sierra Club, the Hetch Hetchy Valley was lost in the name of progress and development.[7] The Hetch Hetchy Valley is maybe the most well-known example of this struggle between environmentalists and pro-development interests, but it is hardly the only example. The U.S. Army Corp of Engineers has cataloged over 91,468 dams in their National Inventory with an average age of 57 years old.[8] Though these hydro-projects vary in scale and purpose, they all have impacts on the natural environment where they were constructed.

The public perception of dams has evolved over many decades as the ecological and environmental consequences associated with them have come to light. Since 1999, more than 850 dams have been removed in an attempt to recover or restore some semblance of the ecosystems that were lost.[9] Today, the push to remove dams whose environmental impacts outweigh their economic potential has increased as our understanding of the importance of ecosystem services created by free-flowing rivers continues to expand.

This paper discusses the proposed removal of four dams on the Klamath River in California and Oregon, specifically focusing on the process of drafting the agreement between parties for the removal of the dams. The final agreement represents years of struggle, litigation, and gridlock between stakeholders who finally found common ground, not just in the final terms of the agreement, but in the

2. U.S. Bureau of Reclamation, *About Us*, https://www.usbr.gov/main/about; https://www.usbr.gov/main/about/fact.html

3. *Supra* note 1

4. *Id.*

5. *See* The Sierra Club, *Hetch Hetchy: Time to Redeem a Historic Mistake*, vault.sierraclub.org/ca/hetchhetchy/.

6. The Raker Bill, H.R. 7207, 63rd Cong. (1st Sess. 1913), http://www.sfmuseum.org/hetch/hetchy10.html.

7. *See supra* note 5.

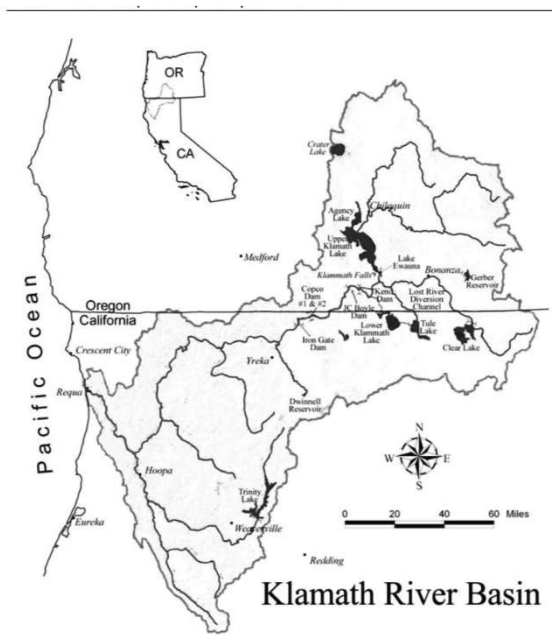
8. USACE, National Inventory of Dams, https://nid.sec.usace.army.mil/ords/f?p=105:113:3885584006591::NO:::.

9. *Supra* note 5.

process by which the agreement was drafted. By eliminating the zero-sum scenario that plagued previous attempts at dam removal agreements, stakeholders were able to come to the negotiating table and ultimately leave with a deal. An unlikely coalition of industry, irrigators, conservation groups, tribes, federal agencies, and the states of California and Oregon revolutionized the process for dam removal and subsequent restoration. The agreement discussed below represents a promising approach for the removal of outdated dams followed by careful restoration of the formerly inundated river reaches.

GETTING TO KNOW THE KLAMATH BASIN

Located along the California and Oregon border, the Klamath River Basin[10] is a mosaic of rolling hills, snow caped mountains, vast grasslands intermixed with scrubland, untamed temperate rainforests, and engineered waterways. In the lower Klamath Basin, the river is impeded by four dams which were built between 1908 and 1962.[11] The farthest downstream is Iron Gate, followed by Copco 1 & 2, and finally J.C.



Source: Map courtesy of U.S. Bureau of Reclamation.

Figure 1 U.S. Bureau of Reclamation map of the Klamath River Ba

Running approximately 260 river miles and draining a watershed 12,000 square miles in size, the Klamath River delivers snowmelt from the southern slopes of the Cascade mountains and

10. *Supra* Figure 1; U.S. Bureau of Reclamation, *Klamath Project*, https://www.usbr.gov/projects/index.php?id=470 (select second slide).

11. *See* Klamath River Renewal Corp., *Background*, klamathrenewal.org/background/

12. *See* Klamath River Renewal Corp., *Klamath River Renewal* Project, klamathrenewal.org/about-the-project/ (see Project Vicinity Map).

Upper Klamath Lake to the Pacific Ocean just north of Requa, California.[13] This arduous journey from summit to sea is far from simple. Along the way, the river provides water to multiple states, tribes, municipalities, and industries for drinking, irrigation, food, recreation, and hydroelectricity.[14] Layered on top of state, tribal, and private interests are the interests of five National Forests, the Bureau of Land Management, and National Wildlife Refuges, all of which have tracts of land in and around the basin. These tracts intersect the river basin and rely on the flows from the Klamath and irrigation seepage to sustain their intended purposes.[15]

The Klamath is home to several species of endangered and threatened fish: The Lost River[16] and Shortnose suckers,[17] which are managed by U.S. Fish and Wildlife Service (USFWS) and the Southern Oregon/ Northern California Coast (SONCC) Coho Salmon,[18] which are managed by National Marine Fisheries Service (NMFS).[19] Furthermore, the salmon and suckers are sacred to tribes located in the lower and upper basins of the Klamath. The Yurok, Karuk, and the Hoopa Valley Tribes have relied on the annual migration of the Coho Salmon returning from the ocean for hundreds of years. The Klamath Tribes, a federation of tribes located in the upper basin, have similarly relied on the suckers as part of their traditional diet for generations.[20] These federally endangered species have collided head on with the large power production facilities and a Bureau of Reclamation (USBR) irrigation

13. U.S. BUREAU OF RECLAMATION, REPORT TO CONGRESS: SECURE WATER ACT SECTION 9503(C) – RECLAMATION CLIMATE CHANGE AND WATER 131, 138 (2011).

14. *See generally* Adell L. Amos, *Dam Removal and Hydropower Production in the United States - Ushering in a New Era*, 29 J. ENVTL. L. & LITIG. 1 (2014).

15. *See generally* David N. Allen, *The Klamath Hydroelectric Settlement Agreement: Federal Law, Local Compromise, and the Largest Dam Removal Project in History*, 16 HASTINGS WEST NORTHWEST J. OF ENVTL. L. & POL'Y 427 (2010).

16. Lost River Sucker *(Deltistes luxatus)* – Known as the "C'waam" by the Klamath Tribes, the Lost River sucker is the largest of the sucker species around today and is a sacred animal to the tribes of the Klamath Basin. This endangered species played a crucial role in providing food for the tribes along the Klamath and its tributaries. For more information on the research and conservation efforts directed at this species s*ee Lost River Sucker,* U.S. FISH AND WILDLIFE SERVICE, https://ecos.fws.gov/ecp0/profile/speciesProfile?spcode=E08A (last visited Oct. 20, 2020).

17. Shortnose Sucker *(Chasmistes brevirostris)* – Known as "Qapdo" by the Klamath Tribes, the shortnose sucker is also considered a sacred species that has historically provided a reliable food source for generations. With the construction of dams along the Klamath, cyanobacteria blooms became more frequent in this species' critical habitat, resulting in low dissolved oxygen concentrations. For more information *see* TOMELLERI, J., U.S. FISH AND WILDLIFE SERV., SHORTNOSE SUCKER (*CHASMISTES BREVIROSTRIS*): 5-YEAR REVIEW SUMMARY AND EVALUATION (2007) https://ecos.fws.gov/docs/five_year_review/doc1063.pdf.

18. Coho Salmon *(Oncorhynchus kisutch)* – Listed as 'Threatened' in this part of the country under the ESA, the Coho Salmon play another critical role in providing food for native tribes as well as for several large species of land fauna in the region. The Coho is generally regarded as a staple species of the Pacific Northwest and a good indicator of overall environmental health. Low flows, siltation, and loss of critical spawning habitat due to dams along the Klamath have resulted in a declining population. A fish kill in the early 2000's in the Klamath was reportedly one of the largest mass die-offs of Coho Salmon ever recorded. *See Coho Salmon,* NAT'L OCEANIC AND ATMOSPHERIC ADMIN., https://www.fisheries.noaa.gov/species/coho-salmon (last visited Oct. 20, 2020).

19. *Coho Salmon*, U.S. FISH AND WILDLIFE SERV., https://ecos.fws.gov/ecp0/profile/speciesProfile?spcode=E08A (last visited Nov. 4, 2018).

20. For more detail regarding the history of the Klamath Tribes *see* THE KLAMATH TRIBES: KLAMATH, MODOC & YAHOOSKIN, *History*, https://klamathtribes.org/history/ (2020).

dam, collectively known as the Klamath Hydropower Project (KHP). These dams have significantly altered the hydrology of the river, resulting in disputes between parties interested in water supply for endangered fish, wildlife refuges, irrigators, and hydroelectric power producers.

The early 2000s saw the impracticality of continuing to operate and maintain the four lower dams of the KHP become a reality for PacifiCorp, the operator of the dams. PacifiCorp filed an application for a new license on February 25, 2004 to continue to operate the Klamath Project.[21] The original license for the project had been issued 50 years earlier on January 28, 1954[22] and was due to expire on February 28, 2006.[23] Congress tasked the Federal Energy Regulatory Commission (FERC) with reviewing these applications. Subchapter I of the Federal Power Act authorizes FERC to regulate the licensing, conditioning, and development of hydropower projects on navigable waters of the United States.[24] FERC commenced the renewal process for the Klamath Project in February 2005, and in December 2005 issued a public notice that the application was ready for environmental review and analysis.[25] In November 2007, FERC issued their final Environmental Impact Statement (EIS) regarding the renewal application. Multiple alternatives were discussed in the final EIS, ranging from renewal of the license with mandatory mitigation measures, to decommissioning and removing the four lower dams of the KHP.[26] FERC ultimately recommended issuing a new license to PacifiCorp to continue operation of the Klamath Project that included the four lower dams.[27] However, this new license included several mitigation measures[28] that would ultimately force PacifiCorp to consider other alternatives.

The mitigation measures required by FERC's final EIS included retrofitting the dams for fish passage and reducing power production to meet minimum instream-flow requirements. Together, these measures would have PacifiCorp operating at a net loss.[29] These mandatory fishway prescriptions were filed by USFWS, NMFS, and BLM in response to FERC releasing the license application for environmental analysis. Once it was clear that FERC was not going to renew the licenses for these facilities without substantial mitigation measures attached, a deal had to be made between PacifiCorp, the Tribes, California, Oregon, irrigators, private stakeholders, and the Federal Government regarding their decommission, and eventual removal of the Klamath Project dams.[30] PacifiCorp, however, was not the only stakeholder

21. S*ee PacifCorp*, [Order Amending License and Deferring Consideration of Transfer] Fed. Reg. Comm'n Rep. (CCH) ¶ 61,236, 2 (Mar. 5, 2018), https://www.ferc.gov/whats-new/comm-meet/2018/031518/H-2.pdf.

22. *Id.* note 3, at 2. ("On June 16, 1961, the license was transferred to Pacific Power and Light Company (25 FPC 1154) and then to PacifiCorp on November 23, 1988 (45 FERC 62,146).")

23. 16 U.S.C § 808(a)(1) (2012).

24. 16 U.S.C. §§ 791(a)-823(g) (2012).

25. *PacifiCorp*, 162 FERC ¶ 61,236 (Mar. 15, 2018), https://www.ferc.gov/whats-new/comm-meet/2018/031518/H-2.pdf.

26. FERC, FINAL ENVIRONMENTAL IMPACT STATEMENT FOR RELICENSING OF THE KLAMATH HYDROELECTRIC PROJECT NO. 2082-027 (2007).

27. *Id*.

28. 16 U.S.C. § 797(e) (2012).

29. PacifiCorp, 162 FERC ¶ 61,236, 5 (Mar. 15, 2018).

30. Allen, *supra* note 15, at 432.

facing a new reality when it came to water management and the lengths that federal agencies would go to ensure protection of listed species under the ESA.

Irrigators faced similar pressure to reach an agreement with the federal government and the Tribes regarding water deliveries and maintaining safe water levels for endangered fish. In 1992, the USBR produced its initial Biological Assessment (BA), which proposed altering the delivery scheme to downstream irrigators in the Klamath Basin out of concern that the current deliveries might be threatening the Shortnose and Lost River suckers.[31] The USBR was further compelled to reduce downstream deliveries to irrigators after the findings of a subsequent USFWS Biological Opinion (BO) concluded that continuing to operate the Klamath Project in the existing manner would result in jeopardizing the two species.[32]

In compliance with the BO, the USBR followed the Reasonable and Prudent Alternatives (RPAs) prescribed by the USFWS and reduced downstream deliveries to irrigation districts supplying irrigation water to farmers and ranchers.[33] This decision translated into economic hardship for the Lower Basin irrigators who depended on the Klamath Reclamation Project.[34] Without the KHP deliveries, irrigators would be hard pressed to produce enough crops to make ends meet. This controversial agency action was magnified when a devastating drought hit the region in 2001.[35] This drought was the perfect storm comprised of exceptionally low amounts of precipitation and BAs and BOs that directed the USBR away from irrigation delivery and towards maintaining ESA compliance. At the same time that these BOs were to be released, an order issued by a federal court in California reinforced the USBR's duty to "comply with the ESA before delivering any Klamath Project water for irrigation."[36] The concurrent issuance of stringent BOs by USFWS and NMFS, combined with the federal court order, essentially left the USBR with no other alternative but to put the needs of the fish above that of the irrigators. During the drought, the USBR maintained their commitment to provide ample water to protect the listed suckers.[37] This decision had significant financial and political consequences in years of litigation among stakeholders in the basin.[38] The legal

31. U.S. DEP'T JUST, BENNETT V. SPEAR: BROADENING THE RIGHT TO SUE OVER ESA ISSUES (2015), https://www.justice.gov/enrd/bennett-v-spear-broadening-right-sue-over-esa-issues.

32. Bennett v. Spear, 520 U.S. 154, 154 (1997).

33. HOLLY D. DOREMUS & A. DAN TARLOCK, WATER WAR IN THE KLAMATH BASIN: MACHO LAW, COMBAT BIOLOGY, AND DIRTY POLITICS 1-4 (ISLAND PRESS 2008).

34. ERIC A. STENE, BUREAU OF RECLAMATION, KLAMATH PROJECT (1994), https://www.usbr.gov/projects/pdf.php?id=129 (the Klamath Reclamation Project is the formal name for the network of dams along the Klamath river constructed by the Bureau of Reclamation).

35. Nasa Earth Observatory, *Drought in the Klamath River Basin*, NASA (2001), https://earthobservatory.nasa.gov/images/1743/drought-in-the-klamath-river-basin (satellite imagery courtesy of the Landsat 7 satellite which was launched by NASA and operated by the USGS documented the extreme conditions in the Klamath Basin in 2000 and 2001).

36. Reed D. Benson, *Giving Suckers (and Salmon) an Even Break: Klamath Basin water and the Endangered Species Act*, 15 TUL. ENVTL. L.J. 197 (2002). *See also* Pac. Coast Fed'n of Fishermen's Ass'ns v. U.S. Bureau of Reclamation, 138 F. Supp. 2d 1228, 1248 (N.D. Cal. 2001).

37. Bennett v. Spear, 117 U.S. 1154, 1159 (1997).

38. *See* Susan M. Burke, Richard M. Adams & Wesley W. Wallender, *Water banks and environmental water demands: Case of the Klamath Project*, 40 WATER RESOURCE RES. 1 (2004).

battles that ensued clearly outlined the enforcement powers of the ESA and brought an uncomfortable, but much needed, gut check to the irrigators of the Klamath Basin. The drastic action of the USBR to stay in compliance with the ESA led to serious economic consequences for the irrigators and their districts.[39] This in turn created incentives for the irrigators and irrigation districts, along with the agencies in charge of delivery, to find a long-term solution to securing reliable water. Following the 2001 drought, a new BO in 2002 by the NMFS reinforced the need to dedicate more water towards the protection of listed species in the Klamath.[40]

A 2002 BO by the NMFS in response to the USBR's 2002 long-range BA found that "if the Klamath Project were operated as the USBR intended, it would cause jeopardy to the Coho and adversely modify its critical habitat."[41] The USBR's newly proposed flow regime consisted of maintaining instream flows depending on the amount of precipitation the watershed received in a given year. In a dry year, the USBR would provide less water to the river while in a wet year more water would be released to reflect natural variation in flow.[42] However, in determining that these proposed actions by the USBR would potentially result in jeopardy of the Coho or adversely modify critical habitat, NMFS produced RPAs. NMFS presented these alternatives to the USBR's proposed action as part of their obligation under the ESA to prevent jeopardy or adverse modifications of critical habitat.[43] Instead of mimicking the natural flow of the river from year to year, the RPAs proposed by NMFS consisted of a three phase plan to ramp up instream flow contributions by the USBR, providing for the endangered Coho over a ten-year period.

NMFS' RPAs[44] were challenged in *Pacific Coast Fed. Of Fishermen's Association (PCFFA) v. U.S. Bureau of Reclamation.* The PCFFA contended that the RPAs prepared by NMFS were arbitrary and capricious and in violation of the Administrative Procedures Act (APA) and the ESA.[45] While the final phase of the proposed action would provide enough water for the salmon during hot summer months and spawning runs, the first two phases—spanning eight of the ten years—would provide little more than half of what was believed to be the minimum flow requirement to avoid jeopardy. This was a problem because the Coho Salmon only has a three-year life cycle.[46] The U.S. District Court for the Northern District of California granted injunctive relief to the PCFFA, compelling USBR to halt irrigation deliveries to increase the minimum instream flows for the Coho. Having

39. *See* Deborah Schoch, *Dreams Dry Up in Klamath Basin*, L.A. TIMES ENVTL. WRITER, July 23, 2001, https://www.latimes.com/archives/la-xpm-2001-jul-23-mn-25651-story.html.

40. *See* National Marine Fisheries Service, Klamath Project Operations, Biological Opinion (May 31, 2002).

41. *Id*. at 3; *See also* Pac. Coast Fed'n of Fishermen's Assoc. v. U.S. Bureau of Reclamation, 426 F.3d 1082, 1088 (9th Cir. 2005).

42. National Marine Fisheries Service, Klamath Project Operations, Biological Opinion (May 31, 2002) at 59.

43. 16 U.S.C. § 1536(b)(3)(A) (1986)

44. National Marine Fisheries Service, Klamath Project Operations, Biological Opinion (May 31, 2002) at 52.

45. *See* Pac. Coast Fed'n of Fishermen's Assoc. v. U.S. Bureau of Reclamation, 138 F. Supp. 2d 1228, 1242-47 (N.D. Cal. 2001).

46. Pac. Coast Fed'n of Fishermen's Assoc. v. U.S. Bureau of Reclamation, 426 F.3d 1082, 1095 (9th Cir. 2005).

lost in the courtroom and fearing uncertainty when it came to annual water deliveries, irrigators in the Klamath Basin soon realized that an agreement between parties was the best chance they had at securing long-term reliable water for their crops.

Known as the Klamath Basin Restoration Agreement or (KBRA), this estimated $850 million attempt to restore a river through the removal of the J.C. Boyle Dam, the Copco No.1 and No. 2 Dams, and the Iron Gate Dam, opens more than 400 river miles of native spawning habitat for Coho Salmon. The KBRA would also ensure higher water levels in Klamath Lake for the suckers.[47] The KBRA is meant to bring stability to the basin for irrigators previously struggling to know with certainty if they would get reliable water deliveries due to ESA restrictions and senior tribal water rights in the region.[48] Perhaps more impressive than the estimated cost or potential for restoration is that an agreement between these unlikely partners was even possible. All told, the KBRA represents a restoration effort the likes of which have never been attempted with respect to overall scale, complexity, and cost.[49] If successful, it could prove a model for other dam removal agreements being contemplated around the country.

RECOGNITION OF TRIBAL WATER RIGHTS

The Lower Klamath Basin is home to three tribes: the Yurok, Karuk, and Hoopa Valley. These three tribes depend on the annual migration of Coho Salmon from the Pacific into the Klamath for both spiritual and nutritional sustenance. The Upper Basin is home to a federation of tribes collectively called the Klamath Tribes.[50] The Klamath Tribes depend on the Lost River and Shortnose suckers for much of their traditional diet.[51] For generations, these tribes were the sole inhabitants of the Klamath Basin, and relied on the seasonal spawning of salmon and the suckers in the Klamath and its tributaries.[52] Fish play a vital role in the lives of the Pacific Northwest Tribes and in *U.S. v. Winans,* the Supreme Court of the United States concluded that the tribe's reliance on harvesting fish was "not much less necessary to the existence of the Indians than the atmosphere they breathed."[53] To understand the incredible bounty of the Klamath before the irrigation and hydropower dams blocked, diverted, and altered the hydrology, consider the fact that the Lower Klamath Basin was once the third most productive salmon fishery in the lower 48

47. 1986-2006 USFWS, KLAMATH RIVER BASIN CONSERVATION AREA RESTORATION ACTIVITIES REP. at 11.

48. *See* Jon Chown, *Hoopa Tribe Fights Feds to Keep Salmon Alive*, COURTHOUSE NEWS SERVICE (August 3, 2016), https://www.courthousenews.com/hoopa-tribe-fights-feds-to-keep-salmon-alive/ (statement of Hoopa Valley Tribal Council Chairman Ryan Jackson) ("These fish have been essential to our culture, religion and economy since time immemorial."); Will Houston, *'A cultural tragedy': Karuk Tribe cuts salmon harvest to 200 fish*, EURIKA TIMES-STANDARD (April 10, 2017, 8:57 PM), https://www.times-standard.com/2017/04/10/a-cultural-tragedy-karuk-tribe-cuts-salmon-harvest-to-200-fish/.

49. Amos, *supra* note 14.

50. Hannah Gosnell & Erin Clover Kelly, *Peace on the River? Social-Ecological Restoration and Large Dam Removal in the Klamath Basin, USA*, 3 WATER ALTERNATIVES 361, 367 (2010).

51. *See generally id.* at 378.

52. *See id.* at 367.

53. United States v. Winans, 198 U.S. 371, 381 (1905).

states.[54] In 1864, the Klamath Tribes entered into an agreement ceding over 8 million hectares[55] (ha) of their homeland to the U.S. Government in exchange for 800,00 hectares of reservation land, as well as reserved hunting and fishing rights on both the reservation and ceded lands.[56] These rights, particularly the water rights associated with the fishing rights of the Klamath Tribes, came under heavy scrutiny and legal challenge after the Tribes' federal recognition was terminated in 1954 as part of the federal assimilation policy.[57] The disputes over the priority of the Klamath Tribes' water rights were initially settled in *US v. Adair*, wherein the court determined that these rights were existent since "time immemorial."[58]

The 1980's brought further litigation to Klamath Basin stakeholders, specifically between irrigators and the Upper Basin tribes. As Gosnell and Kelly note, "The tension between tribes and irrigators grew as tribes asserted their treaty rights through litigation demanding instream water for fish, and irrigators maintained their rights to water and low-cost power rates. By the 1980s, the inherent disconnects in the ecological and political system had become evident."[59] In 1986, the U.S. government restored the Klamath Tribes' federally recognized status, but none of the ancestral lands that had been taken as part of the treaty were returned.[60] Though the Klamath Tribes lost much of their ancestral homeland with the original treaty and the Klamath Termination Act (KTA), the KTA reserved their pre-treaty water and fishing rights.[61] The KTA's reservation of water and fishing rights was critical for the Klamath Tribes because without the instream flow requirement, the fish that had historically supported the Tribes would be threatened by low flows in the river. The Klamath Tribes' water and fishing rights were further defined in 1999 in *Klamath Water Users v. Patterson* when the Ninth Circuit Court of Appeals ruled that the irrigation project operator on the Klamath, in this case the Bureau of Reclamation and PacifiCorp, had water rights that were junior to the rights of the Klamath Tribes.[62]

The ruling in *Klamath Water Users v. Patterson* had a significant impact on the outcome of the KBRA because it gave the Klamath Tribes real leverage with regard to instream flow requirements in the Klamath Basin. Now, in addition to operating their dams in accordance with the statutory obligations of the ESA, the USBR and PacifiCorp were also constrained by the water rights held by the Klamath Tribes from their treaty with the federal government.[63] Gosnell and Kelly keenly note that while receiving significant water rights in an adjudication and limiting irrigators is a big win for the Upper Klamath tribes, that legal victory alone will not bring back the fish to the Tribes. Rather, "a broader approach to restoration built on significant

54. *Id.*

55. *Hectare* - "A unit of area equal to 10,000 square meters.". MERRIAM-WEBSTER Dictionary, https://www.merriam-webster.com/ (last visited Oct. 19, 2018).

56. Gosnell & Kelly *supra* note 50, at 367.

57. Doremus & Tarlock, *supra* note 33, at 64, 72.

58. United States v. Adair, 478 F. Supp. 336, 350 (D. Or. 1979) (Adair I).

59. Gosnell & Kelly, *supra* note 50, at 369.

60. Doremus & Tarlock, *supra* note 33, at 65.

61. Pub. L. No. 83-587, 68 Stat. 722 Sec.14 (1954).

62. Klamath Water Users Protective Ass'n v. Patterson, 204 F.3d 1206 (9th Cir. 1999).

63. Doremus & Tarlock, *supra* note 33, at 67.

financial and institutional support from the government is necessary, and this support is more easily accessible when the interests of all parties, especially irrigated agriculture, are addressed."[64]

The court rulings from *U.S. v. Adair,* and *Klamath Water Users v. Patterson* helped solidify the water rights of the Klamath Tribes to the detriment of others. However, the rights of the Lower Basin Tribes are still unclear and, to this day, still await adjudication.

FEDERAL AND STATE AUTHORITY TO REGULATE

As mentioned earlier, FERC is responsible for reviewing and approving permits and licenses for privately owned and operated hydropower dams on waters of the United States.[65] FERC draws its authority from the Federal Power Act (FPA), which was originally intended to regulate hydropower projects that were not federally funded.[66] While the decision to grant or deny new licenses to PacifiCorp on the four lower dams of the KHP rests solely with FERC, it lacks sole jurisdiction in determining the requirements set forth in issuing those licenses.[67]

The BLM and USBR both have land and water interests in the Klamath Basin, and both filed FPA section 4(e) conditions in response to PacifiCorp's request for relicensing.[68] In keeping with their statutory mandate, FERC had to determine if issuing a new license to PacifiCorp with the mandatory conditions provided by the various agencies responsible for management of the reserved land and water resources would detract from the intended mission and purpose of those reserved lands.[69] The USFWS and NMFS included additional mandatory conditions which PacifiCorp would have to meet in order to be issued a new license.

USFWS and NMFS were involved in creating conditions for relicensing which focused on: 1) ensuring the successful migration of Coho Salmon, 2) improving spawning habitat, and 3) maintaining flows in the river and Upper Klamath Lake for the Lost River and Shortnose suckers, along with other wildlife resources in the Klamath.[70] Maintaining instream flows and providing fish passage between dams were critical features of the agency conditions because these two requirements had the largest financial impacts on PacifiCorp's decision to not pursue relicensing. The conditions for relicensing listed by USFWS and NMFS came from the FPA Section 18 which allows these federal agencies to issue additional prescriptions for building a facility capable of moving fish both upstream and downstream of a dam.[71] Importantly, even after a license has been issued to the

64. Gosnell & Kelly, *supra* note 50, at 380.

65. 16 U.S.C. § 797 (2005).

66. *See generally* Federal Power Act, ch. 285, 41 Stat. 1063 (1920) (codified as amended in scattered sections of 16 U.S.C.).

67. 16 U.S.C. § 797(e) (2005).

68. Allen, *supra* note 15, at 447.

69. 16 U.S.C. § 797 (2005).

70. 16 U.S.C. § 803(j)(1) (1992) ("in order to adequately and equitably protect, mitigate damages to, and enhance fish and wildlife (including related spawning grounds and habitat) affected by the development, operation, and management of the project, each license issued under this subchapter shall include such conditions for such protection, mitigation, and enhancement.").

71. 16 U.S.C. § 811 (2005).

operator, USFWS or NMFS can amend or adopt a Section 18 prescription if they determine that the original prescription is not having the desired effect.[72] To date, neither of these agencies have acted on this reserved authority in further amending a license prescription after issuing it. That being said, the potential for an agency issued mandate for revised improvements to fish passage structures has surely kept the occasional dam operator up at night.

Section 18 prescriptions become even more crucial when FERC is considering relicensing of a dam located on a river that is home to threatened or endangered species.[73] Seeing as the Klamath river is home to several endangered fish species, USFWS and NMFS were allowed to create reasonable and prudent alternatives or measures (RPAs or RPMs).[74] These alternatives come from the Incidental Take Statement of Section 7 of the ESA and are prescribed to help limit the chances of an incidental take of a listed species. While FERC doesn't have to include the RPAs or RPMs when listing requirements, they often treat these conditions as mandatory because of their obligation to protect and contribute to the continued recovery of threatened and endangered species under Section 7(a)(2) of the ESA.[75] By including the RPAs and RPMs, FERC also strengthens their position and administrative record in the event of a legal challenge that argues the Commission was arbitrary and capricious in their final rule. This means that if the dam operator receives the new license and then goes on to place any of the endangered or threatened species into jeopardy,[76] or perform a taking of any endangered species that is beyond the scope of any incidental take permits, the operators of the facility would have difficulty showing they were not properly informed of the risk and suggested mitigation plans by FERC.

In addition to all of the conditions and prescriptions provided by federal agencies in the final EIS, the states of California and Oregon also had the opportunity to include water quality standards as part of their mandate through the Clean Water Act (CWA).[77] In particular, Section 401 of the CWA provides states the authority to require any private dam operator seeking a federal license to "discharge into navigable water," to be granted certification of compliance with state water quality standards.[78] Without the state's approval to discharge, FERC is not able to issue a new license and the dam operator, PacifiCorp, is left with a group of dams costing millions of dollars per year to maintain and no ability to use them for power generation.[79]

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72. *See* Wisconsin Pub. Serv. Corp. v. F.E.R.C., 32 F.3d 1165 (7th Cir. 1994). The Hydropower Reform Coalition notes that even though NMFS and USFWS possess this reserved authority, to date they have never exercised this authority to alter a fishway prescription following a relicensing.

73. *See* Amos, *supra* note 14, at 23 ("In 2004, there was new scientific data introduced when federal scientists concluded that salmon formerly spawned in the upper basin, upstream of the dams.").

74. 16 U.S.C. § 1536(b)(4) (1988); 50 C.F.R. §§ 402.02, 402.14(i)(1) (2019).

75. 16 U.S.C., § 1536(a)(2) (1988).

76. Endangered Species Act § 7(a)(2), 16 U.S.C. § 1536(a)(2) (1988) ("Under the ESA, jeopardy occurs when an action is reasonably expected, directly or indirectly, to diminish a species' numbers, reproduction, or distribution so that the likelihood of survival and recovery in the wild is appreciably reduced.").

77. Federal Water Pollution Control Act, 33 U.S.C. §§ 1251-1387 (1987).

78. Allen, *supra* note 15, at 431.

79. *Id.*

Upon receiving the conditions set forth by the various federal agencies and California and Oregon, FERC compiled a Final Environmental Impact Statement which weighed the economic benefits of the lower four dams against the environmental impacts of the facilities' continued operation, and in particular, the impacts on the migrating salmon.[80] The four lower dams on the Klamath had blocked hundreds of river miles of historic spawning habitat from the annual migration of salmon from sea to stream.[81] In summary, this final report concluded that the four lower dams on the Klamath were no longer environmentally or economically viable facilities unless Pacificorp was prepared to incorporate extensive structural and operational changes.[82] Though FERC was prepared to issue a new license to PacifiCorp, FERC also considered the option of removing the four lower dams in the final EIS.[83] The immense scope and cost of completing alterations to the dams to reach compliance with the mandatory conditions set forth in the license were simply uneconomical for PacifiCorp.[84] Faced with these hefty requirements for relicensing, PacifiCorp came to the table with hopes of reaching a settlement.

ENTER THE KBRA

The Klamath Basin Restoration Agreement was born out of a financial and environmental reckoning. The agreement mainly consists of requirements and conditions focused on three goals: 1) stabilize and continue reintroducing fish into the watershed with the hope of supporting inland and coastal communities interested in annually harvesting salmon; 2) maintain the infrastructure required for consistent water and power for irrigators and National Wildlife Refuges and; 3) cultivate sustainability throughout the Klamath Basin while mitigating any negative effects of removing the four lower dams.[85] These three goals are fairly site specific and thus more difficult to include in any foundational principles that could be transferred or implemented in any other dam removal project outside of the Klamath Basin. However, the agreement's framework, which allowed invested parties from polar

80. *Id.* at 449 ("In its Final Environmental Impact Statement, FERC weighed the costs of the section 4(e) conditions and the section 18 prescriptions against the benefits of energy generation at the KHP. Under the renewed license, the KHP would generate an average of only 533,879 MWh of electricity annually - down twenty-five percent from the annual average of 716,820 MWh. FERC projected the annual value of the power generated by the KHP after imposing the conditions and prescriptions to be about $25 million. After complying with the mandatory conditions and prescriptions, FERC estimated the total annual cost of operating the KHP to be over $46 million, thus projecting the net annual loss to PacifiCorp of operating the KHP under the new conditions and prescriptions to be more than $20 million. After mitigating its environmental impacts, the KHP would no longer be economically viable. The FPA's mandatory federal conditioning authorities thus forced the parties to plan for dam removal.").

See also Notice of Availability of the Final Environmental Impact Statement for the Klamath Hydroelectric Project, 72 Fed. Reg. 9754 (issued Nov. 16, 2007).

81. *See Klamath Dams Removal*, CAL. TROUT, https://caltrout.org/projects/klamath-dams-removal (last visited May 9, 2020).

82. *See* Executive Summary, Final Environmental Impact Statement for the Klamath Hydroelectric Project, 72 Fed. Reg. 9754 (issued Nov. 16, 2007).

83. *Id.*

84. Amos, *supra* note 14, at 24-25.

85. Allen, *supra* note 15, at 453.

opposite perspectives to reach consensus, is transferrable to projects outside the region.

The Klamath Settlement Group[86] (KSG) announced the finalized KBRA on January 15, 2008.[87] In short, the KBRA strategy was to transfer water from one use to another. In doing so, the KBRA would leave more water in the river as instream flows for anadromous[88] fish, while curtailing upstream irrigation diversions. Crucial to the success of the KBRA, however, was the removal of the four lower dams, which required compliance by PacifiCorp. The KBRA required a separate "Hydropower Agreement" between the signatories of the KBRA and PacifiCorp to remove the dams.[89] The success of the KBRA hinged on the Hydropower Agreement, as it could not be ratified without PacifiCorp binding themselves to a final agreement for dam removal.[90] More than fifty stakeholders signed the KBRA on February 18, 2010, nearly ten years after the start of the process.[91] What made this agreement special was not only its outcome, but its implementation. The KBRA called for the creation of a governing body, called the Klamath Basin Coordinating Council (the Council), to ensure the implementation of the various stages of the agreement.[92] While the Council must operate within the boundaries of existing government authority, it was given the oversight authority on almost $1 billion in spending during the first ten years of the project.[93] The Council's authority allows it to move quickly and efficiently from various parts of the restoration project and divert funds in an expedited manor to contractors.[94]

Requiring PacifiCorp to sign a separate agreement for the removal of the four lower dams is a feature of the KBRA process that has potential to be a common framework in other dam removal projects. Known as the Klamath Hydropower Settlement Agreement (KHSA), this agreement focused almost exclusively on the removal of the four lower dams on the Klamath. One way in which the KHSA might revolutionize and expedite other dam removals is its potential to provide incentives to the current owners of the dam by offering protection from any liability that might arise during the deconstruction of the dam.[95] PacifiCorp avoids liability through federal legislation by transferring each dam to a "dam removal entity" (DRE) that

86. For more information on the KSG, *see* Dan Bacher, *Klamath Settlement Group Releases Proposed Restoration Agreement*. INDYBAY (Jan. 15, 2008), https://www.indybay.org/newsitems/2008/01/15/18472655.php

87. Allen, *supra* note 15, at 452. *Klamath Settlement Group* – This was a task force comprised of state, federal, tribal, local environmental, agricultural, and fishing representatives, as well as landowners from the Klamath Basin and surrounding areas.

88. *Anadromous*, Merriam-Webster ("ascending rivers from the sea for breeding").

89. Allen, *supra* note 15, at 453.

90. Klamath Basin Restoration Agreement for the Sustainability of Public and Trust Resources and Affected Communities 4,5 (Feb. 18, 2010).

91. *Id.* at 1-3.

92. *Id.* at C.2.

93. *Id.*

94. On April 25, 2019, the KRRC confirmed that Kiewit Infrastructure West Co., of Fairfield, California was awarded the contract for devising project designs. Capital Press also reported that in addition to creating the initial project outlines, that Kiewit will be responsible for demolition of the four dams pending state and federal approval.

95. Allen, *supra* note 15, at 454.

will assume liability in their contract with the KBCC in removing the facility.[96] The DRE is also responsible for obtaining vital permits, securing funding, and defending liability claims that might be brought to court in the event of damages reported during the removal process.[97] In assuming the risks of removal, the DRE must consider the potential for the release of hazardous substances that might be stored in the sediment from behind the dam. To some, this might seem like a way for PacifiCorp to avoid the responsibilities associated with the deconstruction, but in practice, it can be a useful strategy when the owners of the dam are unwilling to take on removal due to the liability involved.

The KHSA further entices dam owners by allowing them to continue selling power to customers during the removal process.[98] However, dam owners cannot abuse this monetary incentive by stalling the permitting process. The opportunity to generate revenue during the deconstruction is restricted in part because the DRE, not PacifiCorp, is responsible for obtaining the necessary permits for removal.[99] If PacifiCorp was responsible for obtaining permits for removal while still being allowed to make money off of the generation of electricity, there would be no incentive for PacifiCorp to move quickly through the permitting process. Allowing the DRE to function as the party responsible for obtaining necessary permits means that the removal process will not be delayed on account of dam owners wanting to spin the turbines for a few more months or years.[100]

The Klamath River Renewal Corporation (KRRC) is the specific DRE tasked with taking ownership of the four PacifiCorp dams.[101] A Non-Profit, KRRC has a diverse leadership with expertise in natural resource management, sustainable food processing and trade, environmental science, water law, tribal relations, and fisheries science.[102] After extensive field work and reporting, the KRRC submitted the Definite Plan for the Lower Klamath Project on June 28, 2018 to FERC.[103] This 2,300-page document details not only the project design and various dam removals, but also the reservoir restoration and other activities associated with post-deconstruction.[104] FERC requires this information in order to process the transfer of the dam ownership licenses from PacifiCorp to the KRRC. Importantly, the Definite Plan maintains the promise of transparency to all stakeholders which has been present throughout the KBRA-KHSA process.

The KHSA highlights that the agreement's intention is not to punish PacifiCorp by making them deal with the consequences of removal. Rather, the goal

96. *Id.*at 463.

97. *Id.* at 463.

98. *Id.* at 464.

99. *Id.* at 466.

100. *Id.* at 464.

101. *See* Klamath Hydroelectric Settlement Agreement, § 7.4.2 (Nov. 30, 2016) http://www.klamathrenewal.org/wp-content/uploads/2017/04/2016.12.31-Executed-and-Amended-Final-KHSA.pdf.

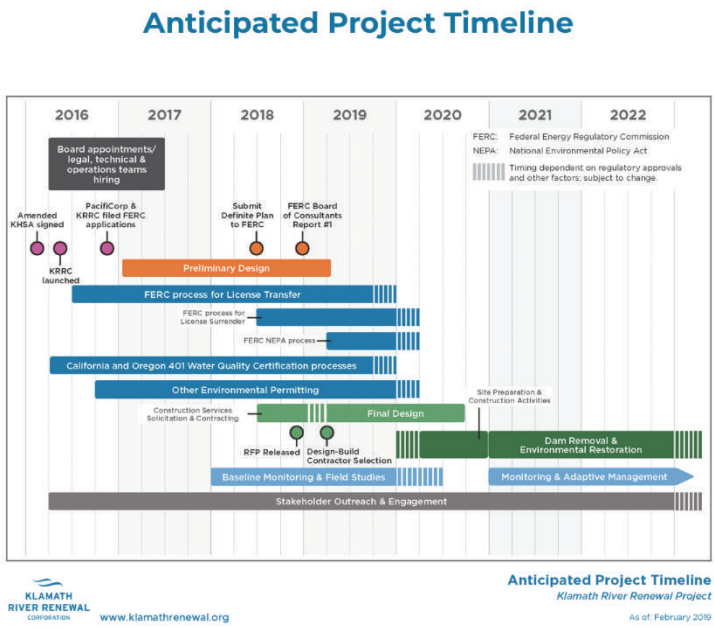
102. *See* KLAMATH RIVER RENEWAL CORP., MEET THE KRCC LEADERSHIP (last visited May 3, 2020), http://www.klamathrenewal.org/about-the-krrc/leadership/.

103. KLAMATH RIVER RENEWAL CORP., DEFINITE PLAN FOR THE LOWER KLAMATH PROJECT (last visited May 3, 2020), http://www.klamathrenewal.org/definite-plan/.

104. *Id.*

of the project is restoration through cooperation. Cooperation is only maintained by considering the interest of all stakeholders in formulating a feasible and realistic solution. If the goal of the agreement were instead to punish the parties that have profited from the dams while degrading the river's ecosystem services, it would be very difficult for certain parties to agree with the conditions set forth in the KBRA-KHSA.

The KHSA intends for the Lower Klamath dam removal to commence in 2020.[105] As illustrated by the KBRA-KHSA, there is opportunity for cooperation



between farmers, ranchers, environmentalists, industry, fishing enthusiasts, tribes, states, and the federal government. As David Allen suggests, "In the end, the efficacy of the KBRA-KHSA package and the comprehensive river restoration model will be measured by the success or failure of the ultimate goal of the KHSA - dam removal by 2020."[106]

Arriving at an agreement for removing a set of dams as large as the lower four on the Klamath is a feat in and of itself. Once the ink of an agreement has dried, the physical removal of the dams—and subsequent restoration of the inundated river and adjacent riparian corridor—can begin. When a dam has been slotted for removal, a whole new set of rules and considerations come into effect.[107] No stretch of river

105. KLAMATH RIVER RENEWAL CORP., ANTICIPATED PROJECT TIMELINE (2020), http://www.klamathrenewal.org/wp-content/uploads/2020/03/Klamath-Timeline_February2020.png.

106. Allen, *supra* note 15, at 457.

107. Amos, *supra* note 14, at 30 ("I know certainly with regard to dam removal on the Klamath dams there are some very serious environmental concerns, including the toxicity of the sediment that has accumulated behind the dams and the impact of sediment release on the downstream fishery. If you watch the longer Condit Dam removal video, you will see that dam deconstruction is another whole process that involves NEPA, Section 7 [ESA] compliance, and Clean Water Act compliance. Just because it is an

is the same, as made clear by the very different Revegetation Plans for Iron Gate Reservoir and J.C. Boyle Reservoir.[108] Without proper riparian[109] restoration on the previously inundated sections, the positive impacts of dam removal might not be felt downstream due to increased siltation and turbidity during high flow events.[110] Along with shoreline restoration, returning the riverbed to a habitable condition for fish and benthic[111] organisms is a vital part of the process. River restoration entails rebuilding the natural sinuosity[112] of the river, connecting the main channel with the primary and secondary flood plains, as well as providing fish with adequate holding pools, ambush habitat, and spawning areas.[113] After decades of siltation behind these dams, the river will have to slowly erode away silt and other deposits to reconnect with the cobble and bedrock that naturally make up the stream bed.

HOW MIGHT THE KBRA-KHSA INFLUENCE FUTURE DAM REMOVALS?

The story of the Klamath River's restoration agreement offers an opportunity to create a template for other projects. The bullet points of the KBRA-KHSA Basics are: 1) continuous widespread stakeholder involvement; 2) combining dam removal with watershed and river restoration efforts; 3) building trust between invested parties; 4) recognizing the long-term value and benefits gained by all stakeholders associated with a healthy river; 5) creating governing bodies that can oversee the funding and progress of the removal and restoration; and 6) creating incentives for dam owners by transferring liability and permitting to willing parties so the process does not slow down as a result of attempting to further economic gains.

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overall positive thing for the environment, it still triggers all of those statutes and implicates another set of environmental concerns. The process of taking a dam out is as robust as the process of putting one in, in terms of evaluating those impacts. In that Condit video, which I encourage you to go watch, they gathered up all the salmon before they blew it in order to try to protect them. Lots of trap-and-haul operations go on to try to have the least amount of environmental impact on the deconstruction process. There is a lot of fine legal work being done around all of those compliance efforts in the deconstruction process as well. When you see some of those videos, it is no small engineering feat. It is no small feat in terms of environmental compliance as well.").

108. *See* U.S. BUREAU OF RECLAMATION, DETAILED PLAN FOR DAM REMOVAL – KLAMATH RIVER DAMS (2012), https://www.waterboards.ca.gov/waterrights/water_issues/programs/water_quality_cert/docs/lower_klamath_ferc14803/krrc_detail_1.pdf.

109. *Riparian*, MERRIAM-WEBSTER (last updated Apr. 30, 2020), https://www.merriam-webster.com/dictionary/riparian.

110. LOWRY, R. WILLIAM, DAM POLITICS: RESTORING AMERICA'S RIVERS 61–2 (2003) (describing the benefits of dam removal and habitat restoration, for time-lapse animation sequences depicting restoration of the Klamath River see American Rivers, Envisioning a Restored Klamath River, available at http://www.americanrivers.org/our- work/restoring-rivers/dams/projects/envisioning-a-restored-klamath.html (2010)).

111. *Benthic*, Merriam-Webster, https://www.merriam-webster.com/ (last visited Oct. 19, 2018) ("of, relating to, or occurring at the bottom of a body of water").

112. *Sinuosity*, Merriam-Webster, https://www.merriam-webster.com/ (last visited Oct. 19, 2018) ("*the* quality or state of being sinuous, *of* a serpentine or wavy form").

113. Bill Zeedyk & Van Clothier, *Let the Water do the work: Induced meandering, an evolving method for restoring incised channels* 14 (2009) (discussing the importance of "inducing meander" in river restoration as a way to cultivate riparian and aquatic habitat).

These elements of the KBRA-KHSA have the potential to influence dam removal and restoration efforts around the country. Applying these KBRA-KHSA Basics to other projects will only be successful if the parties involved are able to acknowledge the harm of polarizing tactics, and refrain from using them in these very emotional disputes. Heavy litigation between parties, increased regulation, and political promises may have ruled the day in the past. However, these strategies only served to highlight the problems in the Klamath Basin and elsewhere while never providing a realistic long term remedy.[114] As Gosnell and Kelly note, "The success of the KBRA represents a sort of 'moving beyond' the narrow confines of ESA regulation and litigation, in favor of negotiation and reliance on the federal-tribal trust responsibilities to move toward species recovery and implementation of other necessary social and economic goals."[115]

While there are factors that are site specific to the Klamath Basin that make the KBRA truly unique, the four dams proposed for removal share a common thread with many others around the country in that they require federal relicensing under FERC. In the case of the Klamath, the catalyst for finally reaching an agreement for removal was the process of relicensing by FERC.[116] Yes, there were multiple BOs and BAs, statutory obligations, extreme droughts, water rights adjudications, court cases, and subsequent rulings that moved the needle back and forth on the issue of water management in the basin. I argue, however, that it was the timing and eventual issuance of a revised license with prescriptions to PacifiCorp that compounded these orbiting influences into the tangible agreements that are the KBRA-KHSA.

Future attempts to initiate a removal agreement for a federally licensed dam or set of dams could benefit from expending resources and manpower at key moments, like during the dam's relicensing. The process of relicensing a single dam by FERC has been proposed by others as having great promise in allowing for a more comprehensive, basin-wide review.[117] FERC could make it common practice to include reopener clauses in new licenses that would act to align the timing of licensing proceedings throughout a river basin.[118] Again, this may not suit every future attempt at dam removal and restoration. However, it would be a shame if the lessons learned and tactics applied on the Klamath were never used as a framework in drafting agreements for other watersheds that could benefit from dam removal followed by riparian and aquatic habitat restoration. Critics of the joint agreement such as the Klamath Conservation Partners (KCP) have noted that combining removal with restoration only complicates and slows down the process.[119] However, I agree with Allen that "dam removal provides a unique opportunity for comprehensive river restoration because the key governmental parties are each at the negotiating table and focused on the issue. Further, to achieve the most environmental benefit as soon as possible, dam removal should be followed by

114. *See* Gosnell, & Kelly *supra* note 50.

115. *Id.*

116. *See* FEDERAL ENERGY REGULATION COMM'N., *Complete List of Active Licenses*, https://www.ferc.gov/industries/hydropower/gen-info/licensing.asp (last visited Oct. 19, 2018).

117. *See* Dave Owen & Colin Apse, *Trading Dams*, 48 U.C. DAVIS L. REV. 1043, 1090 (2012).

118. *Id.*

119. KLAMATH CONSERVATION PARTNERS, *Guidance Statement*, http://www.oregonwild.org/waters/klamath/a-vision-for-the-klamath-basin/ (last visited Dec. 15, 2018).

habitat restoration."[120] Taking advantage of the dam relicensing process and using these six principles to organize, communicate, and eventually draft agreements could dramatically improve the experience and outcome of dam removal and restoration in other basins.

SUMMARY

There is no easy out when discussing the solution to aging dams. The argument that these facilities still provide reliable energy production, flood and sediment control, and recreational opportunities to communities throughout the United States is valid. However, there is a growing need for species conservation and the long-term economic potential that comes from the ecosystem services provided by healthy rivers. Dams are built and designed with materials that have relatively short life spans and capacity. They fill up with sediment and slowly degrade ecosystem services such as reliable, healthy food sources that have provided sustenance for tribes in the Pacific Northwest for millennia.

The Klamath River is a prime example of how these two hemispheres of thought collided repeatedly, seemingly incapable of understanding the other side's point of view. That is, until there was a change in the way stakeholders and regulators went about approaching the problem. The KBRA-KHSA Basics created a new form of negotiation for one of the most sensitive topics in the Western United States. From the beginning, transparency, communication, trust building, and incentivizing were the building blocks of the agreement. Avoiding a zero-sum scenario ensured that when parties left the negotiating table, they felt that their claims, their needs, and maybe most importantly, their livelihoods had been recognized by the other groups and not dismissed. Future agreements might benefit from reflecting this KBRA-KHSA style of negotiation and create agreements which address the interests and concerns of stakeholders who oppose the removal of the dam(s). Ignoring or minimizing those concerns is what polarizes and eventually defeats any attempt at removal and restoration. Taking advantage of relicensing periods to collaborate and better understand the pros and cons of dam removal can serve as the catalyst for driving agreements forward. The relicensing phase also provides an opportunity to look at the watershed as a whole and determine if multiple structures should be removed to obtain a desired recovery.

The Klamath Basin Restoration Agreement and Klamath Hydropower Settlement Agreement serve as examples of how dam removal projects, followed by riparian and aquatic restoration can be accomplished jointly to the benefit of all. Plans for removal are slated to begin in early 2020 and there are sure to be complications, and unforeseen problems during the process. In these moments it will be easy to feel as if the task at hand is unattainable. Keeping these bumps in the road in perspective and realizing the long-term benefits of these agreements will be crucial to their success. Soon we will see if the symbol of American pride, and progress can be realized not with concrete and rebar, but with free-flowing rivers, renewed sources of healthy food, and the recovery of threatened and endangered species.

120. Allen, *supra* note 15 at p.456