

## **AA.5 Special Interest Groups**



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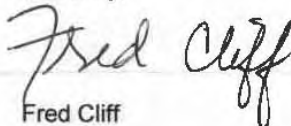
12/22/2011

Dear Ms. Vasquez,

On behalf of the Oregon chapter of Backcountry Hunters and Anglers, I'm writing to indicate support for Alternative 2 (the proposed action) which includes the full facilities removal of four dams and the implementation of the Klamath Basin Restoration Agreement (KBRA). Outdoor activities including hunting, fishing and wildlife viewing contribute millions of dollars annually to the Klamath County economy - \$23 million as calculated by the Oregon Department of Fish and Wildlife. Removal of the four dams and implementation of the KBRA will help water conditions in the Klamath basin national wildlife refuges and improve waterfowl habitat. Likewise, the salmon and steelhead fishery will benefit. Enhanced hunting and fishing opportunities will ensure an ongoing, and increasingly greater, benefit to the local economy as well as to sportsmen and sportswomen.

In addition to the benefits to sportsmen, the Klamath agreements are good for family farmers and ranchers and represent a locally devised plan. Implementation of the agreements will be good for people, fish and wildlife and will demonstrate fiscal responsibility in comparison to the cost of continued conflict in the Klamath basin.

Sincerely,

  
Fred Cliff

Co-Chair - Oregon Backcountry Hunters and Anglers

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Duplicate of SG\_LT\_1226\_008

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December 27<sup>th</sup>, 2011

Submitted electronically

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Dear Ms. Vasquez and Mr. Leppig:

Thank you for the opportunity to provide comment on the Klamath Facilities Removal Public Draft Environmental Impact Statement (EIS) and Environmental Impact Report (EIR) evaluating the potential impacts of the removal of the four PacifiCorp dams (J.C. Boyle, Copco 1, Copco 2, and Iron Gate Dams) on the Klamath River as contemplated in the Klamath Hydroelectric Settlement Agreement (KHSa). American Whitewater strongly favors the Proposed Action, Alternative 2: Full Facilities Removal of Four Dams.

American Whitewater is a national non-profit 501(c)(3) river conservation organization founded in 1954. With over 5,500 members and 100 local-based affiliate clubs, we represent the conservation interests of tens of thousands of whitewater paddlers across the nation. American Whitewater's mission is to conserve and restore America's whitewater resources and to enhance opportunities to enjoy them safely. As a conservation-oriented paddling organization, American Whitewater has an interest in the Klamath River. A significant percentage of our members reside in Northern California and Southern Oregon—a short driving distance from this river for recreation.

#### American Whitewater Comments on Klamath Facilities Removal Draft EIS/EIR

American Whitewater strongly favors the Proposed Action, Alternative 2: Full Facilities Removal of Four Dams. American Whitewater recognizes that the nature and character of the whitewater experience on the Klamath River will change, and the reduction of summer peaking flows on the Hells Corner will no doubt reduce the allure of this particular reach for mid-summer day trips. However, the long-term prospects for a significantly longer and uninterrupted reach of free-flowing river will provide new opportunities for whitewater recreation for both the general boating public and commercial raft outfitters on the Upper and Lower Klamath Rivers. As long as mitigation measures that include improvements to public

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Classification	Final EIS

access, transitional assistance for outfitters, maintenance of stream gauges, and restoration measures are implemented, we conclude that the proposed action will enhance the opportunities and quality of whitewater recreation for both commercial outfitters and the general boating public on the Upper and Lower Klamath Rivers. Removal of the four dams will resurrect 17 miles of river inundated by reservoirs, restore flows to six miles dewatered by PacifiCorp diversions, and improve water quality on both the Upper and Lower river.

Our comments reflect several key areas of concern:

- American Whitewater agrees with findings that dam removal will improve water quality as well as scenic and aesthetic values, which will in turn enhance whitewater recreation.
- American Whitewater strongly supports the EIS's call for REC-1 Mitigation Measures, in particular the development of new river access points.
- American Whitewater believes the EIS is too restrictive in its interpretation of acceptable flow ranges for whitewater recreation on sections of river affected by dam removal.
- American Whitewater believes the EIS understates the benefits to whitewater recreation of restoring flows to the J.C. Boyle Bypass and Copco Bypass Reaches.
- American Whitewater believes the EIS should more fully consider the benefits to whitewater recreation of restoring 17 miles of the Upper Klamath currently inundated by reservoirs.
- American Whitewater believes the EIS should consider the potential benefit to whitewater recreation of eventual designation of the entire Upper Klamath as a National Wild & Scenic River, which would be impossible without dam removal.

We have organized our comments largely by geographic section of river. We refer extensively to the Recreation Flow Analysis (RFA) section of the Recreation Resources Final Technical Report (FTR) published by PacifiCorp in February 2004, and submitted to the Federal Energy Regulatory Commission (FERC) as part of the relicensing proceeding for the Klamath Hydroelectric Project (FERC P-2082). We also refer to the recent article, "Resurrecting the Klamath: A Gift to be Claimed," by American Whitewater Regional Coordinator Bill Cross, that was published in the September/October 2011 issue of the American Whitewater Journal.

## 1. KENO REACH

### a) Downriver Boating:

In section 3.20.1, the EIS notes that "The Klamath River downstream of Keno Dam provides approximately five miles of suitable whitewater for boating, although not much boating use is reported for this reach, perhaps due to its level of access and short run length."

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The EIS correctly identifies access problems as a key hindrance to whitewater recreation on the Keno Reach. Specifically, American Whitewater believes the principal factor discouraging whitewater boating on this run is poor access, in the form of:

1. A difficult put-in at Keno Dam. Access at Keno is moderately challenging for kayakers, and arduous for rafters. It is not possible to drive close to the riverbank at Keno Dam, as it is at more traditional launch points such as the Spring Island put-in for the Hells Corner Reach. As the PacifiCorp RFA notes, "the road is in very poor condition ... offers limited parking, and does not provide an obvious ramp to the river (boaters scramble down the banks)" (p. 2-44).

2. A mandatory two-mile flatwater paddle across the upper end of J.C. Boyle Reservoir to reach the take-out at the Hwy 66 bridge. In the past it was possible to avoid this flatwater by taking out at Sportsman's Park at the head of Boyle Reservoir, but that access on private property is now closed. The resulting long, flatwater paddle across the reservoir is a significant negative for rafters and kayakers, whose whitewater craft are poorly suited to flatwater crossings.

Despite noting that poor access may partially explain light use of the Keno Reach, the EIS overlooks this factor when assessing whether dam removal might increase whitewater use on the Keno Reach. On page 40, the EIS considers only the effects of flow on use, and does not address questions of access. The EIS concludes that because there will be little change in the availability of acceptable flows on Keno Reach, "impacts on whitewater boating and fishing opportunities in these reaches would be less than significant."

American Whitewater strongly disagrees with this finding. Flows are not the only factor that affects use. In fact, access is likely a key factor limiting use of this section.

American Whitewater believes two additional questions should be posed:

1. Will dam removal, by eliminating an arduous flatwater paddle at the end of the Keno Reach, enhance whitewater recreation and lead to increased use on this section? American Whitewater believes the answer is clearly "yes," and that dam removal would therefore produce a significant benefit to whitewater recreation on Keno Reach.

2. Would improvements to Keno put-in under REC-1 enhance whitewater opportunities and lead to increases in whitewater use? Following transfer of Keno Facilities to DOI, there will be an opportunity under REC-1 Mitigation Measures to improve access at Keno. Such improvements could lead to significant increases in whitewater recreation on the Keno Reach.

b) Keno Wave:

Finally, the EIS does not consider "park-and-play" use at Keno Wave, immediately downstream from Keno Dam. Through-boating is not the only whitewater opportunity on the Keno Reach;

there is a popular play wave immediately downstream from Keno Dam. This wave is a significant whitewater resource, but its use is limited by poor access. The RFA noted that “[T]he popularity of playboating has increased significantly in the past decade, and play waves of this type have the potential to attract considerable use” (p. 2-47). The RFA notes that the Keno Wave “may rival the quality of other Oregon play areas such as Bob’s Hole on the Clackamas River” (p. 2-49).

The EIS should evaluate whether improvements to the Keno river access under REC-1 might significantly benefit whitewater recreation at Keno Wave.

## 2. BOYLE BYPASS REACH: ACCEPTABLE FLOWS

Boyle Bypass Reach has tremendous recreation potential if flows are restored under the Proposed Action. However, the EIS underestimates this benefit by using an overly restrictive range for acceptable flows. The EIS uses 1,300-1,800 cfs as the acceptable flow range on Boyle Bypass Reach—an unrealistically narrow range that leads to an underestimate of likely whitewater use under the dam removal alternative.

When determining minimum acceptable flows, American Whitewater believes the EIS should use the flows identified in the PacifiCorp RFA as acceptable for technical kayaking and rafting. “Technical” boating is an entirely legitimate form of whitewater recreation, and many river runners either favor technical trips, or will accept technical conditions if “standard” conditions are unavailable. Similarly, American Whitewater believes that maximum acceptable flows should correspond to the levels that rafters and kayakers identified in the RFA as the upper limit of acceptable for “big water” trips.

Using these criteria, the acceptable flow range for the Boyle Bypass Reach would be broadened significantly. Minimum acceptable flows would be 800 cfs for kayaks and 1,000 cfs for rafts, while maximum acceptable flows would be 2,300 cfs for rafts and 3,000 cfs for kayaks (RFA Table 2.7-9). American Whitewater believes that this total range represents a much more realistic spectrum for “acceptable” flows corresponding to the range of different experiences river runners enjoy.

Quoting from the PacifiCorp RFA:

*“While flows below about 800 to 1,000 cfs are rated unacceptable (depending on the craft), ratings improve consistently from 1,000 to 1,600 cfs before gradually declining (although they remain in the acceptable range for rafts through 3,400 cfs and for kayaks through 5,000 cfs). On the basis of these data, the optimum range for both craft would occur between 1,400 and 2,000 cfs, but flows above 750 cfs and 1,000 cfs are acceptable for kayaks and rafts, respectively” (p. 2-60).*



*"Rafts require more water to get down the river [than kayaks], with 1,000 cfs a starting point for acceptable quality" (p. 2-61).*

After adjusting the acceptable flow ranges for Boyle Bypass Reach, it is necessary to recalculate the predicted percent increase in the number of days with acceptable flows, using the broadened flow range. This recalculation will help demonstrate even greater whitewater benefits of restoring flows to the Boyle Bypass Reach under the dam removal alternative.

#### Changes at Sidecast Slide:

Finally, American Whitewater notes that the findings of the PacifiCorp RFA must be reconsidered in light of an ongoing significant change within the Boyle Bypass Reach. The RFA's Phase II findings were based on runs that included mandatory low-flow portages at Sidecast Slide. This rapid, the most difficult on the Boyle Bypass Reach, is located just over a mile below J.C. Boyle Dam, where a large number of sharp, angular rocks were tumbled into the river channel during construction of the J.C. Boyle bypass canal in the late 1950's.

Portaging is an arduous process that almost all boaters regard as negative. The presence of a portage at a particular flow will make boaters much less likely to rate that flow as "acceptable." At the lowest test flow in Phase II of the RFA—690 cfs—almost all boaters were obliged to portage at Sidecast Slide, and not surprisingly almost all boaters rated this flow as unacceptable. At the second-lowest flow of 960 cfs, most of the rafts needed to either be portaged or lined, greatly reducing the appeal of the run for rafters at this flow. Again, not surprisingly, almost all rafters rated this flow as unacceptable.

Sidecast Slide is scheduled to be modified in November when BLM will remove a large number of boulders to improve fish passage. This action should, incidentally, make the rapid more passable to river runners at lower flows. Depending on the degree of improvement in low-flow passage, Boyle Bypass reach may become more acceptable for all boaters at flows lower than those that were determined in Phase II of the RFA. This positive change may be especially beneficial for future commercial rafting use on Boyle Bypass Reach.

### 3. BOYLE AND COPCO BYPASS REACHES: FINDING OF LESS THAN SIGNIFICANT BENEFIT

The EIS properly addresses the question of whether dam removal could enhance whitewater recreation in the J.C. Boyle and Copco Bypass Reaches (EIS p. 46). The EIS evaluates how dam removal could increase the number of days with acceptable whitewater boating flows in these reaches, and whether this might impact future whitewater use. The EIS predicts a 793.6% increase in the number of days with acceptable flows on Boyle Bypass Reach, and a 2,083.8% increase in the number of days with acceptable flows on Copco Bypass Reach. As noted above, these percent increases will actually be greater, once they are recalculated using a wider range of acceptable flows.

Given these dramatic increases in the availability of acceptable flows, it is surprising that this paragraph concludes that “the impacts on whitewater boating in the J.C. Boyle and Copco 2 Bypass Reaches would be less than significant.” These two reaches were determined in the RFA to have strong appeal to whitewater boaters; participants in those studies were enthusiastic about the quality and quantity of rapids in the bypass reaches, as well as their scenic and aesthetic attributes.

The RFA spoke highly of the Boyle Bypass Reach, noting that it “offers a 5-mile Class III to IV whitewater run that is boatable at medium to high flows and is similar to the “gorge” section on the Hell’s Corner reach” (p. 2-55). The RFA further notes that Boyle bypass offers “interesting scenery with steep canyon walls, large basaltic boulder fields, pine forests, a natural-appearing riparian zone, clear spring-fed water, and several rapids” (p. 2-52). The RFA even found that Boyle Bypass would be suitable for commercial rafting at intermediate flows (p. 2-59). Finally, the RFA recognizes that JC Boyle could be enjoyed in combination with other runs: “many boaters would probably link trips on the J.C. Boyle bypass reach with those on Hell’s Corner reach (offering an overnight opportunity)” (p. 2-116). With the removal of J.C. Boyle Reservoir, this reach could be linked to upstream runs as well.

The RFA reached similar conclusions about Copco Bypass reach, noting that a test flow of 1,200 cfs “provided strong hydraulics and challenging rapids in the first half of the run,” while the second half of the run featured rapids “reminiscent of the Hells Corner reach at 1,300 cfs ...” (p. 2-102). The RFA also noted that “Copco No. 2 bypass reach has considerable recreation potential from an aesthetic perspective. It has several interesting geologic formations and outstanding scenic vistas ...” (p. 2-117). Moreover, the RFA evaluations of Copco Bypass were based on trips that ran only the 1.5 miles from Copco 2 Dam to Iron Gate Reservoir. The RFA never even considered the scenario that offers the greatest potential for whitewater recreation on Copco Bypass: the removal of all four dams, allowing boaters to link this reach with adjoining runs both upstream and down. This possibility, which fell outside the scope of the RFA, would greatly increase the appeal of Copco Bypass Reach to river runners, including commercial outfitters. Significantly, these lengthened runs would include the 0.5 miles of high-gradient canyon currently inundated by Copco 2 Reservoir.

Clearly, the restoration of full flows to these reaches under the Proposed Action will greatly enhance both private and commercial whitewater recreation on the Upper Klamath. American Whitewater therefore strongly urges that the EIS be revised to conclude that the impact of dam removal on whitewater boating in the Boyle and Copco Bypass reaches will be strongly beneficial.

#### 4. HELLS CORNER REACH

##### a) Acceptable Flows:



As with other reaches of the Upper Klamath, American Whitewater believes that the EIS uses too narrow a range for acceptable flows on Hells Corner. The EIS states that “acceptable whitewater boating flows range from 1,300 to 3,000 cfs” (p. 3.20-21). However, Footnote 1 on this page clearly acknowledges that 1,300 cfs is not, in fact, the minimum acceptable flow for whitewater recreation; rather, it represents “the amount of flow ... necessary for whitewater boating by loaded rafts” and that “more boating days would be available for flows down to 1,000 cfs for smaller craft and highly-skilled [boaters].”

American Whitewater believes it is inconsistent to use a different set of standards to determine the range of acceptable flows on one reach of river vs. another. A uniform standard should be used on all reaches. In fact, 1,300 cfs represents the minimum acceptable flow only for “Standard Commercial Rafting” as identified in the RFA. Lower minimum flows were identified for “Low-Flow Commercial Rafting” (1,000 cfs), “Technical Rafting” (700 cfs) and “Technical Kayaking” (400 cfs) (Table 2.7-9).

The approach taken by the EIS discounts whitewater use of Hells Corner at flows below 1,300 cfs. Yet the RFA clearly demonstrated that use is possible and likely at lower flows—even for commercial rafting. On page 2-91 the RFA concludes that although “Standard commercial rafting becomes acceptable about 1,250 to 1,300 cfs ... ‘Low flow’ commercial rafting appears acceptable about 1,000, and transitions into standard commercial rafting about 1,300 cfs.” With regard to kayaking, the RFA concludes that “flows above 600 cfs [are] acceptable for kayaks ...” (p. 2-89).

American Whitewater believes that 1,000 cfs more accurately reflects a minimum acceptable flow for general whitewater recreation on Hells Corner. Importantly, this figure still encompasses an acceptable range for low-flow commercial rafting use. This 1,000 cfs figure should be used when calculating and comparing the predicted number of days with acceptable flows in the Dams In vs. Dams Out scenarios (EIS, Table 3.20-16).

b) Future Changes in Use Patterns:

The EIS implies (p. 3.20-21) that the figure of 1,300 cfs was chosen as the minimum acceptable flow on Hells Corner because commercial rafting accounts for roughly 90% of all use on this reach. However, American Whitewater believes that non-commercial use will increase significantly following dam removal, for two key reasons: improved access, and improved timing of flows.

The EIS focuses only on the *number* of days with acceptable flows on the Hells Corner Reach, without considering the *timing* of those flows. In doing so the EIS overlooks a key benefit of dam removal: constant flows. In addition, the EIS does not consider the impact of improved access under REC-1 Mitigation Measures. These changes following dam removal will affect future use patterns.

i) Improved Access and Flows at Frain Ranch:

The key factor inhibiting non-commercial use of Hells Corner is the long, arduous, expensive shuttle from the Spring Island Launch Site to the Stateline or Copco take-outs. This roughly 90-mile (one-way) shuttle presents a much greater obstacle for private boaters than for commercial outfitters, who typically employ paid drivers and shuttle vans. Many private boaters are unwilling to undertake a 180-mile round-trip drive—or pay upwards of \$100 to hire a shuttle driver—for the sake of a one-day river trip.

The only way to shorten the shuttle is by launching at the alternative site at historic Frain Ranch, 5.5 miles below Spring Island launch point. Yet although most non-commercial boaters would much prefer to launch at Frain, thereby shortening their shuttle to a mere 12 miles one-way, there are two key deterrents: 1) the very rough drive up the Topsy Grade road from Stateline to Frain Ranch; and 2) the long, frustrating wait at Frain Ranch for peaking releases to arrive—often well into the afternoon. These negatives affect commercial outfitters as well, who would also sometimes prefer to launch at Frain. Outfitters have long noted that, although Frain makes an excellent campsite for two-day trips, customers do not appreciate long morning delays while waiting for flows to arrive.

Following dam removal, flows will be available round-the-clock at Frain. If in addition Topsy Grade road were improved as part of REC-1 Mitigation Measures (see Section 6, below), Frain would almost surely become the preferred launch point for private boaters—and some commercial trips as well. With the shuttle shortened from 90 miles one-way to a mere 12, private boaters would find Hells Corner far more attractive, leading to potentially significant increases in non-commercial use.

For these reasons, American Whitewater believes that non-commercial boating is likely to account for considerably more than 10% of total Hells Corner use following dam removal. It is therefore inaccurate to largely ignore non-commercial boating when determining minimum acceptable flow.

Again, the benefits of round-the-clock flow and improved access at Topsy Grade will also be of value to commercial outfitters. Shuttle costs represent a significant expense in running commercial raft trips on Hells Corner, and could be greatly reduced by launching at Frain. Outfitters would most likely use Frain as a campsite on overnight trips, launching from that point on the second day.

ii) Launches at Stateline Access:

An analogous situation exists at the Stateline Access, 11 miles below the Spring Island launch. Almost no boaters float the final 5.5 miles of Class II rapids at the end of the Hells Corner run. This is due in large part to the fact that peaking releases do not reach this point until mid-afternoon. With flows available throughout the day, boating use might increase substantially on this mild section. The EIS does not consider this possibility, presuming that all use of the Class II reach from Stateline to Copco is as an extension of the full Hells Corner

run. This is a natural enough assumption, because historically almost no boaters have chosen to launch at Stateline late in the day when flows finally arrive. However, with round-the-clock flows there might be considerable use of the Stateline-to-Copco reach as a stand-alone run, or in combination with the restored Copco Reservoir Reach just downstream. And significantly, river runners are likely to find lower flows to be acceptable on this less challenging reach than on the Hells Corner run just upstream.

c) Wild & Scenic Attributes:

The final portion of the Hells Corner Reach—5.3 miles from Stateline to Copco—was found in 1990 to be eligible and suitable for designation as a National Wild & Scenic River. This reach was determined to have outstandingly remarkable scenic, recreational, fish and wildlife values.

Clearly, round-the-clock flows—as opposed to peaking flows that fluctuate roughly fivefold every day—would greatly enhance this section’s scenic and recreational values. American Whitewater believes the EIS should specifically evaluate whether dam removal could benefit whitewater recreation by enhancing the Wild & Scenic attributes of the Stateline-to-Copco reach (see also Section 7, below).

## 5. RESERVOIR REACHES: J.C. BOYLE, COPCO AND IRON GATE

The EIS makes little mention of potential future whitewater recreation on the 17 miles of the Upper Klamath that are currently inundated by J.C. Boyle, Iron Gate, Copco 1 and Copco 2 reservoirs. It is our understanding that the agencies are hesitant to predict the precise whitewater nature and scenic appeal of these sections. But it is unrealistic to ignore the enormous recreational potential of restoring 17 miles of one of the West’s finest whitewater rivers. As part of the NEPA analysis for other high profile dam removals in the region—e.g. Elwha and White Salmon—the benefits to whitewater recreation of newly restored segments of free-flowing river were explicitly considered.

In the over 200 miles of the Klamath between Keno Dam and the point where the river becomes flatwater as it approaches the Pacific, nearly every mile of free-flowing river is used for whitewater recreation. It is highly unlikely that 17 miles of restored river would go unused by river runners. In fact, given the proximity of the Iron Gate and Copco sections to population centers and I-5, it is possible that these stretches will in future rank among the Klamath’s most popular whitewater runs.

In his article “Resurrecting the Klamath: A Gift to be Claimed,” Bill Cross projected the probable whitewater and scenic attributes of these sections of river that are currently inundated by reservoirs. This analysis was based on review of historical records, pre-dam photos, and gradient profiles. His findings are summarized as follows:

1. J.C. Boyle Reservoir Reach:

The upper two miles of the reservoir section, from the head of the reservoir to the Highway 66 bridge, are likely to offer a low-gradient, relatively easy extension of the Keno Run. This extension will greatly improve the Keno Run by eliminating the existing flatwater paddle to reach take-out. The following 1.5 miles, from the Highway 66 bridge to Boyle Damsite, have a much higher gradient of approximately 50 feet per mile, and are likely to offer intermediate to advanced whitewater. This second reach could be combined with the Boyle Bypass run immediately downstream. The entire 3.5 miles presently flooded by J.C. Boyle Reservoir will likely offer excellent forested scenery, with flow patterns similar to the Keno Run just upstream.

2. Copco Reservoir Reach:

This 6-mile reach will have a future gradient of approximately 18 feet per mile—the lowest gradient on the entire Upper Klamath below Keno Dam—and will likely offer an extended Class II to II+ run through scenic bottomlands. This reach will have a flow pattern nearly identical to Hells Corner, but will likely have a wider range of acceptable flows thanks to its much less challenging whitewater. The Copco Reservoir Reach will likely attract less skilled boaters, or those looking for a more relaxing scenic float. It will also appeal to both private and commercial parties making overnight or multi-day runs of this stretch, in combination with upstream and downstream reaches. Following removal of Copco 1 Dam, 1,000 acres of formerly inundated lands will become public open space, providing opportunities for hiking and camping.

3. Copco 2 Reservoir Reach:

This half-mile reach has an estimated gradient of 80-100 feet per mile, and may hold Class IV or even V rapids, giving it tremendous potential appeal for expert boaters and commercial outfitters. This section represents the uppermost portion of Wards Canyon, and would be paddled in combination with the lower portion of Wards Canyon—also known as the Copco Bypass Reach—immediately downstream. The Copco 2 Reservoir Reach will likely include scenic vistas similar to those found in the Copco Bypass Reach. Flows will be nearly identical to the Hells Corner reach upstream. The entire two miles of Wards Canyon (Copco 2 Reservoir Reach plus Copco Bypass Reach) could be combined with both upstream and downstream reaches for longer trips. In addition, if public access points are developed both above and below Wards Canyon, advanced paddlers might repeat the run more than once in a day—an option known to river runners as “doing laps.” Given its proximity to I-5 (just 20 miles), this section could become quite popular with advanced and expert paddlers, and holds great potential for commercial raft outfitters.

4. Iron Gate Reservoir Reach:

Following removal of Iron Gate Dam, this 7-mile stretch will offer a gradient of roughly 25 feet per mile, and is likely to produce Class II+ to III+ whitewater. This stretch also offers

excellent potential for scenery and solitude, since the 1,000 acres of land currently inundated by the reservoir will revert to public open space following dam removal. With its location just a few miles from I-5 and strong summer base flows, this section has tremendous future potential for whitewater recreation, including commercial raft trips.

American Whitewater agrees that it is impossible to precisely predict future whitewater recreation on these sections of river currently inundated by reservoir. However, the EIS must acknowledge the high likelihood that these reaches will support whitewater use by both the general boating public and commercial outfitters, and that they might, ultimately, prove extremely popular. Ultimately, these reaches may offer partial mitigation for reduced opportunities for commercial raft outfitting on Hells Corner in the form of new experiences not currently available.

## 6. MITIGATION MEASURES

Dam removal presents an unprecedented opportunity to promote entirely new stretches of restored river to be enjoyed by both the general boating public and commercial outfitters. Toward that end, the EIS outlines a plan to develop Mitigation Measures, as described in section 3.20.4.4 under the acronym REC-1, that are intended to promote whitewater recreation. American Whitewater applauds this effort, and looks forward to participating in planning for new recreational facilities, public access points, and other mitigation measures.

### a) Public River Access:

Carefully planned river access is essential to maximize the recreational potential of any river. Public access points are especially important at points where rivers change markedly in difficulty, so that boaters can choose those sections whose difficulty is best suited to their skills, craft and preferences.

Toward this end, American Whitewater believes the scope of the REC-1 plan should be extended upriver. The EIS calls for developing new facilities and public access points "along the newly formed river channel between J.C. Boyle Reservoir and Iron Gate Dam" (p. 3.20-62). American Whitewater believes REC-1 should be extended upstream an additional five miles to Keno Dam, to include the entire Keno Reach, since use of this section could be greatly affected by the transfer of PacifiCorp's Keno Facilities to DOI. Specifically, whitewater opportunities on the Keno reach could be greatly enhanced if DOI were to improve put-in access to the Keno Reach, as well as "park-and-play" access at Keno Wave.

In addition to access improvements at Keno, AW will be working to promote new or improved public access points at:



- Highway 66 bridge (aka Spencer Bridge)
- J.C. Boyle Damsite (or immediately downstream)
- Frain Ranch (improvements to both launch site and Topsy Grade)
- Above Wards Canyon (area currently inundated by Copco Reservoir)
- Below Wards Canyon (near existing Copco 2 Powerhouse)
- Iron Gate Dam Site

These public access points will benefit both commercial outfitters and the boating public.

b) Assistance for Outfitters:

The Upper Klamath has long supported a vibrant commercial rafting industry. Dam removal will be very challenging for outfitters, who will need assistance during the transition to a post-dam river. American Whitewater supports the following mitigation measures to assist commercial outfitters:

- Improved access at Frain Ranch, including improvements to Topsy Grade
- Timely issuance of new commercial rafting permits for newly restored runs and recognition that outfitters may desire to provide new types of experiences (e.g. overnight trips, multi-boat inflatable kayak trips, etc.)
- Public river access adequate to meet commercial outfitters' needs, including adequate roads, launch ramps, parking and restrooms.
- Test releases, in the season prior to dam removal, to simulate post-dam flows on Boyle Bypass, Hells Corner and Copco Bypass. Test releases will help outfitters evaluate new runs and prepare guides, equipment and logistics for post-dam conditions.

c) Flow Information:

Timely flow information is vital for both commercial outfitters and the boating public. American Whitewater supports maintaining all existing gauging stations on the Upper Klamath.

d) Channel Restoration:

- All debris associated with man-made structures needs to be removed from the river channel to facilitate safe passage by whitewater boaters.
- Vegetation that has colonized the dewatered Copco 2 Bypass Reach (Ward's Canyon) needs to be removed.

## 7. LONG-RANGE PLANNING AND PRESERVATION

The EIS should lay the foundation for two key efforts directed at long-term preservation of the Upper Klamath:

a) Preserving Open Space:

PacifiCorp owns 3,800 acres adjoining the reservoirs. Long-term management of these lands will profoundly affect whitewater recreation. American Whitewater looks forward to working closely with land management agencies to secure permanent protection for these lands, and ensure prompt restoration and revegetation efforts.

b) Wild & Scenic Designation:

The EIS should lay the groundwork for permanent protection of the entire Upper Klamath from Keno to Iron Gate as a National Wild & Scenic River. Currently only 11 miles from J.C. Boyle Powerhouse to the California-Oregon border are so designated. The eventual designation of the entire 44 miles from Keno to Iron Gate is possible only under the EIS's Proposed Action.

When combined with the existing 190-mile-long Lower Klamath Wild & Scenic River, designation of the Upper Klamath would represent the comprehensive designation of 234 unbroken miles from Keno to the sea. This designation would create the nation's longest continuous mainstem reach of Wild & Scenic River outside of Alaska, exceeding even Idaho's world-renowned Salmon River.


For whitewater boaters—both individual river runners and commercial outfitters—Wild & Scenic designation is of profound importance and unarguable benefit. Designation brings with it greater funding for public access and other facilities, enhanced government stewardship of whitewater resources, and expanded recreation support services such as river information. By increasing the river's visibility, designation promotes greater visitation. For outfitters, Wild & Scenic designation is a tremendous boon, bringing both widespread recognition of a river's outstanding scenic and recreational values, as well as a guarantee that the resource on which their business is founded will be carefully managed and permanently protected.

Few steps could do more to enhance future whitewater recreation than designation of the entire Upper Klamath as a Wild & Scenic River. For this reason, American Whitewater believes the EIS should specifically evaluate the following:

*"Dam removal could enhance whitewater recreation by making the entire Upper Klamath below Keno Dam eligible for inclusion in the National Wild & Scenic Rivers System."*

American Whitewater believes that the Proposed Alternative would clearly facilitate Wild & Scenic designation, and therefore be of significant benefit to whitewater recreation on the Upper Klamath.

Sincerely,



Thomas O'Keefe, PhD  
Pacific Northwest Stewardship Director

/s/ Bill Cross  
Regional Coordinator

Enclosure:

1. Bill Cross, Resurrecting the Klamath: A Gift To Be Reclaimed, American Whitewater Journal, September/October 2011.

# STEWARDSHIP

**F**OR ANYONE WHO loves rivers, removing a dam is a gift. So what would you call removing four dams at once? Well, that would be like having your birthday, Christmas, Hanukkah and Kwanzaa all rolled up into one. Like that's ever going to happen ...

Yet in just under ten years, that's exactly what river runners could be doing: unwrapping the biggest dam-removal gift in history. In 2020, four dams may be demolished on the Klamath River near the Oregon-California border, helping to restore one of America's premier fishing and whitewater rivers. For the first time in over a century, more than 200 miles of the Klamath could flow free to the Pacific.

It's possible thanks to a complex deal hammered out between conservationists, farmers, Native American groups, utilities, and fishermen. The historic agreement, signed in 2010 by the dams' owner, PacifiCorp, along with the Secretary of the Interior, the governors of California and Oregon, and others, is unprecedented—and controversial. Interior Secretary Ken Salazar hails it as “the largest river restoration in the world,” yet some conservationists complain that it doesn't go far enough. And, perhaps surprisingly, many local raft outfitters wish one of the dams could stay.

The agreement contemplates a breathtaking possibility: removing four dams with a combined height of 400 feet; uncovering 17 miles of river flooded for half a century or more; and restoring flows to another 6 miles dewatered by hydropower diversions. In short, reuniting 233 miles

of river into one unbroken, unfettered waterway, restoring the Klamath as the West coast's longest whitewater river.

It sounds fantastic...but what would it mean for river runners? Would a restored Klamath be one of the West's premier whitewater rivers? Or is it possible—as some outfitters fear—that this brightly wrapped box actually holds a white elephant? River runners need to know, because while it might be fun to open a mystery gift, dam removal is serious—and irrevocable.

The dams were built long before boaters saw the Klamath, so there's no guide book to tell us what the pre-dam river was like. To predict what dam removal may reveal we need to “shake the box,” seeking clues to what a restored Klamath would look like. Doing so will help river runners prepare for the tremendous changes dam removal would bring, while securing key provisions like accesses, preservation of open space, and assistance for commercial outfitters who will have to adjust to new flows on existing runs, while gearing up to guide clients down entirely new stretches. If river runners don't know what a restored Upper Klamath would look like, they may, quite literally, miss the boat.

American Whitewater strongly favors removing the Klamath dams. The article that follows, *A River Runner's Guide to a Free-Flowing Upper Klamath*, helps explain why undamming the Klamath is a boon not only for salmon and the river, but for boaters too, as miles of lost whitewater will be restored. Clearly there will be challenges for outfitters, but there are things we can do to ease their transition. In the long run, undamming the Klamath will be one of the best gifts river runners have ever received.

Want to know more? Let's shake the box.

*Copco 1 Dam under construction in Wards Canyon, 1916. In 2020 this scene could be repeated—in reverse—as this dam and three others are dismantled.*  
Photo courtesy PacifiCorp.



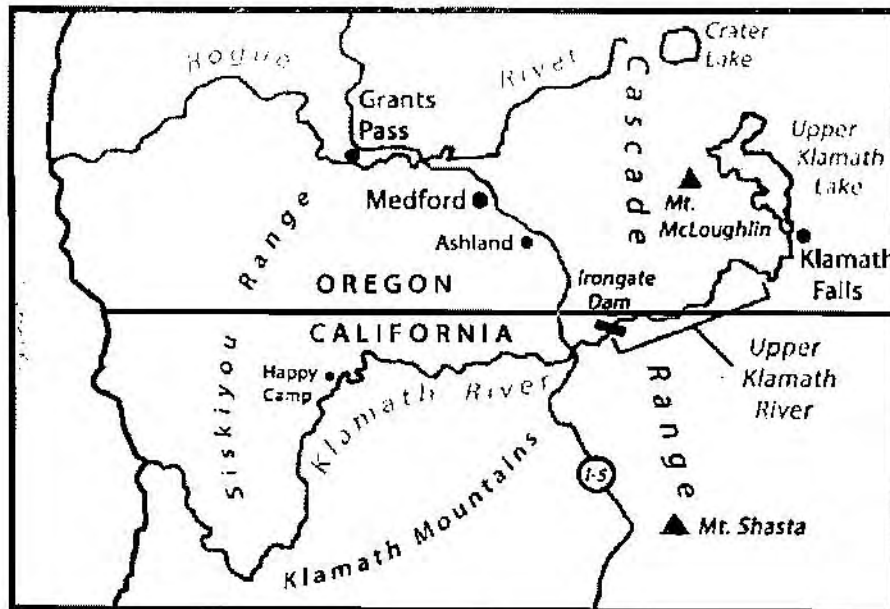
## A RIVER RUNNER'S GUIDE TO A FREE-FLOWING UPPER KLAMATH

forced a passage through the lofty Cascade Range. Near the Oregon-California border, the Upper Klamath makes a dramatic 45-

Klamath is not a mecca for multi-day trips. The reason is simple: the same geography that produces outstanding rapids is also ideal for producing hydroelectricity. Beginning in 1917, the river's frothy course has been repeatedly tapped to slake the West's insatiable appetite for electricity.

Today four dams block the river as part of PacifiCorp's Klamath Hydro Project: JC Boyle Dam, Copco Dams # 1 and 2, and Irongate Dam (see Map 2). Together they flood or dewater half the Upper Klamath, leaving only two boatable stretches—the lightly used 7-mile Keno Run, and a popular 17-mile Class IV+ stretch sometimes called Hells Corner. Even these remnants were once targeted for dams which, if completed, would have converted the entire Upper Klamath to power generation.

Hydroelectric development has profoundly harmed the Upper Klamath, decimating fisheries, degrading water quality and destroying some two dozen miles of whitewater. Before dams, the Klamath was the West's third most productive salmon river, with over a million fish spawning annually. Today dams block migrating fish from 420 miles of habitat and foster the



Map 1: The Klamath River region.  
Map by Bill Cross

### Cleaving the Cascades

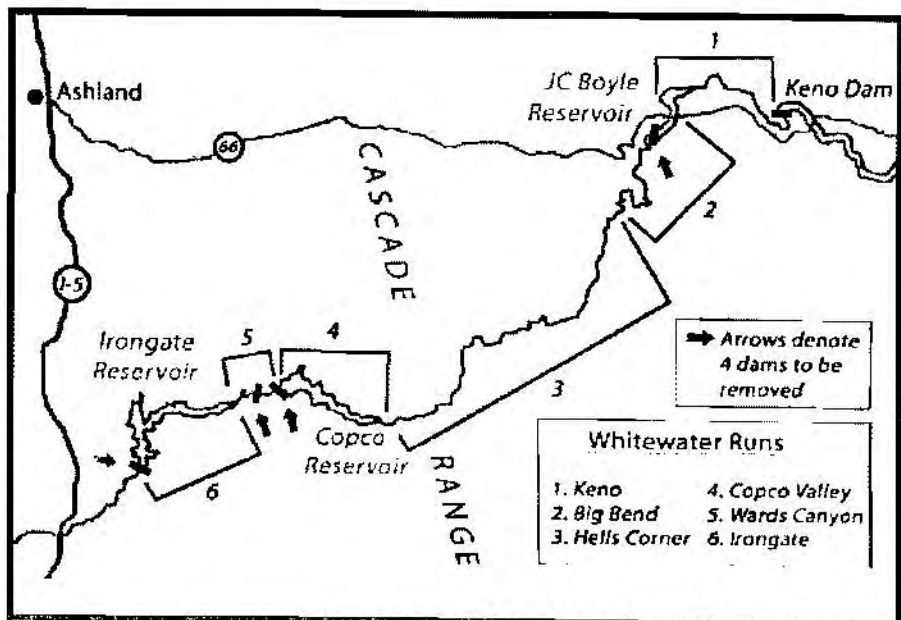
The Klamath is a rebel. Most rivers rise from mountains rather than cutting through them. From the Appalachians to the Sierra Nevada, America's mountains give birth to her greatest whitewater rivers. But these offspring usually flow away from the summits where they were born; only rarely do they breach the very heart of a range. When they do, the spectacular collisions between roaring rivers and towering peaks produce many of America's finest multi-day whitewater trips.

The Klamath is one of these mountain-cleaving rivers—one of only three to have

mile cut through the Cascades (see Map 1). The river was here before the mountains, and held its course as volcanic peaks grew up on either side. Yet unlike other rivers that traverse mountains, the Upper

Map 2: Upper Klamath from Keno to Irongate. Four dams to be removed are marked with red arrows. Six whitewater runs are shown: two existing—Keno and Hells Corner—plus four potential new runs.

Map by Bill Cross.





# STEWARDSHIP

growth of toxic algae. Salmon runs have plummeted, striking a terrible blow to the Klamath's indigenous peoples as well as to commercial and recreational fishermen. For river runners the effects have been more complex: the Klamath Project obliterates 23 miles of whitewater, but alters flows in a way that benefits commercial rafting on Hells Corner. As a result, dam removal has generated some controversy in the whitewater community. Adding to the tension is an almost complete lack of information about what a post-dam Upper Klamath would offer to river runners.

## Gathering of Waters

Geographers divide the Klamath at Irongate Dam: everything upstream is the Upper Klamath, everything downstream is the Lower. The upper basin is dry by Oregon standards, but big enough—twice the size of Delaware—to generate impressive runoff. Like many Cascades rivers, the Upper Klamath has a moderate flow pattern, with much of the precipitation percolating into the porous volcanic soil, then emerging as steady springs that help keep the river runnable year-round in all but the driest years.

The waters of the upper basin gather in broad, shallow Upper Klamath Lake, Oregon's biggest body of water, which acts as a giant solar water heater, warming to over 70 degrees in summer. Where water spills from the lake, the Klamath is born. For its first 21 miles the river winds placidly past homes, farms and ranches, its current slowed by a dam near Keno. At Keno the Klamath shifts abruptly from its pastoral beginnings to its pell-mell passage through the Cascades. Keno Dam is not part of the four-dam removal package, and marks what would, in future, be the start of the free-flowing river. If all goes well, in a decade the Klamath will run free from here to the sea.

Below Keno the Upper Klamath has all the makings of a whitewater classic: high gradient, ample flow, excellent scenery, and—if the dams come out—several days' worth of boating. These 45 miles are the

steepest on the Klamath, with an average gradient of 42 feet per mile and peaks of over 100 feet per mile. Where the river cuts down to bedrock it offers thrills to satisfy any expert, but there are milder sections as well, with gradients as low as 16 feet per mile. A restored river would offer runs to suit any taste, from mellow Class II to roaring Class IV+ or even V. The availability of more and longer runs would almost certainly boost the river's popularity with private boaters, and could help offset reductions in commercial use on Hells Corner. Currently most trips are single-day, but after dam removal boaters could enjoy multi-day journeys.

## The Undiscovered Country

At last we're ready to launch our virtual boats for a guided tour of two places: the Klamath that is, and the Klamath that may be.

But first, a disclaimer: what follows is a guide to a river that does not yet exist. As a guidebook author I've written about scores of rivers, but never about runs that are buried underwater. To meet that novel challenge I have sought the best available information to predict what dam removal might reveal: USGS maps and flow data, pre-dam surveys, historical photos and accounts, PacifiCorp documents, Bureau of Reclamation flow projections, and reservoir depth-soundings. Still, some mystery remains. I have tried to distinguish clearly between what is known, and what is educated guesswork.

One unknown is how long it may take for reclaimed stretches of river to recover. Bypassed reaches will heal almost instantly: restoration is a matter of "just add water." But where reservoirs are drained, no one can be certain how soon the landscape will recover—though much could be done to hasten revegetation. The good news is that the reservoirs hold only moderate amounts of sediment. Much is fine-grained and should flush out almost immediately, though it may take several seasons to fully restore the channel.



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*Surfing the Keno Wave.*  
Photo by Marsh Chamberlain

Another key concern is future flows. At present, dam removal is linked to the Klamath Basin Restoration Agreement (KBRA), which allocates water between agriculture and fisheries. KBRA would allow more year-to-year flow variation than the present regime, depending on each year's rain and snowfall. The guide that follows presumes that flows after dam removal would be governed by KBRA, but that is not a political certainty.

I have divided the Upper Klamath into six runs (see Map 2), and my descriptions project what these sections will be like once the river has recovered.

#### 1. KENO RUN:

Keno Dam (4,065') to Hwy 66 (3,785' est.)  
— see Map 3  
Length: 7 miles  
Gradient: 40 ft/mi; 50 ft/mi first 5 miles  
Difficulty: III

Keno is where river and mountains first clash, as the Upper Klamath makes its initial cut into the Cascades with a quick sprint through a rugged canyon (see Map 2). A highway parallels this run but stays

far above the river, giving this stretch excellent solitude. The forested canyon is home to abundant bird life including eagles, cormorants, and pelicans.

#### Present

Exciting Class III rapids pepper the first five miles below Keno Dam, and not far below put-in Keno Wave offers outstanding park-and-play at the right flows. Although this run is technically boatable year-round, few use it in mid-summer since flows are skimpier here than on downstream stretches. Yet even during spring snowmelt, this run gets only modest use despite challenging whitewater and fine scenery. The culprit is the problematic take-out: JC Boyle Reservoir backs water over the final two miles, so boaters face a long flatwater paddle to take-out.

*Map 3: Keno and Big Bend runs*  
Map by Bill Cross

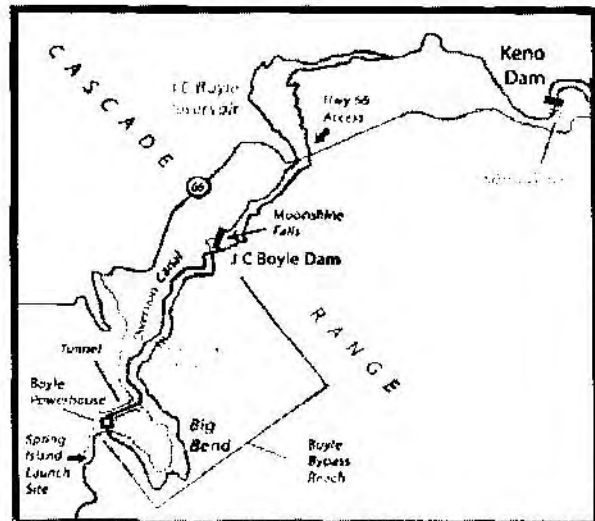
#### Future

Dam removal will eliminate this run's biggest drawback—the flatwater at the end. Based on pre-dam surveys and reservoir depth soundings, the last two miles appear to have a gradient of about 10 feet per mile, suggesting good current and perhaps a few riffles. With Boyle Dam removed, boaters could combine the Keno run with the thrilling rapids of Big Bend just downstream. As part of dam removal, river runners could seek improved access below Keno Dam, allowing easier put-ins and greater use of Keno Wave.

#### 2. BIG BEND:

Highway 66 (3,785' est.) to Spring Island Launch Site (3,300') — see Map 3  
Length: 6 miles  
Gradient: 81 ft/mi, peaks over 100 ft/mi  
Difficulty: IV, V at higher flows.

Big Bend is steep. These half-dozen miles drop nearly 500 feet, making this an expert paddlers' paradise. Below the Highway 66 bridge the canyon narrows and the Klamath knives into a deep gorge. The basalt bedrock is laced with subterranean water channels, and in this stretch the Klamath picks up roughly 250 cfs of steady spring inflow—most of it about a mile below JC Boyle Dam. In fact, anglers call this the Clearwater section in reference to the icy



# STEWARDSHIP



*Rafting Boyle Bypass Reach during the 2002 Recreational Flow Study. The diversion canal is visible above the right bank.*

Photo by 2002 Recreational Flow Study

spring water. Near the end of this reach a two-mile meander known as Big Bend marks the canyon's deepest point, with rugged slopes rising a thousand feet from the river.

## Present

This high-gradient stretch was an obvious target for hydro development. PacifiCorp's 68-foot-high Boyle Dam blocks the river a mile and a half below Highway 66, flooding the first part of the run and diverting the river into a canal for the next 4.3 miles. The dewatered "Boyle Bypass Reach" is reduced to fish flows except during rare high runoff. The water is returned to the river at Boyle Powerhouse, just below Big Bend.

## Future

With Boyle Dam removed, this stretch could be a classic advanced run thanks to challenging whitewater, rugged scenery and strong base flows. Information about the lower part of the run comes mostly from a 2002 Recreational Flow Study

that AW helped organize. Paddlers tested various releases from Boyle Dam into the bypass reach, and found excellent technical Class IV to IV+ whitewater, with good play above 1,000 cfs. No one knows what lies in the first 1.5 miles of the run, buried beneath Boyle Reservoir. Pre-dam surveys and reservoir depth soundings show a gradient of about 50 feet per mile which, given the narrow channel, could produce strong whitewater. Intriguingly, historical



photos show a riverwide ledge known as Moonshine Falls near the Boyle damsite, but it's unknown whether the falls survived dam construction (see photo).

Big Bend should be boatable year-round in all but the driest years, thanks to strong mid-summer base flows plus spring inflow. The run is at its best above 1,000 cfs, and should flow at or above those levels throughout spring runoff in most years. Mid-summer flows would fall below 1,000 cfs in most years, but kayaks and small rafts could still probably navigate the run all summer except in dry years. Larger rafts—including commercial paddle boats—could use the run in spring when flows are higher, and possibly all summer in wet years. Mid-summer use could be enhanced by developing an alternate put-in at Boyle damsite, just above where springs add flow. Big Bend would make an excellent day trip, or could be linked with adjoining runs for longer trips.

## 3. HELLS CORNER:

Spring Island (3,300') to Copco (2,605')

Length: 17 miles

Gradient: 41 ft/mi; peaks around 75 ft/mi

Difficulty: IV+

Hells Corner is by far the best-known section of the Upper Klamath. In fact,

*Moonshine Falls before construction of JC Boyle Dam.*

Photo courtesy Klamath County Museum



*Paddle raft on Hells Corner.*  
Photo courtesy Kokopelli River Guides

when most river runners say "Upper Klamath," they mean these 17 miles. The reason is simple: this is the only section other than Keno that is not inundated or dewatered. Hells Corner marks the midpoint of the river's descent through the Cascades, the landscape becoming gradually drier with each mile. As the river crosses into California (mile 11) the rugged canyon gives way to a broader valley with easy whitewater.

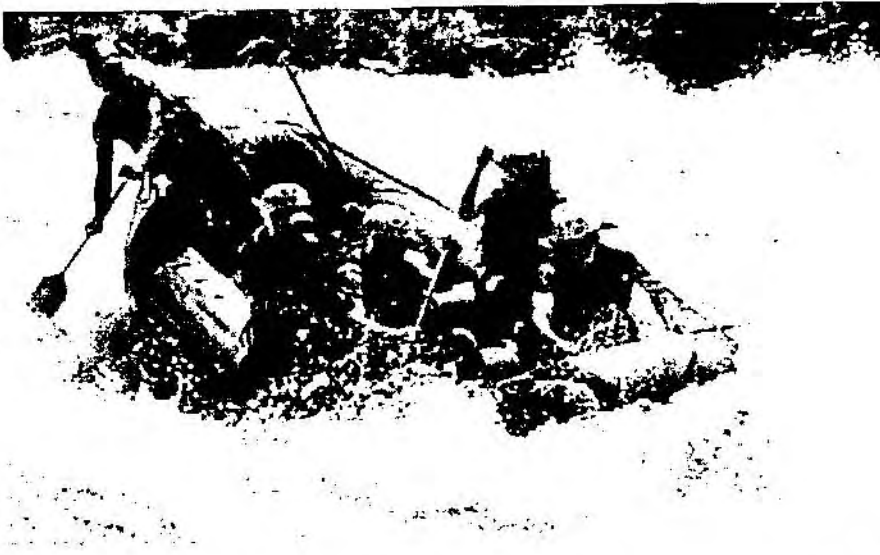
#### Present

Hells Corner's outstanding rapids make it a favorite of commercial outfitters. Most of the drops are packed into a five-mile gorge in the middle of the run where the gradient soars to 74 ft/mi and the river pounds through powerful Class IV and IV+ rapids. Boaters can take out at the state line or continue down six miles of Class II to the hamlet of Copco. Hells Corner is much less popular among private boaters, in part because of the arduous shuttle.

The key to this run's commercial success is reliable summer flows, allowing outfitters to book several thousand clients every summer. Hells Corner's consistent flows are not natural: they are the result of hydro development. JC Boyle generates electricity during peak demand from late morning through mid-afternoon. PacifiCorp stores up the Klamath's flow every night, releasing a paltry 100 cfs of "fish flow," then discharges the pent-up water through Boyle Powerhouse the next day in an oversized pulse. Thanks to these artificially enhanced flows, even in mid-summer rafters ride a powerful surge of 1,550-1,750 cfs.

#### Future

The most obvious effect of dam removal would be a shift from peaking releases to a steady round-the-clock flow, partway between today's peak flow and fish flow. And that has outfitters worried. Many fear that these intermediate flows won't support rafting in summer—or at least not the adrenaline-charged ride that thrills



customers. Everyone agrees that the river will still offer great rafting during spring snowmelt, but opinions differ over whether commercial rafting would be viable after early July in most years.

Under KBRA, post-dam flows are projected to be at or above today's peak-release levels until around early June on average, then gradually recede to mid-summer lows averaging about 1,000 cfs. Because KBRA allows considerable year-to-year variation, about one year out of four mid-summer flows would dip below 800 cfs, while in wet years they could stay above 1,200 all summer. That increased variability will be tough on outfitters, who relish consistency.

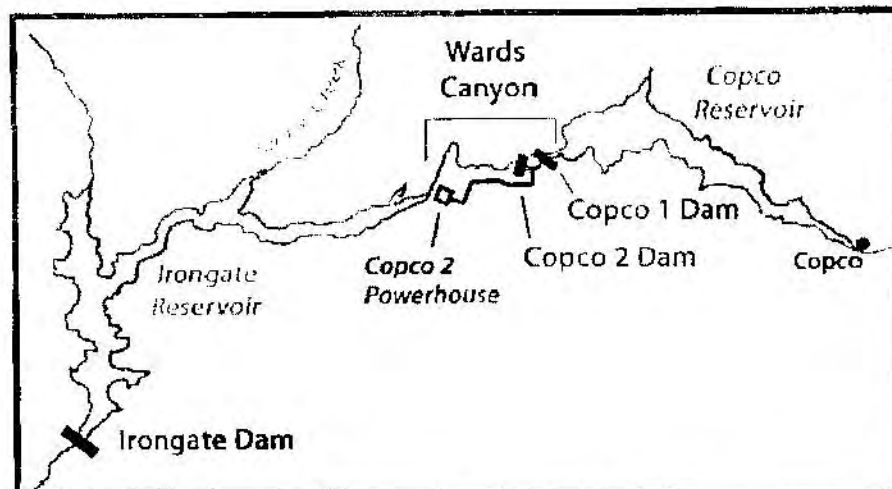
What would Hells Corner be like at the range of mid-summer flows projected under KBRA? In the 2002 Flow Study, boaters tested releases of 730, 1,060 and 1,360 cfs. They agreed that 730 was too low for commercial rafting, though the run was possible for kayaks and small inflatables. That suggests the run should almost always have enough mid-summer flow for boaters in small craft who don't mind bony conditions, but the driest years will simply be too low for summertime commercial rafting. At 1,060 cfs—close to KBRA's projected post-dam mid-summer median—the 2002 study found good technical paddling and the possibility

of low-flow commercial rafting, though several outfitters felt conditions were too rocky. At 1,360 almost everyone agreed commercial rafting would be viable.

Those findings make it tough to predict just how popular or satisfying mid-summer commercial rafting would be after dam removal. It's safe to say that in most summers, Hells Corner would not be as attractive to clients—or as profitable for outfitters—as it is now. Outfitters could probably navigate the run in smaller rafts throughout most summers, but it's hard to guess how many customers would sign up for these lower-flow runs.

One unquestioned benefit of dam removal on Hells Corner would be morning flow. At present, peak releases usually reach the primary put-in by ten AM, but it takes the water another couple of hours to reach the intermediate access at Frain Ranch, five miles downstream. Some outfitters and many privates would prefer to launch at Frain because it greatly shortens the shuttle, but few want to wait that long for flows to arrive. Without dams there would be no wait—the water would always be there. To maximize this benefit, river runners could press for improvements to the extremely rough road in to Frain Ranch. Morning flow could also make Hells Corner a more viable overnight trip by eliminating the long wait

# STEWARDSHIP



Map 4: Upper Klamath from town of Copco to Irongate Dam.  
Map by Bill Cross

for releases to reach campsites miles below the powerhouse.

#### 4. COPCO VALLEY:

Copco (2,605') to Wards Canyon entrance (2,500' est.) – see Map 4  
Length: 6 mi.  
Gradient: 18 ft/mi  
Difficulty: Probable II to II+

The six-mile Copco Valley run would be the gentlest on a restored Upper Klamath—thanks, ironically, to a dam. Not Copco

1 Dam, the 126-foot-high concrete plug that currently floods this stretch. No, the dam that produces this easygoing reach is far older. Six miles below the settlement of Copco a lava flow once blocked the river, backing up a five-mile lake. The Klamath gradually filled the lake bottom with sediment, then carved a deep outlet notch through the lava dam, creating the landscape that Native Americans once knew: the Klamath winding gently through a broad valley before knifing into a deep volcanic canyon.

#### Present

The lava narrows, known to settlers as Wards Canyon, was the Klamath's most obvious damsite, and in 1918 Copco 1 Dam was built, flooding the valley. The reservoir's straight channel masks the serpentine meanderings of the original river, and motorboats now skim over what was once the most fertile stretch of river below Keno: pre-dam maps show the river winding past ranches, pastures and orchards.

Today Copco Reservoir's stagnant waters produce a decidedly less appealing crop: toxic algae. When the Klamath's warm waters stagnate, trouble brews, and almost every summer blooms of blue-green algae coat Copco and Irongate Reservoirs, emitting a potent toxin that has forced swimming closures at the reservoirs and along the Lower Klamath. At times the State

of California has posted warnings for over 80 miles downstream, deterring some boaters—including commercial outfitters' customers—from visiting the Klamath. The river simply can't flush the reservoirs quickly enough to keep the algae at bay, but dam removal will dramatically improve water quality by letting the Klamath flow swiftly through these sections.

#### Future

Pre-dam surveys show a modest gradient, implying good current but easy whitewater—ideal for less experienced boaters or anyone who prefers scenery to thrills. Historic photos show a lush riverside forest, and once vegetation returns, wildlife should thrive. Draining Copco will expose 1,000 acres of riverfront land, much of it gently sloping benches ideal for camping and hiking. Outfitters and private boaters could use this run several ways: for gentle one-day trips; as an extension of the final five easy miles of Hells Corner; for camping after running Hells Corner; or as a prelude to the dramatic whitewater of Wards Canyon. The key to making this a workable run is to develop accesses just above Wards



The dramatic entrance to Wards Canyon at the end of Copco Valley, before construction of Copco 1 Dam, circa 1910.



Toxic algae in Copco Reservoir.  
Photo courtesy of Klamath-Salmon Media Collaborative



Canyon, so less experienced boaters can take out before the big rapids downstream.

#### 5. WARDS CANYON:

Wards Canyon Entrance (2,500' est.) to Copco 2 Powerhouse (2,330') – see Map 4  
Length: 2.0 mi  
Gradient: 85 ft/mi  
Difficulty: IV; possible V

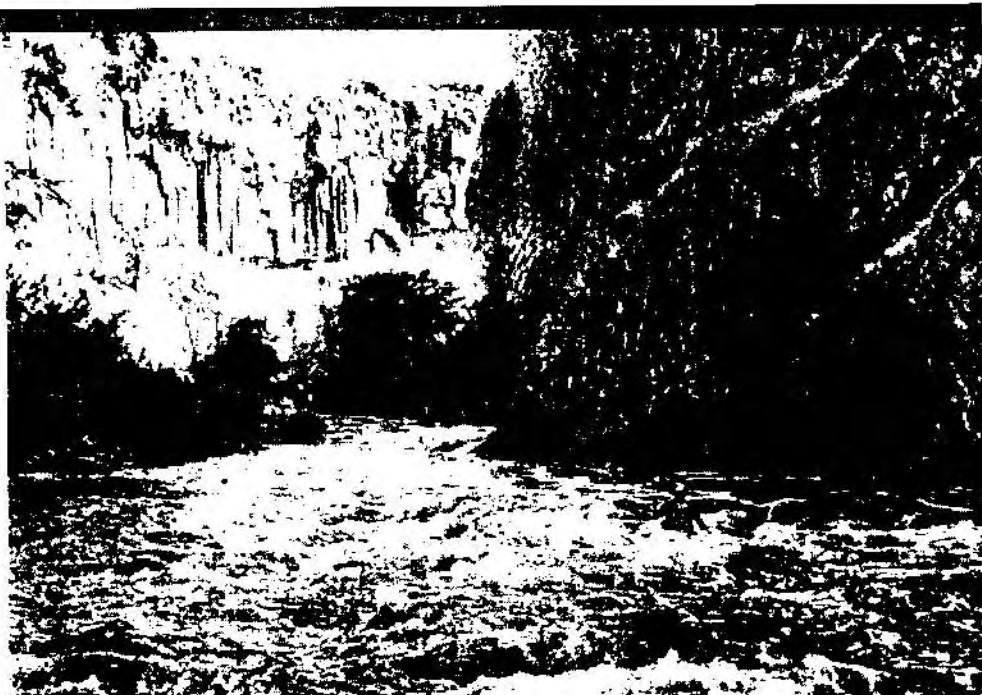
Wards Canyon is a whitewater brawl. Bookended by the peaceful Copco Valley upriver and the moderate Irongate run downstream, Wards Canyon is an intense clash between the irresistible force of the Upper Klamath and the immovable object of a lava dam. The Klamath wins this geologic fracas by slashing a deep cleft through the dam, but the lava gets enough licks in to churn the river to foam in the turbulent passage. It's a natural collision guaranteed to quicken the pulse of advanced boaters. But Wards Canyon is more than just big whitewater: it is a scenic and geologic wonder, a 300-foot-deep defile bounded by sheer colonnades of columnar basalt.

#### Present

Wards Canyon is an engineer's dream: easy damsites, a steep descent and abundant flow. Small wonder that every inch is tapped for hydro production. Copco 1 Dam blocks the river a quarter-mile below the canyon entrance. Then 500 yards downstream, Copco 2 Dam diverts the entire river (except at rare high water) into pipes that bypass the channel for 1.5 miles down to Copco 2 Powerhouse. The dam releases a paltry 10 cfs to the bypass reach, which as a result is heavily overgrown with brush. All of which means that Wards Canyon has never been available for boating. The only documented runs were during the 2002 Flow Study, and even those only reconnoitered the bypass reach. No boater has ever seen the upper half-mile that is buried by dams.

#### Future

Wards Canyon has tremendous potential, especially given its proximity to I-5. To predict what the rapids will be like, our best



*Kayaking Wards Canyon during the 2002 Recreational Flow Study.  
Photo by 2002 Recreational Flow Study*

modern source is the 2002 Flow Study, when paddlers tested releases from Copco 2 Dam into the bypass reach. At 1,200 cfs—barely higher than median projected mid-summer flows under KBRA—they found numerous exciting Class IV rapids. Historical sources offer clues to what lies in the uppermost half-mile, buried beneath the Copco dams. Engineer John Boyle's 1911 description of Copco 1 damsites speaks volumes:

The width of the canyon...was 70 feet, all of which was taken up by the water of the river. For 150 feet above the dam and 350 feet below, the river channel had a grade of 2 feet per hundred, producing a velocity... of about 20 feet per second.

Boyle's description tells us the river was narrow, very swift, and had a gradient near 100 feet per mile. Clearly Wards Canyon started with a serious bang—certainly Class IV, possibly higher. We simply won't know until the dams come out.

Wards Canyon has a lot going for it: big rapids, spectacular scenery, summer-long flows, short shuttle and location 20 miles from I-5. Outfitters could offer half-days,

or full-days in combination with adjoining reaches. Private boaters could do "laps" of this short stretch, while overnight boaters could continue downriver. The key elements needed are new accesses at the upstream and downstream ends of the canyon, along with brush removal—after 90 years of diversions the canyon is so overgrown that it could take decades to clear on its own.

#### 6. IRONGATE:

Copco 2 Powerhouse (2,330') to Irongate Dam (2,170') – see Map 4  
Length: 7 mi  
Gradient: 24 ft/mi  
Difficulty: probable II+ to III+

In Irongate the river finds a happy medium between the mellow meanderings of Copco Valley and the hell-for-leather sprints of Big Bend and Wards Canyon. In this final stretch the Upper Klamath flows through a semi-arid canyon dotted with oak, juniper and pinyon pine. The run ends below Iron Gate, a scenic narrows for which the dam is named.

# STEWARDSHIP

## Present

Since 1962 this reach has been flooded by 173-foot-high Irongate Dam.

## Future

This reach has great potential, combining strong summer flows with enough gradient for good whitewater—most likely intermediate, though stronger drops are possible. It is long enough for a day trip, or could be combined with adjacent sections for longer runs. The first four miles descend at a brisk 30 feet per mile as the river courses through a narrower canyon. Three miles above Irongate the canyon broadens and the gradient eases to 16 feet per mile, suggesting good current but milder rapids in the final stretch.

Irongate could prove quite popular for both private and commercial trips. For outfitters, the run's proximity to I-5 makes it potentially fertile territory: take-out is just nine miles off the interstate. This stretch may hold the most accessible intermediate whitewater on the entire Klamath, along with good camping and solitude. As at Copco Reservoir, draining Irongate will expose 1,000 acres of previously flooded land, but unlike Copco there are almost no homes along the shore. With proper stewardship, Irongate could offer excellent scenery and seclusion just miles from I-5.

## Making the Gift Count

Removing the Klamath dams is great news for river runners—one of the biggest gifts the whitewater community has ever received. Spectacular reaches of river will be restored, new whitewater runs will emerge, toxic algae will cease to pollute the lower river, and the Upper and Lower Klamath will be reunited into the West Coast's longest continuous whitewater river. The transition will be challenging for local raft outfitters, yet even as they lose Hells Corner's predictable flows, they will find new long-term opportunities on a restored Klamath.

But the gift of dam removal won't mean much to boaters if they can't use the

river. That's why American Whitewater is working to secure access, eliminate boating hazards, preserve open space and ensure that a restored Klamath is fully accessible to both private and commercial river runners.

The BLM has completed a study of the effects of dam removal on whitewater recreation, and is seeking public comment. AW is urging the BLM to support dam removal while planning ahead to maximize future whitewater recreation on a restored river. We need your comments in support of these goals.

### 1. Claim the Gift: Undam the River

While many groups are focused on the fishery benefits of a restored river, there are also recreational benefits to free-flowing rivers. Paddlers are uniquely qualified to provide this perspective and register support for the removal of all four Upper Klamath Dams.

### 2. Demand the Accessories: A River Runners' Wish List

Removing the dams is great but to take full advantage of a restored river and enjoy a quality recreational experience there are a number of details that need to be addressed in the restoration plan. The time to weigh in with these specific needs is now, as restoration plans are being developed:

- **Public Access:** Access is vital, especially where the difficulty of whitewater is variable, so boaters can choose runs suited to their skills and tastes. Paddlers should request new or improved access at Keno Dam, Highway 66 Bridge, JC Boyle Dam Site, Frain Ranch, Above Wards Canyon, Below Wards Canyon, and at Irongate Dam Site.
- **Assistance for Outfitters:** The river has long supported a vibrant commercial rafting industry. Dam removal will mean changes but these changes can be positive if basic steps are taken to address outfitter needs. These include improved access at Frain Ranch, timely

issuance of permits for new runs, and restoration of a more natural flow regime just prior to dam removal to help outfitters evaluate the run and prepare guides, equipment and logistics for post-dam conditions. Following dam removal, continued access to flow information is important for all river runners.

- **Restoring the River Channel:** In removing the dams, all debris associated with the man-made structures needs to be removed from the river channel to facilitate safe passage. In addition, vegetation that has colonized the dewatered Ward's Canyon needs to be removed.
- **Preserving Open Space:** PacifiCorp owns 3800 acres adjoining the reservoirs. Management of these lands will profoundly affect river runners. AW supports permanent protection of all PacifiCorp lands, including restoration and revegetation.
- **Permanent Protection:** Finally, to protect the investment in river restoration, we support designating the entire Upper Klamath from Keno to Irongate as a National Wild & Scenic River.

Watch the American Whitewater website for additional details on providing comments. The public comment period will be open for 60 days starting on September 22. You will be able to file comments on the Klamath Restoration website, <http://klamathrestoration.gov>, where you can also sign up to receive future updates.

*Bill Cross is the co-author of Western Whitewater from the Rockies to the Pacific, an award-winning guide to over 150 rivers. He is an AW volunteer Regional Coordinator, and was named AW's 2009 River Steward of the Year for his work on the Rogue River.*

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From: JOHN & ANITA WARD[SMTP:E JOHN\_WARD@MSN.COM]  
Sent: Friday, December 30, 2011 4:20:02 PM  
To: BOR-SHA-KFO-Klamathsd  
Cc: Kellie Christensen; Mike Masters; John Ward; Harry Piper; Tom Collett;  
Dick Chambers  
Subject: Rogue Flyfisher Comment on Klamath Facilities Removal EIS\_EIR  
Auto forwarded by a Rule

Dear Ms. Elizabeth Vasquez,

Thank you for the opportunity and additional time to comment on the Draft  
Klamath Facilities Removal EIS/EIR.

**Rogue Flyfishers supports Alternative 2**– Full Facilities Removal of Four Dams (Proposed Alternative). Removal of the four lower PacifiCorp dams on the Klamath River: J C Boyle, Copco 1, Copco 2, and Iron Gate Dams fully meets the **need** to advance restoration of the salmonid fisheries in the Klamath Basin consistent with the Klamath Hydroelectric Settlement Agreement (KHSa) and the connected Klamath Basin Restoration Agreement (KBRA). This action also fully meets the **purpose** to achieve a free flowing river condition and full volitional fish passage as well as other goals expressed in the KHSa and KBRA.

The EIS/EIR has been scoped to include a very wide range of **reasonable alternatives**, appropriately screened to a narrower range of retained alternatives. Each alternative is supported by appropriate and compelling data, and careful analysis. We feel **the Evaluation and Proposed Action demonstrates potential benefits for fisheries, water and other resources that far outweighs the potential costs**, risks, liabilities or other adverse consequences of such removal. We accept the short term impacts with assurance of successful restoration and sustainable natural salmonid production long term in the Klamath River system. The harvest opportunities for sports, commercial and tribal fisheries will contribute to improved public welfare and the reliable water and power supplies at affordable costs will sustain agricultural uses, National Wildlife Refuges and all Klamath Basin communities.

Appendix C notes 'dam removal would release accumulated sediments downstream', and 'Modeling studies indicate reservoir drawdown would erode and flush 41 to 65 percent of stored sediment downstream'. The EIS includes an Option if analysis indicates release of sediment could result in significant effects, EIS/EIR may include consideration of dredging sediments out of reservoirs before removing

dams. This contingency seems to be adequately covered as was the situation recently when removing three dams on the Rogue River.

Appendix E analyzes the potential suspended sediment effects on anadromous fish in the Klamath Basin with Chinook salmon, coho salmon, and steelhead having varying response if fall- or spring-runs, or summer and fall/winter runs with moderate physiological stress and major physiological stress depending on exposure duration. In some circumstances, the No Action/No Project alternative appeared to have as much impact as Full Facilities Removal. Our assessment is that Alternative 2 would in most instances only have moderate physiological stress effects.

Again, thank you for the opportunity to comment.

Sincerely,

John G. Ward, Conservation Chair

Rogue Flyfishers

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