KLAMATH RIVERKEEPER
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Oct. 20th, 2006

Chair Tam Doduc and Members of the State Water Board
c/o Song Her, Clerk to the Board
State Water Resources Control Board
Executive Office
1001 I Street, 24th Floor
Sacramento, CA 95814

10/25/06 BdMtg Item 10
303(d) List
Deadline: 10/20/06 5pm

Re: Agenda Item #10: Comments on "Proposed 2006 Federal Clean Water Act Section 303(d) List of Water Quality Limited Segments in California"

Dear Chair Doduc and Board Members:

Please accept the following comments from the Klamath Riverkeeper in your process to update the state 303d list. The Klamath Riverkeeper supports listing segments of the Klamath River, or the entire Klamath River for sediment and for toxic algae. We do not support the de-list of the Upper Lost River/Clear Lake reservoir for nutrients and temperature, and instead support a addition listing for turbidity. We also believe that the currently listings are not leading to TMDLs that will improve water quality to the point of de-listing, as so far they are largely include voluntary actions of non-point polluters and include blanket waivers were actual RWD should be enforced.

Lack of enforcement on the Klamath River is a large cause of fisheries decline and poor water quality. The problem has become so bad the river has become unfishable and swimmable in recent years, and our economies are suffering due to this non-enforcement. We recommend that WDR be applied in the Klamath River and solid clean up plan be enacted and the river cannot handle continue non-enforcement.

Sediment
Cottonwood Creek to Elk Creek
As a long time forest monitor I have seen conditions in the tributaries of the Klamath and reviewed data that supports this listing. In many tributaries of the Klamath sediment is the main cause of salmon decline. Many of these tributaries are important habitat for threatened Coho Salmon and their decline is directly linked to sediment issues. Furthermore the tributaries with the highest road density and unstable soils are often the Coho Creeks in the Klamath.

The following documents along with the Beaver Creek Watershed Analysis, the Elk Creek Watershed Analysis, the Indian Creek Watershed Analysis, and the Mid-Klamath Watershed Analysis, and the NAS report on Endangered Fishes of the Klamath River

support this claim, most are reference at the end of this document, but a few are not: (Kier Associates, 1991; 1999; NAS, 2003, de la Fuente and Elder, 1998, Payne and Assoc., 1989; CDFG, 2003).

In addition to direct evidence of impacts to the mainstem Klamath, major tributaries such as the Trinity, South Fork Trinity and Scott rivers are listed as impaired by sediment (U.S. EPA, 1999; Graham Matthews & Assoc, 2001; CSWRCB, 2002) and sediment from these systems routes through the lower mainstem Klamath River, adding to its impairment. In many cases tributaries that are not listed for sediment in the Klamath are in a more impaired condition then many that are listed in other watershed. It is not in the discretion of the board to ignore the available science related to sediment, nor past comments on this issue.
We also do not believe that the board does not have the authority to list the Klamath for sediment because the tribes are also a manager. This has never been listed as a reason for inaction before and only the Hupa Tribe, which is not located on the Klamath directly (though they are very impacted by the Klamath), has received the right to set standards. The Yurok Tribe has been denied this right due to the large acreage of the reservation that is owned by Green Diamond or Simpson Timber Company.

The Segments of the River between the Iron Gate dam and Elk Creek should be listed for sediment, as the tributaries are way above background levels for sediment. This section of river includes Cottonwood Creek, Beaver Creek, Horse Creek and the Scott River. Many of these watersheds are in a checkerboard land ownership between private timber interests and the Klamath National Forest, both of which own hundreds of miles of un maintained road surfaces. All of these tributaries are suffering from extreme sediment problems cause from road building on sensitive soils, namely decomposed granite.

Fuente and Elder (1998). They noted that the January 1, 1997 storm caused hundreds of landslides in the Klamath National Forest and 446 miles of scouring in tributary channels. They also found the road density was high in the same watersheds where landslides occurs. The cost to the public from storm damage far exceeds the timber receipts in these areas.

Scott River imputes to the Klamath
It is unscientific to list the impaired tributary creeks, such as the Scott and Trinity for sediment, but to ignore the conditions of all other nearby creeks that are facing the same issues, and in some instances are even in worst condition, Furthermore to not list the receiving body for these listed waters is ignoring the fact that their water goes down stream. The National Academy of Sciences (2003) report on the Klamath River and Endangered fishes also recognized Scott River impairment: “Highly erodible decomposed granite has led to a serious loss in volume and number of pools in tributaries and associated degradation of spawning and rearing habitat. Logging over the past 50 years has taken place on a mix of USFS land and land held by a few large private timber companies. Historical logging practices have been poor, particularly on private land, and have left a legacy of degraded hillslope and stream conditions.” The Scott

sends a constant supply of sediment to the mainstem Klamath, contributing to its sediment impairment.

Beaver Creek issues:
Perhaps the best example of poor management contributing to sediment is the Beaver Creek watershed. The Beaver Creek area has an excess of 5 miles of roading per mile of forest and is prone to road failures due to its granitic soil. In itself this extreme roading would cause an impact to the beneficial uses of Beaver Creek and the Klamath River, however the non-maintenance of this roading coupled by the poor design and extensity of THP's have created a situation in Beaver Creek where debris torrents are filling salmon spawning reaches with sediment. While all science points to the fact that Beaver Creek is severely impacted by sediment, even the average recreator cannot help but to notice the swimming holes are being filled up with sediment.

As the board most likely understands, Beaver Creek is a major stronghold for the Klamath Coho Salmon. Many of the other tributaries in this section of river are also very important to Coho habitat.

While private timber interests are largely responsible for these conditions, the Klamath National Forest has continually tries to log and build in unstable areas in Beaver Creek, the Scott River and Horse Creek, despite the fact they are some of the most landslide prone areas they manage, and lie on schist and grannitic soils. Instead of following the Basin Plan in these areas they have used BMPs that have been proven ineffective every year that they have been able to get out their illegal timber sales.

The National Marine Fisheries Service (NMFS) stated in its ESA opinion regarding the Beaver Creek Project, which was found illegal: "Changes in peak flow can degrade habitats by scouring redds, widening channels, and increasing sedimentation. This degradation can, in turn, adversely affect SONCC Coho salmon or their critical habitat. All activities proposed in the BCP have the potential to degrade critical habitat."

The BMP problem can be summed up by the following quote:
"Results: While past BMP monitoring indicated that project-level planning often failed to identify the specific BMPs applicable to the proposed activity and the specific project level actions or mitigation necessary to meet BMP implementation, substantial improvement was noted by the staff of the North Coast Water Quality Control Board staff during project reviews in 2002." 2002 Klamath National Forest MONITORING REPORT

"Policy guidelines observed in 2001 have continued. Evaluations indicate that additional attention to addressing obliteration of the initial road segment is warranted in order to discourage further road use."

Then other quotes "Validation of cause/effect relationship and decision thresholds used in environmental analysis of effects on beneficial uses of water has not been completed.

As for the prior management in the Beaver Creek watershed, a fisheries biologist commenting on the Beaver project noted that the Beaver Creek watershed experienced major channel changes in the January 1997 storm, and that the entire basin is recognized in the Klamath National Forest Land Management Plan as an "Area with Watershed Concerns" (AWWC). He noted that an extensive road network and a substantial level of prior timber harvest characterize the watershed. The biologist noted that this places the watershed "at substantial risk of catastrophic channel change in a large storm event. . . . The principal concern with regard to rain on snow potential is that snow builds up faster in areas that have experienced timber harvest. When rain on snow events occur, stream flows may be increased by up to 200-300%.

These peak flows in turn cause bank erosion and undercutting and unnaturally high rates of streamside landslides. Higher peak flows cause scouring and displacement of salmonid egg masses and alteration of the aquatic invertebrate communities, which could have repercussions throughout the aquatic and terrestrial food chain.

Fish habitat conditions in the Beaver Creek 5th-field watershed are "not properly functioning" for substrate, pool frequency, pool quality, and large woody debris.. Hydrology and watershed conditions are "not properly functioning" for peak/base flow, drainage network and road density. Other than chemical contamination and physical barriers, all other riparian indicators are considered "at risk."

Bumblebee and Hungry Creeks in Beaver Creek are good examples of how serious of shape Beaver Creek is in. They have high rates of predicted landslide sediment delivery (488% of the assumed "background" levels for Hungry and 282% for Bumblebee). The principal reason for these risks is high road density on sensitive landforms. The Forest Service states that values about 200% indicate at risk conditions. These two sub watersheds also have elevated erosion rates, exceeding background eleven-fold in Hungry Creek and nearly thirteen-fold in Bumblebee. The Klamath forest considers models above 800% are indicative of at-risk conditions. Hungry Creek is an "Area with Watershed Concerns" (AWWC), is already a major contributor of sediment to the Beaver Creek watershed. Hungry Creek is rated as having high channel sensitivity because of roads adjacent to the stream and unstable banks; and the creek and its floodplain have experienced debris slides. In addition, mining activity in North Fork Hungry Creek altered the stream channel and increased sediment.

In 1991 the California Regional Water Quality Board visited the Beaver Creek watershed and made the following comments: “[T]he Beaver Creek watershed . . . is comprised of checkerboard Forest Service/private land. There are over 900 miles of roads in what is approximately a 75,000-acre watershed, and they are stacked one above another. The impact on the watershed has been so great that Mr. Fox pushed for, and the Supervisor’s office agreed to, a total deferment on logging activities for the next ten years. . . . . [Hungry Creek] is underlain by decomposed granite, where the sugary texture of the deeply weathered granite leads to frequent gully erosion and transport of sediment to watercourses. It appears that the Forest Service recognizes the problem of accelerated erosion on much of the land in the Oak Knoll [now the Scott River] Ranger District.

Deferrals of logging in Beaver Creek, identification of other problem areas such as Seiad Creek Road, are all steps that they have taken. In addition, our attention to the problem will ensure an increased emphasis on repairing past damages and an avoidance of future problems. However, the magnitude of the problem means that water quality impacts will continue for the foreseeable future. "

The conditions in these creeks are in violation of the basin plan in many ways. A few are:
"The suspended sediment load and suspended sediment discharge rate of surface waters shall not be altered in such a manner as to cause nuisance or adversely affect beneficial uses." WQCP 3-3.00. "Turbidity shall not be increased more than 20 percent above naturally occurring background levels. Allowable zones of dilution within which higher percentages can be tolerated may be defined for specific discharges upon the issuance of discharge permits or waiver thereof." WQCP 3.3.00.

However Beaver Creek still remains a strong hold of Coho Salmon despite these effects. Extra protection measures need to be taken in this watershed. The problem is so bad that a federal judge has had to stop logging of the forest in the watershed, and the Forest Service's own scientists have recommend long period of no cutting to let the watershed heal. There is currently a proposal by the Forest Service to build nine more miles of roads in this watershed. This shows that regulation of background levels and strict enforcement of the Basin Plan is necessary in this area, as is a sediment listing

"The extensive areas in early serial stage, high elevations at the headwaters, erodable soil types and a road network of over 450 miles make Beaver Creek a high risk for cumulative watershed effects. There were 64 road-related failures in the watershed and only 28 landslides away from roads in January 1997. Road failures at higher elevations were a substantial contributor to channel scour in some tributaries. Approximately one third of the Beaver Creek channel changed as a result of the 1997 storm. Timber harvest on private land has accelerated in the Beaver Creek watershed and the USFS is also planning a timber sale in the watershed in the near future."

Horse Creek issues
"This watershed had been identified as being over cumulative affects thresholds by the USFS (Larsen, 1976) with regard to a rain-on-snow event. Larsen (1976) suggested that increased risk of peak flows warranted a cessation of timber harvest for 11 years.
Fox also noted that the watershed has an extremely high number of roads and that geology in the basin was inherently unstable with both decomposed granitic and schist formations."
Fox also noted that the watershed has an extremely high number of roads and that geology in the basin is highly erosive.

Walker Creek
"The Walker Creek drainage likely had extremely high rainfall intensity, similar to Grider Creek, but it also had a much more extensive road network."

Cottonwood Creek

"The Cottonwood Creek watershed includes a substantial amount of decomposed granitic terrain that can contribute fine sediment to the stream. A major impoundment and irrigation cause the stream to go dry in some reaches during summer as inherently unstable with both decomposed granitic and schist formations."

"The Klamath Basin Assessment (USFS 1997). Completed by the Klamath, Six Rivers, and Shasta-Trinity National Forest in 1996, notes that the geological terrains and geomorphic types that occur downstream of Happy Camp are especially susceptible to sediment delivery from mass wasting and accelerated erosion….Their capacity to generate sediment can be and often has been exacerbated by human disturbance of these lands"

"When the storms occurred, slopes that had been clear-cut or on which roads had been constructed were more susceptible to mass wasting processes then other undisturbed slopes" (both above excerpts are from the Lower-Middle Klamath Watershed Analysis most of the quotes above that are flow studies of the 97 storms)

Slate Creek

" For example 34 miles of roads where surveyed in the Slate Creek watershed. Some of these were mid-slope maintenance level 1 or 2 roads and others have saturated fills, showing signs of incipit failure. The level of acceptable risk is this watershed is lower and restoration priority is higher because of existing downstream Coho salmon habitat"

Upper Basin

Much of the blame for poor watershed conditions is placed on agriculture, but nearly 80% of the Upper Klamath Watershed is forested, and much of the land has been harvested" (NAS report)

Lower Basin

"Payne and Associates (1989) found that stream-mouth deltas, almost nonexistent prior to 1955, have grown to 500 and 700 feet in width since 1964. Delta widths changed dramatically after the 1964 flood, but increased even more after the high water of 1972. The initial incursion of sediment came with the 1964 flood but is still being delivered to the lower reaches of the streams. Payne found streambed conditions near the mouths and Associates (1989) to be so unstable that no fish ways could be installed and the study concluded that no lasting solution, other than natural recovery, was possible. Logging in many of these drainages continues today. This delays their recovery and, according to Coats and Miller (1981), could lead to substantial new sediment loads in the event of a major flood."

Voight and Gale (1998) noted that 17 of 23 tributaries to the Lower Klamath River remained underground, indicating lack of recovery and continuing contributions of sediment.

"Channels of most Lower Klamath tributaries have continued to fill in as sediment yield in the watersheds remains high. Timber harvest in all Lower Klamath watersheds exceeds cumulative effect thresholds and all streams (except upper Blue Creek) have been severely damaged during the evaluation period. Clear-cut timber harvest in riparian zones on the mainstem of lower Blue Creek and the mainstem Klamath River occurred since 1988 in inner gorge locations. Aggradation in salmon spawning reaches can be expected to persist for decades."

Kier Associates (1999) noted that "major influxes of sediment continue to pulse through the mainstem, restricting pool depths and temperature stratification." The California Department of Fish and Game (2003) noted that shallow riffle crests in the Lower Klamath River, which are caused by sediment build up as well as low flow releases from dams, impeded fish passage of adult salmon and contributed to the fish kill of over 33,000 adult salmon and steelhead in September 2002.

An investigation should occur on whether the Salmon River should be listed for sediment

While the Klamath Riverkeeper supports the de-listing of nutrients in the Salmon River, we believe that sediment is a major issue in the watershed and needs to be explored. All supporting data validates this claim.

The Mid-Klamath Should be listed for toxic algae

The clear purpose of the Clean Water Act and the Basin Plan is to regulate water quality to support waterways' beneficial uses and to make the waterways of the United States swimmable and fishable. The beneficial uses of the Klamath River include recreational use and fishing, along with tribal subsistence and ceremonial uses. All of these are threatened by the current levels of toxic algae in the Klamath River.

For the past two years, water samples taken from Klamath reservoirs exhibited some of the highest levels of the toxic blue green algae *Microcystis aeruginosa* in the world. In some samples, the level of toxins exceeded the World Heath Organization (WHO) moderate health risk guideline by 4000 times. However, no action beyond occasional posting of signs has been taken to protect the public or to regulate this toxin. The WHO does not publish a numerical standard for what constitutes a 'high health risk' instead stating that a high risk is when algal scums are visible on the water's surface. Scums were clearly visible when samples were taken and where photo documented occurred. Blooms have been so bad in the last two years, that they have turned the color of the reservoirs to anti-freeze green. The toxin created by *M .aeruginosa* is microcystin. Microcystin is a known liver and kidney toxin, and has been shown to be a tumor promoter in laboratory tests.

In addition, a separate toxic algae, *Anabaena flos-aquae* with neurotoxin effects and may be affecting drinking water supplies in Lake Shastina, was not regulated as part of the Shasta River TMDL. Regulatory action on toxic algae in the Klamath River is needed

immediately so that toxin levels in the Klamath River can be addressed in full by the time blooms begin next summer.

Currently, there is no greater issue threatening safety of recreational users of the Klamath River more then toxic algae. Under the Clean Water Act, waterways need to remain swimable and fishable. It is the job of the North Coast Regional water board to regulate pollutants within the Klamath River. Although the Klamath TMDL process does attempt to address the issues that lead to algal blooms, establishing TMDLs is a lengthy process, which will not put toxic algae standards in place in a timely manner. Meanwhile the public remains in danger of toxic exposure. As stated earlier, the beneficial uses of the Klamath include recreation and fishing. These beneficial uses are obviously jeopardized by inaction on this important heath issue, as are the many people and industries in the Klamath that are economically affected by poor water quality.

We recommend that the state board listed the section of the River below Iron Gate for toxic algae.

Recommendation to de-list the Upper Lost River/ Clear Lake Area

We do not support the recommendation to de-list the Upper Lost River and Clear Lake. First beneficial uses, such as the cold water habitat can not be changed with a TMDL, even though documentation suggests otherwise. Second the Upper Lost TMDL actually shows that the Clear Lake reservoir is releasing temperature-impaired water into the Lost River. Most of the comments below are quotes that come directly from the Upper Lost TMDL.

The recommendation to de-list should be couple with the recommendation to list for turbidity/ and or sediment.

The supporting document for the recommendation to de-list continually shows that he segment is impaired for turbidity.

"The Upper Lost River and Clear Lake Reservoir area is not listed as impaired for turbidity on the California CWA §303(d) list. Turbidity impairments are not the subject of this TMDL investigation, so the high turbidity levels were not explored. However, given the high levels of turbidity found in the Upper Lost River below Clear Lake Reservoir some discussion about turbidity is offered. "

"In June 2003, several months after dam construction was completed, samples showed even higher levels of turbidity in the Upper Lost River. The high turbidity in the Upper Lost River seems to be originating in Clear Lake Reservoir. The picture below shows releases from the reservoir on June 11, 2003."

"The Upper Lost River and Clear Lake Reservoir area is not listed as impaired for turbidity on the California CWA §303(d) list. Turbidity impairments are not the subject of this TMDL investigation, so the high turbidity levels were not explored. However,

given the high levels of turbidity found in the Upper Lost River below Clear Lake Reservoir some discussion about turbidity is offered. “

“Sediment entering the Upper Lost River may be controlled if sediment entering the Clear Lake Reservoir is controlled. The impact of changing lake elevation and grazing along the shoreline and near-shoreline areas around the reservoir on suppressing riparian and emergent should be evaluated.”

The following direct quotes from the Upper Lost TMDL support the need to keep it listed for temperature.

“Unlike the streams draining to Clear Lake Reservoir, alterations in hydrologic regime in the Upper Lost River and the Clear Lake Reservoir have impacted the natural temperature and nutrient regimes in the mainstem Lost River.”

“The alteration in hydrologic regime between Clear Lake Reservoir and Malone Reservoir at the Oregon border has resulted in a change in natural water temperatures due to high, turbid flows in the summer and very low flows in the winter. Creation of a reservoir in what naturally was an extensive wetland with emergent vegetation may have resulted in a change to the nutrient concentrations to the reservoir and to the river. The shallow reservoir with no emergent vegetation may no longer function as a sink for nutrients and sediment thus permitting these constituents to travel downstream.”

“The U.S. BOR (2000) indicated that there has been extensive siltation of Clear Lake Reservoir. Loose bottom sediments may provide a reservoir of soils with residual organic and mineral phosphorus compounds to downstream locations”

“The water quality analysis for the Upper Lost River and Clear Lake Reservoir waterbodies indicates that physical impairments such as habitat fragmentation, flow alterations, and changes to the natural hydrologic regime are adversely affecting beneficial uses. A more complete analysis of the links between these alterations and water quality in these waterbodies should be conducted”

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“The temperatures below Clear Lake Reservoir are affected by anthropogenic activities (i.e., the dam and water flow fluctuations) but these activities are not addressed by a TMDL.”

"The Upper Lost River is more sensitive to the water temperature of the water released from Clear Lake Reservoir than to solar radiation."

"In particular, the presence of the reservoir and dam at the head of the Lost River may impact water temperatures downstream, and sediment introduced to the Lost River from Clear Lake Reservoir may lead to larger cumulative nutrient loads downstream."

Lack of data shows that de-listing is premature

The recommendations to delist the Upper Lost is based only on one year of data. As the board may know within the Lost River and Klamath Basin, water quality conditions vary greatly due to water quality and yearly diversions. Our records show that within the Langell Irrigation District alone over 15,000 acres are irrigated rangeland acres, with some of the other districts also having high acreage. With this many acres in production temperature fluctuations caused by divisions can vary greatly between good water years and dry years. Furthermore the report shows that some of the creeks where completely de-watered during sampling. Of course creeks with no water will not have problems.

"The water quality analysis for the Upper Lost River and Clear Lake Reservoir waterbodies indicates that habitat fragmentation, flow alterations, and changes to the natural hydrologic regime are adversely affecting beneficial uses. A more complete analysis of the links between these alterations and water quality in these waterbodies should be conducted, using more robust water quality data. Additional water quality investigations may be needed to strengthen this assessment, if the watershed is listed as impaired for other parameters in California (such as turbidity), or if TMDL investigations by the State of Oregon indicate that impairments in the Lost River in Oregon are related to conditions upstream in California. Dissolved oxygen data, data about attached biomass, information about diurnal fluctuations and seasonal quality data from Clear Lake Reservoir may be useful."

"Supporting information, including methodology, the exact sampling location, and QC, is not available. "

"These data represent the only information that Regional Water Board staff could locate on nutrient concentrations in the Clear Lake Reservoir. The CDWR data cannot be compared directly to the data obtained in 2001-2003 from the Upper Lost River and the streams leading to Clear Lake Reservoir, because the samples were not taken at the same location (river and streams data compared to lake data). There is no information about whether the nutrient species caused water quality impairments;"

"The monitoring instrument at the Boles Creek station was out of the water during that period due to seasonal dewatering and the sampling at Mowitz Creek did not begin until the following month.

The Klamath Riverkeeper believes that current documentation is not enough to recommend a de-list in such an impacted area.

Scientific Uncertainty

"Scientific uncertainty Although the North Coast Regional Water Quality Control Board Water Quality Control Plan (Basin Plan) lists a cold water fishery beneficial use for the study area, the current or historical presence of cold water fish could not be confirmed."

"Regional Water Board should support a biological survey in the area. Meanwhile, the possibility of the presence of a cold-water species should not be used to mandate more stringent water quality requirements where the natural environment does not support those conditions. The potential for redband trout to exist in the Upper Lost River if the dams were removed and natural flow regimes were restored should be explored in an evaluation of the beneficial uses in this watershed."

Nutrients

The Upper Lost River has over 168,000 acres of grazing. This is 80% of the watershed. Seven CAFO with 7,500 cows operate in the Upper Lost River. While some of this is certainly not within the analysis area, some is.

Furthermore the recommendation includes that phosphorus level are above EPA standards, yet this is called irrelevant due to lack of algal growth. High levels are cause to keep this waterbody listed for nutrients.

Public lands grazing in currently adding to an impaired state

The argument that grazing did impact the water quality parameters addressed in this delist, but does not anymore despite grazing in areas that are underwater part of the year is crazy and the heavy grazing watershed wide and is not supported by analysis of the regional board. Grazing has not been property accessed by an EIS on these public lands, and therefore assurances are without merit and a de-list is inappropriate until grazing is properly analyzed. The following quotes from the TMDL support this:

"The soils in the Upper Lost River/Clear Lake Reservoir watershed are largely volcanic. Eliminating vegetative cover from these soils will increase the susceptibility to erosion. The eroded soils contribute sediment, phosphorus, and salts to surface waters. Phosphorus in the streams contributes to downstream eutrophication processes."

"Loss of cover by grazing along the shoreline may accelerate erosion in the moderate to highly erosive soils around Clear Lake Reservoir and contribute to the sediment load. The loss of, or failure to reestablish, emergent and riparian vegetation may contribute further to sediment in the system."

"The increase in turbidity between 2001 and 2003 is interesting and the levels are sufficiently high that the impact of turbidity on beneficial uses should be investigated further."

"In a review of past grazing management practices, the U.S. BOR (2002) concluded that grazing in the Clear Lake Reservoir area has previously destabilized streams "resulting in erosion, siltation, reduced quality of gravel and cobble spawning areas, increased

water temperatures, wider and shallower stream channels, and lowered water tables." Based on monitoring that indicated high water temperatures in Willow Creek, changes to grazing practices were recommended (Jones and Sato 1988)"

"The grazing on the shoreline extends to areas exposed when the water level recedes."

"The impact of shoreline grazing on the turbidity levels in Clear Lake Reservoir and the Upper Lost River is not discussed in the 1995 Environmental Assessment."

" A forest hydrologist's evaluation of the condition of the Willow Creek grazing allotments confirmed the adverse effects of grazing on the riparian areas in the Doublehead Ranger District (Prud'homme undated). This evaluation cited streambank downcutting, increased width to depth ratios, increase in sediment delivery to streams, and a lack of riparian vegetation as the basis for recommending grazing management practices that would protect riparian areas."

"Given the irreplaceable value of Willow Creek for Lost River and shortnose sucker spawning, its riparian area especially should be protected from harmful grazing. Grazing activities have the potential to destabilize banks and reduce or eliminate vegetative cover for erosion control and shading. The Ponderosa Pine riparian forest along the south side of Willow Creek offers the greatest shading potential now and in the future.

Assurances on grazing come directly from grazers or land managers:
"The Byrne Ranch manages lands through which Willow Creek and Boles Creek flow, and the Klamath Water Users Association states that the Ranch operations are protective of these waterbodies that are important to the endangered sucker population."

Endangered Sucker Populations are suffering due to water quality and quantity in the section proposed for de-listing
The insistence in the document suggesting de-listing that sucker populations are doing good in this area are not at all supported by facts. They are doing better then many places in the watershed but this is not saying much.

The following are all quotes showing that water diversions and poor water quality are greatly effecting endangered sucker species

"In the Upper Lost River/Clear Lake Reservoir environment, suckers can be exposed to more than one stressor at a time, which may result in reduced ability to withstand physiological insults of all types."

"The operation of the dam and the lack of fish passage at either Clear Lake Reservoir or Malone Reservoir may have altered the habitat sufficiently that any suckers or redband trout that may have been present in the Upper Lost River could have been displaced. Although additional research would assist in answering these questions, addressing hydrologic regime changes and habitat fragmentation is beyond the scope of this analysis because these changes are not considered "pollutants" for the purposes of a TMDL

analysis. It is not beyond the scope of the Regional Water Board's authority under the Clean Water Act, however, to establish minimum instream flow requirements in order to support beneficial uses."

"Flows in the upper reach of the Lost River, from Clear Lake dam to the confluence with Rock Creek, are cut off from October to April during the nonirrigation season, with the only flows coming from accretion primarily by small springs and Rock Creek. During this time, fish are confined to any remaining pools and are thus likely subject to high predation, a lack of food, and poor water quality." 4

"Above Clear Lake in Willow, Boles, and Fletcher Creeks there are at least 43 small earthen dams on U.S. Forest Service and private lands that potentially restrict upstream access to sucker habitat. The dams most likely to restrict sucker passage include Boles Meadow, Fletcher Creek, Avanzino, Weed Valley, and Fourmile Valley. They restrict access to a total of about 20 miles of stream habitat."

"Dams have been particularly destructive in that they have blocked spawning runs of the fish and facilitated hybridization with other types of suckers in the dam's tailwaters. Although the construction of large reservoirs may provide suitable feeding and resting habitat for these lacustrine species, the reservoirs often lack long stretches of large inflowing rivers that are necessary for successful spawning. Such is the case in Clear Lake Reservoir, where small intermittent creeks are the only habitat that remains for spawning attempts."

"The releases are timed for agricultural irrigation on Oregon farms. Water normally is released from Clear Lake Reservoir between April 15 and September 30 of each year, with high flows during the summer and almost no flow in the winter – the opposite of the natural hydrograph. The winter flow in this reach comes primarily from springs and Rock Creek. The low flow confines any suckers in this reach of the Upper Lost River to shallow pools, which leads to predation, lack of food and poor water quality (U.S. FWS 2001)."

"Reduce water volume/surface ratios during winter ice-cover conditions that influence dissolved oxygen concentrations and un-ionized ammonia will contribute to potentially lethal water quality conditions that are likely to reduce adult and juvenile sucker survival."

"The Clear Lake Dam blocks all upstream sucker movement from the Lost River into Clear Lake. Following the irrigation season, flow to the Lost River is cut off, leaving only a small amount of leakage. Fish, including endangered suckers, seek refuge in shallow pools that remain. During salvage operations near the dam in September 1999 and 2000, a few LRS and SNS were collected. Large numbers of aquatic insects, snails, and unionid mussels were found freshly dead. DO in the pools was low owing to relatively high concentrations of aquatic organisms that moved into the pools and from those dying around the pool perimeters. The survival of suckers and other fish in these pool (sic) through the winter is questionable owing to oxygen depletion and increased

predation. The dewatered reach of the upper Lost River below Clear Lake Dam may be as much as 8 miles long."

"Willow Creek and its tributaries (primarily Boles Creek) are the only spawning sites for the sucker populations; it is especially important to protect valuable properly functioning riparian conditions in this stream. "
The report indicated that sucker populations are doing fine in the Clear Lake Area. However the area below Clear Lake is subject to reservoir caused temperature changes (see quotes above). It is states that Willow Creek and it's tributaries, especially Boles Creek, are the only spawning sites for these endangered Suckers, yet it is also indicated that Boles Creek was de-watered during part of the short sampling period. To say that the Regional Board does not see now anthropogenic causes are causing effects to temperature and nutrients in a de-watered creek that is a major stronghold of an endangered species, despite the fact is was dewatered during sampling seems premature and impossible.

The state board should establish minimum flow requirement before de-listing occurs

"It is not beyond the scope of the Regional Water Board's authority under the Clean Water Act, however, to establish minimum instream flow requirements in order to support beneficial uses. The Supreme Court said that a strict distinction between water quality and water quantity is an artificial distinction: 54 Petitioners also assert more generally that the Clean Water Act is only concerned with water "quality," and does not allow the regulation of water "quantity." This is an artificial distinction. In many cases, water quantity is closely related to water quality; a sufficient lowering of the water quantity in a body of water could destroy all of its designated uses, be it for drinking water, recreation, navigation or, as here, as a fishery. In any event, there is recognition in the Clean Water Act itself that reduced stream flow, i.e., diminishment of water quantity, can constitute water pollution. First, the Act's definition of pollution as "the man made or man induced alteration of the chemical, physical, biological, and radiological integrity of water" encompasses the effects of reduced water quantity. 33 U.S.C. § 1362(19). This broad conception of pollution – one which expressly evinces Congress' concern with the physical and biological integrity of water – refutes petitioners' assertion that the Act draws a sharp distinction between the regulation of water "quantity" and water "quality." Moreover, §304 of the Act expressly recognizes that water "pollution" may result from "changes in the movement, flow, or circulation of any navigable waters . . . including changes caused by the construction of dams." 33 U.S.C. § 1314(f). This concern with the flowage effects of dams and other diversions is also embodied in the EPA regulations, which expressly require existing dams to be operated to attain designated uses. 40 CFR § 131.10(g)(4). The Regional Water Board may wish to consider its authority, apart from this TMDL analysis, in the quantity vs. quality issue more explicitly in the Klamath River Basin."

In closing:

The Klamath Riverkeeper does not support the recommendation to de-listed the Upper Lost/Clear Lake area for nutrients and temperature, and believes that phosphorus and temperature should still be listed and that turbidity should be added to the 303d list and sediment should be investigated as a pollutant.

The Klamath Riverkeeper supports earlier comments that the Klamath should be listed for sediment, at least in the lower Klamath and Iron Gate to Scott River sections. Many of the tributaries in this area and beyond are extremely sediment impaired, and not listing these sections would mean that all available science is being ignored. We do not believe the conflict issue described by the board applies to any area besides the Yurok Reservation, and the Yurok have been denied there rights to set standards do to a heavy polluter (Green Diamond or Simpson) owning much of their land. We believe the commenters on this issue very unjustly ignored.

The Klamath Riverkeeper urges the State Board to list the Klamath River below Iron Gate Dam for Toxic Algae, as this is the most dangerous pollutant currently in the Klamath River, yet action has been taken to protect the public. The polluter in this case is the Pacific Power reservoirs and therefore toxic algae cannot be addressed though the nutrient listing exclusively.

Some References

California Department of Fish and Game (CDFG). 2003. September 2002 Klamath River Fish Kill: Preliminary Analysis of Contributing Factors. CDFG Northern California North Coast Region, Redding, CA.

California State Water Resources Control Board. 2002. California 303 (d) list and TMDL priority schedule. SWRCB, Sacramento, CA. 128 p.

Coats, R.N. and T.O. Miller. 1981. Cumulative silvicultural impacts on watersheds: a hydrologic and regulatory dilemma. Environmental Management. 5(2):147-160.
de la Fuente, J. and D. Elder. 1998.

The Flood of 1997 Klamath National Forest - Phase I Final Report. November 24, 1998. USDA Forest Service, Klamath National Forest, Yreka, CA.
Graham Matthews and Associates. 2001. Sediment source analysis for the mainstem Trinity River, Trinity County, CA. Volume 1: Text, tables, figures. Prepared for TetraTech, Inc. Weaverville, CA. 190 pp.

Higgins, P.T., S. Dobush, and D. Fuller. 1992. Factors in Northern California Threatening Stocks with Extinction. Humboldt Chapter of American Fisheries Society. Arcata, CA. 25 p.

Kier Associates. 1991. Long Range Plan for the Klamath River Basin Conservation Area Fishery Restoration Program. U.S. Fish and Wildlife Service, Klamath River Fishery Resource Office. Yreka, CA. 403 pp.

Kier Associates. 1999. Mid-term evaluation of the Klamath River Basin Fisheries Restoration Program. Sausalito, CA . Prepared for the Klamath River Basin Fisheries Task Force. 303 pp.

Larson, Z. S. and M. R. Belchik. 1998. A preliminary status review of eulachon and Pacific lamprey in the Klamath River Basin. Yurok Tribal Fisheries Program. Klamath CA. 24 pp.

Environmental Studies and Toxicology, Committee on Endangered and Threatened Fishes in the Klamath River Basin. Washington, D.C. 358 p.

Payne, T.R. and Assoc. 1989. Lower Klamath River tributary delta study. U.S. Department of the Interior, Bureau of Indian Affairs. Redding, Calif. 25p. Sommerstrom, S.,

E. Kellogg, and J. Kellogg. 1990. Scott River Watershed Granitic Sediment Study. Prepared for the Siskiyou Resource Conservation District. Etna, CA. 175 pp.

U.S. Environmental Protection Agency (USEPA). 1998. South Fork Trinity River and Hayfork Creek Sediment Total Maximum Daily Loads (with attached comment responsiveness summary). USEPA, Region IX. San Francisco, CA. 109 pp.

U.S. Environmental Protection Agency (USEPA). 2001. Trinity River Total Maximum Daily Load for Sediment (with attached comment responsiveness summary). USEPA, Region IX. San Francisco, CA. 142 pp.

Voight, H. N. and D. B. Gale. 1998. Distribution of fish species in tributaries of the lower Klamath river: An interim report, FY 1996. Technical Report No. 3.

Yurok Tribal Fisheries Program, Habitat Assessment and Biological Monitoring Division. Klamath, CA. 80 pp.

California Regional Water Quality Control Board North Coast Region
Upper Lost River and Clear Lake Reservoir Watershed Total Maximum Daily Load Analysis Water Temperature and Nutrients, Region 1. Santa Rosa

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October 18, 2006

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Chair Tam Doduc and Members of the State Water Board
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Official Request of the Klamath Riverkeeper and allies for regulation of toxic algae in the Klamath River Watershed, and supporting comments asserting that toxic algae should be listed as a pollutant on the Klamath River.

This is the official request of the Klamath Riverkeeper, Klamath-Siskiyous Wildlands Center, Klamath Restoration Council, The Center for Biological Diversity, Earth Justice, Water Watch of Oregon, Siskiyou Project, Sandy Bar Ranch, Environmental Justice Coalition for Water, Russian Riverkeeper, California Sportfishing Protection Alliance, Raritan Riverkeeper, St. John Riverkeeper, Cascadia Wildlands Project, Mid-Klamath Watershed Council, Salmon River Restoration Council, North Coast Environmental Center, Institute for Fisheries Resources, the Pacific Coast Federation of Fishermen, Environmental Commons, Redwood Chapter Sierra Club, California Coastkeepers Allaince, Colorado Riverkeeper, Living Rivers, Friends of the River, Environment California, Grand Riverkeeper from Labrador, Coast Action Group, Conservation Northwest, Albion River Water Shed Protection, Community Clean Water Institute, Votes the Coast, Ramona Mason, Emila Berol, Cindy Warr, Barbra Lee Norman of the Karuk Tribe, Jessica Rojas, Mark Miller, Richard Craig, Ann Marie Fitzell, and Jennifer Lance for the North Coast Water Quality Control Board to create numeric standards, and to adhere to the current narrative standard for toxic algae, including but not limited to, *Microcystis aeruginosa*, and *Anabaena flos-aquae* within the Klamath River Watershed, and more specifically in the Klamath and Shasta River reservoirs, in the interest of public health. Furthermore we request that toxic algae should be listed as a pollutant in the Klamath River.

The clear purpose of the Clean Water Act and the Basin Plan is to regulate water quality to support waterways' beneficial uses and to make the waterways of the United States swimmable and fishable. The beneficial uses of the Klamath River include recreational

use and fishing, along with tribal subsistence and ceremonial uses. All of these are threatened by the current levels of toxic algae in the Klamath River.

For the past two years, water samples taken from Klamath reservoirs exhibited some of the highest levels of the toxic blue green algae *Microcystis aeruginosa* in the world. In some samples, the level of toxins exceeded the World Heath Organization (WHO) moderate health risk guideline by 4000 times. However, no action beyond occasional posting of signs has been taken to protect the public or to regulate this toxin. The WHO does not publish a numerical standard for what constitutes a 'high health risk' instead stating that a high risk is when algal scums are visible on the water's surface. Scums were clearly visible when samples were taken and where photo documented occurred. Blooms have been so bad in the last two years, that they have turned the color of the reservoirs to anti-freeze green. The toxin created by *M .aeruginosa* is microcystin. Microcystin is a known liver and kidney toxin, and has been shown to be a tumor promoter in laboratory tests.

In addition, a separate toxic algae, *Anabaena flos-aquae* with neurotoxin effects and may be affecting drinking water supplies in Lake Shastina, was not regulated as part of the Shasta River TMDL. Regulatory action on toxic algae in the Klamath River is needed immediately so that toxin levels in the Klamath River can be addressed in full by the time blooms begin next summer.

The rationale for this request is justified by but not limited to the following:

1) The toxin produced by this algae, microcystin, is known to cause liver and kidney failure;
2) Microcystin has been shown to be a tumor promoter in laboratory studies;
3) The health affects of microcystin are known to be cumulative and manifest over time with repeated and prolonged exposure to the toxin;
4) For the past two years, toxin levels have far exceeded the WHO standard for a moderate health risk at several sample sites;
5) The toxic algae, *Anabaena flow-aquae*, in Lake Shastina, has not been properly studied and may be effecting the City of Monique's drinking water supply, along with lake users;
6) The effects of toxic alga to fish species has not yet been properly studied, therefore subsistence fishermen and the general fish consuming public could be in jeopardy;
7) A toxic alga in public waterways is a growing problem worldwide and is not going away. The North Coast Water Quality Control Board may only have one opportunity to get ahead of the curve on this issue before people start to get sick.

Currently, there is no greater issue threatening safety of recreational users of the Klamath River more then toxic algae. Under the Clean Water Act, waterways need to remain swimable and fishable. It is the job of the North Coast Regional water board to regulate pollutants within the Klamath River. Although the Klamath TMDL process does attempt to address the issues that lead to algal blooms, establishing TMDLs is a lengthy process, which will not put toxic algae standards in place in a timely manner. Meanwhile

the public remains in danger of toxic exposure. As stated earlier, the beneficial uses of the Klamath include recreation and fishing. These beneficial uses are obviously jeopardized by inaction on this important heath issue, as are the many people and industries in the Klamath that are economically affected by poor water quality.

Klamath Riverkeeper supports amending the Basin Plan to allow regulation of the toxic alga through a numeric standard, or the enforcement of the narrative standard, in order to protect human heath along the Klamath. A prompt timeline describing this process to act on this issue needs to be available to the public. At the time that this resolution is passed the owner of the Iron Gate and Copco Dams, PacifiCorp, should be notified that they need to develop a toxic algae control plan or face enforcement actions and measures and/or further studies to protect the citizens of Monigue should be adopted. We also support listing toxic algae as a pollutant on the Klamath River through the 303d list revisions.

If a toxic alga standard is not adopted soon nor the narrative standard enforced, and the board continues to attempt to deal with these serious issues through the nutrient listing on the Klamath, then a nutrient reduction strategy to minimize algal growth needs to be enacted immediately. In the Neuse River, the Neuse Rules applied this strategy, which called for a 30% reduction of nutrients, mandatory buffers watershed wide, storm water reductions, wastewater treatment plant reductions, and agriculture run off reductions. However a toxic algae standard would more likely be easier. This is the only case we have been able to find where dealing with nutrients aided in solving toxic algae problems.

In the interim, measures to deal with this threat need to be taken to protect the public health. Other areas that this is a problem, such as Lake Ontario, the Potomac River, the Charles River, the Puget Sound, have been closed to the public until blooms subside. Cities in Australia, the United States, India and Canada have had to bypass town water supplies or create complex filtration systems due to toxic algae problems in drinking water supplies. Though controversial, steps like these may be warranted to protect public health. In closing we wish to state that the presence of the mycrocysin and other algae in the Klamath watershed is not only a general heath threat, but also a tribal trust and environmental justice issue. Tribal members are exposed more then most of the citizens of the Klamath due to fishing and ceremonial practices. However, unlike most of the other citizens of the Klamath, the tribes cannot simply choose to avoid the river without, giving up there main food source and practicing their religious ceremonies.

We trust that the North Coast Regional Water Quality Control Board will do what is best for the American public and regulate toxic algae in the Klamath Basin.

Thank you,

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