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# American Fisheries Society

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Humboldt Chapter  
P.O. Box 210  
Arcata, Calif. 95521

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FYE  
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WBA

November 5, 1991

To: All Humboldt AFS Members  
From: Pat Higgins, Policy and Resolutions Committee Chair  
Subject: Northwest California Salmonid Stocks at Risk

Hello Folks,

You probably are aware of the Humboldt AFS Policy and Resolutions Committee meeting on October 1. Twenty chapter members met to discuss problems faced by salmon, steelhead and coastal cutthroat trout stocks of our region. The framework of the meeting was a response to "Pacific Salmonids at the Crossroads" (Nehlsen et al. 1991), the feature story in Fisheries magazine in Spring 1991. Several stocks from our area were listed in the report as at some risk of extinction. (If you need a copy of this report, please call me at (707) 822-9428.) The committee agreed for the most part with characterization of stock groups, but some major exceptions were noted.

The minutes of the meeting are enclosed in this mailer. The committee concluded that the Humboldt Chapter should gather information for a report that would be a supplement to the Nehlsen et al. report for the chapter area. Please take the time to these minutes and see how they reflect conditions of runs with which you are most familiar. We have volunteers who have offered to compile information on Smith River runs and their historic condition, Humboldt Bay tributaries, upper Eel River, the Mattole River, and information on runs of coho salmon in coastal streams on the Mendocino and Sonoma coast. If you are aware of additional stocks that may be at some risk of extinction, please fill out the form on the reverse side of this letter. Many stock groups in Nehlsen et al. (1991) were for broad or non-distinct geographic areas (ie. Lower Eel fall chinook). Please suggest more logical sub-units or refinement of stock groups. Specific information on impacts to depleted stocks by harvest or as a side effect of artificial culture may should also be included.

The Policy and Resolutions Committee will be meeting again on Monday, December 2, at 5:00 P.M. in the conference area in Arcata on the third floor of the Jacoby Storehouse (in front of Plaza Grill). The Committee will review the Draft, discuss how the report should be shared, and what further actions might be appropriate for the Chapter.

If you wish to send information to be included in the report, please send it me at 791 Eighth Street, Suite N, Arcata, California 95521, no later than Friday, November 23. You may also bring information that could be included in a revised draft to the meeting. If you wish to contribute information orally, you may talk to me or leave information on my answering machine (707) 822-9428. Look forward to hearing from you.

Sincerely,

Pat Higgins, Policy and Resolutions Chair

ANADROMOUS SALMONID STOCKS AT RISK IN THE HUMBOLDT AFS AREA

Name:  
Phone #:

Are you comfortable with stock designations in Nehlsen et al as they pertain to the Humboldt Chapter area? Do you concur with findings of Policy and Resolutions on needed refinements?

Are there additional stocks of anadromous salmonids not listed in the report that you think need special management?

What background information do you have on fish population trends? (Be specific)

Do recent run trends show an unstable or declining pattern? (Be specific)

Are there severe habitat problems in some drainage areas that give you cause for concern for stocks but you lack data on runs?

Do you have information on steelhead runs? Do you have evidence that winter steelhead are feeling impacts of high seas drift net fisheries?

Do you think that there are problems with over-harvest in any fisheries that might be contributing to the decline of stocks towards extinction?

Are you aware of problems for native stocks that may be occurring as side effects of artificial culture in our area?

HOW SHOULD INFORMATION ON HUMBOLDT CHAPTER AREA STOCKS AT RISK BE SHARED? ARE THERE OTHER THINGS THE CHAPTER SHOULD DO?

PLEASE RETURN INFORMATION TO PAT HIGGINS ASAP



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Minutes of Humboldt AFS Policy and Resolutions Committee  
October 1, 1991

Notes on Stocks of Pacific Salmon at Risk In Humboldt AFS Area

I. INTRODUCTIONS/AGENDA CONSIDERATIONS

The meeting was called to order by Chairman Pat Higgins at 4:10 P.M. in the meeting area in the front of the third floor of the Jacoby Storehouse in Arcata. Following a brief discussion of the agenda, attendees introduced themselves. The following people were in attendance:

Greg Bryant (USFS)	Vicki Campbell (BLM)
Rod Fortier (CDFG)	Brian White (CDFG)
Ken Byrne	Bruce Amato (CDFG)
Ken Gallagher (CDFG)	Colinda Guiterres (CDFG)
Bryan Furman (SCS)	Tom Wesaloh (Cal Trout)
Todd Flannigan (Trout Unlimited)	Karen Kenfield (USFS)
Dave Fuller (USFS)	Jerry Barnes (AFS)
Mike Maahs	Aldaron Laird (Trinity Assoc.)
Roger Barnhardt (HSU Coop)	Wendy Cole (USFS)
Mike Callaghan (CDFG)	Terry Roelofs (HSU)
Pat Higgins (Committee Chair)	

II. RESPONDING TO NEHLSSEN ET AL (1991)

The meeting was called in response to publication in Fisheries magazine of "Pacific Salmonids at the Crossroads: Stocks at Risk from California, Oregon, Idaho, and Washington" (Nehlsen et al 1991). The article described several stocks of salmonids in the Humboldt Chapter area as at some risk of extinction. Participants were asked for their professional judgement of the accuracy of categorization of local runs in the article and to suggest other local stocks that might be at risk but not included in the article. The categories offered in the article were:

- A = High Risk of Extinction
- B = Moderate Risk of Extinction
- C = Stock of Concern

What follows are discussion of the stocks at risk on a case by case basis. Pat Higgins provided a list of the stocks listed in Nehlsen et al (1991) and some baseline of information as a point of departure. (Notes supplied as background are not highlighted).

SPRING CHINOOK

Klamath River (A): There were no objections from the committee with the designation of this stock. Salmon River population is last substantial wild population in the Klamath Basin. Runs in 1990 and 1991 have been about 200 fish. Problem with poaching documented. USFWS has identified potential problem from early subsistence net harvest. Harvest vulnerability in the ocean not currently known. Possibility of higher rate of interception by whiting fleet due to time of return to the river and timing of fishery.

Smith River (A): The committee felt that this designation may be in error. A question was raised by the Chair as to whether there was historical evidence of a viable spring run in the Smith. Jerry Barnes said that there was no historical record such as cannery pack because there was no such commercial harvest. Wendy Cole noted that incidental spring chinook were encountered every year (fewer than 12) during extensive direct dive observation surveys. Tom Wesaloh reported that he had seen both summer steelhead and spring chinook during dives for CDFG but also very few. Wendy Cole said she would do some follow up with local native Americans and other sources to see if historical accounts of runs could be found.

#### FALL CHINOOK

Smith River (B): This stock is incorrectly designated. Although 1990 escapements of fall chinook on the Smith River were extremely low, recent years prior have not shown a consistent downward trend. Information from Mill Creek spawning surveys done by Jim Waldvogel of Sea Grant in Crescent City and USFS spawner counts are the source of data. Pat Higgins pointed out that the habitat conditions on the Smith were some of the best in Northern California, so decreasing populations may indicate that problems stem from harvest in the ocean or problems with ocean productivity. If 1991 escapements are as low as those of 1990, then further consideration may be necessary to decide if Smith River fall chinook should be classified as a stock of concern (C).

Shasta River (A): The committee had no problem with this designation. Trend line from data gathered at the Shasta Racks (CDFG) show decrease from 80,000 in 1930's to 500 in 1990. Water quality problems clearly documented. Good data set and clear indications of limiting factors. Potential problems with intensive early in-river net fishery indicated by USFWS Arcata FAO. The extent to which ocean harvest may be contributing to this stocks decline is unknown.

Scott River (C): The committee had no information that indicated Scott River stocks were healthier than characterized. Population levels are not showing recovery despite more restrictive ocean harvest in recent years. Problems from diversion and sedimentation from logging and roads in decomposed granitic terrain.

Lower Klamath Tribs (B): Pat Higgins offered that the designation of these stocks might be elevated to A or high risk of extinction. Habitat problems are severe. Runs in 1950 estimated at 10,000 contrasted with USFWS estimate of <400 in Blue Creek (150 in 1991). Many tributaries no longer able to support viable runs of salmonids. Out migrant traps show suckers, dace and sculpin many times more prevalent than salmonids.

Redwood Creek (B): Tom Wesaloh offered that his field experience confirmed that this stock is at least moderately at risk of loss. He described tributary habitat as poor and main stem conditions far to unstable to support salmon spawning. Habitat problems well documented by USGS and RNP; pools filled in, main river channel aggraded and unstable, estuary impaired. Problems with poaching.

Mad River (B): Ken Gallagher, Manager of the Mad River Hatchery, described serious problems in the lower Mad River related to gravel extraction. Low water conditions in recent falls coupled with extensive alteration of the gravel bars may be a factor in lack of fall chinook escapement. Ken also cited poaching as a problem in the lower Mad. Bruce Amato from the hatchery confirmed that returns to hatchery in last two years have been very poor : 47 adults in 1989 and 1 in 1990. Tom Wesaloh thought that CDFG had a consistent data base of chinook spawners from Canon Creek above the hatchery and some data from the North Fork and Maple Creek. Habitat problems from sedimentation. Large scale alteration of watershed from Maple Creek down to Blue Lake. Productivity of estuary impaired?

Humboldt Bay Tribs (A): Pat Higgins questioned whether fall chinook salmon were ever abundant in the small streams entering the bay. He felt that they were possibly more suited to coho. Questions were raised about the stream size and morphology before disturbance by logging. Tom Wesaloh said that he had heard accounts of numerous chinook from old fishermen in Humboldt Bay tributaries. He pointed out that some healthy habitat remains in Elk River and upper Salmon Creek. Tom also suggested that CDFG might have spawner counts from the Elk. Greg Bryant offered to get information from CDFG on baselines or trends of populations and to ask Buck Pierce at CR about historical information on these creeks.

Eel River Lower Tribs (B): The classification of lower Eel River stocks was perceived as too vague by the committee. Are tributaries such as the Salt River or urban creeks in Fortuna, such as Rohner Creek, referred to? Does the report imply that runs on the Van Duzen might be at risk? Pat Higgins expressed concern about runs in the entire Eel system. He sighted extremely poor chinook runs in the upper main Eel that have been brought to his attention by Park Steiner, a consultant who works in that area. The introduction of squaw fish into the Eel may be compounding ecological problems from sedimentation and high water temperatures. Bryan Furman confirmed that no fall chinook have been able to use Tomki Creek in recent years due to low flows. Tom Wesaloh suggested that data on the Eel should be available from Redwood Creek from the Eel Restoration Association and on Sprowl Creek from CDFG. Mike Maahs suggested that Hollow Tree Creek and Indian Cedar might provide a data set for escapement as well. Van Duzen trends might be followed by CDFG in Grizzly Creek and on Jaeger Creek.

Mattole River (A): The committee agreed that there was sufficient data to warrant designation of this stock as at high risk of extinction. Data has been provided by the Mattole Restoration Council. Fewer than 70 adult chinook were estimated to have spawned in 1990. Roger Barnhardt added that no chinook juveniles had been trapped in downstream migrant traps in 1991. Vicki Campbell from BLM traced the long term problems in the Mattole to sediment.

Russian River (A): It was thought by Mike Maahs and others present that the chinook salmon run on the Russian River had been lost much earlier in the century. Pat Higgins added that the hatchery stock in use at Warm Springs Hatchery was not endemic to the Russian. Returns to the hatchery last year included 99 males but no females.

#### COHO SALMON

Coastal Streams North of S.F. (B): Continuing disturbance from logging. Some watersheds, such as the Navarro River are now under going their fourth harvest rotation of redwood. Pat Higgins related information from Jennifer Neilsen who now works as the fish biologist for PSW in Arcata. She has been studying coho below Ft. Bragg and asserts that no native spawning population has more than 200 adults per year at this time.

Problems from stock transfer. She has noted a high incidence of crossing between chinook and coho in streams on the Mendocino coast. Commercial trollers planted non-native chinook runs in the Ten Mile River in recent years. Jennifer indicated that non-native coho had been used in the Noyo broodstock in years of low return. Source of the imported stocks were the Alsea River in Oregon and the Washougal River in Washington. From other sources, Pat added that Noyo stocks, which are cultured by the Department of Fish and Game have been experiencing high incidence of Bacterial Kidney Disease (BKD). Coho have disappeared from the Garcia and Gualala Rivers so their range appears to be shrinking. Potential problems with mixed stock harvest in ocean fisheries because habitat is so bad for these fish.

Klamath River (C): Habitat disturbance of Lower Klamath tributaries is extremely severe. All coho habitat in basin greatly altered by 1964 flood. Hatchery broodstock imported into basin and widely transferred.

Pat Higgins suggested that a higher level risk would be appropriate for this stock. Distribution of wild coho in the Klamath Basin has shrunk considerably over time. Trinity River coho once spawned in Stuart's Fork above the Trinity Dam and in tributaries below the South Fork. Today coho in the Trinity may be restricted to runs returning to Trinity River Hatchery. The hatchery coho run was founded on stocks from the Columbia River Basin. Transplanting of those fish to other Trinity basin areas (Hayfork Creek and lower Trinity tribs) may have contributed to the decline of native coho.

Coho have also decreased in range and abundance on the Klamath. Runs to the upper Klamath were lost early in the century when dams blocked the river and culture operations failed to use native coho returning to the Klamathon Racks. Coho were well documented in the Shasta River basin from the 1930's to the late 1960's. Today they may be gone from the river. Coho were abundant in the Scott Valley where they spawned in the low gradient portions of streams and reared in beaver dam formed pools and the flat meandering section of Patterson and Kidder Creeks. Coho habitat in the Scott Valley has greatly diminished as a result of early trapping of beaver, reclamation of wetlands in the 1970's in lower Kidder and Patterson Creeks, and filling of pools in the Scott River Valley with decomposed granite in the last 20 years. Depletion of ground water due to pumping may have caused former spawning streams to dry up.

Iron Gate Hatchery stocks of coho were imported from the Columbia Basin also. Returns to the hatchery declined to below 200 twice in the 1970's and there is evidence that inbreeding depression is occurring. Fertility of Iron Gate coho is about 38%. These stocks were transplanted to middle Klamath tributaries such as Beaver Creek, Elk Creek and Beaver Creek from 1986-1988. If remnant populations of native coho existed in these streams, they may have been adversely effected by these stock transfers.

Russian River (A): Native coho still return to Willow Creek which enters the Russian just above Jenner. The coho planted at Warm Springs Hatchery are from Noyo River broodstock. Their suitability for the Russian River ecosystem is unknown. Remnant native stocks may need additional protection from harvest if they are to be recovered. Healdsburg Dam is a major barrier to fish passage and is negatively effecting hatchery coho runs, native steelhead, and any native coho returning to tribs above Healdsburg that remain. Sonoma County has been ordered to build a fish ladder a Healdsburg in 1988 as a result of court action but has yet to comply. They shored up the base of the dam with rip-rap in 1989 and actually exacerbated the problem for passage at low water.

CHUM SALMON/ PINK SALMON: The Chair suggested that runs of pink or chum salmon in California were not gene resources that could be restored. Although runs of these fish may have existed in California, their interest at this point is largely historical. Pat expressed concern that bringing these fish up concurrently with retrievable gene resources such as coastal coho or wild Klamath spring chinook might confuse the public and management agencies. Those present at the meeting supported the position that pink and chum salmon stocks should not be included in the Humboldt AFS assessment.

#### SUMMER STEELHEAD

Klamath Basin (B): Jerry Barnes thought that summer steelhead in the Klamath Basin were at risk of extinction and properly characterized by the Nehlsen et al report. Dr. Barnhardt felt that run trends of different stocks within the basin showed that some stocks did not seem to be declining. Pat Higgins suggested that some stocks within the basin such as South Fork Trinity and the Salmon River were indeed showing alarming trends. Conversely, the North Fork Trinity and New River had shown fairly consistent returns over the last three years. Dive teams in Clear Creek have also found very low numbers of summer steelhead in 1990-91 (fewer than 100 adults in both years).

If Klamath stocks of summer steelhead were separated, those returning to the North Fork Trinity and New River could be characterized as stable from recent surveys. Runs that are showing declining trends that indicate some risk of loss might be: South Fork Trinity River (<50 on average), Salmon River (<200), and Clear Creek. Clear Creek was separated from the other Middle Klamath tributaries because of its consistently high population during CDFG surveys (600-1800). Other Middle Klamath tributaries such as Dillon, Red Cap, Indian, Elk, and Ukonom Creeks have had low and fluctuating populations since surveys were started in the late 1970's. Data is insufficient to understand trends. Poaching is an acute problem in the Salmon River and South Fork of the Trinity.

Middle Fork Eel River (B): Runs of summer steelhead to the Middle Fork of the Eel have shown a rebuilding trend since 1966 when they were first monitored. Runs built to a high of 1800 adults in 1988. Problems with enforcement have led to increased poaching according to Mike Morford. He worked with Peter Moyle to request listing of all summer run steelhead, including the Middle Fork, as threatened under the California ESA in 1990. Pat Higgins had corresponded with Dr. Moyle, suggesting that stocks of 888888summer steelhead should be broken out according to run trends on a stock by stock basis. One could contrast Van Duzen summer steelhead, which are showing a clear pattern of decline with Middle Fork stocks which appear to be in recovery.

Van Duzen River (A): Although Nehlsen et al. (1991) did not characterize the summer steelhead from the Van Duzen as at risk, the run data on the river suggest that it warrants a high risk designation. Runs declined from 1500 fish before 1964 to fewer than 50-100 today. Tom Wesaloh offered that the lower figure may be more accurate. Runs in the Black Butte and North Forks may be extinct according to Mike Morford.

Mad River (A): Summer run steelhead are still cultured incidentally at Mad River Hatchery according to staff present at the meeting. Some years returns are substantial but small in others. Jerry Barnes offered that native summer steelhead were smaller in size than the Washougal strain introduced at the hatchery. Pat Higgins added that poaching in the locks at Swasey Dam before its removal in 1966 may have played a part in the decline of these fish. Tom Wesaloh thought that native summer run on the Mad were properly characterized by the report.

Redwood Creek (A): Tom Wesaloh has seen several adult summer steelhead in recent years during dive sweeps on Redwood Creek. He offered that counts by RNP may be somewhat low but that the characterization of the runs as at high risk of extinction was correct.

Smith River (A): This stock may have been designated in error according to those present. Many questioned whether there had ever been a significant run of summer steelhead on the Smith. (See discussion of spring chinook).

**WINTER STEELHEAD**: Pat Higgins shared concerns expressed to him by Jennifer Neilsen about decreasing runs on streams south of Ft. Bragg and the high incidence of net marks on steelhead during spawner surveys.

#### **COASTAL CUTTHROAT**

Calif Coastal Streams (B): Those present did not agree that all stocks of coastal cutthroat are at high risk of extinction. Pat Higgins offered that lower Eel River tributaries and the estuary had experienced problems with sediment and possibly eliminated cutthroat. Some suggested that cutthroat may have extended as far south as Casper Creek. Pat said he would check with Jennifer Neilsen. Jerry Barnes offered that runs of cutthroat were still healthy in the



Smith. Other local water bodies with cutthroat populations include Prairie Creek, Little River, Big Lagoon, Freshwater Creek, Janes Creek, Widow White Creek, and lower Klamath tributaries. Higgins suggested that habitat problems in the latter area may be causing problems for this species.

### III. WHAT IS CAUSING THE PROBLEMS FOR DECLINING STOCKS?

A discussion parallel to that in Nehlsen et al (1991) on causes for declines in local anadromous salmonid stocks followed. Because of the lengthy discussions about specific stocks that preceded, some topics below were covered only generically.

#### A) Habitat Problems:

- 1) Non-point source pollution from land disturbance, principally logging and associated roads, were singled out as the major source of decline of most runs in the coastal area. Humboldt AFS has continued to try and get more recognition of problems through the SWRCB and the EPA and a subsequent improvement in practices to avoid further problems. Cases cited included the Mattole River, Eel River, Van Duzen River, South Fork Trinity River, Scott River, lower Klamath tributaries, Mad River, and Redwood Creek. Problems persist with loss of fisheries but practices continue that could lead to continuing erosion in the event of another flood.
- 2) Continuing disturbance of lower river areas due to gravel extraction.
- 3) Problems on the Shasta River and Middle Klamath tributaries are more related to diversion and agricultural run-off.

#### B) Artificial Culture:

- 1) Disease problems may arise from introduction of non-native fish at hatcheries. Local fish stocks may lose disease resistance after interbreeding with fish that have not evolved similar gene structure. Non-endemic disease organisms may also be introduced when salmon or steelhead stocks are introduced.
- 2) Interaction between hatchery and wild stocks has been raised as a concern by Nehlsen et al regarding Columbia River stocks. Pat Higgins cited recent declines of fall chinook (1990 and 1991) on the Klamath River as possibly related to high plants from hatcheries since 1986. He postulated that carrying capacity in the river or estuary was being exceeded, resulting in decreased survival of both hatchery and wild fish.

#### C) Harvest Issues:

- 1) Mixed stock fisheries in the ocean can lead to conservation problems for wild stocks. They cannot withstand harvest above 65% while hatchery stocks can take 90% harvest. Vulnerability of wild stocks is greater if their habitat is degraded. Wild fish may not be receiving adequate protection under current harvest regulations for ocean troll and sport fisheries. (See Humboldt AFS comments on Klamath Fisheries Management Council Plan; call Pat Higgins for copy.)
- 2) Bi-catch in the whiting fishery was raised as a potential concern. The fishery is operated in early spring and has a bi-catch of 10,000 chinook salmon. Some stocks-at-risk may be harvested in this fishery. Could the removal of 10,000,000 pounds of these fish partially deplete food resources available for foraging salmon? Recent poor ocean production without having El Nino conditions may indicate that there is some perturbation related to this fishery.

3) Drift net fishery effects may be having an impact on winter steelhead runs. No evidence available indicates that salmon from streams in the Humboldt Chapter area migrate far enough off shore to be at risk in these fisheries.

4) In river Indian net fisheries may pose problems when operated on an intensive basis when stocks at risk are passing through the lower Klamath River. Pat Higgins offered that Rich McCovey of the Yurok Fisherman's Association had said he was open to having a presentation on this issue at their next meeting.

5) Poaching is a principle cause for the decline of summer steelhead and spring chinook on the Salmon river and a major contributing factor on the South Fork of the Trinity River..

#### IV. WHAT SHOULD WE DO?

Those present decided that the Humboldt Chapter of AFS should draft a white paper characterizing stocks of anadromous salmonids at risk similar to Nehlsen et al. Assignments were given to various attendees to bring more information and to contribute summaries of fish stock conditions from their areas. Another meeting was scheduled for the same location on December 2, 1991 (5 P.M.) to review a draft which will be completed by that date.

After assembling the information, public education efforts by the Chapter will be increased. Sharing information may help win cooperation and funding for efforts necessary to avoid irretrievable loss of gene resources which must be saved if anadromous salmonids are to be retained and restored on California's north coast.

V. The meeting was adjourned at 6:15 P.M.



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November 5, 1991

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