91

From: "Jessica Parker" <Jessica.Parker@tetratech-ffx.com>
To: "Melenee Emanuel" <memanuel@waterboards.ca.gov>
Date: 12/14/04 7:17AM
Subject: RE: San Vincente Creek

Hi Melenee,

Gee, just when you think it's a lost cause...well I guess it's good that it got to you when it did!

I don't know if you recall, but this submittal (SL-20) was a request to list San Vicente Creek for sedimentation/siltation. I have already done 2 factsheets for that submittal: 2562 (turbidity) and 2563 (sedimentation/siltation). Factsheet 2563 is the one based on the Stream Inventory Report and the narrative criteria. The other is based on DSD data and the MUN criterion for turbidity. So 2563 (LOE 667) is the one that I was planning to add any additional information to from the report. I filled out the fact sheet based on what was written in the submittal letter (which provided a summary of the report) and other info I could pull from what I had of the report. There isn't much on the bio data since that was one of the sections missing from the report. So that might be one thing you want to add, but otherwise, you probably just need to review the LOE to see if there is anything major missing.

Thanks and let me know if you have any questions.

Jessie

-----Original Message-----
From: Melenee Emanuel [mailto:memanuel@waterboards.ca.gov]
Sent: Tuesday, December 14, 2004 10:05 AM
To: Jessica Parker
Subject: San Vincente Creek

Hey Jessie

Guess what was in my mailbox this morning...you're right....the complete report on San Vincente Creek. At least, I think that it the whole report...but who knows. If you just want to complete the fact sheet for the info that you have...I can fill in the biological/habitat info. Do that sound okay?

Thanks

Melenee

Melenee Emanuel
State Water Resources Control Board
Division of Water Quality, Monitoring
1001 I Street, P.O. Box 944213
Sacramento, CA 95812
emanm@waterboards.ca.gov
p (916) 341-5271
fax: (916) 341-5550
F (916) 341-5550

Solicitation Letter #20

(91)

From: Craig J. Wilson
To: Melenee Emanuel
Date: 7/2/04 7:01AM
Subject: Fwd: Supplement to San Vicente Creek Listing Request

This is related to one of the data submittals. CJW

>>> <JodiFredi@aol.com> Thursday, July 01, 2004 >>>
Dear Craig Wilson,

I have copied below the questions posed to Santa Cruz County Public Works, the department which overseas the Davenport Sanitation District and is responsible for monitoring water quality for the town of Davenport. I have highlighted *Mr. Lathan's responses in italics for clarity.*

These answers apply to the turbidity data I supplied with our letter (Sierra Club) of June 14, 2004 requesting that San Vicente Creek be added to the 303(d) list for sediment impairment.

I hope you find this information satisfactory.

Sincerely,
Jodi Frediani

Jodi Frediani
Chair, Forestry Task Force
Santa Cruz County Group
Ventana Chapter
Sierra Club
PH 831-426-1697
JodiFredi@aol.com

X-Apparently-To: syoung500@yahoo.com via 216.136.224.85; Wed, 30 Jun 2004 11:52:43 -0700
X-Originating-IP: [63.194.190.101]
Return-Path: <dpw168@co.santa-cruz.ca.us>
Received: *from* 63.194.190.101 *(HELO sczas09.co.santa-cruz.ca.us)* (63.194.190.101)
by mta123.mail.sc5.yahoo.com with SMTP; Wed, 30 Jun 2004 11:52:43 -0700
Received: From sczex01.co.santa-cruz.ca.us ([172.22.100.33]) by sczas09.co.santa-cruz.ca.us (WebShield SMTP v4.5 MR1a P0803.345);
id 1088621552622; Wed, 30 Jun 2004 11:52:32 -0700
X-MimeOLE: Produced By Microsoft Exchange V6.0.6487.1
content-class: urn:content-classes:message
Return-Receipt-To: "Jeff Lathan" <dpw168@co.santa-cruz.ca.us>
MIME-Version: 1.0
Content-Type: text/plain;
charset="iso-8859-1"
Content-Transfer-Encoding: quoted-printable
Subject: Requested Information
Date: Wed, 30 Jun 2004 11:46:29 -0700
X-MS-Has-Attach:
X-MS-TNEF-Correlator:
Thread-Topic: Requested Information
Thread-Index: AcRe0o3p4OxV8sNoTBGSIL8B02rlDw==

From: "Jeff Lathan" <dpw168@co.santa-cruz.ca.us>
To: <syoung500@yahoo.com>
Cc: "Brian Turpen" <dpw036@co.santa-cruz.ca.us>,
"Russell Bateson" <dpw020@co.santa-cruz.ca.us>,
"Mark Fryar" <dpw215@co.santa-cruz.ca.us>
Content-Length: 964

Dear Susan Young,
I have discussed your request for information with Brian Turpen and he requested I respond.

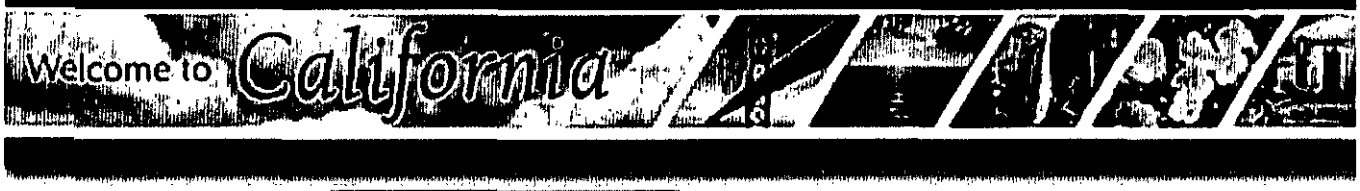
Yours truly,
Jeff Lathan

From: Susan Young [mailto:syoung500@yahoo.com]
Sent: Tuesday, June 29, 2004 11:28 AM
To: Brian Turpen
Subject: Turbidity in San Vicente Creek
Dear Brian Turpen,
I was informed by Mark Fryar that any questions that I might have regarding turbidity testing for San Vicente Creek should go through you.
I am a resident of Davenport and thus a customer of the water treated by the Davenport Sanitation District. I have a few questions regarding the assessment of influent turbidity. Perhaps you can answer them for me.
1. What kind of techniques and equipment do you use to assess influent turbidity?
The influent turbidity is measured using a portable Hach Turbidity Analyzer Model 2100P.
2. How often is the equipment calibrated?
The meter is calibrated quarterly, more often during inclement weather.
3. Do you take control samples periodically to ensure that the readings are accurate?
No. We have certified standards supplied by Hach that are used to verify the calibration is accurate.
4. Do you have any other procedures in place to assure the accuracy of your influent turbidity readings?
There is an effluent turbidity analyzer that is installed inside the water treatment plant and it's function is to monitor the finished water. If the turbidity of the finished water were to approach the maximum allowable turbidity limit, the treatment plant would automatically shut down to protect the quality of the finished water and an alarm sent to our dispatcher. The dispatcher follows an established protocol which requires they contact the treatment plant operator who would respond to the water plant.

Thank you very much.
Kind Regards,
Susan
Susan Young

In QAPP Folder electronic

(91)



DFG Home

Programs:
Fisheries Engineering
Fisheries Restoration Grants
Lake and Streambed Alteration

Quick Links:
Salmonid Stream Habitat Restoration Manual
Coho Salmon Recovery
Publications
NAFWB Phone List

Anadromous Fish Pages:
Listing Status (pdf)
Coho Salmon
Chinook Salmon
Steelhead

Related DFG Units:
Central Valley Bay-Delta Branch
Fisheries Program Branch
Habitat Conservation Planning Branch
Lands and Facilities
Marine Region

Larry Week
Branch Chief, NAFWB
830 S Street
Sacramento, CA 95814
(916) 327-8840

Native Anadromous Fish and Watershed Branch

Department of Fish and Game
Resources Agency
State of California

My CA

Salmonid Stream Habitat Restoration Manual

California Salmonid Stream Habitat Restoration Man

California Department of Fish and Game

prepared by,
Gary Flosi, Scott Downie, James Hopelain, Michael Bird, Robert Coey and Barry Collins

1998 3rd edition

The first edition of this manual, written by Gary Flosi and Forrest Reynolds, and publisl formally synthesized and described the Department of Fish and Game's approach and methods for anadromous salmonid habitat restoration. From 1991 through 1994 the fir broadly distributed and used as a "standard methods" text by many habitat restoration inventory workers. As a result, many suggestions for improvement of the manual were the authors.

The second edition, by Flosi and Reynolds was supported by a team that included the third edition, and was published in October of 1994. The second edition included a nur revisions: 1) a reorganization of sections for project planning and project implementatic then recently revised stream channel classification system developed by David Rosgei monitoring and evaluation section; 4) a listing of all databases used for resource inven analysis as presented in the manual; 5) a protocol for a large woody debris inventory; of required environmental review processes and permits; 7) an expanded and updated sensitive species; and 8) numerous editorial changes to text and data forms.

This third edition, like the second, incorporates changes recently developed in the prac habitat inventory and restoration. The authorship list has changed with this edition to n reflect the contributions of the writing team members.

The new section, "Part XI Riparian Habitat Restoration," was added to the manual in Circuit Rider Productions, Inc. (CRP) developed this section under a grant agreement California Department of Fish and Game. Part XI covers topics of human impacts on ri and methods to conserve and restore such habitats.

The new section, "Part X Upslope Assessment and Restoration Practices," was adde

manual in April 2004. The primary authors of this section were Dr. Bill Weaver and Dai from Pacific Watershed Associates. This section addresses upslope erosion assessme restoration.

The new section, "Part IX Fish Passage Evaluation at Stream Crossings," was added in April 2003. The primary authors of this section were Ross N. Taylor and Michael Lov addresses fish passage evaluations at stream crossings (roads, bridges, etc.).

A table in Part IX, on page 42, was found to be incorrect. The corrections have l incorporated into the complete PDF documents below. Individual replacement p both the single- and double-sided versions are also available (2003-08-11).

Ordering A limited number of printed manuals are available. Please fill out the order fc in with the shipping fee per the instructions.

Download Both the third edition of the manual and the added sections are available fc from this website as Adobe Portable Document Format files (PDF). Due to the size of t documents, we recommend you download them locally to your computer before trying With a 56k telephone modem connection, files may take fifteen minutes or more to dov patient!

Title	File	Size
Salmonid Stream Habitat Restoration Manual 1998 3rd edition	manual3.pdf	6,753
Part IX. "Fish Passage Evaluation at Stream Crossings" April 2003 (includes errata 2003-08-11)	FishPassage.pdf (single sided)	4,466
	FishPassage_dbl.pdf (duplex)	4,466
Errata Replacement Pages (2003-08-11)	FishPassage_Errata20030811.pdf (single sided)	10
	FishPassage_dbl_Errata20030811.pdf (duplex)	10
Part X. "Upslope Assessment and Restoration Practices" April 2004	manual_partX.pdf	72.3
Part XI. "Riparian Habitat Restoration" May 2004	CDFG_manual_XI_final.pdf	11.6

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SIERRA CLUB
FOUNDED 1892

Santa Cruz County Group of the Ventana Chapter

P.O. Box 604, Santa Cruz, California 95061 phone: (831) 426-4453
FAX (831) 426-5323 web: www.ventana.org e-mail: scscrg@cruzio.com

FS# 2563 LO6# 2667
FS# 2562

June 14, 2004

Mr. Craig Wilson
Chief, TMDL Listing Unit
Division of Water Quality
State Water Resources Control Board ("SWRCB")
P.O. Box 100
Sacramento, California 95812-0100

VIA FACSIMILE AND U.S. MAIL (916) 341-5550

RE: Inclusion of San Vicente Creek Watershed, Santa Cruz County (304.11023; Big Basin hydrologic unit 304.11; latitude 37 ° 03' 19", longitude 122 ° 10' 52" NAD27) on 2004 Clean Water Act Section 303(d) List

Dear Mr. Wilson:

The Sierra Club, Santa Cruz County Group of the Ventana Chapter (the "Sierra Club") urges the SWRCB to include the San Vicente Creek watershed in Santa Cruz County on the 2004 Section 303(d) list.

San Vicente Creek has been declared a public resource by the California Department of Fish and Game ("DFG") and by the National Marine Fisheries Service ("NMFS"), due to the existence in this creek of coho salmon, steelhead trout and the California red-legged frog, which are all listed by the state and/or federal government as either a threatened or endangered species. (Please see Stream Inventory Report, San Vicente Creek, DFG 1996 stream survey, mailed under separate cover.) A NMFS biological review team ("BRT") recently determined that the naturally spawned component of the Central Coast California coho salmon evolutionary significant unit ("ESU") is "in danger of extinction" throughout all or a significant portion of its range, which includes San Vicente Creek. The BRT specifically cites "extensive habitat degradation and associated decreased carrying capacity" as a cause. Accordingly, NMFS proposes that the Central California Coast coho salmon ESU, presently listed as a threatened species, be listed as an endangered species under the U.S. Endangered Species Act ("ESA").

The San Vicente Creek watershed suffers from deleterious impacts from pollutants, chief of which is sedimentation/siltation caused by resource extraction, timber road construction, erosion and natural sources. Such activities have seriously contributed to the grave decline of coho salmon in San Vicente Creek. The 2001 Stream Survey of Upper San Vicente Creek Tributaries, conducted for RMC Pacific Materials by RMC Forester Edward Tunheim, quotes from the 1996 California Department of Fish and

Game Stream Survey of Lower San Vicente Creek: "[S]ediment inputs have exceeded [San Vicente Creek's] transport capacity due to past activities in the watershed."

The San Vicente Creek Stream Inventory Report by DFG, 1996, provides the following data:

1. Over 81% of the pool tail crests surveyed had greater than 51% embeddedness. This is an indication that the gravels and cobbles are covered by sediment to a large degree. This is not good for spawning or for cover for small fish.

2. 76% of the surveyed stream length was flat water. This is a high percentage and indicates a lack of needed pools.)

3. The pools surveyed were relatively shallow - 70% were less than 3' deep. Shallow pools can be an indicator of excessive sediment. Again, this is not good for fish which need cool, deep pools to grow, hide and prosper in.

4. LWD was lacking in nearly all habitat types. Large Woody Debris (LWD) provides rearing fry with protection from predation, refuge from high water velocities, provides a food source and divides territorial units to reduce density related competition. LWD helps in scouring sediment to create pools, provides shade and shelter and provides nutrients for aquatic invertebrates, a key food source for fish)

5. Mean shelter rating for pools was low with a rating of 12. A pool shelter rating of approximately 100 is desirable. Shelter is necessary for fish survival to avoid predators.

The Davenport Sanitation District ("DSD") withdraws water from San Vicente Creek to serve the town of Davenport, which is located adjacent to San Vicente Creek. The DSD is unable to produce potable drinking water during periods of heavy rainfall (see attached DSD memo dated March 5, 2004 and data sheets from December 2001, January 2002) due to high water turbidity level caused by sedimentation. The DSD monitors the turbidity level of San Vicente Creek at the Davenport water treatment plant intake point on a daily basis. Mr. Mark Fryar, Chief Water Plant Operator for the Davenport water treatment plant, enters the daily turbidity level in a handwritten log that he maintains. Mr. Fryar has agreed to enter this data into an electronic spreadsheet, but will be unable to do so until mid-July of 2004, due to deadlines on other projects.

Based on the significantly high turbidity levels and poor habitat features of San Vicente Creek, the Sierra Club believes that San Vicente Creek is not meeting existing water quality standards, as defined by the SWRCB.

Very truly yours,

Jodi Frediani
Chair, Forestry Task Force
Santa Cruz County Group
Ventana Chapter
Sierra Club
PH 831-426-1697
JodiFredi@aol.com

COUNTY OF SANTA CRUZ
WATER AND
WASTEWATER DIVISION

DAVENPORT WATER

FOR THE MONTH OF
DECEMBER, 2001

DATE	GALLONS PROCESSED	INFLUENT TURBIDITY	EFFLUENT TURBIDITY	TOTAL CHLORINE RESIDUAL
1	11,700	1.60	0.06	1.30
2	0	160.00	N/A	0.90
3	0	40.00	N/A	0.90
4	0	>160	N/A	0.90
5	33,300	5.20	0.09	0.70
6	72,600	6.00	0.29	0.50
7	35,800	3.50	0.13	0.60
8	50,600	2.80	0.17	0.60
9	34,000	3.50	0.09	0.60
10	64,300	2.50	0.11	0.55
11	27,600	2.20	0.11	0.90
12	31,100	1.50	0.10	0.90
13	19,500	1.40	0.90	0.90
14	0	>100	N/A	0.80
15	71,800	5.30	0.11	1.00
16	42,600	1.90	0.12	1.00
17	10,000	3.00	0.11	0.90
18	57,300	4.50	0.10	0.70
19	37,000	3.80	0.09	0.70
20	0	74.00	N/A	0.80
21	20,700	12.00	0.15	0.80
22	25,400	4.70	0.12	0.80
23	44,400	7.50	0.16	0.75
24	42,100	3.40	0.08	0.75
25	26,100	2.20	0.15	0.80
26	39,000	2.00	0.06	0.85
27	23,500	1.70	0.08	0.90
28	73,300	1.70	0.06	0.85
29	14,300	4.00	0.24	1.30
30	60,100	3.80	0.10	1.10
31	38,100	8.00	0.22	0.90
AV.	32,458	8.44	0.13	0.84
TOTAL GALLONS	1,006,200			

COUNTY OF SANTA CRUZ
WATER AND
WASTEWATER DIVISION

DAVENPORT WATER

FOR THE MONTH OF
JANUARY, 2002

DATE	GALLONS PROCESSED	INFLUENT TURBIDITY	EFFLUENT TURBIDITY	TOTAL CHLORINE RESIDUAL
1	40,800	5.0	0.06	0.85
2	0	200.0	N/A	0.70
3	0	NO INF.	N/A	1.60
4	57,700	7.8	0.11	0.95
5	37,200	5.0	0.13	0.90
6	49,600	3.9	0.08	0.80
7	25,700	4.9	0.19	N/A
8	37,400	2.6	0.08	0.60
9	31,000	2.4	0.12	0.60
10	45,000	2.5	0.1	0.70
11	22,100	2.3	0.08	0.85
12	32,000	2.0	0.20	0.95
13	32,700	1.8	0.11	0.90
14	36,500	2.6	0.11	0.80
15	38,100	2.5	0.10	0.85
16	30,300	2.3	0.10	0.85
17	50,100	2.2	0.07	0.95
18	40,300	2.0	0.07	0.95
19	23,000	1.7	0.07	1.00
20	44,800	2.5	0.09	1.00
21	31,400	2.2	0.08	1.10
22	64,800	2.1	0.08	1.10
23	24,300	2.2	0.09	0.90
24	37,700	1.8	0.07	1.00
25	43,200	1.9	0.07	0.90
26	9,400	2.4	0.09	1.10
27	60,900	2.8	0.22	0.85
28	44,100	2.5	0.08	0.90
29	38,700	2.4	0.06	0.95
30	39,400	2.10	0.08	0.90
31	37,600	1.7	0.07	0.85
AV.	35,761	2.7	0.10	0.90
TOTAL GALLONS	1,105,800			

CITY OF SANTA CRUZ
WATER AND
WASTEWATER DIVISION

DAVENPORT WATER

FOR THE MONTH OF
DECEMBER, 2002

DATE	GALLONS PROCESSED	INFLUENT TURBIDITY	EFFLUENT TURBIDITY	FREE CHLORINE RESIDUAL
1	31,300	0.9	0.04	0.80
2	49,900	0.8	0.05	0.80
3	47,300	0.7	0.04	0.80
4	45,800	0.8	0.04	0.80
5	39,300	1.0	0.40	0.80
6	49,900	0.6	0.05	0.80
7	43,600	0.9	0.04	0.55
8	47,700	0.7	0.05	0.60
9	47,500	0.9	0.05	0.60
10	41,500	1.1	0.05	0.85
11	38,400	1.1	0.05	0.55
12	37,600	1.4	0.05	0.65
13	45,100	7.9	0.07	0.85
14	5,600	26.7	0.08	1.35
15	0	10.0	n/a	1.20
16	0	200.0	n/a	1.10
17	0	16.0	n/a	1.00
18	0	4.9	n/a	1.00
19	0	26.8	n/a	0.95
20	0	32.9	n/a	1.10
21	0	n/a	n/a	n/a
22	60,000	3.1	0.25	0.90
23	44,300	2.8	0.18	0.75
24	39,800	2.2	0.15	0.60
25	39,400	1.8	0.16	0.50
26	26,000	1.7	0.09	0.65
27	31,200	2.5	0.14	0.65
28	35,900	3.2	0.13	0.95
29	0	7.8	n/a	0.50
30	35,900	5.0	0.27	0.85
31	0	37.3	n/a	0.65
AV.	28,484	n/a	n/a	n/a
TOTAL GALLONS	883,000 gal.			

County of Santa Cruz

DAVENPORT COUNTY SANITATION DISTRICT

701 OCEAN STREET, ROOM 410, SANTA CRUZ, CA 95060-4070
(831) 464-2160 FAX (831) 454-2385 TDD (831) 464-2123

THOMAS L. BOLICH
DISTRICT ENGINEER

March 5, 2004

REQUIRED NOTIFICATION FOR CUSTOMERS OF THE DAVENPORT COUNTY SANITATION DISTRICT WATER SYSTEM

The Santa Cruz County Environmental Health Services (EHS) has directed the County of Santa Cruz, Davenport Sanitation District to advise you regarding the current status of the Davenport water system. EHS has directed that the water system be upgraded to ensure that current water quality standards can be achieved. Until such time that these upgrades can be budgeted, designed and installed and operational, the water system must notify its consumers quarterly of the status of the system and include the following notification language:

The State of California Department of Health Services (DHS) sets drinking water standards and has determined the presence of microbiological contaminants are a health concern at certain levels of exposure. If water is inadequately treated, microbiological contaminants in that water may cause disease. Disease symptoms may include diarrhea, cramps, nausea, and possible jaundice, and any associated headaches and fatigue. These symptoms, however are not just associated with disease-causing organisms in drinking water, but also may be caused by a number of factors other than your drinking water. DHS has set enforceable requirements for treating drinking water to reduce the risk of these adverse health effects. Treatment such as filtering and disinfecting the water removes or destroys microbiological contaminants. Drinking water which is treated to meet DHS requirements is associated with little to none of this risk and should be considered safe.

The Davenport water treatment plant is unable to produce potable drinking water during some periods of heavy rainfall. During these times the equipment monitoring the water quality detects a high water turbidity level and shuts off the water treatment plant and alerts the water plant operator of the problem. This is an automatic process designed to protect the quality of water in the storage tank. If the turbidity of the water is too high for the treatment plant to process, then water must be trucked in from Santa Cruz City at a considerable expense to the Davenport customers and pumped into the storage tank.

After the heavy rain has passed and the turbidity of the raw water has returned to an acceptable level the treatment plant can then assume normal operation. To address this issue, the County is in the process of trying to secure funding in order to upgrade your water treatment plant. Due to limited capital funding and the current State budget cutbacks, this continues to present a significant challenge.

If you have any questions regarding this notice, please contact Jeff Lathan or Mark Fryar at (831) 464-5462.

STREAM INVENTORY REPORT

SAN VICENTE CREEK

INTRODUCTION

A stream inventory was conducted during the summer of 1996 on San Vicente Creek, Santa Cruz County. The inventory consisted of two parts: a habitat inventory and biological inventory. The purpose of the habitat inventory was to document the habitat available to anadromous salmonids in San Vicente Creek. The biological inventory was conducted to document the presence and distribution of juvenile salmonid species.

The objective of this report is to document the current habitat conditions and recommend options for the potential enhancement of habitat for coho salmon and steelhead trout. Recommendations for habitat improvement activities are based upon target habitat values suitable for salmonids in California's **North Coast** streams.

WATERSHED OVERVIEW

San Vicente Creek enters the Pacific Ocean approximately 9 miles north of the city of Santa Cruz in Santa Cruz County, California (Map 1). San Vicente Creek's legal description at the confluence with the Pacific Ocean is T11S R03W. Its location is 31°08'04" north latitude and 122°11'35" west longitude. San Vicente Creek is a third order stream and has approximately 9.3 miles of main stem and 11.3 miles of tributary blue line stream according to the USGS Davenport 7.5 minute quadrangle. San Vicente Creek drains a watershed of approximately 11.1 square miles. Elevations range from 0 feet at the mouth of the creek to 2,600 feet in the headwater areas. Redwood forest dominates the watershed. The watershed is primarily privately owned and is managed for timber production, open pit mining, cattle grazing, urbanization and water diversion. Vehicle access exists via private roads off Highway 1.

METHODS

The habitat inventory conducted in San Vicente Creek follows the methodology presented in the *California Salmonid Stream Habitat Restoration Manual* (Flosi and Reynolds, 1991 rev. 1994). The California Conservation Corps (CCC) Technical Advisors and Watershed Stewards Project/AmeriCorps (WSP/AmeriCorps) Members that conducted the inventory were trained in standardized habitat inventory methods by the California Department of Fish and Game (DFG). This inventory was conducted by a two-person team.

SAMPLING STRATEGY

The inventory uses a method that samples approximately 10% of the flatwater and riffle habitat

EXCERPTS from the ENDANGERED AND THREATENED SPECIES: PROPOSED LISTING DETERMINATIONS FOR 27 ESUs OF WEST COAST SALMONIDS, MAY, 2004

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

50 CFR Parts 223 and 224

[Docket No. 040525161-4161-01; I.D. No. 052104F]

RIN No. 0648-AR93

Endangered and Threatened Species: Proposed listing determinations for 27 ESUs of West Coast *Salmonids*

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

NMFS solicited information to ensure that the review of the ESA status for the 27 ESUs under review was based on the best available and most recent scientific and commercial data. Following an initial 60-day public comment period concerning 25 of the ESUs, which commenced on February 11, 2002 (67 FR 6215), NMFS re-opened the public comment period for an additional 30 days on June 13, 2002 (67 FR 40679). A 60-day public comment period was also opened concerning 16 petitioned ESUs with the published findings on the Central Coast Forest Association and Trout Unlimited et al. petitions on July 25, 2002 (67 FR 48601). Information and comment was solicited during an additional 60-day public comment period when NMFS announced that it would also be reviewing the status of the Snake River sockeye and Southern California steelhead ESUs (67 FR 79898; December 31, 2002). In this latter public comment period NMFS specifically requested information concerning resident O. mykiss populations in the 10 steelhead ESUs under review (67 FR at 79900).

Central California Coast Coho ESU

The Central California Coast coho ESU includes all naturally spawned populations of coho salmon from Punta Gorda in northern California south to and including the San Lorenzo River in central California, as well as populations in tributaries to San Francisco Bay, excluding the Sacramento-San Joaquin River system (61 FR 56138; October 31, 1996). Four artificial propagation programs are considered part of this ESU (Table 2): the Don Clausen Fish Hatchery Captive Broodstock Program, Scott Creek/King Fisher Flats Conservation Program, Scott Creek Captive Broodstock Program, and the Noyo River Fish Station egg-take Program coho hatchery programs. NMFS has determined that these artificially propagated stocks are genetically no more than moderately divergent from the natural populations (NMFS, 2004b).

Central California Coast O. mykiss ESU

The Central California Coast O. mykiss ESU includes all naturally spawned populations of steelhead in California streams from the Russian River to Aptos Creek, and the drainages of San Francisco and San Pablo Bays eastward to the Napa River (inclusive), excluding the Sacramento-San Joaquin River Basin (62 FR 43937; August 18, 1997). Resident populations of O. mykiss below impassible barriers (natural and manmade) that co-occur with anadromous populations are included in the Central California Coast O. mykiss ESU. According to the framework discussed above (see the Consideration of Resident O. mykiss Populations in Listing Determinations section), the ESU membership of native resident populations above recent (usually man-made) impassable barriers, but below natural barriers, was not resolved. These resident populations are provisionally not considered to be part of the Central California Coast O. mykiss ESU, until such time that significant scientific information becomes available affording a case-by-case evaluation of their ESU relationships. Recent genetic data regarding three subpopulations of native fish above Rubber Dam 1 on Alameda Creek

strongly suggest that they are part of the ESU. Nielson (2003) found that these subpopulations were most similar to each other and other populations within the ESU than they were to populations outside the ESU. NMFS, therefore, considers native resident O. mykiss populations above Dam 1 on Alameda Creek to be part of the Central California Coast O. mykiss ESU.

Two artificial propagation programs are considered to be part of the ESU (Table 2): the Don Clausen Fish Hatchery, and Kingfisher Flat Hatchery/Scott Creek (Monterey Bay Salmon and Trout Project) steelhead hatchery programs. NMFS has determined that these artificially propagated stocks are genetically no more than moderately divergent from the natural populations (NMFS, 2004b).

Central California Coast Coho ESU

Information on the abundance and productivity trends for the naturally spawning component of the Central California Coast coho ESU is extremely limited. There are no long- term time series of spawner abundance for individual river systems. Analyses of juvenile coho presence-absence information, juvenile density surveys, and irregular adult counts for the South Fork Noyo River indicate low abundance and long-term downward trends for the naturally spawning populations throughout the ESU. Improved ocean conditions coupled with favorable stream flows and harvest restrictions have contributed to increased returns in 2001 in streams in the northern portion of the ESU, as indicated by an increase in the observed presence of fish in historically occupied streams. Data are particularly lacking for many river basins in the southern two-thirds of the ESU where naturally spawning populations are considered to be at the greatest risk. The extirpation or near extirpation of natural coho salmon populations in several major river basins, and across most of the southern historical range of the ESU, represents a significant risk to ESU spatial structure and diversity. Artificial propagation of coho salmon within the Central California Coast ESU has declined since the

ESU was listed in 1996 though it continues at the Noyo River and Scott Creek facilities, and two captive broodstock populations have recently been established. Genetic diversity risk associated with out-of-basin transfers appears to be minimal, but diversity risk from domestication selection and low effective population sizes in the remaining hatchery programs remains a concern. An out-of-ESU artificial propagation program for coho was operated at the Don Clausen hatchery on the Russian River through the mid 1990's, but was terminated in 1996. Termination of this program was considered by the BRT a positive development for naturally produced coho in this ESU. For the naturally spawning component of the ESU, the BRT found very high risk for the abundance, productivity, and spatial structure VSP parameters and comparatively moderate risk with respect to the diversity VSP parameter. The lack of direct estimates of the performance of the naturally spawned populations in this ESU, and the associated uncertainty this generates, was of specific concern to the BRT. Informed by the VSP risk assessment and the associated uncertainty, the strong majority opinion of the BRT was that the naturally spawned component of the Central California Coast coho ESU was "in danger of extinction." The minority opinion was that this ESU is "likely to become endangered within the foreseeable future."

Four artificial propagation programs are considered to be part of the Central California Coast coho ESU (Table 2; NMFS, 2004b). The Noyo River program is an augmentation program located in the northern portion of the ESU which regularly incorporates local natural- origin fish into the broodstock and releases fish into the Noyo River watershed. The program has been in operation for over 50 years, but the program has recently been discontinued. The Monterey Bay Salmon and Trout Project is an artificial propagation program that is operated as a conservation program designed to supplement the local natural population, located in the southern portion of the ESU (south of San Francisco) where natural populations are at the highest risk of extinction. Relatively small numbers of

fish are spawned and released from this program on Scott Creek, but natural-origin fish are routinely incorporated into the broodstock. Recently, captive broodstock programs have been established for the Russian River and Scott Creek populations in order to preserve the genetic resources of these two naturally spawning populations and for use in artificial programs. Artificially propagated fish from these two captive broodstock programs will be outplanted in the Russian River and Scott Creek watersheds to supplement local natural populations. The Russian River program is integrated with a habitat restoration program designed to improve habitat conditions and subsequent survival for outplanted coho juveniles.

An assessment of the effects of these four artificial propagation programs on the viability of the ESU *in-total* concluded that they decrease risk of extinction to some degree by contributing to increased ESU abundance and diversity, but have a neutral or uncertain effect on the productivity or spatial structure of the ESU (NMFS, 2004b). The three conservation programs are considered crucial to the recovery of this ESU, but it is unclear if they have had any beneficial effect on natural spawner abundance. The Noyo River program which had been operated for over 50 years is being terminated because it has not met CDFG's goal of increasing coho salmon abundance. Productivity of coho salmon in the Noyo River is thought to be reduced or unaffected by long term artificial propagation in that watershed. It is uncertain how effective the captive broodstock and rearing programs in the Russian River and Scott Creek will be in increasing productivity, but efforts in the Russian River are coupled with a major habitat restoration effort which may improve natural population productivity. The two captive broodstock programs will hopefully contribute to future abundance and improved spatial structure of the ESU, but outplanting has yet to be implemented so long term benefits are uncertain. The Monterey Bay Salmon and Trout Program is thought to be responsible for sustaining the presence of natural origin coho salmon in Scott Creek, which is at the southern extent of the ESU's range. Both of the captive broodstock programs, particularly the Scott Creek program, are genetic repositories which serve to preserve the genome of the ESU thereby reducing genetic diversity risks.

Informed by the BRT's findings (NMFS, 2003b) and NMFS' assessment of the effects of artificial propagation programs on the viability of the ESU (NMFS, 2004b), the Artificial Propagation Evaluation Workshop concluded that the Central California Coast coho ESU in-total is "in danger of extinction" (NMFS, 2004c).

Central California Coast O. mykiss ESU

There are no time series of population abundance data for the naturally spawning component of the Central California Coast O. mykiss ESU. The naturally spawning population in the largest river system in the ESU, the Russian River, is believed to have declined seven-fold since the mid-1960s. Juvenile density information is available for five "representative" populations, and each exhibits a downward decline over the last 8 years of available data. Predation by increasing numbers of California sea lions at river mouths and during the ocean phase was noted as a recent development also posing significant risk. Juvenile O. mykiss have been observed in approximately 82 percent of historically occupied streams, indicating that the ESU continues to be spatially well distributed. However, impassible dams have cut off substantial portions of spawning habitat in some basins, generating concern about the spatial structure of the naturally spawning component of the ESU. Historically, resident fish are believed to have occurred in all areas in the ESU used by steelhead, although current distribution is more restricted. For some BRT members, the presence of resident fish reduces risks to ESU natural abundance, but provides an uncertain contribution to ESU productivity, spatial structure, and diversity (NMFS, 2003b; 2004a). The BRT found moderately high risk for the abundance and productivity VSP risk categories for naturally spawning fish, and comparatively less risk for the spatial structure and diversity categories. Informed by this risk assessment, the majority opinion of the BRT was that the naturally spawned component of the Central California Coast O.

mykiss ESU is "likely to become endangered within the foreseeable future." The minority opinion was that the ESU is "in danger of extinction." Two artificial propagation programs are considered to be part of the Central California Coast O. mykiss ESU (Table 2; NMFS, 2004b). One program is located in the northernmost river in the ESU (Don Clausen hatchery on the Russian River), while the other is located in the southern portion of the ESU (Monterey Bay Salmon and Trout Project on the Scott River) where the extinction risk for local populations is thought to be higher. The hatchery on the Russian River is a relatively large-scale mitigation program which is primarily intended to support recreational fisheries for steelhead in this watershed. This program was established primarily with local broodstock, but has not integrated natural-origin fish into the broodstock since 2000, and is, therefore, isolated from the natural spawning component of the ESU. Escapement to the hatchery is substantial, but there are no estimates of overall Russian River O. mykiss abundance, nor are there any estimates of the contribution of hatchery-origin fish to overall abundance. The artificial propagation program on Scott Creek is much smaller than the Russian River program. It incorporates natural-origin fish from Scott Creek and nearby San Lorenzo Creek for broodstock and is currently operated for the purpose of restoring the local natural population.

NMFS' assessment of the effects of these two artificial propagation programs on the viability of the ESU in-total concluded that they decrease risk to some degree by contributing to increased ESU fish abundance, but have neutral or uncertain effects on productivity, spatial structure or diversity of the ESU (NMFS, 2004b). Hatchery origin steelhead from the Don Clausen hatchery program on the Russian River have been increasing in abundance for the past several years, but many fish return to the hatchery or are harvested and there is no information documenting the extent to which hatchery origin fish spawn naturally. Though there is natural spawning of steelhead in the Russian River system, the abundance of spawners has not been documented. There is no information documenting whether the Monterey Bay Salmon and Trout Project program is increasing local

abundance of natural steelhead, but the program was recently converted from one that supported a fishery to one that is attempting to restore the local natural population. Effects of these artificial propagation programs on productivity are uncertain, and no efforts are currently underway to assess the effects of productivity on the naturally spawning component of the ESU. The Don Clausen hatchery population has been increasing in abundance and has a relatively high level of productivity, but it is managed to support a fishery rather than to augment naturally spawning local populations. Hatchery origin steelhead from both programs generally occur in the same areas as natural origin fish, and there is no information indicating that either program has resulted in an expanded distribution of the ESU in-total, thus effects to ESU spatial structure are likely neutral. The Don Clausen program uses only hatchery-origin fish for broodstock, and this is likely to lead to divergence of the hatchery stock from the local natural population and pose a risk to local populations. The Monterey Bay Salmon and Trout Program uses wild broodstock to minimize domestication effects and is operated to assist in the restoration of local stocks. However, it is uncertain to what extent the program serves to preserve genetic diversity in the ESU. Informed by the BRT's findings (NMFS, 2003b) and NMFS' assessment of the effects of artificial propagation programs on the viability of the ESU (NMFS, 2004b), the Artificial Propagation Evaluation Workshop concluded that the Central California Coast O. mykiss ESU in-total is "likely to become endangered in the foreseeable future" (NMFS, 2004c).

Summary of Factors Affecting the Species

Section 4(a)(1) of the ESA and NMFS' implementing regulations (50 CFR part 424) set forth procedures for listing species. The Secretary of Commerce (Secretary) must determine, through the regulatory process, if a species is endangered or threatened because of any one or a combination of the following factors: (1) The present or threatened destruction, modification, or curtailment of its habitat or range; (2) overutilization for commercial, recreational, scientific, or educational purposes; (3) disease or predation; (4) inadequacy of existing regulatory mechanisms; or (5) other natural or human-made factors affecting its continued existence. NMFS has previously detailed the impacts of

various factors contributing to the decline of Pacific salmon and O. mykiss (e.g., citations for ESU listing determinations in Table 1; NMFS 1997c, "Factors Contributing to the Decline of Chinook Salmon – An Addendum to the 1996 West Coast Steelhead Factors for Decline Report;" NMFS 1996a, "Factors for Decline – A Supplement to the Notice of Determination for West Coast Steelhead Under the Endangered Species Act"). **These Federal Register notices and technical reports conclude that all of the factors identified in section 4(a)(1) of the ESA have played a role in the decline of West Coast salmon and O. mykiss ESUs.** The reader is referred to the above Federal Register notices and technical reports for a more detailed treatment of the relevant factors for decline for specific ESUs. The following discussion briefly summarizes findings regarding the principal factors for decline across the range of West Coast salmon and O. mykiss. While these factors are treated in general terms, it is important to underscore that impacts from certain factors are more acute for specific ESUs.

A. The Present or Threatened Destruction, Modification, or Curtailment of its Habitat or Range

West Coast salmon and O. mykiss have experienced declines in abundance over the past several decades as a result of loss, damage or change to their natural environment. Water diversions for agriculture, flood control, domestic, and hydropower purposes (especially in the Columbia River and Sacramento-San Joaquin Basins) have greatly reduced or eliminated historically accessible habitat and degraded remaining habitat. Forestry, agriculture, mining, and urbanization have degraded, simplified, and fragmented habitat. Studies indicate that in most western states, about 80 to 90 percent of the historical riparian habitat has been eliminated (Botkin et al., 1995; Norse, 1990; Kellogg, 1992; California State Lands Commission, 1993). The destruction or modification of estuarine areas has resulted in the loss of important rearing and migration habitats. Washington and Oregon wetlands are estimated to have diminished by one-third, while California has experienced a 91 percent loss of its wetland habitat. Losses of habitat complexity and habitat fragmentation have also contributed to the decline of West Coast salmonids. For example, in national forests in western and eastern Washington, there has been a 58 percent reduction in large, deep pools due to sedimentation and loss of pool

forming structures such as boulders and large wood (FEMAT, 1993). Similarly, in Oregon, the abundance of large, deep pools on private coastal lands has decreased by as much as 80 percent (FEMAT, 1993). Sedimentation from extensive and intensive land use activities (e.g., timber harvests, road building, livestock grazing, and urbanization) is recognized as a primary cause of habitat degradation throughout the range of West Coast salmon and O. mykiss.

B. *Overutilization for Commercial, Recreational, Scientific or Educational Purposes*

Historically, salmon and O. mykiss were abundant in many western coastal and interior waters of the United States. These species have supported, and continue to support, important tribal, commercial and recreational fisheries throughout their range, contributing millions of dollars to numerous local economies, as well as providing important cultural and subsistence needs for Native Americans. Overfishing in the early days of European settlement led to the depletion of many stocks of salmonids, prior to extensive modifications and degradation of natural habitats. However, following the degradation of many west coast aquatic and riparian ecosystems, exploitation rates were higher than many populations could sustain. Therefore, harvest may have contributed to the further decline of some populations.

C. Disease or Predation

Introductions of non-native species and habitat modifications have resulted in increased predator populations in numerous rivers and lakes. Predation by marine mammals (principally seals and sea lions) is also of concern in areas experiencing dwindling run sizes of salmon and O. mykiss. However, although fishes form the principal food sources of many marine mammals, salmonids appear to be a minor component of their diet (Scheffer and Sperry, 1931; Jameson and Kenyon, 1977; Graybill, 1981; Brown and Mate, 1983; Roffe and Mate, 1984; Hanson, 1993). Predation by marine mammals may significantly influence salmonid abundance in some local populations when other prey species are absent and physical conditions lead to the concentration of salmonid adults and juveniles

(Cooper and Johnson, 1992). Predation by seabirds can also influence the survival of juvenile salmon and O. mykiss in some locations. For example, it has been estimated that Caspian terns (Sterna caspia) in the lower Columbia River and estuary consume approximately 13 percent of the out-migrating smolts reaching the estuary in some years (Collis et al., 2001).

Infectious disease is one of many factors that can influence adult and juvenile salmon and O. mykiss survival. Salmonids are exposed to numerous bacterial, protozoan, viral, and parasitic organisms in spawning and rearing areas, hatcheries, migratory routes, and the marine environment. Specific diseases such as bacterial kidney disease, ceratomyxosis, columnaris, furunculosis, infectious hematopoietic necrosis virus, redmouth and black spot disease, erythrocytic inclusion body syndrome, and whirling disease, among others, are present and are known to affect West Coast salmonids (Rucker et al., 1953; Wood, 1979; Leek, 1987; Foott et al., 1994; Gould and Wedemeyer, undated). In general, very little current or historical information exists to quantify changes in infection levels and mortality rates attributable to these diseases. However, studies have shown that naturally spawned fish tend to be less susceptible to pathogens than hatchery-reared fish (Buchanon et al., 1983; Sanders et al., 1992). Native salmon and O. mykiss populations have co-evolved with specific communities of these organisms, but the widespread use of artificial propagation has introduced exotic organisms not historically present in a particular watershed. Habitat conditions such as low water flows and high temperatures can exacerbate susceptibility to infectious diseases.

D. The Inadequacy of Existing Regulatory Mechanisms

A variety of Federal, state, tribal, and local laws, regulations, treaties and measures affect the abundance and survival of West Coast salmon and O. mykiss, and the quality of their habitats. The adequacy of existing regulatory mechanisms is treated below in the context of evaluating the likelihood of implementation and effectiveness of efforts being made to protect West Coast salmon and O.

mykiss, including specific regulatory measures (see the "Efforts Being Made to Protect West Coast Salmon and O. mykiss" section).

E. Other Natural or Manmade Factors Affecting Its Continued Existence

Variability in ocean and freshwater conditions can have profound impacts on the productivity of salmon and O. mykiss populations. Natural climatic conditions have at different times exacerbated or mitigated the problems associated with degraded and altered riverine and estuarine habitats (see the "Consideration of Recent Ocean Conditions in Listing Determinations" section).

Extensive hatchery programs have been implemented throughout the range of West Coast salmon and O. mykiss. While some of these programs have succeeded in providing fishing opportunities and increasing the total number of fish on spawning grounds, the long-term impacts of these programs on native, naturally reproducing stocks are not well understood. Artificial propagation may play an important role in salmon and O. mykiss recovery. The state natural resource agencies (CDFG, Oregon Department of Fish and Wildlife, Idaho Department of Fish and Game, and the Washington Department of Fish and Wildlife) have adopted or are implementing natural salmonid policies designed to ensure that the use of artificial propagation is conducted in a manner consistent with the conservation and recovery of natural, indigenous salmon and O. mykiss stocks. While these efforts are encouraging, the careful monitoring and management of current programs, and the scrutiny of proposed programs is necessary to minimize impacts on listed species.

Efforts Being Made to Protect West Coast Salmon and O. mykiss

Section 4(b)(1)(A) of the ESA requires the Secretary to make listing determinations solely on the basis of the best scientific and commercial data available after taking into account efforts being made to protect a species. Therefore, in making its listing determinations, NMFS first assesses ESU

extinction risk and identifies factors that have led to its decline. NMFS then assesses existing efforts being made to protect the species to determine if those measures ameliorate the risks faced by the ESU.

In judging the efficacy of existing protective efforts, NMFS relies on the joint NMFS- FWS "Policy for Evaluation of Conservation Efforts When Making Listing Decisions" ("PECE;" 68 FR 15100; March 28, 2003). PECE provides direction for the consideration of protective efforts identified in conservation agreements, conservation plans, management plans, or similar documents (developed by federal agencies, State and local governments, Tribal governments, businesses, organizations, and individuals) that have not yet been implemented, or have been implemented but have not yet demonstrated effectiveness. The policy articulates several criteria for evaluating the certainty of implementation and effectiveness of protective efforts to aid in determination of whether a species warrants listing as threatened or endangered. Evaluations of the certainty an effort will be implemented include whether: the necessary resources (e.g., funding and staffing) are available; the requisite agreements have been formalized such that the necessary authority and regulatory mechanisms are in place; there is a schedule for completion and evaluation of the stated objectives; and (for voluntary efforts) the necessary incentives are in place to ensure adequate participation. The evaluation of the certainty of an effort's effectiveness is made on the basis of whether the effort or plan: establishes specific conservation objectives; identifies the necessary steps to reduce threats or factors for decline; includes quantifiable performance measures for the monitoring of compliance and effectiveness; incorporates the principles of adaptive management; and is likely to improve the species' viability at the time of the listing determination.

The PECE also notes several important caveats. Satisfaction of the above mentioned criteria for implementation and effectiveness establishes a given protective effort as a candidate for consideration, but does not mean that an effort will ultimately change the risk assessment. The policy

stresses that just as listing determinations must be based on the viability of the species at the time of review, so they must be based on the state of protective efforts at the time of the listing determination. The PECE does not provide explicit guidance on how protective efforts affecting only a portion of a species' range may affect a listing determination, other than to say that such efforts will be evaluated in the context of other efforts being made and the species' overall viability. There are circumstances where threats are so imminent, widespread, and/or complex that it may be impossible for any agreement or plan to include sufficient efforts to result in a determination that listing is not warranted.

Evaluation of Protective Efforts

As discussed above, NMFS assesses ESU viability on the basis of the four VSP criteria: abundance, productivity, spatial structure and diversity (McElhany et al., 2000). These four parameters are universal indicators of species viability and individually and collectively function as reasonable predictors of extinction risk. NMFS evaluated protective efforts on the basis of these four VSP criteria. The efforts addressing habitat, harvest and fish passage issues are organized by regional protective efforts, followed by federal and non-federal protective efforts in the individual states. The collective contribution of all protective efforts in mitigating ESU-level extinction risk for each ESU is described in the "Proposed Listing Determinations" section that follows.

Regional Protective Efforts

Federal Efforts – NMFS conducts hundreds of ESA section 7 consultations concerning ongoing and proposed activities that may affect salmonid habitats within the range of listed West Coast salmon and O. mykiss ESUs. Biological assessments (BAs) and biological opinions cover a wide range of management activities, including forest and/or resource area-wide routine and non-routine road maintenance, hazardous tree removal, range allotment management, watershed and instream restoration, special use permits (e.g., mining, ingress/egress), flood control, water supply/irrigation, and timber sale programs (e.g., green tree, fuel reduction, thinning, regeneration, and salvage). These

BAs and biological opinions include region-specific best management practices, necessary measures to minimize impacts for listed anadromous salmonids, monitoring, and environmental baseline checklists for each project. In addition to the numerous consultations involving Federal land management actions, NMFS has also consulted on a variety of activities involving private actions requiring Federal authorization or approval. Examples of these actions include significant instream projects such as building boat ramps and docks, water withdrawals, and dredging activities. NMFS' involvement in these consultations, and the resultant biological opinions, have resulted in a more consistent approach to management of public lands throughout the range of West Coast salmon and O. mykiss ESUs.

Measures to protect listed O. mykiss throughout the State of California have been in place since 1998. A wide range of measures have been implemented including 100 percent marking of all hatchery steelhead, zero bag limits for unmarked steelhead, gear restrictions, closures, and size limits designed to protect smolts. NMFS has worked continuously with the State to review and improve inland fishing regulations through its biennial planning cycle to better protect both anadromous and resident O. mykiss populations throughout the State.

In response to a proposed state listing of coho in January 2003 under the California ESA, the State of California convened two recovery teams and tasked them with developing a recovery plan that would identify and address the recovery needs of coho salmon and habitats throughout the State. A draft recovery plan was prepared and released for public review in August 2003. The comprehensive plan includes a broad range of coho range-wide recommendations addressing stream flow, water rights, fish passage, water temperatures, recruitment of large woody debris, riparian vegetation, watershed planning, and gravel mining. In addition, specific watershed recommendations were identified for all watershed units supporting coho throughout the state from the Smith River south to the San Lorenzo River. Because of special water use issues in the

Shasta and Scott River watershed and the importance of these watersheds in the Klamath River system, the plan includes a pilot program that has specific recommendations for water management, water augmentation, water use efficiency, and habitat management (e.g. fish passage barriers, spawning gravel, riparian vegetation, water temperature, etc.). The final recovery plan was formally approved and adopted by the California Fish and Game Commission on February 5, 2004, and a decision was made to formally list coho salmon under the California ESA. A final decision to move forward with the administrative process leading to a listing of coho under the California ESA is expected in June 2004. The state is in the process of developing an implementation plan that will prioritize recovery actions contained in the plan and estimate implementation costs. The implementation plan will be presented to the Commission at its meeting in June 2004. In the short term, the state is using existing staff and financial resources to implement the plan, but is expected to pursue additional financial resources after the implementation plan is completed. **To facilitate implementation, the CDFG has integrated the coho recovery plan with its coastal salmonid habitat restoration grant program by ensuring that high priority recovery plan actions in high priority watersheds receive a greater likelihood of funding.** If it is successfully implemented, the State recovery plan will provide substantial benefits to both the Central California Coast and Southern Oregon/Northern California Coast coho ESUs. However, the long-term prospects for plan funding and implementation are uncertain.

The North Coast Regional Water Quality Control Board is in the process of updating its north coast basin plan which will establish water quality standards for all of the northern California rivers and streams. These plans will also incorporate newly developed Total Maximum Daily Load (TMDL) standards that are being developed for those water bodies that are listed as 303d impaired under section 303(d) of the Clean Water Act. Most of the major rivers in northern California are listed as TMDL

impaired, primarily for sediment and temperature. It is anticipated that by 2008, all TMDL-listed streams in northern California will have TMDL plans, which likely will help to reduce human impacts to the aquatic environments and thus protect ESA listed salmonids.

The Rangeland Management Advisory Committee has developed a management plan for inclusion in the state's Non-point Source Management Plan. Its purpose is to maintain and improve the quality and associated beneficial uses of surface water as it passes through and out of rangeland resources in the state. The programmatic emphasis is on a voluntary, cooperative approach to water quality management. This includes appropriate technical assistance, planning mechanisms, program incentives, and regulatory authorities. This Plan has been favorably received by the State Water Resources Control Board, the Environmental Protection Agency, and the California State Board of Forestry.

Central California Coast Coho ESU

The BRT concluded that the naturally spawned component of the Central California Coast coho ESU is "in danger of extinction." Informed by the BRT findings (NMFS, 2003b) and the assessment of artificial propagation programs on the viability of the ESU (NMFS, 2004b), the Artificial Propagation Evaluation Workshop concluded that the Central California Coast coho ESU in-total is "in danger of extinction." The State of California has initiated the process for listing coho salmon under the California ESA and is expected to make a final listing decision in June 2004. In conjunction with this California ESA listing process the State has also developed a comprehensive, state-wide coho salmon recovery strategy and plan. This recovery strategy and plan was developed by the CDFG in 2003 and approved by the California Fish and Game Commission in February 2004. The plan is comprehensive in scope, addresses a wide range of factors responsible for the decline of coho throughout the State, and was developed by a broad range of stakeholders who will be responsible for the plan's implementation. The CDFG is in the process of developing an implementation plan that will prioritize recovery actions and estimate implementation costs. In the short-term, CDFG is using

existing staff and financial resources to implement the plan, but is expected to pursue additional financial resources after the implementation plan is completed. In addition, CDFG has integrated the coho recovery plan with its coastal habitat restoration grant program by ensuring that high priority recovery plan actions in high priority watersheds receive a greater likelihood of funding.

Although NMFS believes the plan will provide substantial benefits to this ESU over the long-term if it is implemented, the long-term prospects for plan funding and implementation are uncertain. Both freshwater and ocean harvest impacts to coho salmon have also been reduced, which has contributed to reducing extinction risk for the ESU. Other protective efforts that have provided benefits to this ESU include: implementation of numerous freshwater habitat restoration projects funded through the State's habitat restoration grant program; efforts by multi- county conservation planning groups to inventory, prioritize, and fix salmonid migration barriers and to modify road maintenance activities throughout the range of the ESU; and the completion of numerous ESA section 7 consultations for gravel mining and other habitat impacting actions. Several future projects are expected to provide benefits to this ESU, including completion and implementation of the Russian River consultation addressing water project operations in the Russian River, and completion and approval of the Green Diamond Resource Company and Mendocino Redwoods timber harvest HCPs. Ongoing efforts by NMFS and CDFG to develop a coastal salmon and steelhead monitoring program are also expected to substantially improve the amount and quality of available information on the abundance and spatial distribution of naturally spawning populations in the future, thereby allowing much improved long-term assessment of population viability and trends. Although the artificial propagation programs that are part of this ESU were not found to substantially affect the viability of the ESU in-total, implementation of these programs in conjunction with the other protective efforts that are addressing habitat related factors for decline are expected to provide benefits to the ESU in the long term. **Nonetheless, NMFS believes that protective efforts, as evaluated pursuant to the PECE, do not provide sufficient certainty of implementation and effectiveness to alter the BRT's and the Artificial Propagation Evaluation Workshop's assessments that the ESU is "in danger of extinction." NMFS concludes, therefore, that the ESU in-total is in danger of extinction**

throughout all or a significant portion of its range. Accordingly, NMFS proposes that the Central California Coast coho salmon ESU, presently listed as a threatened species, be listed as an endangered species under the ESA.

Findings on Delisting Petitions

With regard to the six petitions (detailed above in the "Summary of Petitions" section) seeking to delist a total of 15 salmon and O. mykiss ESUs, NMFS finds on the basis of the best available scientific and commercial information that the petitioned actions are not warranted.

Activities that NMFS believes could potentially "harm" salmon or O. mykiss (see ESA 3(19) and 50 CFR 222.102 [harm]) in any of the proposed ESUs, and result in a violation of the section 9 take prohibition include, but are not limited to:

1. Land-use activities that adversely affect salmon or O. mykiss habitats in any proposed ESU (e.g., logging, grazing, farming, urban development, road construction in riparian areas and areas susceptible to mass wasting and surface erosion);

Region 3

hardcopy data

I tried to get arcgis arapp, but was unsuccessful.