

# MONTEREY COUNTY

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## WATER RESOURCES AGENCY



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March 25, 1992

WILLIAM F. HURST  
GENERAL MANAGER

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Mr. Les Strnad  
Chief of Permits  
California Coastal Commission  
640 Capitol Road  
Santa Cruz, Ca 95062

RECEIVED  
MAR 9 1993

CALIFORNIA  
COASTAL COMMISSION  
CENTRAL COAST AREA

Subject: Moro Cojo Tidegates Permit #3-89-4

Dear Mr. Strnad:

The 1991 monitoring results for the Moro Cojo Slough are attached for your review. Monthly monitoring at the Slough was implemented by the Water Resources Agency as recommended by the 1990 Monitoring Report prepared by ABA Consultants. Also, two stations at the Slough were monitored during 1991. A second station upstream of the Highway 1 bridge was monitored in addition to the existing station that is immediately upstream of the Moss Landing Road Tidegates. The data collection, monitoring and water quality testing was a joint effort of the Monterey County Water Resources Agency, the Monterey County Consolidated Lab, and the Elkhorn Slough Foundation. The monthly biological field investigations were performed by ABA Consultants.

The water quality conditions and water levels at the Slough have remained similar to those observed during 1990. Since both 1990 and 1991 were drought years this was expected. During 1991 the hydrology of the Slough was influenced primarily by tidal inflow with below normal freshwater inflow from the watershed.

The water levels observed at the Slough during 1991 are attached. In March 1991, water levels exceeded the recommended -1.5 ft. NGVD as a result of the heavy precipitation that occurred in the area. When substantial storm runoff enters the Slough, exceeding the recommended range is not significant according to ABA Consultants. With the exception of March, water levels at the Slough were within the recommended range for most of 1991.

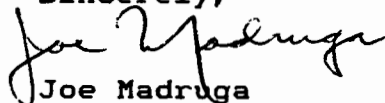
In addition to the enclosed water quality monitoring performed by the Agency and the Elkhorn Slough Foundation, monthly biological investigations of the wetland habitat at the Slough were performed by ABA Consultants. According to ABA Consultants, a comprehensive review of the biological conditions at the Slough will not be possible until the completion of the Moro Cojo Slough Management Plan. Therefore, a summary report was not prepared for the

biological field monitoring. ABA Consultants has suggested that the Agency increase the frequency and extent of monitoring until specific recommendations for managing water conditions at the Slough are developed. In response to this concern, the Water Resources Agency has increased the frequency of monitoring from quarterly to monthly and has added another monitoring station to study conditions at the Slough. This additional monitoring will provide a resource of water quality and biological data from which the Management Plan will be developed. As you stressed in your letter dated August 19, 1991, it is critical that the research for the Management Plan be started as soon as possible.

The Monterey County Planning Department has submitted a request to obtain California State Coastal Conservancy funding for the Management Plan. The Coastal Conservancy has stated that the grant request should be approved this spring or early summer. Once the grant is approved, the Planning Department is prepared to expedite the preparation of the Plan. The Water Resources Agency has agreed to assist the Planning Department in the preparation of the Plan and also provide in-kind staff services as part of the necessary local cost share. The tentative time schedule has been revised to reflect the anticipated date of Coastal Conservancy approval.

If you have any questions or need additional information concerning this project, please do not hesitate to contact me or Pete Koehn of my staff.

Sincerely,



Joe Madruga  
Assistant General Manager

Attachments

PK\MORO.CC2

MORO COJO SLOUGH WATER LEVELS

<u>DATE</u>	<u>TIME</u>	<u>ELEV. NGVD</u>	<u>DATE</u>	<u>TIME</u>	<u>ELEV. NGVD</u>
11/16/90	10:30 AM	-2.4	1/18/91	10:45 AM	-1.9
11/21/90	11:30 AM	-1.9	1/28/91	10:45 AM	-1.8
11/26/90	10:00 AM	-1.6	2/1/91	3:00 PM	-1.9
11/30/90	10:45 AM	-1.6	2/4/91	1:10 PM	-1.6
12/4/90	2:15 PM	-2.0	2/12/91	11:00 AM	-1.6
12/11/90	1:00 PM	-1.6	2/20/91	3:45 PM	-1.5
12/15/90	10:45 AM	-1.5	2/26/91	9:00 AM	-1.8
12/20/90	11:45 AM	-1.8	2/28/91	2:00 PM	-1.7
12/26/90	8:15 AM	-1.6	3/1/91	1:00 PM	-1.4
1/4/91	3:00 PM	-1.9	3/3/91	11:00 AM	-1.2
1/7/91	10:00 AM	-1.7	3/9/91	10:00 AM	-1.3
1/8/91	2:26 AM	-1.5	3/13/91	9:15 AM	-1.5
1/9/91	10:00 AM	-1.5	3/18/91	10:15 AM	-1.3
1/11/91	11:30 AM	-1.5	3/19/91	1:30 PM	-1.4
1/15/91	9:30 AM	-1.7	3/20/91	10:15 AM	-1.3
1/17/91	9:48 AM	-1.8	3/24/91	7:30 AM	-1.4

MORO COJO SLOUGH WATER LEVELS

<u>DATE</u>	<u>TIME</u>	<u>ELEV. NGVD</u>	<u>DATE</u>	<u>TIME</u>	<u>ELEV. NGVD</u>
3/25/91	11:15 AM	-0.9	5/13/91	3:00 PM	-2.0
3/26/91	10:45 AM	-0.4	5/2/91	2:00 PM	-2.0
3/27/91	2:30 PM	-0.8	5/15/91	10:20 AM	-2.0
4/1/91	11:15 AM	-1.4	5/16/91	10:15 AM	-2.1
4/3/91	1:00 PM	-1.6	5/17/91	1:05 PM	-2.0
4/6/9	12:00 PM	-1.6	5/24/91	11:00 AM	-1.8
4/8/91	10:45 AM	-1.6	5/28/91	8:45 AM	-2.0
4/11/91	10:30 AM	-1.7	6/3/91	9:20 AM	-1.9
4/18/91	9:00 AM	-2.5	6/7/91	10:15 AM	-1.6
4/22/91	8:00 AM	-1.8	6/10/91	2:45 PM	-1.6
4/24/91	1:50 PM	-2.0	6/12/91	11:30 AM	-1.9
4/26/91	10:25 AM	-1.8	6/17/91	10:30 AM	-2.2
4/29/91	11:45 AM	-1.8	6/28/91	7:30 AM	-2.3
4/30/91	9:20 AM	-2.0	7/11/91	9:30 AM	-2.0
5/1/91	9:30 AM	-2.0	7/23/91	11:00 AM	-1.8
5/10/91	10:50 AM	-1.5	7/25/91	10:20 AM	-1.9

MORO COJO SLOUGH WATER LEVELS

<u>DATE</u>	<u>TIME</u>	<u>ELEV. NGVD</u>	<u>DATE</u>	<u>TIME</u>	<u>ELEV. NGVD</u>
7/29/91	11:00 AM	-1.9	10/21/91	9:45 AM	-1.9
8/6/91	10:30 AM	-1.6	10/30/91	2:15 PM	-2.1
8/12/91	7:15 AM	-2.0	11/05/91	8:30 AM	-1.9
8/15/91	9:15 AM	-1.8	11/15/91	11:00 AM	-1.5
8/20/91	11:00 AM	-1.6	11/22/91	11:00 AM	-1.8
8/28/91	8:00 AM	-1.6	11/25/91	9:00 AM	-2.0
8/29/91	1:00 PM	-1.6	12/03/91	11:00 AM	-1.8
9/13/91	4:00 PM	-1.4	12/17/91	11:30 AM	-1.6
9/16/91	1:30 PM	-1.1	12/30/91	10:00 AM	-1.3
9/17/91	1:00 PM	-1.0			
9/20/91	2:30 PM	-1.0			
9/25/91	8:15 AM	-1.0			
9/29/91	9:00 AM	-1.4			
10/04/91	1:00 PM	-1.8			
10/09/91	9:15 AM	-1.8			
10/15/91	9:00 AM	-1.9			

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MORO COJO SLOUGH WATER QUALITY MONITORING  
STATION EAST OF HIGHWAY 1 BRIDGE

<u>Date</u>	<u>Temp. in C</u>	<u>Salinity in PPT</u>	<u>dO in mg/l</u>	<u>Turbidity in NTV*</u>	<u>pH</u>	<u>Observations</u>
1/27/91	12.2	35.0	4.9	18.0	7.52	Shallow, clear water
2/22/91	16.8	32.2	10.8	4.0	7.98	Enteromorpha on edge of water
3/5/91	15.0	26.9	13.7	29.0	8.07	Clamers digging
4/28/91	19.0	28.0	13.8	15.0	9.60	Enteromorpha on edge, clear
5/18/91	18.0	32.0	12.8	6.0	9.48	Enteromorpha on edge, coots
6/7/91	20.3	32.1	17.6	4.5	8.72	Moderate Breeze, Enteromorpha 30%
7/13/91	22.5	38.0	19.6	9.5	8.93	Clear water
8/25/91	22.0	32.0	12.0	14.0	8.22	Enteromorpha 30%
9/22/91	19.9	31.9	10.3	6.5	8.78	Higher water than usual
10/30/91	14.9	Off scale	14.5	20.0	8.95	Enteromorpha 30%
11/11/91	16.9	31.5	14.6	2.0	8.55	Enteromorpha 30%
12/14/91	10.8	32.0	11.8	3.8	8.49	Enteromorpha 50%

\*NTV is Nephelometric Turbidity Units

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MORO COJO SLOUGH WATER QUALITY MONITORING  
STATION SOUTH OF MOSS LANDING ROAD

<u>Date</u>	<u>Temp. in C</u>	<u>Salinity in PPT</u>	<u>dO in mg/l</u>	<u>Turbidity in NTU*</u>	<u>pH</u>	<u>Observations</u>
3/5/91	14.0	24.0	9.2	6.0	7.81	Started monthly monitoring
4/28/91	17.2	28.5	11.1	4.0	8.24	Enteromorpha on edge, calm
5/18/91	14.0	29.0	10.0	13.0	8.21	Enteromorpha 50%, ulva on edge
6/7/91	17.0	31.3	11.4	4.5	8.39	Gentle Breeze, Enteromorpha 75%
7/13/91	16.5	32.0	8.5	5.0	8.17	Clear water, dark mud
8/25/91	18.0	29.0	9.6	7.5	7.92	Enteromorpha less than 50%
9/22/91	17.5	30.0	12.9	4.0	9.03	Fairly clear water
10/30/91	14.2	Off scale	5.3	15.0	8.73	Enteromorpha 50%
11/11/91	14.8	31.2	7.8	6.0	7.83	Enteromorpha 50%
12/14/91	12.3	30.3	7.7	4.5	7.99	Enteromorpha 50%

\*NTV is Nephelometric Turbidity Units

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**MORO COJO SLOUGH  
MONITORING FOR NITRATES, AMMONIA, PHOSPHATES  
STATION EAST OF HIGHWAY 1 BRIDGE**

<u>DATE</u>	<u>NO2</u>	<u>NO3+NO2</u>	<u>NH3</u>	<u>PO4</u>
1/27/91	0.26	4.28	0.56	1.23
2/22/91	0.00	1.06	0.10	1.20
3/5/91	0.43	6.20	1.30	1.52
4/27/91	0.26	1.83	0.70	21.49
5/18/91	0.11	4.10	0.28	0.48
6/7/91	0.56	7.53	0.00	5.67
7/13/91	0.52	4.13	1.54	0.76
8/25/91	0.82	6.34	1.46	NA
9/22/91	0.60	9.60	2.37	NA
10/30/91	0.00	5.57	2.40	NA
11/11/91	0.37	8.43	3.54	3.59
12/14/91	0.51	3.71	2.62	NA

All Concentrations in uM

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MORO COJO SLOUGH  
MONITORING FOR NITRATES, AMMONIA, PHOSPHATES  
STATION SOUTH OF MOSS LANDING ROAD

<u>DATE</u>	<u>NO2</u>	<u>NO3+NO2</u>	<u>NH3</u>	<u>PO4</u>
3/5/91	1.60	33.50	13.32	4.80
5/18/91	1.26	88.67	2.42	2.53
6/7/91	2.05	73.66	2.79	NA
7/13/91	1.10	36.90	4.12	1.23
8/25/91	1.66	35.46	6.04	NA
9/22/91	0.82	31.00	4.80	NA
10/30/91	0.14	3.17	6.95	NA
11/11/91	0.20	27.55	5.25	4.27
12/14/91	1.20	13.62	8.37	NA

All Concentrations in uM

qa5/monitor.pk/ce