

From: Elaine Stewart
To: Moskowitz, David
Date: Fri, Aug 4, 2000 3:51 PM
Subject: Re: Follow-up from yesterday's meeting with Mike Burton

Thanks, David. I see that you cc'd Ken on this email, so he will have a chance to review it. Unless he tells me otherwise, I will generally use this.

-Elaine

>>> David Moskowitz 08/04 3:36 PM >>>

Elaine:

There is not much to say in terms of the ESA. Here is my take on it, based on a draft memo I am developing on all Metro activities. Please touch base with Ken Helm to ensure we have the right material here.

Metro Activities or Operations that Result in Take of Listed Species

Operation and maintenance of Metro Regional Parks and Greenspaces

1. Smith and Bybee Lakes

Located along the Columbia Slough, and near the confluence of the Columbia and Willamette Rivers, Smith and Bybee Lakes often receives water inputs during high water periods in the spring. The Columbia Slough backs up when the Willamette and the Columbia are running high with spring run off. The high water and velocity in those two rivers drives juvenile salmonids to seek slow flow areas, and thus they migrate into Columbia Slough. When the water levels are high enough, the Slough overflows the dikes or banks separating the Slough from Smith and Bybee lakes. As a result, juvenile salmonids are able to enter the lakes. While the period of high water lasts, juvenile salmonids may pass back and forth from the lakes to the Slough. Once the water drops, any juvenile salmonids in the lakes are trapped because there is a screened outfall from the lakes back to the Slough. At times, juvenile salmon are trapped and die on this outfall. In 2000, no water entered Smith and Bybee Lake from the Columbia Slough during the spring run-off, and thus no listed salmonids entered the lakes.

Current Efforts to Eliminate Take at Smith and Bybee Lakes

Metro has developed a plan to replace the existing screen with a water control structure (WCS) that will allow the passage of fish entrapped by high flows to return to the Columbia Slough. Metro has obtained some engineering drawings of a proposed WCS in conjunction with Ducks Unlimited. Metro staff have discussed the preliminary designs with a habitat biologist from the National Marine Fisheries Service. Based on this initial meeting, Metro has been encouraged to proceed with the planning, design and implementation of the WCS to eliminate this seasonal "take" issue.

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>>> Elaine Stewart 08/03 4:24 PM >>>

We left the meeting yesterday with the task of summarizing a number of issues for Mike into a 1-2 page backgrounder or position paper. I will write the portions on possible projects for the Port payment, rationale for replacing the water control structure and obsolete elements in the NRMP.

I need you to provide information on your areas of expertise:

Dennis - summarize the leachate issue of concern to Mikey Jones and other concerns you may have about replacing the water control structure

David - a wrapup of the ESA/takings issue re the current structure

Please keep them as short as you can, so I won't have to do much editing and risk losing important elements of your information. They shouldn't take much time, so let's set a deadline of **Monday (the 7th)** to have them to me. That way I can integrate them into the paper in time for review and comments and timely submission to Mike.

Thanks!

-Elaine

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=====

CC: Helm, Ken; Sandrock, Peter

**METRO**

To: Mike Burton, Executive Officer
cc: Terry Petersen, Director, Regional Environmental Management Department
From: Charles Ciecko, Director, Regional Parks and Greenspaces Department *CC*
Elaine Stewart, Manager, Smith and Bybee Lakes Wildlife Area *ES*
Date: August 10, 2000
Subject: Smith and Bybee Lakes and St. Johns Landfill issues

I. Introduction

The Smith and Bybee Lakes Wildlife Area and St. Johns Landfill are currently confronted with a number of complex issues involving water quality, public use and vegetation management. Concurrently, a record of decision (ROD) is expected in the near future regarding Jones v. Port of Portland. One likely element of the ROD is payment of \$285,000 by the Port of Portland toward projects to restore or enhance Smith and Bybee lakes in a manner consistent with the Smith and Bybee Lakes Management Plan.

The purpose of this memorandum is two-fold. First, brief overviews of major issues confronting Smith and Bybee lakes and the St. Johns Landfill are provided. Second, staff is providing preliminary suggestions for projects which may fall within the constraints of the ROD and the existing management plan.

II. Background – Major Issues

a) Water Control Structure – Smith and Bybee Lakes

A dam has blocked Smith and Bybee lakes' connection to the Columbia Slough since 1982. It was built in reaction to waterfowl dieoffs in the lakes; wildlife officials believed that avian botulism outbreaks occurred in the lakes and caused the birds' deaths. Consensus about the cause of death and source of disease was not reached, however, the structure was built anyway. It has succeeded in maintaining higher water levels through late summer and fall, when low water levels could concentrate birds and contribute to the spread of disease if and when it occurs.

The existing structure functions as a dam with minimal water control options. Deleterious effects of the dam include the elimination of off-channel habitat access for ESA-listed juvenile Chinook

salmon. This type of habitat provides refuge during high flows, as well as feeding and resting habitat during downstream migration. Smith and Bybee lakes are some of the last potential off-channel habitat in the lower mainstem Willamette River. Very few restoration opportunities are as promising.

The existing dam also caused considerable habitat degradation. The sustained artificially high water levels flooded the wetland forest beyond its adaptability, and hundreds of acres of trees have died. Smith and Bybee lakes are also on the state 303(d) list of waters which do not meet water quality standards, and for which further action is needed to restore water quality. The listed water quality parameters relate to impoundment of the lakes by the dam.

Metro has been working with Ducks Unlimited (DU) to replace the dam with a water control structure that allows fish passage and much more flexibility and control in managing water levels in the lakes. DU has considerable engineering and project management expertise, and has raised nearly \$200,000 toward the estimated total project cost of \$300,000. The new structure will restore the lakes' connection with Columbia Slough while providing the ability to regulate water flow between the lakes and the slough. Staff is preparing a presentation and resolution for the Metro Council's consideration of this project. State and federal natural resource management agencies reviewed and approved Metro's water management strategy and the conceptual water control structure.

Water quality in the lakes should improve with the re-connection to the Columbia Slough. The lakes may be removed from the 303(d) list as the historical hydrology is restored. Modeling work indicates that the lakes will receive primarily Willamette River water once the dam is removed, which tends to be cooler and higher in dissolved oxygen than slough and lake water. The effects of combined sewer overflows (CSO) in the Willamette River will continue to decline as CSO outfalls are gradually eliminated.

b) Vegetation Enhancement – Smith and Bybee Lakes

Reforestation projects in the lakes area have been under way for the last five years. Metro has worked in partnership with the City of Portland (BES) to replant native vegetation on higher sites around the lakes. Approximately 40 acres have been planted to date. Removal of the dam will allow re-establishment of native plant communities.

b) “Triangle Property” – Smith and Bybee Lakes

The Recreational Facilities Plan was adopted in December 1999. This plan outlined facilities to be developed at a site currently owned by the Port north of Smith Lake and old Marine Drive known as the “triangle property”. Metro has talked with the Port of Portland about purchasing the property, but the appraised value is prohibitive. Another option under consideration is a land swap for Metro-owned property at the Expo Center. The Expo parcel is adjacent to the Port-owned “radio towers” mitigation site and would provide additional mitigation opportunity for the Port. Master plan development for the Expo Center is under way and includes the Expo parcel that could be traded for the triangle piece. A level 2 environmental assessment is also needed to determine whether contaminants are present on the Expo parcel.

c) Public Access Enhancement – Smith and Bybee Lakes

Smith and Bybee lakes is in dire need of improved recreational facilities. The existing parking lot is too small and has no bus parking. When North Marine Drive is widened in 2001, it will be 40 feet closer to the parking lot. Amenities are limited to a portable toilet at the trailhead. Boaters must paddle through a slough used heavily by western painted turtles and portage to Bybee Lake. The Recreational Facilities Plan, developed for the triangle property north of Smith Lake, includes parking for school buses, better car parking, a canoe and kayak launch, toilets and an interpretive kiosk. Implementation of the plan is contingent on securing the triangle property and funding.

d) Bank Erosion – St. Johns Landfill

St. Johns Landfill (SJLF) is located within the Smith and Bybee Lakes Wildlife Area, and is managed by Metro's Regional Environmental Management Department under the Revised Closure and Financial Assurance Plan submitted by the Metro Council in 1989 to the Oregon Department of Environmental Quality (DEQ). The 1989 plan noted that rainwater leached contaminants from the solid waste, contributing to the formation of a leachate mound within the waste. This mound pushes contaminated ground water slowly through the low permeable sediments around the waste and eventually into surrounding sloughs via ground water seepage.

The primary method to control contaminant migration was to interfere with leachate generation by blocking the movement of rainwater into the waste. From 1991 to 1996 Metro spent about \$35 million to construct a multi-layered cover over 225 acres of solid waste. Metro is also taking measures to stabilize the natural and man-made perimeter dike that separates the waste from surrounding surface water.

In addition to recommending that Metro repair areas where surface water has eroded the dike bank, Metro's consultant for this work predicted that removing the dam (without a replacement structure) would increase water velocity in North Slough. This could potentially contribute to bank erosion of the section facing North Slough, requiring extensive engineered protections for the bank. As an alternative to additional bank stabilization work, methods to offset the increased flow velocity could be employed, such as replacing the existing dam with a new structure capable of regulating flows during seasonal flood periods.

As required under the federal Clean Water Act, DEQ established limits for selected water quality parameters in the Columbia Slough known as Total Maximum Daily Loads (TMDLs). These limits were based on a water body assessment by the City of Portland, including information from DEQ, Metro and other agencies. In establishing the TMDLs, DEQ evaluated contaminants of concern from St. Johns Landfill. Based on this evaluation DEQ established a limit for lead from SJLF of 1.31 kilograms per year. DEQ stated that "Initial results of modeling conducted as part of landfill closure indicate that with the cap installed, pollutant loads from St. Johns Landfill are negligible." DEQ also stated that "there is no local source of dioxin in the area of the landfill."

III. Preliminary staff suggestions

The greatest funding need at Smith and Bybee lakes is the remaining \$100,000 - \$125,000 needed to replace the water control structure. Considerable funding will also be needed to continue re-planting the native trees and other plants that were killed by the sustained high water levels caused by the dam.

Recreational facilities are also a high priority. Executing the recreational facilities plan is contingent on securing the "triangle" property, owned by the Port, as the facility site. Trail construction for visitors is of great interest to many management committee members, however, the trail alignment through the wildlife area is under review and will take some time to resolve.

The management plan is due for revision by Metro, City of Portland, Port of Portland and the Smith and Bybee Lakes Management Committee. The management plan is ten years old, and many parts of it are now obsolete. Examples include:

- Trail location: habitat loss has made areas like the south side of Smith Lake important to leave undisturbed
- Recreational facility location: the site noted in the plan, at the southeast corner of Smith Lake, was under several feet of water during the 1996 flood
- Integrated pest management: plan refers to the Portland Parks plan, we use Metro's
- Dredging fish channels and boating trails: generally not recommended anywhere
- Mitigation bank: Port and others pay into the trust fund as mitigation for their actions
- Metro Council and Management Committee: clarify roles and responsibilities

Our preliminary suggestions* for spending the \$285,000 is as follows:

\$ 100,000	Water control structure
75,000	Recreational facility (matching funds for grants)
50,000	Re-vegetation (can be leveraged)
60,000	Management plan update

*Note: It is anticipated that the ROD will include language regarding the role of the Smith and Bybee Lakes Management Committee in the selection of projects.



METRO

To: Charles Ciecko
From: Elaine Stewart *ems*
cc: Dan Kromer
Date: August 11, 2000
Subject: Review of salmon use of Smith and Bybee lakes

Use of Smith and Bybee lakes by juvenile Chinook salmon is one of many issues currently facing Smith and Bybee Lakes Wildlife Area. This memo summarizes data from fish surveys conducted at and near the lakes, the frequency with which the North Slough and Bybee Lake are hydrologically connected, and the current dam's fish passage capability.

Few fish surveys have been conducted at Smith and Bybee lakes. Fishman Environmental Services performed electroshocking surveys during three periods in 1986: late April – early May, late June and late October. Juvenile Chinook were caught throughout Smith and Bybee lakes in the spring survey. River levels had been very high in late February (the Columbia River was at 18 ft.), and the Chinook probably moved into the lakes then. In early June, Fishman observed juvenile Chinook around the dam that was in place at the time (the second of three dams); they were moving out of the lake through the culvert. Late June and October surveys yielded no Chinook.

The U.S. Fish and Wildlife Service conducted electroshocking surveys from June 29th to July 2nd, 1992, repeating 13 of the Fishman survey locations. No juvenile Chinook (or any other salmonids) were caught. The USFWS report refers to a June 1991 survey that yielded no salmonids, however, I have no data or report copy of that work. The absence of Chinook in 1992 surveys was due to the dry year – water did not get high enough to top the bank between the North Slough and Bybee Lake. This was the fish's only access to the lakes; the Port of Portland had installed a new dam in 1992. The flap gate on the new dam does not allow fish passage into Bybee Lake.

Under current conditions, juvenile Chinook can only get into Smith and Bybee lakes when river levels exceed about 13.5 feet (the height of the bank at the end of the North Slough). These high water levels typically occur in late winter and spring. No water has come over the bank from North Slough to Bybee Lake in 2000.

In a 17-year period, Columbia River levels topped 13.5 feet on 21 occasions (see table). Downstream migrating Chinook could enter the lakes during spring floods; the off-channel habitat provides refuge

from high flows, as well as feeding and resting habitat. Fishman's surveys showed that juvenile Chinook caught in Smith and Bybee lakes were larger than those caught in the Columbia Slough, probably because of the lakes' warmer temperature and better food supply.

Table 1. Seasonal frequency of high flows in the Columbia River for 17 years. A high flow event occurs when the Columbia River depth at Vancouver is greater than 13.5 feet above mean sea level. Years included in this table are 1973-78 and 1980-90.

<u>Months</u>	<u>Number of high flows</u>
January – March	10
April – June	7
July – September	0
October – December	4

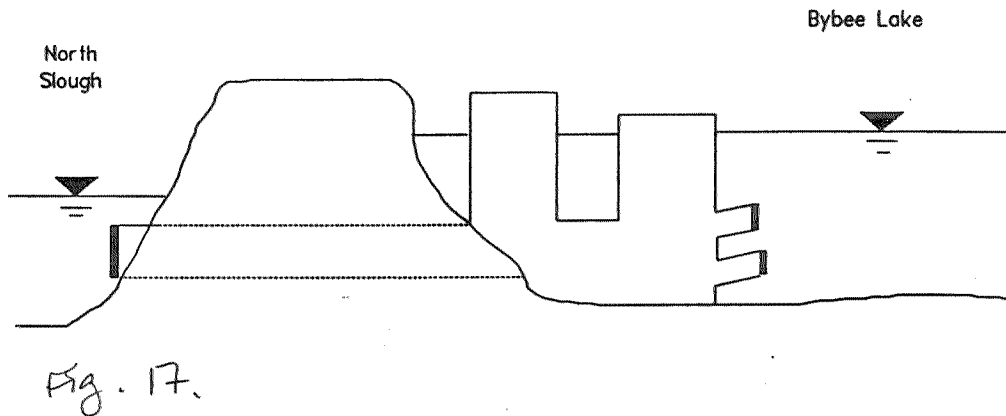
The existing dam's fish passage capability is far from ideal (see attached text and diagrams). It is possible for juvenile Chinook to pass through the grate and over the high-flow weir, down the 60-foot pipe and out the flap gate when water is flowing from the lakes to the slough. Similarly, the Chinook might navigate the low-flow control gate when it is open and water is flowing to the slough. Any salmonids in the lakes would need to get out before summer; they would not survive the high water temperatures.

Water flows from the lakes to the slough when the gates are open and the lake level is higher than the slough. It is conceivable that high spring flows could create a situation where the slough level was higher than the lakes, and water could not flow out of the lakes. I have no information on how frequently this occurs, although I suspect it does happen on occasion.

I am meeting with the project manager and lead engineer for Ducks Unlimited next week. They are ready to proceed with design work (on their time and budget) for a new water control structure and I will discuss fish passage needs with them.

Please let me know if I can provide additional information for you.

Existing Flow Control Structure



Existing Flow Control Structure

The existing flow control structure housed within the dam separating the lakes from the Columbia Slough was built in 1992. The new structure utilized the existing earthen dam with a 60" diameter corrugated metal pipe 63 feet long through its base connecting Bybee Lake to the eastern end of the North Slough (Figure 17). The flow control structure was intended to provide more control over regulating the surface water levels in the lakes. Prior to this new structure, a weir fixed at 10.4 feet AMSL was in place on the Bybee Lake side of the pipe.

The new flow control structure attaches to the 60 inch diameter pipe on the Bybee Lake side of the dam. The structure houses a vertical overflow pipe, an adjustable high-flow weir and a low-flow control gate (Figure 18). The 4-foot wide adjustable weir, which has a minimum elevation at 8.4 ft. AMSL, receives water through a 36-inch diameter grated intake pipe with an invert elevation of 6.9 ft. AMSL. The low-flow control gate, a 30-inch diameter opening covered with a regulated circular plate, receives water through a 30-inch pipe with an invert elevation of 5.5 ft. AMSL. At lake surface elevations less than 5.5 ft. AMSL, no water from the lakes will flow through the structure.

Given the configuration of the new structure, water from the North Slough would enter the lakes through the structure when slough water surface elevations exceeded that of the lakes. Due to concern of entry of water of lower quality from the Columbia Slough via the North Slough into the lakes, an iron flap gate was mounted on the slough side of the 60-inch diameter pipe upon completion of the structure. This gate allows lake water to flow out and prevents slough water from entering the lakes through the structure.

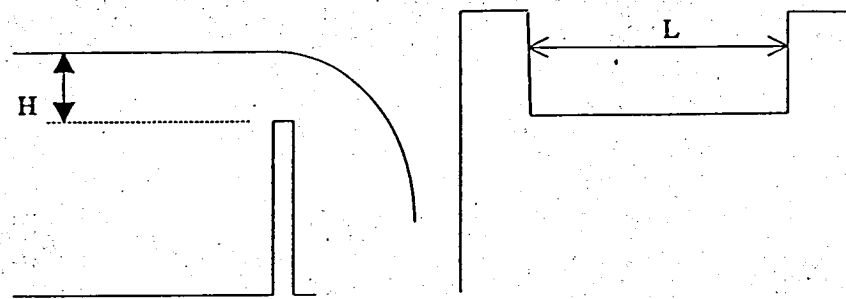


Figure 11: Weir Configuration

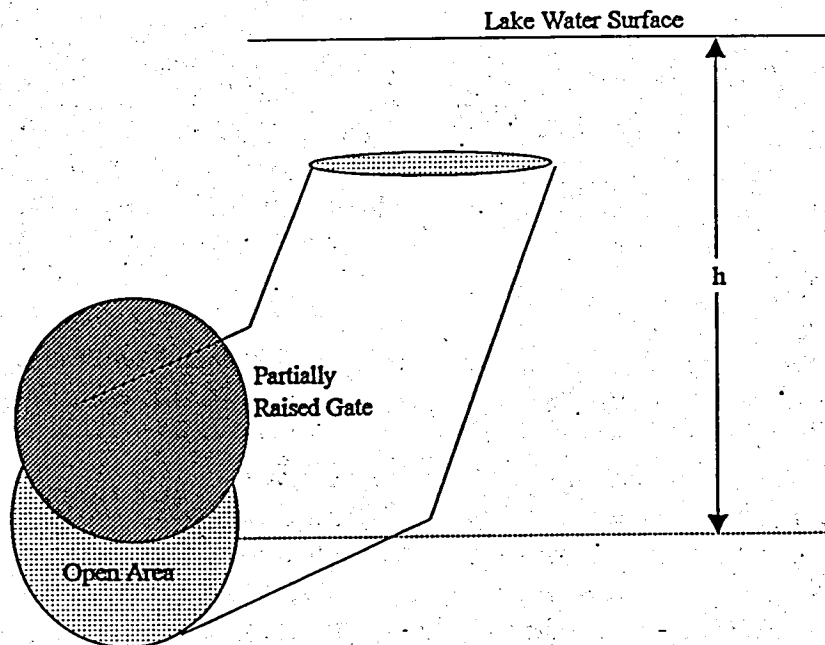


Figure 18 Weir Configuration and Canal Gate Configuration

USFWS 6/29 - 7/2, 1992
repeated Fishman sites
13 of

didn't pick up any salmonids in lakes or sloughs

1991 sampling no salmonids either

1992 no overtopping banks

Fishman Spring-Summer 1986

4/30 - 5/9 juv. Ch 4n both lakes, dam, & ^{pool} pool

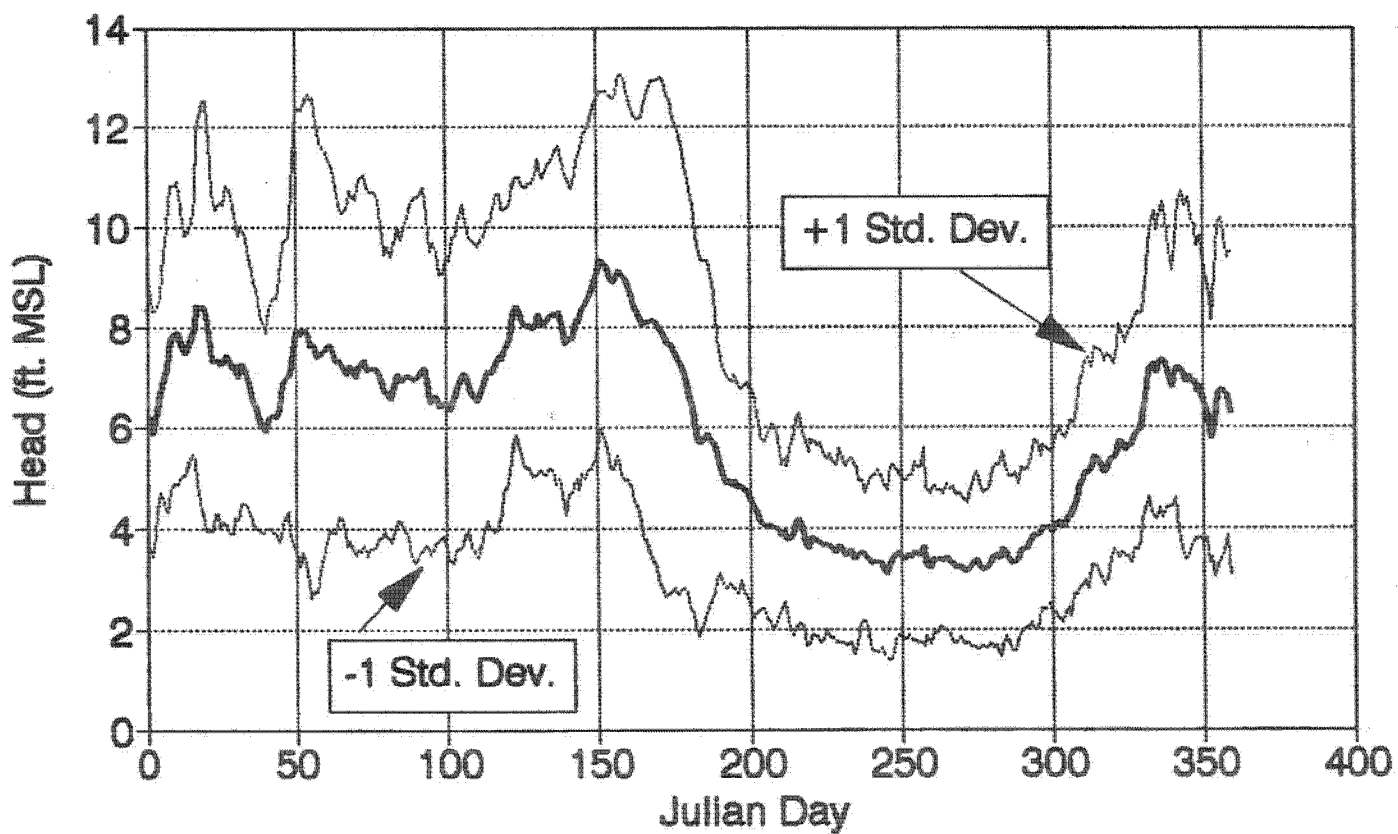
6/26, 10/24-25 no Ch 4n lakes or slough

Col. R. peaks > 13.5 ft MSL

	73-78	80-85	86-90	Total
Jan - Mar	2	6	2	10
Apr - Jun	4	3	0	7
Jul - Sep	0	0	0	0
Oct - Dec	3	1	0	4

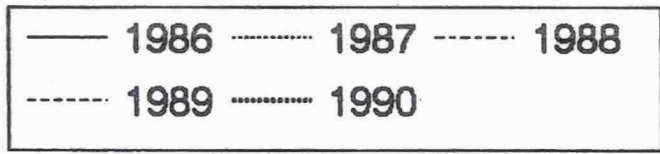
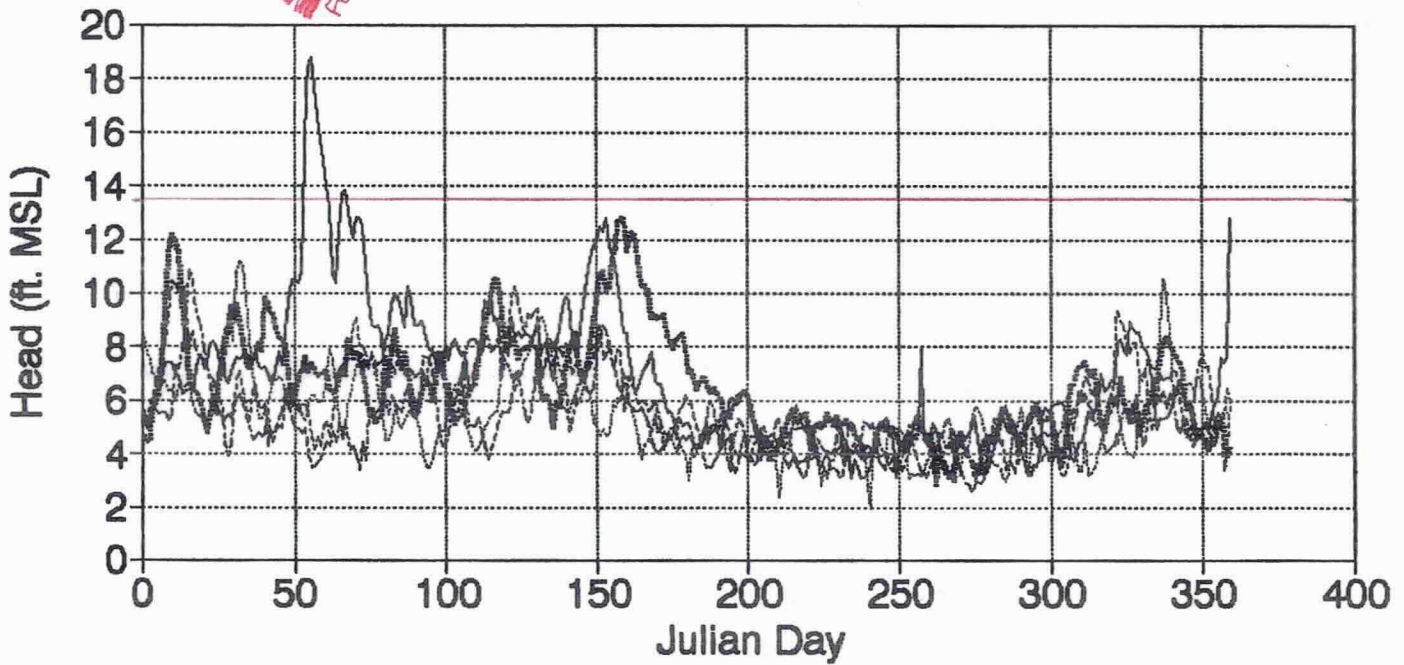
Fishman observed juv. Ch and WCS in Bybee L on 6/5. Fish were jumping out of the lake water into the slough water cascading out of vert. culvert. (No flap was on slough side then.)

Columbia River Mean Peak Head 1973-90

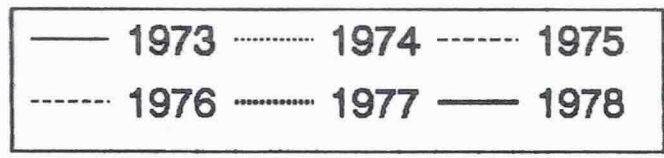
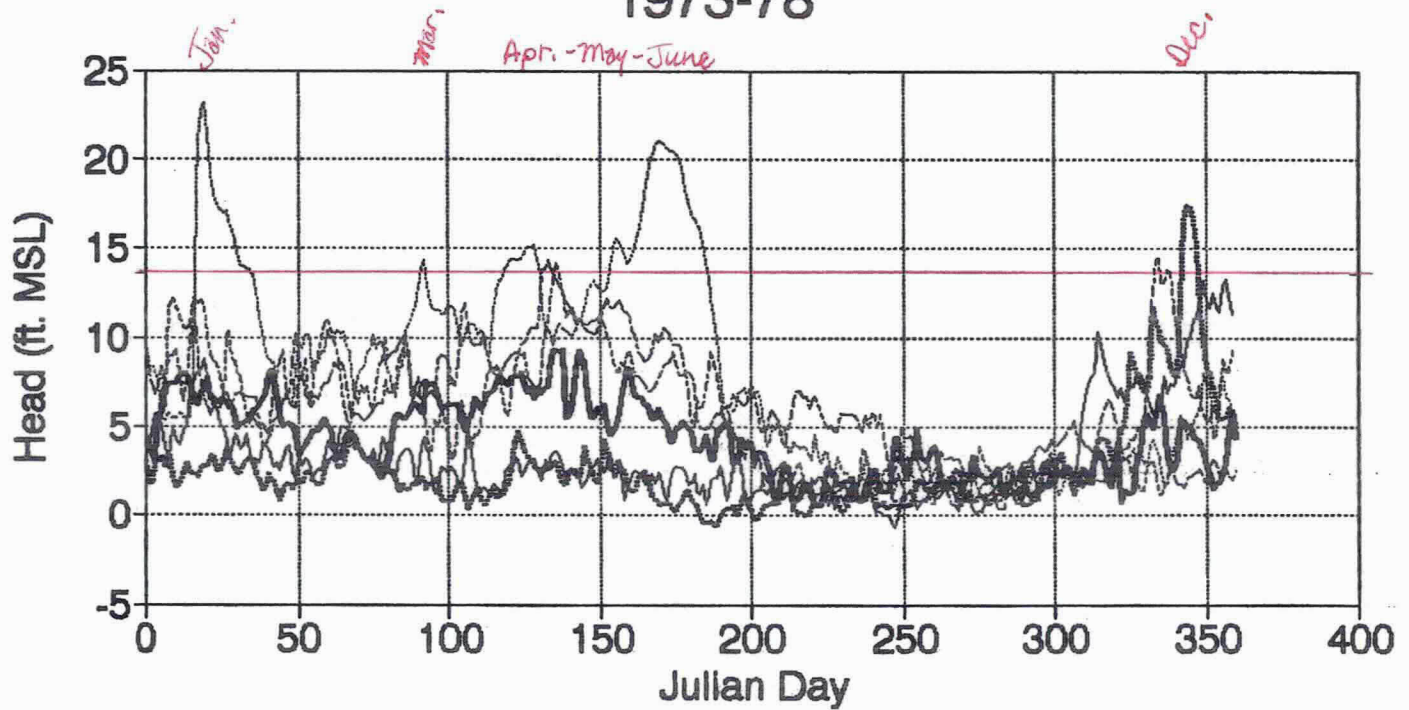


Col. Rv. Peak Daily Head 1986-90

*Lake
Feb.*



Col. Rv. Peak Daily Head 1973-78



Col. Rv. Peak Daily Head 1980-85

