DRAFT

Fishery Assessment at Smith and Bybee Lakes

Objective: To assess the effect of varying lakes levels on Smith and Bybee Lakes fish populations over time.

Since construction of a dam in 1982 that isolated Smith and Bybee Lakes from Columbia Slough, the fish populations in the lakes have been isolated most of each year. Usually twice a year for a month period, high water levels in the Willamette and Columbia Rivers enable fish to move both in and out of the lakes into the Slough.

The outflow at the existing dam has held the lakes near a constant level since 1983, about 10.4' AMSL. Beginning in late-July or August of 1992, the dam will be removed and replaced with a water level control structure. This structure will permit greater control of the lakes' levels. Drawdown will occur during the construction period. A fish population assessment is needed to assess the impact of drawdown on the fishery.

Proposed Sampling

Fish population assessment should be conducted throughout Smith and Bybee Lakes prior to drawdown in 1992. Electrofishing should occur in the same areas as the 1986 fish survey, roughly 29 stations. The sampling should occur at least twice prior to drawdown: (1) during the period of inflow from the Slough caused by high river levels (usually early June) and (2) latest in the summer as allowable prior to drawdown (early August). Data to be collected should include temperature and depth of sampling site, specie identification, count, weight, length, and catch rate.

To determine if there is any impact on the aquatic biota and any potential health risks from consuming fish from Smith and Bybee Lakes, both invertebrate and fish tissues samples should be examined for the parameters listed in the Table 11 below. The invertebrate chosen for tissue analysis should be crayfish if present in the area in ample abundance. The fish to be analyzed will be those typically consumed from Smith and Bybee Lakes. Fish specimens should be obtained during the June fish-shocking survey. Annual tissue analysis will be of a composite of edible tissues from a number of specimens captured throughout Smith and Bybee Lakes.

Don Anglin 696-7605
Kurt Burley, Sup.

TABLE 11

ST. JOHNS LANDFILL WATER MONITORING PLAN
BIOLOGICAL TISSUE QUALITY PARAMETERS

PCB's
Mercury
Cadmium
Pesticides (RCRA Method 8080)
Lead
$269/sample x3 = $807

contract ✗ Century West - (503) 782-6432 (Brent)

✓ Columbia Analytical - Abbie Spielman
(206) 636-1068 (Kelso)

Coffee Labs

' Add monit. sw '

Smith and Bybee Lakes

A total of two locations, one in Smith Lake and one in Bybee Lake will be sampled in February, July, August, and September. Attempts will be made to locate the monitoring points within the deepest areas in both lakes. Two locations currently marked by staff gauges in the lakes will be used as monitoring points if they fit this criteria. Specific locations will be chosen after consultation with the Wetland Technical Advisory Committee. The lake locations for the monitoring plan are identified as BL-1991 and SL-1991.

Test Parameters

Since 1980, water locations were sampled and tested for the parameters listed in the St. Johns Landfill National Pollutant Discharge Elimination System (NPDES), Waste Discharge Permit #3789-J, January 24, 1984, Schedule B. The test parameters were: pH, alkalinity, hardness, conductivity, BOD, COD, Cl, and NH_3. A renewed NPDES permit (#100599) was issued on July 14, 1989. Minimum Columbia Slough test requirements were eliminated from Schedule B. However, Metro continued to sample and test surface water for the above mentioned parameters.

Currently, DEQ is in the process of developing allowable Total Maximum Daily Loads (TMDL) that will protect the beneficial uses of the Columbia Slough system. TMDL's under consideration are for phosphorus, enterococci bacteria, and toxins. As of January, 1992, the types of toxins targeted for testing are unknown. The program for monitoring the surface waters adjacent to St. Johns Landfill and Smith and Bybee Lakes will include monitoring for the parameters listed in the Table 7.

Presently, specific conductance and chlorides in the water column of Columbia Slough are being monitored monthly at locations indicated on the attachment titled "Lower Columbia Slough: Sampling Zone".

Smith and Bybee Lakes are currently sampled in February, July, August, and September. The current proposal is to continue the same sampling frequency with the parameters listed in Table 7. Sampling locations are indicated on Figure 3.

TABLE 7

ST. JOHNS LANDFILL WATER MONITORING PLAN
SLOUGH SURFACE AND SMITH AND BYBEE LAKES
WATER QUALITY PARAMETERS

Basics
Water Temperature
Dissolved Oxygen
Specific Conductivity
pH
Secchi disk

Solids
Total Solids
Total Suspended Solids

Nutrients
NH_3-N
NO_2+NO_3-N
Total Kjeldahl Nitrogen
Total Phosphorus
Dissolved Ortho Phosphorus

Biological
Enterocci Bacteria
Zooplankton*
Algal Counts*
Chlorophyll a*

* Parameters addressed in Biological Monitoring Section

SEDIMENT

A change in sediment quality is a good indicator of long-term changes in water quality. Several reports present data about sediment composition in North Slough and in Smith and Bybee Lakes., A total of four sediment locations will be sampled, two in the North Slough, and one each in Smith and Bybee Lakes. The two sediment samples in the North Slough will be collected at the same locations as the surface water samples. Specific locations for the remaining lake samples will be determined after consultation with the Smith and Bybee Lakes Wetland Technical Advisory Committee.

Testing frequency will be annually for the first 10 years and biannually for the following 20 years. If a review of monitoring results indicate that it is necessary, modifications to the testing frequency may be considered. The sediment test parameters are listed in the table below.

TABLE 8

ST. JOHNS LANDFILL WATER MONITORING PLAN
SEDIMENT QUALITY PARAMETERS

Copper
Lead
Zinc
Cadmium
Chromium
Arsenic
Mercury
PAH's (lake sediments only)
Pesticides listed in RCRA Method 8080/NPDES Method 608
2,4-D
Total organic carbon
Grain Size and Organic Content

STORMWATER

The location of existing and two proposed stormwater discharges to the lakes are identified in the Smith and Bybee Lakes Management Plan. A thorough field survey to locate and characterize stormwater outfalls currently existing should be conducted during the dry and wet seasons. Area and current land use of drainage for each outfall will be estimated.

One flow-weighted sample from each outfall should be taken in October/November during a storm event of greater than 0.1". Grab samples should be collected during the first 30 minutes of the storm event. Test parameters should include:

Suspended Solids
Specific Conductance
Biochemical Oxygen Demand
Fecal Coliform
Enterococci Bacteria
Total Zinc
Total Kjeldahl Nitrogen
Nitrate/Nitrite Nitrogen
Total Phosphorus
Total Dissolved Phosphorus
Total Lead

1. Upon adoption of Mgmt. Plan, Metro ~~designated~~ environmental monitor.

2. Significant env. changes will occur soon:
   - landfill closure activities
   - regulating lake levels
   - increased usage of lakes area

3. ~~Staff~~ I worked with TAC in developing RFP,

4. Ed. component in ~~proposed~~ RFP description involving local community

5. Time imperative involved in requesting approval of RFP release and granting authority to execute contract