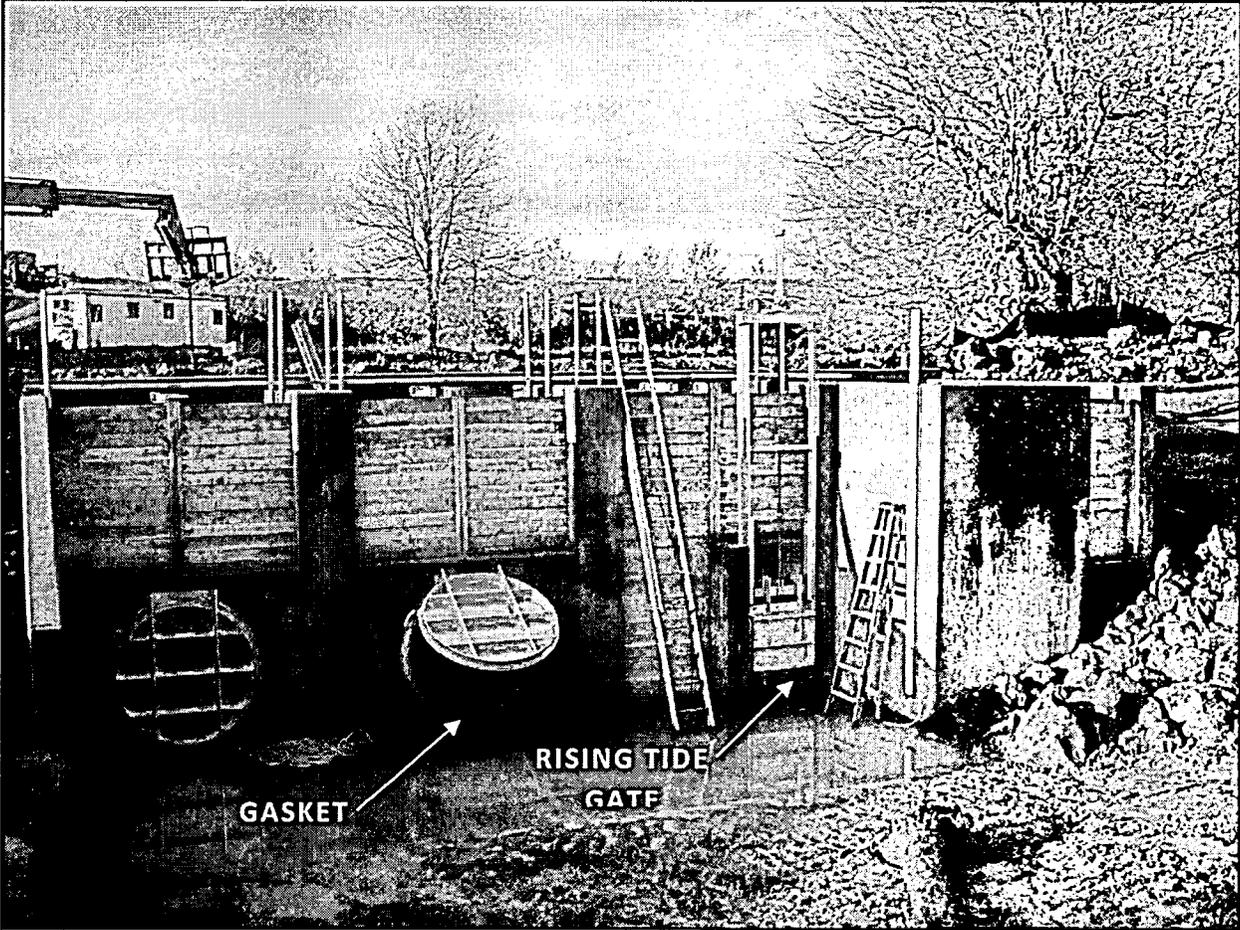


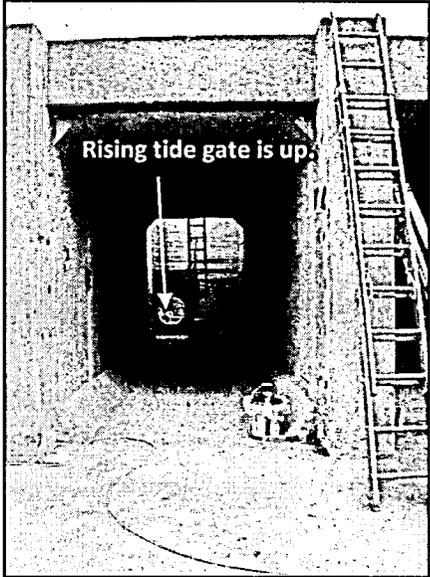
Water Control Structure Operations



TIDE GATES

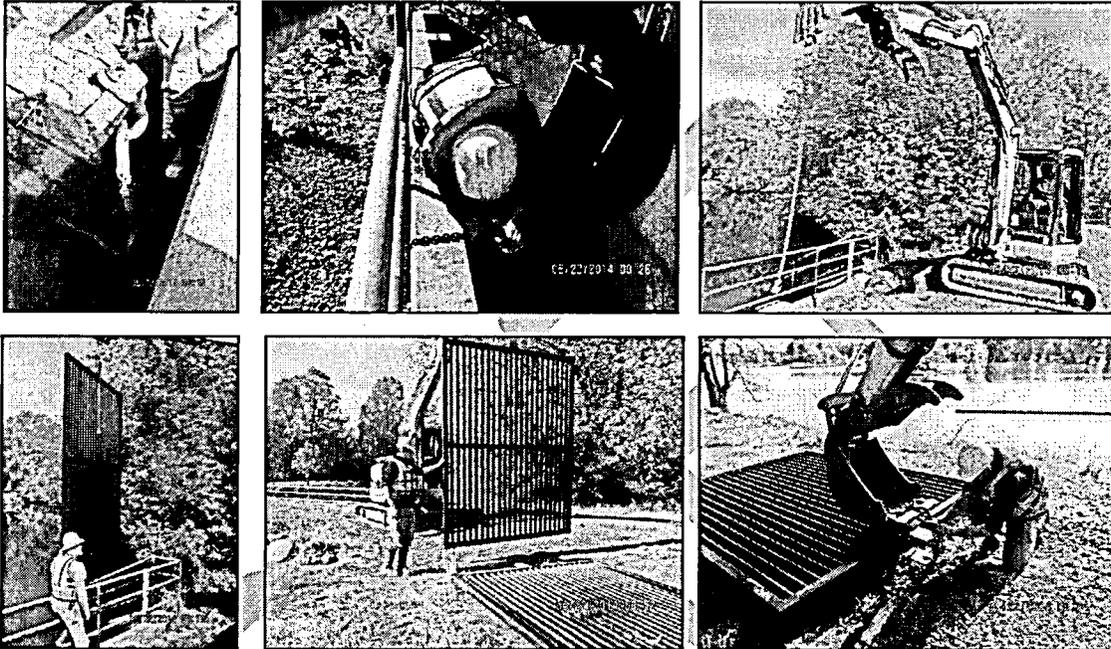
Gaskets. Inspect yearly at low water to ensure that they are not cracked or damaged

Rising tide gate. Clean and lubricate stem yearly. This should be raised when the boards are removed from the adjacent row (right).



TRASH RACKS

Spring draw down (May/June/July). Remove trash racks (May/at Scientist confirmation) and store them to the side of the WCS. The landfill excavator is required to remove the racks and at least three people should work on the rack removal (one on excavator and two on ground). Racks go between the two L-brackets on the walls (key step).



Fall board installation (late Oct/early Nov - by Veterans Day – at Scientist Confirmation). Install trash racks to prevent logs and debris from entering the bays. Before racks go in, walk in the bays to make sure there are no logs or debris in structure and lube gaskets etc. See if it's possible to cut out the bottom boards that may be stuck there.

BOARDS

Special order boards from Parr Lumber or Milwaukie Lumber. Board specs are 3 x 6 double tongue and groove fir boards, 18 feet in length. (add model number and photo here) Smaller bays require ~11 boards and the large bay requires ~22 boards.

Boards need to be cut to size (bay dimensions vary) (add

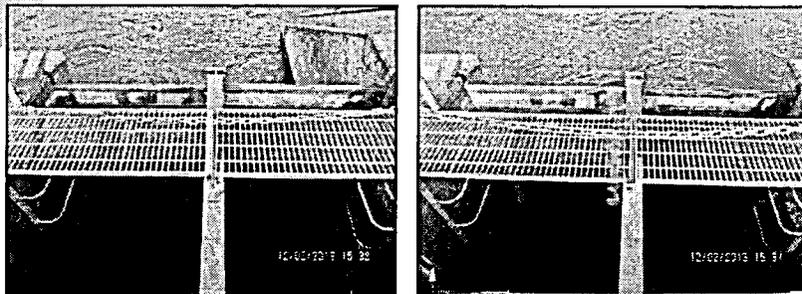


photo showing the sizes of each bay) and color coded (photo show which bay is which color – metal is

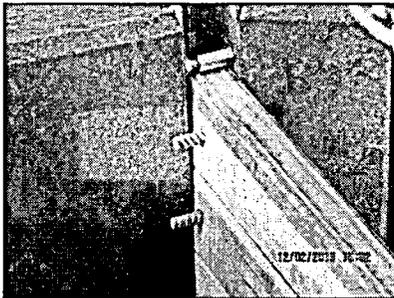
painted the correct color) for the correct bay.

Boards are currently cut with a circular saw at the Howell Barn. The Landfill staff may be open to us using the Landfill shop to cut boards for the structure.

Each board should be inspected annually (summer). Larger boards that show damage at the ends can be cut down and re-used in smaller bays.

During the "high-water" season, boards should be inspected as beaver, otter and carp can physically damage the boards.

Boards are stored at the Howell Barn when not in use.



Rebar picks should be on each board. Use 5/8" rebar – drill hole through and pound in. Cut rebar to 6" length and grind off ends.

Boards can be removed with a "board pick" (add photo) – stored in the container at the landfill. Wheel from tide gate is also stored in the container.

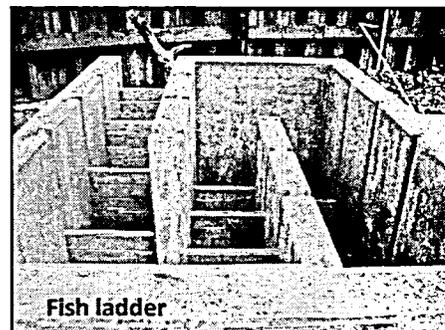
Boards need to be wedged into place to hold them during water fluctuations. A stock pile should be made and stored on site.

WATER LEVELS

Water levels should be checked each week on Monday (or whatever day maintenance is scheduled). The lake level should be sent via e-mail to the Regional Scientist, Land Manager, Program Assistant, Landfill staff, PES – rangers, Eastside NALM team, Friends of Smith Bybee (Troy Clark and Jeff Locke) for the site. Scientist logs the water levels. After boards are out water levels do not need to be checked.

DRAWDOWN PROCESS

1. Pull the trash racks to avoid entrapment of wildlife.
2. Pull one row of stoplogs (boards) per week. This is approximate, but will draw down the wetlands by about 6 inches per week. As they get closer to full drawdown, the number of boards removed may increase.
3. Monitor flow in the fish ladder, ensure there is at least 1 inch of water over the highest board. This ensures proper flow rate for juvenile salmon to navigate the ladder.
4. The structure needs to be visited weekly during this time, but no more than that if things are going well. This is true when we are holding water too.



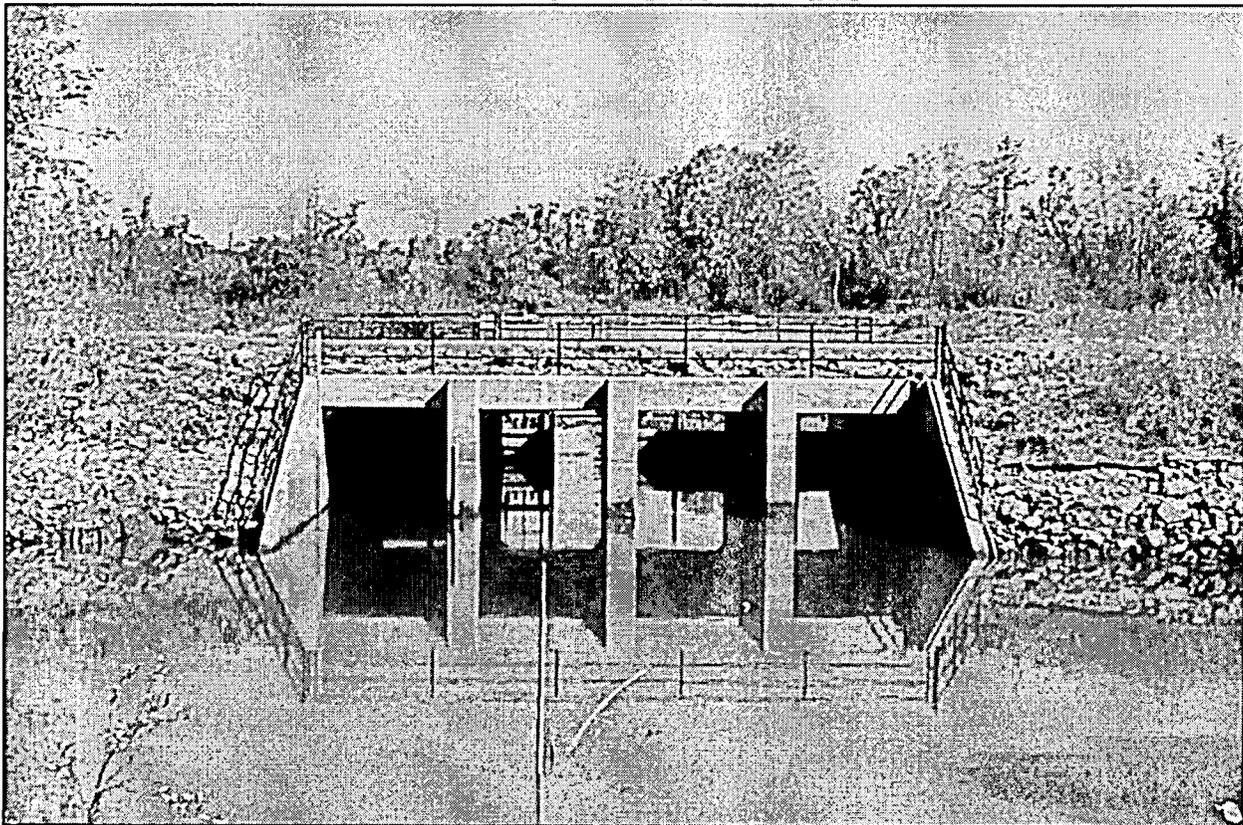
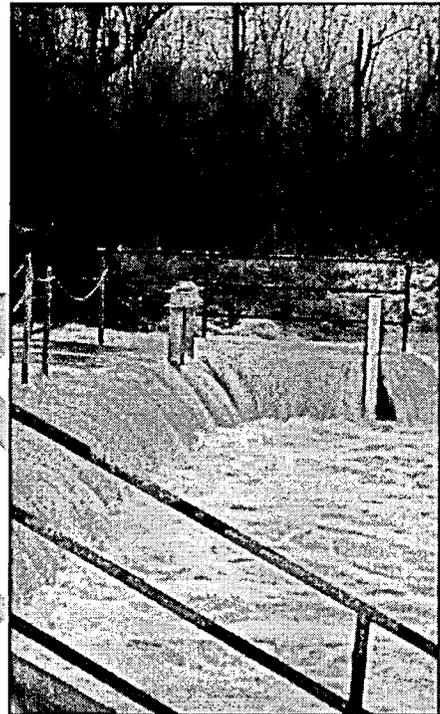
5. If water rises quickly in the slough, it may loosen the boards. Checking one of the NOAA websites for river levels can help with remote monitoring for this. I'll provide a link below. **This**

link doesn't work

<http://water.weather.gov/ahps2/hydrograph.php?wfo=pqr&gage=vapw1&view=1,1,1,1,1,1,1>

6. Email the Bybee Lake level to Scientist weekly when you visit the structure, as you do during winter and spring.

This is where I go to see river levels. The North Slough arm of the Columbia Slough is essentially the same as the Columbia River at Vancouver, although there is a time lag on the tides. The Vancouver gage and the Bybee gage are within 0.1 feet of each other, I think.



Action	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
Gasket annual inspection												
Rising tide gate annual cleaning & lubrication												
Trash rack removal (needs sci confirmation)												
Trash rack installation												
Summer board inspection												
High water board inspection												
Water level check (weekly, on Mondays)												

WATER CONTROL STRUCTURE CALENDAR

DRAFT