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STATE DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES

1069 STATE OFFICE BUILDING
PORTLAND 1, OREGON

October 4, 1965

To: Wayne Garber, Oregon Fish Commission, Portland, Oregon.
From: H. G. Schlicker, Geologist
Subject: Geologic Inspection of Tioga Falls Fish Ladder Site, Coos County Oregon

Inspection was made of the geology at Tioga Falls on Tuesday, September 28, 1965. The rock cropping out at the falls is the Tyee sandstone. It is composed of a series of strata, each several feet thick, composed of several inches to a foot thick of shale which grades downward into fine to medium grained sandstone at the base. This sequence of grain sizes is repeated for each stratum. The rock parts easily along the thin shaly bedding planes producing thick sandstone layers which break out in large flat slabs 1 to 3 feet thick. The rock dips about 10 degrees upstream and can be shot out leaving a flat bedding plane dipping upstream.

Erosion of the Tyee sandstone is moderately rapid. The soft shale between the more massive sandstone layers weathers and erodes out rather rapidly allowing the sandstone blocks to break out. These blocks weather and are reduced to sand during a several year period, otherwise there would be much gravel developed in the stream bed from this sandstone.

Much of the erosion can be controlled at a permanent fish ladder site by sealing the shale interbeds and fractured areas with gunnite. Concrete walls can be installed if proper attention is given to sealing the contact of the concrete to the sandstone and drilling and cementing reinforcing steel into the bedrock.

Experience with other structures installed on Tyee sandstone would give considerable information concerning rate of weathering and erosion.

If you would like to discuss any other problems concerning this material, do not hesitate to call on us.

HGS:lk