Table 3.

BOTTENINTNIN LAKE
ASSOCIATED VEGETATION

AQUATIC VEGETATION

Class	Symbol	Common Name	Scientific Name
Emergent	BB	buckbean	Menyanthes trifoliata
Emergent	CR	sedge	Carex rostrata
Emergent	HTF	horsetail	Equisetum fluviatile
Emergent	SR	spike rush	Eleocharis palustris
Floating	YPL	yellow pond lily	Nuphar polysepalum
Floating	PN	pondweed	Potamogeton natans
Submerged	PG	pondweed	Potamogeton gramineus
Submerged	QW	quillwort	Isoetes muricata

WETLANDS VEGETATION

Class	Symbol	Vegetation Reference
Scrub-shrub	PSS1F	National Wetlands Inventory (Kenai)
Scrub-shrub	PSS4/1B	National Wetlands Inventory (Kenai)
Scrub-shrub	PSS1B	National Wetlands Inventory (Kenai)
Emergent	PEM5F	National Wetlands Inventory (Kenai)
Emergent	PEM5B	National Wetlands Inventory (Kenai)

TERRESTRIAL VEGETATION

Class	Symbol	Common Name	Scientific Name
Trees	BS	black spruce	Picea mariana
Trees	IB	immature paper birch	Betula papyrifera
Trees	IS	immature spruce	Picea sp.
Trees	MB	mature paper birch	Betula papyrifera
Shrubs	A	alder	Alnus sp.
Shrubs	SG	sweet gale	Mirica gale
Shrubs	W	willow	Salix sp.
Below Shrub	CR	sedge	Carex rostrata
Below Shrub	Cunid	sedge	Carex sp.
Below Shrub	MFF	marsh five finger	Potentilla palustris

WATER QUALITY

Water quality data were collected in July and September. Water quality parameters were within acceptable fish tolerance limits. Lake fertility was rated low based on a classification of Minnesota Lakes using alkalinity level as an indicator (MacKenthun and Ingram 1967). The lake's alkalinity of 7 mg/l was the second lowest encountered of 18 lakes surveyed in 1983. Specific conductance, corrected to 25°C, was 24 umhos. Water pH during July was slightly acid at 6.9. Total phosphorus was 15 ug/l and Kjeldahl nitrogen was 0.52 mg/l. Water color was yellow green and transparent to the lake bottom at 8 feet. No sources of water pollution were apparent.

The lake was not thermally stratified. Dissolved oxygen was saturated to slightly super saturated (9.9-9.5 mg/l) through the entire water column. The lake has a Morphoedaphic Index of 39.3 and Shoreline Development Factor of 1.56 (Appendices A and B). Specific water quality data are given in Tables 1, 4 and 5.

MANAGEMENT HISTORY

Alaska Department of Fish and Game (ADF&G) surveyed Bottenintnin Lake in 1960 (Kubik and Reynolds 1960) and found only threespine stickleback. In 1964 the State stocked the lake with 30,000 coho salmon and with 38,220 sockeye salmon in 1967. The 1964 plant failed to produce fish while the 1967 plant produced some fish for three consecutive years. Stocking was discontinued after 1967 due to evidence of winter kill (Nelson 1984).

WILDLIFE

Three species of waterfowl were seen on the lake along with evidence of muskrat and moose. All species recorded, along with other pertinent data, are listed in Table 6.

RECREATIONAL USE

The primary use of this lake area is for wildlife viewing. It also serves as a camping area for recreational activities taking place in other parts of the refuge. Running outboard motors in the lake is difficult due to the dense aquatic vegetation.

FISHERY RESOURCES SUMMARY

Our fishery survey found no game fish and a moderate abundance of threespine stickleback in the lake. Water quality conditions, at the time of the survey, were well within optimum fish tolerance limits. However, the extreme shallow depth of the lake - maximum 8 feet - and the dense aquatic vegetation, make the lake a prime candidate for winter kill. ADF&G confirmed that winter kill had caused the failure of the previous stockings of coho and sockeye salmon. Bottenintnin Lake is considered to have a negligible sport fish value.