

LAKE MANAGEMENT PLAN

Updated July 2006 – J. Korth

Water(s): Blue Lake

Location: Sun Lakes Area, Sec 20, 21, 29 T24N R27E; approximately 15 miles north of Ephrata and 10 miles south southwest of Banks Lake, Grant County, WA
MU Code: BEDKFW, WRIA#: 42,

PHYSICAL INFORMATION:

1. Elevation: 1,093 ft. Avg/Max Depth: 40/69 ft. Acres: 532
Acre feet: 21,353 Weight of water: 58,040,783,000 lbs.
2. Land Ownership: Public 30% DOT and WDFW, Private 70%;
Land Use: Residential 20% (200+? near-shore homes),
Private-Recreational 25%, Grazing 25%.
3. Public Access, Type and Condition: WDFW boat launch, parking, toilets; no camping; well maintained. Most of DOT land accessible by car for shoreline angling; camping allowed; no services or maintenance.
Resorts: Three well-developed resorts with cabins, camping, launches, stores, and boat rentals.
4. INLET STREAM: perennial from Park Lake; 5-10 cfs; ~ 175 m.
5. OUTLET STREAM: mostly perennial, drains to Alkali Lake, w/ water control structure and rotating drum type screen, repaired 1994; 5-10 cfs; ~ ¾ miles.
6. Habitat Description: Blue Lake is primarily pelagic, and most shorelines are steep and rocky. Shallow littoral areas are limited to the north and south ends of the lake, comprising less than 10% of the total lake surface. Aquatic vegetation (*Chara* sp.?) covers the bottoms of these littoral areas almost completely, and rushes and cattail surround about 50% of these shorelines. Secchi disk readings are about 15 to 20 feet at midday. Due to development, Blue Lake has become more mesotrophic, especially in the north and south ends.
8. Water Chemistry: pH 9.1-8.5, Specific Conductance 498-513 micromhos.

GENERAL MANAGEMENT INFORMATION:

1. Current Regulations: General season opener on last Saturday in April; closes September 30. Daily limit 5 trout. Statewide regulations for all other aspects.
2. Stocking: 200,000 rainbow trout fry, usually Spokane stock.
3. Present fish population: rainbow trout, brown trout, yellow perch, largemouth bass, smallmouth bass, pumpkinseed sunfish, bluegill, brown bullheads, sculpins.
4. Anadromous fish use: none.

Management History Summary:

Blue Lake has been one of the most popular trout fisheries in Washington since the 1950's. When free from competing species, the fishery produced in Blue Lake supports up to 6,000 angler trips on opening day alone. Even when the fishery is diminished and the lake in need of rehabilitation, over 2,000 angler trips occur on opening day. Only about 10% of these anglers are from the local area, while 50% come from the westside of the state.

Management intent has been to produce daily limits of about 12 inch yearling rainbow on

opening day, with enough fish remaining thereafter to carry the season through early summer.

Stocking records for rainbow trout go back at least to 1953. Early stocking rates were about 400,000 fish, but were adjusted to current rates during the 1960s. When the statewide daily creel limits were adjusted from eight to five fish in the mid-1990s, the stocking rate was reduced from 250,000 to 200,000 rainbow. Fewer fish per limit meant a lower overall harvest. Coincidentally or not, participation in the fishery also dropped at this time, further reducing overall harvest. Reducing the stocking rate resulted in an increased yearling size from nine inches to 12 inches. Besides rainbow, kokanee have also been planted with some success. Most fish are stocked during the spring as fry. When competing species begin to adversely affect spring fry survival, fall plants of advanced fry have helped sustain the fishery. In theory, this split release reduces intraspecific competition, which allows better growth of the spring allotment and better survival for the fall allotment. Extended rearing in the hatchery allows the fall release to be planted at a larger size. Survival of the fall-released fish is also enhanced because the activity of piscivorous fish and birds declines at that time. Catchables have generally been used to provide a fishery the season before and after rehabilitation occurs.

Lake rehabilitation with rotenone has been a standard and successful management tool for Blue Lake since its earliest days as a fishery. Rehabilitations of the entire lake have averaged about every 5-6 years and occurred in 1952, 1959, 1963, 1969, 1976, 1981, 1986, and 1996. Partial rehabilitations of the shorelines to control sunfish were done during the late 1960's and early 1970's with some success as indicated by the 7 years between complete rehabs during that time. Using the current split stocking scheme, the period between rehabilitations has been increased to 10 years.

Blue Lake has generally followed the regulations applied to April opening day waters statewide. Focus is on the harvest of yearling fish. No minimum size is established, and bait is allowed. Daily limits were 8 fish until 1994, when the limit was reduced to 5 fish in an attempt to prolong successful angling during the spring and early summer. Blue Lake closes at the end of September to protect the cohort planted the previous spring, which would provide the next year's fishery.

Management Issues Summary:

The increasing population of Washington has been the primary issue with managing Blue Lake. The crowds of anglers continue to increase. Anglers from the westside of the state who have been displaced from their abandoned traditional fisheries on opening day or closed anadromous fisheries are becoming more numerous at Blue Lake. The local population is growing as well.

The introduction, mostly illegally, of exotic species deleterious to the management of trout is the most serious challenge to the management Blue Lake. Competition from yellow perch and sunfish combined with predation by small and largemouth bass severely impact trout fingerling survival. Managing with trout fingerlings thus requires periodic chemical rehabilitation to eradicate the majority of the spiny-rayed fishes. Current hatchery space and water is inadequate to produce the number of catchable-sized trout required to create the same fishery. Net pens would not produce large enough fish by the opener.

Of special concern is the increasing amount of near lake residences. Probably most of the continuing eutrophication of Blue Lake can be attributed to run-off from the lawns and streets of the developed area on the mid-east shore of the lake. In addition, some of these residents are more concerned with the aesthetic qualities of lakeside living, and they do not particularly care whether the fishing is good. Some actually detest the opening day crowds on 'their' lake. Angling also conflicts with other lake users such as skiers and boaters, especially during and after Memorial Day.

Rehabilitation proposals can be expected to be met with vigorous argument from an as yet small portion of near-lake residents and warmwater fish enthusiasts due the preceding discussions. The environmental effects of rotenone use will also no doubt be invoked. Lacking any substance to most environmental issues, the odor of rotting fish may be used.

A more recent management issue for this water has been the increasing number of piscivorous birds frequenting the area. While no uncontested proof of damage to the fishery exists, these species are primarily fish eaters. Over 30 loons have been counted on the north end of the lake during the spring and fall migrations. Mergansers and cormorants have become summertime residents on Blue Lake. It is to be suspected that the extent of their impact to the fishery has yet to be seen.

T&E Flora and Fauna: Professionals from many resource fields have visited this site countless times during the last 40 years. No known report exists of any threatened or endangered species habitually found in or near Blue Lake. Occasional visits from both bald and golden eagles occur, although no nests of these two species are known in the area. Protected species of waterfowl and other birds frequently are found here at times, as well. No significant nesting of any of these species occurs.

Current Management Objectives: Blue Lake

Last Saturday in April through September 30, production type trout fishery. Five fish limit, no size or gear restrictions. Provide 4+ yearling 12-inch rainbow trout per angler trip for 4-5,000 anglers on opening day, and 3 trout per angler average for the remaining part of the season for at least 20,000 additional angler trips. Blue Lake could sustain well over 35,000 angler trips per year when relatively free of competing or predacious species.

1. Fishery Objectives:

<u>Species</u>	<u>Type</u>	<u>Category</u>	<u>Number of Fish</u>		<u>Avg.Size</u>	<u>Exploit.</u>
			<u>/hour</u>	<u>/Angler</u>		<u>Rate</u>
Rainbow	Prod	Opener	3	5	12 inches	10% plant
		After	1-2	3	12 –15 in.	95% plant

2. Angler use objective (#angler days): Opener - 5,000; Season - 30,000

3. Stocking Objectives:

Post rehabilitation, first year, catchables for first year's season in addition to fingerlings;

<u>Species</u>	<u>Total</u>	<u>/Acre</u>	<u>/pound</u>	<u>Planting Month</u>
Rainbow	100,000	180	2-3	March-April

- minimum number to produce 3 fish/angler average opening day catch

Brown Trout	5-10,000	5-10	2-3	May
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- give browns head start in growth to be predators on spiny-rayed fishes and provide a little variation in the catch.

Post rehabilitation, first ~ 5 years

<u>Species</u>	<u>Total</u>	<u>/Acre</u>	<u>/pound</u>	<u>Planting Month</u>
Rainbow	200,000	375	80-100	May
Brown Trout	5-10,000	10-20	50-100	May

Post rehabilitation, ~ year 6-10; split fingerlings to reduce intraspecific competition

<u>Species</u>	<u>Total</u>	<u>/Acre</u>	<u>/pound</u>	<u>Planting Month</u>
Rainbow	100,000	180	80-100	May
Rainbow	100,000	180	10-20	October
Brown Trout	5,000	10-20	50-100	May

- continue brown trout fingerlings, if available, until yearling recruitment is poor.

Post rehabilitation, ~ year 7-10, increasing catchables as available and as both spring and fall fingerling recruitment decline; in addition to fingerlings;

<u>Species</u>	<u>Total</u>	<u>/Acre</u>	<u>/pound</u>	<u>Planting Month</u>
Rainbow	20-50,000	40-90	2-3	March-April

4. Management Strategy (including regulations):

- Plant rainbow fry in spring for following year's production; after opener if possible to avoid nuisance and mortality of fingerlings caught opening day.
- Maintain statewide April opener regulations.
- Harvest 95% of plant or available fish by end of season.
- Monitor fishery via Brown's Opening Day Model.
- Monitor all fish species periodically by electrofishing or netting.
- Begin stocking 50% of fry during the fall at 10-20/lb. when spiny-ray species begin impacting spring fry survival (about 6th year post-rehabilitation).
- Control spiny-ray species with rotenone when survival of spring and fall plants is inadequate to produce an acceptable fishery.
- Stock catchables as available during the 3-5 years previous and the year after rehabilitation.
- Maintain revolving drum screen at outlet to inhibit spiny ray species from Alkali Lake entering Blue Lake.
- Native Species/Stocks/Habitats Needing Special Protection: None.