LAKE MANAGEMENT PLAN

Sprague Lake and Adjacent Waters

(Including Cow, Hallin, and Finnell Lakes, including Sheep Springs; Negro, Damage and Cow Creeks, Dixon's Pond, Lugenbeal Creek)

Updated June 2007 – C. Donley, J. Korth

Water(s): Sprague Lake

Location: Adams County/Lincoln County
Section 1, 12, Township 20 North, Range 37 East; Section 5, 6, 7, Township 20 North, Range 38 East; Section 21, 28, 29, 31, 32, Township 21 North, Range 38 East

PHYSICAL INFORMATION:

1. **Elevation:** 1,876 ft **Avg/Max Depth:** 11 ft/20 ft **Acres**: 1,860
   Acre feet: 19,650 **Weight of water:** 53,411,529,600 lbs.
2. **Land Ownership:** Public 3% Private 97%
   Land Use: Residential – 2%
   Private-Recreational – 5%
   Grazing – 40%
   Tillable/irrigated - 6%
   Railroad owned – 45%
3. **Public Access, Type and Condition**: WDFW boat launch, parking, toilets; no camping; well maintained.
   Resorts: Two well-developed resorts with cabins, camping, launches, stores, and boat rentals.
4. **Inlet stream:** Negro Creek
5. **Outlet stream:** Cow Creek

Water(s): Cow Creek and Lugenbeal Springs/Creek

Location: Lincoln and Adams Counties. Cow Creek: **Cow Creek, including Sheep Springs** – Section 11, 12, 14, 23, 26, 35, Township 20 North, Range 37 East, Section 2, 10, 11, 15, 16, 20 Township 19 North, Range 37 East, WM; Section 29, 30, 31 Township 19 North, Range 37 East, WM; Section 35, 36, Township 19 North, Range 36 East, WM; Section 2, Township 18 North, Range 36 East, WM. **Lugenbeal Creek** – Section 1, 11, 12, 14, 15, Township 19 North, Range 37 East, WM

PHYSICAL INFORMATION:

1. **Elevation:** 1,876 to 1,674 ft **Avg/Max Depth:** 3 ft
   Miles of stream: 14.5
2. **Land Ownership:** Public 0% Private 100%
   Land Use: Residential – 1%
   Private-Recreational – 0%
   Grazing/Haying – 99%
   Tillable/irrigated - 0%
3. **Public Access, Type and Condition**: None

Water(s): Cow Lake

Location: Adams County, Section 16, 20, 21, Township 19 North, Range 37 East

PHYSICAL INFORMATION:
1. **Elevation:** 1,749 ft **Avg/Max Depth:** 6 ft/21 ft **Acres**: 240
Acre feet: 1,300 **Weight of water:** 3,533,587,200 lbs.
2. **Land Ownership:** Public 1% Private 99%
Land Use: Residential – 0%
Private-Recreational – 0%
Grazing – 100%
Tillable/irrigated - 0%
3. **Public Access, Type and Condition**: DNR boat launch, parking, no maintained camping areas.
4. **Inlet stream:** Cow Creek
5. **Outlet stream:** Cow Creek

Water(s): Hallin Lake

Location: Adams County, Section 15, 16, Township 19 North, Range 37 East

PHYSICAL INFORMATION:
1. **Elevation:** 1,760 ft **Avg/Max Depth:** 2 ft/14 ft **Acres**: 33
Acre feet: 70 **Weight of water:** 190,270,080 lbs.
2. **Land Ownership:** Public 1% Private 99%
Land Use: Residential – 0%
Private-Recreational – 0%
Grazing – 100%
Tillable/irrigated - 0%
3. **Public Access, Type and Condition**: DNR boat launch, parking, no maintained camping areas.
4. **Inlet stream:** Cow Creek
5. **Outlet stream:** Cow Creek

Water(s): Finnell Lake Including Sheep Springs

Location: Adams County, Section 36, Township 19 North, Range 36 East, Section 2, Township 18 North, Range 36 East, this takes in the Sheep Springs Dam

PHYSICAL INFORMATION:
1. **Elevation:** 1,960 ft **Avg/Max Depth:** 6 ft/13 ft **Acres**: 3.8 for Dixon's Pond
Acre feet: 186 **Weight of water:** 505,574,784 lbs.
2. **Land Ownership:** Public 0% Private 100%
Land Use: Residential – 0%
Private-Recreational – 0%
Grazing – 100%
Tillable/irrigated - 0%
3. **Public Access, Type and Condition**: None

4. **Inlet stream:** Cow Creek
5. **Outlet stream:** Cow Creek

Water(s): Dixon's Pond /Negro Creek/ Damage Creek

Location: Lincoln County, Section 21, 22, 23, 24, Township 21 North, Range 38 East; Section 13, 14, 19, 22, 23, 26, 27, 28, 29, 30, Township 21 North, Range 39 East: Damage Creek - Section 12, 13, Township 21 North, Range 39 East

PHYSICAL INFORMATION:
1. **Elevation:** 1,676 ft **Avg/Max Depth:** 26 ft/15 ft **Acres**: 3.8 for Dixon's Pond
   Acre feet: 56 **Weight of water:** 152,216,064 lbs.
2. **Land Ownership:** Public 0% Private 100%
   Land Use: Residential – 0%
   Private-Recreational – 0%
   Grazing – 100%
   Tillable/irrigated - 0%
3. **Public Access, Type and Condition**: None
4. **Inlet stream:** Negro Creek
5. **Outlet stream:** Negro Creek

Habitat Description: Sprague Lake, Cow Lake, Hallin Lake, Finnell Lake and all of the associated tributaries are within the Channeled Scablands region of eastern Washington. Large-scale episodic floods that occurred during the mid to late Pleistocene formed the Channeled Scablands. These floods originated from Lake Missoula, roughly where the City of Missoula exists today. The floods were released from Lake Missoula as large ice dams buoyed up and allowed massive amounts of water to flow out and flood the Columbia Basin, thus making flood channels that flowed into the Columbia River.

These flood channels have widened depressions that fill with water and create lakes. The lakes have highly complex shoreline and bottom formation. This high complexity adds to the fact that these waters are excellent fish habitat. The drainage basins for these waters encompass a large area and drain areas from urban to agricultural. The end result is that the basins are very productive and can grow large numbers of fish rapidly. The geology and land use that these lakes drain allows for the acquisition of large amounts of phosphorous and nitrogen rendering these highly productive.

Included in the drainage area are a number of shallow marshes and swamps that are fed by the lakes and tributaries to the lakes. The marshes and swamps are productive for waterfowl. Additionally, the lake and tributaries to these lakes are oases in the desert providing excellent habitat for terrestrial creatures from river otter to mule deer.

GENERAL MANAGEMENT INFORMATION:

- Current Regulations for Sprague Lake:
    - **Crappie – year-round – Min. size 9 inches. Daily Limit 10.**
    - **Walleye – year-round – Min. size 12 inches. Only 1 over 22 inches may be retained. Daily Limit 8.**
    - **Other game fish – year round – Statewide min. size/daily limit, including:**
    - **Bass – year round – Only bass less than 12 inches except one over 17 inches. Daily Limit 5.**
    - **Channel Catfish – year round – No min. size. Daily Limit 5.**
    - **Trout – year round – No min. size. Daily Limit 5.**

- Stocking: 25,000 to 35,000 catchable rainbow trout annually
    - Channel catfish as available.
- Present fish population: 50 percent walleye, 30 percent carp and tench, and 20 percent rainbow, panfish and catfish (channel and bullhead).
- Anadromous fish use: none.

- Current Regulations for Negro Creek, Damage Creek, Cow Creek, Lugenbeal Creek, Hallin Lake, Cow Lake and Finnell Lake are Statewide Regulations:
    - **Trout – Streams Open June 1 – October 31; Min. size 8"; Daily Limit 2. Lakes open year-round; No min. size; Daily Limit 5.**
    - **Walleye – Min. size 16 inches. Only 1 over 22 inches may be retained. Daily Limit 5.**
    - **Other game fish – Streams Open June 1 – October 31; Lakes open year round – Statewide min. size/daily limit.**

Management History Summary:

During the 19th and early 20th Century Sprague Lake and the associated water bodies were planted with warmwater species, yellow perch, largemouth bass, black crappie, brown bullhead, tench, and carp.

In the 1970's two salmonids species were stocked. Washington Department of Game (WDG) stocked the lake from 1975 to 1978 with Chinook salmon. Not surprisingly, they did not perform well and very few were detected in the creel. However, not to be deterred, WDG stocked 30,500 legal sized (5 fish/pound) rainbow trout in 1977, . The trout showed excellent growth rates, entering the creel at 11 to 13 inches, but by late summer of 1977 these trout were observed in fish kills on Sprague Lake. The fish kills were thought to be caused by parasitic copepods. The lake was considered to be a good fishery for warmwater species during the 1970's, but the fishery steadily declined, until anglers were requesting that WDG investigate the decline of the fishery.

In response to a decline in the recreational fishery, WDG began investigating possible enhancement measures to increase the productivity of the fishery. A creel survey was conducted

to evaluate the amount of angler use on the lake. In 1983, only 1,500 angler days were spent on the Sprague Lake fishery. The lack of angler interest in the fishery lead fisheries managers to consider enhancement measures directed at improving angler use. Ultimately, the WDG began developing plans for treating the lake with rotenone.

In 1985, the lake was treated with rotenone and restocked with warmwater fish and trout. The objectives for the 1985 lake rehabilitation were to remove the carp population, establish warmwater fisheries, and to provide 20 years of productive fisheries following the rotenone treatment.

After the rotenone treatment, the lake was stocked with largemouth bass, smallmouth bass, walleye, bluegill, rainbow trout, and Lahontan cutthroat trout. Bullhead catfish, crappie and yellow perch were not intentionally stocked because WDG knew they would wash in from the upper-basin and establish harvestable populations. The rehabilitation was a success and by 1988, a total of 35,000 angler trips annually were expended on Sprague Lake.

Initial angling interest was generated by a robust trout fishery that was intended to provide fishing opportunity until the warmwater populations developed enough to provide a good fishery. The trout fishery lasted for 5 to 6 years, with peak interest and productivity occurring in 1988. Warmwater fish became established well enough to provide desirable populations by 1989. Initial warmwater populations available for harvest were bluegill, bass, walleye and bullhead catfish. Angler use dropped from a high of 55,000 in 1988 trips to approximately 24,000 by 1992.

Warmwater species maintained a popular sport fishery on the lake through the 1990's. oweveHowever, by the mid 1990's species dominance in the fish population cycled from panfish and bass to walleye. The walleye fishery in conjunction with the remaining panfish fisheries proved to be popular with anglers and maintained angler use at desirable levels. Over time biological sampling indicated that walleye numbers expanded to a point where they were suspected of limiting recruitment of panfish into the sport fishery through predation. By 2000, most of the fish available to harvest were walleye and black crappie. In conjunction with the emergence of walleye dominance in the population, complaints from anglers that fishing was poor continued to build. Spot creel checks indicated that fewer fish were harvested from the lake. Angler groups and the public were issuing comments to the now Washington Department of Fish and Wildlife (WDFW) that the fishery at Sprague Lake was not productive.

To investigate these claims, WDFW conducted several Standardized Warmwater Surveys in the late 1990's and began Fall Walleye Index Netting (FWIN) in October of 2001 to determine the status of the walleye population. Findings indicated that angler reports of limited numbers of fish were inaccurate. To the contrary, the surveys revealed that Sprague Lake had a dense walleye population with a large proportion of harvestable sizes fish. Subsequent FWIN surveys conducted annually through October of 2005 indicated that a harvestable population still existed and was under-exploited by anglers.

Despite large numbers of harvestable walleye in the fish population, Sprague continued to receive limited effort. To document fishery use, WDFW conducted a creel survey in 2006. The

creel survey indicated that only 8,700 angler strips were expended on the lake for the year. While this number was not as low as the 1983 creel survey, it was substantially lower than the effort that WDFW believed should be expended on the recreational fishery on Sprague Lake. The target use for the lake was approximately 16,000 angler trips annually, or roughly double the effort that was expended in 2006.

Most other waters in the system have limited fisheries management potential due to frequent low water conditions, vegetation, and limited access. Fish species distributions are directly impacted by the species present in Sprague Lake, and vice viscera. In addition, access to most of the remaining drainage is limited by private land ownership. Cow Lake has the best periodic potential for fisheries management. In 1990, the downstream drainage from the outlet of Sprague Lake to Sheep Springs was rehabilitated to remove carp from the system. The project was intended as much to protect Sprague Lake from burgeoning carp populations as it was to create a fishery in the lower drainage. Initial stocking of Cow Lake with rainbow trout (about 5,000 annually) created a popular fishery for 3-4 years before bass, bluegill, and perch precluded trout survival. The perch fishery was also fairly good for another 3-4 years until carp once again dominated the lake.

Currently, WDFW believes that use of the fishery for the entire Sprague Lake drainage has declined substantially and should be addressed by the application of rotenone and the re-start of the recreational fishery. The anticipated increase in recreational use justifies the project, and will create large economic and recreational benefits for Sprague Lake and the associated waters.

Management Issues Summary:

- Carp and tench left uncontrolled substantially reduce the productivity of all the listed waters. Some type of control of these species is required to maintain productive recreational fisheries and waterfowl habitat.

- Walleye densities in Sprague Lake are high enough to preclude adequate recruitment of panfish and trout to the creel. The productivity of the lake allows for enough recruitment to satisfy current predatory demand, but the remainder of panfish and trout provide for a limited recreational fishery.

- Use by recreational anglers has dropped from a high of 55,000 angler trips in 1988 to 8,700 anglers trips in 2006 at Sprague Lake.

- Drought conditions severely impact the ability to maintain fisheries in the creeks and most of the smaller lakes in this system. In addition, emergent vegetation limits fisheries in Hallin Lake.

Current Management Objectives: Sprague Lake

Fishery Objectives (post rehabilitation):

Year 1

Species	Catch/hour	Catch/angler	Target Size
rainbow trout	.25	2.0	12 inches

Year 2 to 4

Species	Catch/hour	Catch/angler	Target Size
rainbow trout	.50	3.0	14 inches
Lahontan cutthroat	.10	1.5	16 inches

Year 5 to 10

Species	Catch/hour	Catch/angler	Target Size
rainbow trout	.25	2.0	16 inches
panfish*	1	5	7 to 12 inches
largemouth bass	.25	2.5	13 inches
Brown bullhead and Channel Catfish	.5	1	bullhead -12 inches channel – 20 inches

* panfish includes an aggregate of bluegill, black crappie, white crappie and yellow perch

Angler use objective, angler days/surface acre/ year (AD/SA/YR): Sprague Lake

Year	AD/SA/YR
1	6
2	8
3	12
4	12
5	10
6	10
7	10
8-20	8

Angler use objective, angler days/surface acre/ year (AD/SA/YR): Cow Lake

Year	AD/SA/YR
1	2
2	2
3	4
4	4
5	4
6	3
7	3
8-20	3

Stocking Objectives: Sprague Lake

Post rehabilitation, Year 1

Species	Size class	Number	Fish per acre
bluegill	adult	1,000	.53
bluegill	yearling	15,000	8.07
black crappie	adult	1,000	.53
black crappie	yearling	15,000	8.07
white crappie	adult	1,000	.53
largemouth bass	adult	300	.16
largemouth bass	sub-adult	2,000	1.08
largemouth bass	yearling	10,000	5.38
channel catfish	yearling	10,000	5.4
rainbow trout	catchable	100,000	54
rainbow trout	fry-spring	200,000	108

Post rehabilitation, Year 2

Species	Size class	Number	Fish per acre
rainbow trout	catchable	50,000	27
rainbow trout	fry-spring	300,000	161
Lahontan cutthroat trout	fry-fall	100,000	54

Post rehabilitation, Year 3*

Species	Size class	Number	Fish per acre
rainbow trout	catchable	50,000	27
rainbow trout	fry-spring	200,000	108
Lahontan cutthroat trout	fry-fall	100,000	54

*Year 3, warmwater species may be stocked if populations are not developing as expected

Post rehabilitation, Year 4*

Species	Size class	Number	Fish per acre
rainbow trout	catchable	50,000	27
rainbow trout	fry-spring	200,000	108
Lahontan cutthroat trout	fry-fall	100,000	54
tiger musky**	yearling	900	.48
white sturgeon**	yearling	25	

*Year 4, warmwater species may be stocked if populations are not developing as expected

**Tiger musky and white sturgeon may not be stocked this proposal is still under review. Post rehabilitation.

Year 6 to10*

Species	Size class	Number	Fish per acre
rainbow trout	catchable	50,000	27

Stocking Objectives: Cow Lake

Year 1 to 5

Species	Size class	Number	Fish per acre
rainbow trout	Fry-spring	35000	145
rainbow trout	catchable	5,000	20

4. Management Strategy (including regulations): Sprague Lake

- Regulations post-rehab: Sprague Lake
  - **Trout – year round - No min. size. Daily limit 5. Up to 2 over 20 inches.**
  - **Largemouth bass – year round –** – Only bass less than 12 inches except one over 17 inches. Daily Limit 5
  - **Crappie – year round – min. size 9 inches. Up to 25 BLUEGILL and CRAPPIE combined.**
  - **Bluegill – year round – No min. size. Up to 25 BLUEGILL and CRAPPIE combined.**
  - **Other game fish – year-round - Statewide min. size/daily limit.**
- Regulations post-rehab: Hallin Lake, Cow Lake, Finnell Lake, Damage Creek, Negro Creek, Cow Creek.
  - **Maintain current and statewide regulations for these bodies of water.**
- Plant rainbow fry and/or catchables in Sprague Lake and Cow Lake during spring 2008 and for subsequent years to function as an interim fishery until the warmwater populations establish well enough to support a viable recreational fishery or preclude trout survival.

- Plant warmwater species in Sprague Lake to establish the desired recreational fishery, with initial stocking commencing during spring 2008. Additional stocking to develop the desired species composition and abundance may be done at later dates. Warmwater species are expected to re-populate Hallin Lake, Cow Lake, Finnell Lake and connecting streams without WDFW stocking efforts.

- Monitor Sprague Lake fishery with the 2006 Sprague Lake creel survey protocol post rehab at least Year 3, Year 7, Year 11, and Year 15.

- Monitor all fish species periodically by using standardized warmwater assessment protocol and Region 1/3 and Region 2 Warmwater Assessment Teams.

- Use biological surveys and creel to monitor population status and recreational use. Recreational use should be commensurate with the target use of 8 AD/SA/YR. If use decreases below desired target, management actions will be taken to increase recreational fishery use and productivity.

- Native Species/Stocks/Habitats Needing Special Protection: None.