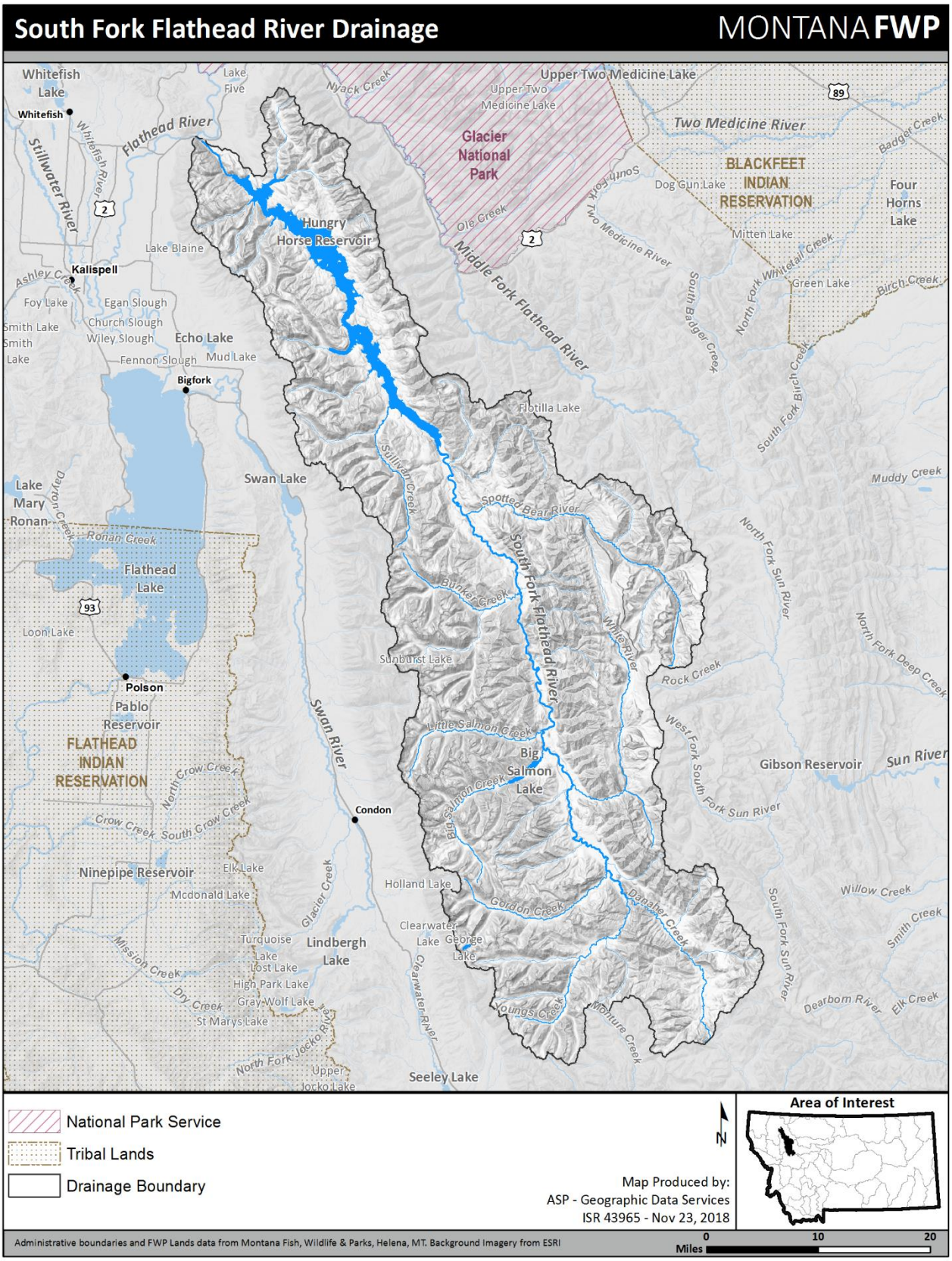
South Fork Flathead River Drainage
MONTANA FWP
Whitefish Lake
Whitefish
Lake Five
Nyack Creek
Upper Two Medicine Lake
Upper Two Medicine Lake
89
Two Medicine River
Badger Creek
Flathead River
Whitefish River
Stillwater River
2
Glacier National Park
BLACKFEET INDIAN RESERVATION
Dog Gun Lake
Four Horns Lake
South Fork Two Medicine River
Ole Creek
Hungry Horse Reservoir
Mitten Lake
Lake Blaine
Kalispell
Ashley Creek
Middle Fork Flathead River
North Fork Whitefish Creek
Green Lake
Birch Creek
Foy Lake
Egan Slough
Church Slough
Wiley Slough
Smith Lake
Smith Lake
Echo Lake
Mud Lake
Fennon Slough
Bigfork
South Badger Creek
South Fork Birch Creek
Flotilla Lake
Swan Lake
Sullivan Creek
Muddy Creek
Lake Mary Ronan
Peyton Creek
Ronan Creek
Spotted Bear River
South Fork Flathead River
North Fork Sun River
Flathead Lake
93
Bunker Creek
White River
North Fork Deep Creek
Loon Lake
Sunburst Lake
Rock Creek
Polson
Pablo Reservoir
FLATHEAD INDIAN RESERVATION
Swan River
Little Salmon Creek
West Fork South Fork Sun River
Gibson Reservoir
Sun River
Big Salmon Creek
Big Salmon Lake
North Crow Creek
Crow Creek
South Crow Creek
Condon
Ninepipe Reservoir
Elk Lake
Holland Lake
Gordon Creek
Dahaher Creek
Willow Creek
Smith Creek
Glacier Creek
Mcdonald Lake
Clearwater Lake
George Lake
Turquoise Lake
Lindbergh Lake
Lost Lake
Mission Creek
High Park Lake
Dry Creek
Gray Wolf Lake
St Marys Lake
Clearwater River
South Fork Sun River
Dearborn River
Elk Creek
Youngs Creek
Monture Creek
North Fork Jocko River
Upper Jocko Lake
Seeley Lake
National Park Service
Tribal Lands
Drainage Boundary
N
Area of Interest
Map Produced by:
ASP - Geographic Data Services
ISR 43965 - Nov 23, 2018
Administrative boundaries and FWP Lands data from Montana Fish, Wildlife & Parks, Helena, MT. Background Imagery from ESRI
0
10
20
Miles

# South Fork Flathead River Drainage

## Physical Description

The South Fork Flathead River Drainage includes Hungry Horse Reservoir, the South Fork Flathead River and its tributaries. The South Fork Flathead originates from the Bob Marshall Wilderness, at the confluence of Young's Creek and Danaher Creek. From its headwaters, the river flows north for approximately 60 miles through the Bob Marshall Wilderness before entering Hungry Horse Reservoir. Hungry Horse Dam, created in 1953, lies approximately 5.3 miles upstream of the confluence of the South Fork Flathead and the main stem of the Flathead River. At 564 feet, Hungry Horse Dam was the third largest and second tallest concrete dam in the world at the time of completion. The dam is managed for hydroelectric production and flood control. The South Fork Flathead watershed includes some of the most pristine forested landscape in the Western United States. Most of the land in the South Fork Flathead Drainage is publicly owned, with land management responsibilities belonging to the Flathead National Forest. Most of this national forest land is protected as Wilderness, though there are roaded parcels around Hungry Horse Reservoir.

There are 62 natural lakes in the Drainage, totaling 2,308 surface acres. The South Fork Flathead Drainage is bordered by the Swan Mountains to the west and the Flathead Range to the east. The natural lakes present in the South Fork Flathead Drainage are typically mountain lakes in the headwaters of many South Fork Flathead tributaries. The largest natural lake is Big Salmon Lake (972 acres). Few lower elevation lakes exist, with Handkerchief Lake (51 acres) being one of the larger, more popular destinations.

## Fisheries Management

The South Fork Flathead River Drainage provides one of the most unique fisheries in Montana. Construction of Hungry Horse Dam in 1953 left almost the entire South Fork Flathead isolated from the remainder of the Flathead system. Because of this isolation, the South Fork Flathead provides an almost entirely native fish assemblage, with outstanding fisheries for westslope cutthroat trout and bull trout. The South Fork Flathead represents the largest connected population of migratory, genetically unaltered westslope cutthroat trout left in the United States. Anglers in the South Fork Flathead will find exceptional catch rates for large cutthroat trout in an area that provides solitude and scenery. In addition to westslope cutthroat trout, anglers visiting Hungry Horse Reservoir and the upstream South Fork Flathead also have the unique opportunity to target bull trout, a species listed as threatened under Endangered Species Act. While most waters were closed to fishing for bull trout after the listing in 1998, the South Fork Flathead Drainage was reopened under a permit from the U.S. Fish & Wildlife Service in 2004. This permit allows catch and release fishing for bull trout in the South Fork Flathead River and angler harvest of two bull trout per year in Hungry Horse Reservoir. The bull trout population in Hungry Horse Reservoir and the connected South Fork Flathead River is typical of most adfluvial populations and anglers have the chance at targeting bull trout up to 15 pounds.

The South Fork Flathead Drainage is managed as a wild, native trout fishery, emphasizing natural reproduction. The basin is also the focus of native fish recovery efforts. The South Fork Flathead Drainage is home to many native fish species including bull trout, westslope cutthroat trout, mountain

whitefish, pygmy whitefish, northern pikeminnow, longnose sucker, largescale sucker, and sculpin. The only non-native fish species present in the South Fork Flathead is the Arctic grayling. This species is limited to Handkerchief Lake, which once held the state record for angler caught Arctic grayling. Regulations in the Wilderness portion of the South Fork Flathead protect against overharvest and maintain a viable recreational angling experience while allowing the adventurous anglers to enjoy a camp meal of freshly caught trout. Guided float trips exist on the South Fork Flathead, though outfitting is regulated through a permit system administered by the U.S. Forest Service. The remote nature of the upper South Fork Flathead largely limits the number of anglers utilizing the river; however, anecdotal evidence suggests that angler use may be increasing, and future surveys may determine the need for additional regulation.

The fishery downstream of Hungry Horse Dam provides for a limited tailwater section, though access is difficult due to steep banks and swift current. This section of river is dominated by native fish species, though rainbow trout and lake trout have been observed. Historically, water exiting Hungry Horse Dam was released from the bottom of the reservoir, altering the stream temperature for the rest of the Flathead River downstream of the confluence with the South Fork Flathead. In 1995 a selective withdrawal system was installed and has since provided a more natural temperature regime which has increased westslope cutthroat trout and bull trout abundance. In recent times the occurrence of the diatom algae appears to have increased below Hungry Horse Dam. Scientists are currently investigating the potential impacts of the increase in diatom density.

High mountain lakes in the South Fork Flathead were historically stocked with cutthroat trout. However, modern genetic analysis has revealed that many of these cutthroat trout plants in the early part of the 20$^{th}$ century had genetic material other than westslope cutthroat trout. Since the 1980's genetically unaltered westslope cutthroat trout from the Washoe Park State Fish Hatchery have been stocked. In 2007, FWP implemented a watershed wide restoration project aimed at removing these headwater sources of non-native genes and therefore protecting the important population of the South Fork Flathead. This project was completed in 2017 and lakes have been repopulated with diverse genetic strains of westslope cutthroat trout from the Sekokini Springs Hatchery. Handkerchief Lake was one of the lakes restored with unaltered westslope cutthroat trout. At the time of treatment, however, Handkerchief Lake also contained a population of Arctic grayling. Efforts are underway to restore the Arctic grayling to Handkerchief Lake, and the resulting population will serve as a genetic refuge for Centennial Valley Arctic grayling conservation efforts.

## Habitat

The South Fork Flathead River Drainage contains some of the most pristine forested land in the lower 48 United States. Much of the watershed is located within the Bob Marshall Wilderness Complex. When combined with the neighboring Scapegoat and Great Bear Wilderness areas, the Bob Marshall Wilderness Complex is the second largest Wilderness protected land area in the lower 48 with over 1.5 million acres. Because of this level of protection, fisheries habitat remains largely in the same condition as it was prior to human civilization. Migratory fish populations thrive in connected stream networks with little man-made disturbance.

Downstream of the Wilderness boundary the Drainage is still largely publicly owned, with the USFS responsible for land management. As is the case with many managed forests, years of timber harvest

have left a legacy of roads upon the landscape. While historic logging practices may have negatively impacted streams and their associated fisheries, modern forestry best management practices and conservation efforts have greatly improved fisheries habitat from its previous condition. Fish passage has been provided at road crossings on either side of Hungry Horse Reservoir, maintaining connection to spawning and rearing habitat for fish inhabiting the reservoir. Funding for this restoration work has come from both Bonneville Power Administration mitigation as well as USFS funding sources.

## SPECIAL MANAGEMENT ISSUES

### *South Fork Flathead Drainage Westslope Cutthroat Trout Conservation Program*

The South Fork Flathead River Drainage comprises more than half of the remaining interconnected habitat for westslope cutthroat trout within this species' historic range. Long-term persistence of this native species is threatened by hybridization with introduced rainbow trout and Yellowstone cutthroat trout that were stocked decades ago in many historically fishless headwater lakes in the South Fork Flathead Drainage. To minimize the spread of hybridization, FWP developed the South Fork Flathead Drainage Westslope Cutthroat Trout Conservation Program. The objective of this multi-year project was to remove sources of non-native trout in 21 lakes and reestablish these fisheries with unaltered westslope cutthroat trout. Rotenone was successfully used to chemically remove introduced trout in 15 lakes and their associated tributaries, and genetic swamping is being used in an additional six lakes as an alternative technique to restoring westslope cutthroat trout. Additional efforts in the South Fork Flathead include the development and use of local broodstocks to conserve genetic variation in this native species.

### *Handkerchief Lake Arctic Grayling*

Handkerchief Lake is one of 21 lakes in the South Fork Flathead that previously contained hybridized westslope cutthroat trout. At the time of treatment, Handkerchief Lake also contained a population of Arctic grayling, which are not native to the South Fork Flathead Drainage. During the planning phase of the larger conservation project, FWP committed to restoring an Arctic grayling population after the hybridized cutthroat trout had been removed. Prior to lake treatment, a decision was made to not only restore the Arctic grayling fishery, but also to make that fishery a conservation effort as well.

Over the past decade, the Centennial Valley Arctic grayling population in southwest Montana has suffered substantial declines from poor over winter conditions. This native Arctic grayling population has declined to the point in which fisheries managers are concerned for the persistence of the population and the potential loss of the genetic and life history contribution to Montana Arctic grayling. In 2016, Arctic grayling gametes from the Centennial were collected, hatched, and planted in Handkerchief Lake to provide a genetic refuge for the Centennial population. Unfortunately, Centennial Arctic grayling numbers declined to the point in which taking eggs was no longer a viable option. Arctic grayling with Centennial Valley genetic origin were collected from the U.S. Fish & Wildlife Service, Bozeman Fish Technology Center and were spawned in the years that followed 2016, with a few plants that occurred from 2017 to 2020. The overall number of fish planted was low, raising concerns about the genetic consequences of founding a population with few fish. Plans for Arctic grayling plants in Handkerchief Lake include spawning fish from populations that have predominantly Centennial Valley genetics, such

as Park Lake and Rodgers Lake. These spawning events will take place beginning in 2022, and fish will be planted in 2023 and beyond.

### *South Fork Flathead Bull Trout Fishery*

Bull trout were listed as threatened under ESA in 1998. At the time of listing, most waters in Montana were closed to bull trout fishing. In 2004, FWP was issued a permit from the USFWS to allow for a limited bull trout fishery in Hungry Horse Reservoir and the interconnected South Fork Flathead River. The permit allowed for a take of up to 300 bull trout from the system. Current regulations allow anglers to keep two bull trout annually from Hungry Horse Reservoir, and anglers can catch and release bull trout in the South Fork Flathead. As part of the permit issued by USFWS, anglers are required to obtain a Bull Trout Catch Card to record their bull trout catch throughout the fishing season. Anglers are then sent a survey at the conclusion of the season and the data is entered then summarized by FWP staff. A report is written every other year and submitted to the USFWS. Recent surveys have revealed an increase in the number of anglers focusing their bull trout fishing in the South Fork Flathead. While regulations only allow for catch and release in the river, many fish are being caught and released and there is concern for handling stress impacting the population. A regulation change in 2020 required anglers to only use single pointed hooks and was implemented as a proactive measure to reduce overhandling of this sensitive fish species. The fishery continues to be monitored for any impacts associated with angling, and changes will be made to ensure sustainability of the fishery. Monitoring and research to inform management actions include the use of an underwater video camera system in Wounded Buck Creek, a tributary to Hungry Horse Reservoir. This system is used to estimate total escapement to spawning grounds of the migratory population, a fish per redd ratio and the variability through time of that estimate, and the sizes of migratory fish. Additional genetic monitoring of bull trout populations will be conducted to understand population genetic structure and life history.

### *Priority Drought Waters*

South Fork Flathead River is unique in that it contains a catch and release fishery for bull trout that can be affected by drought; restrictions are identified in Table 2.02-1. Classification, criteria, and measurement apply to the entire reach (headwaters to Crossover boat ramp at Hungry Horse Reservoir). However, implementation of restrictions may occur in all or parts of a reach depending on specific temperature, flow, and angling pressure at that time. Additionally, there are times and locations that bull trout congregate within a fishery designated as westslope cutthroat trout, such as when they are seeking cold water refuge in springs or at tributary mouths during warmer months. In these instances, bull trout criteria may be applied to these areas.

Table 2.02-1: Designated hoot owl reaches where drought related fishing restrictions and closures due to fishing pressure, high water temperatures, and/or low flows are expected to be implemented. Drought related restrictions and closures may also be placed on waterbodies not listed here.

| Waterbody | Reach | Classification | Criteria |
|---|---|---|---|
| **South Fork Flathead River** | Confluence of Danaher and Youngs Creeks to Hungry Horse Reservoir at Crossover Boat Ramp (RM 99.9 to 42.0) | Bull trout fishery | • Daily maximum water temperature reaches or exceeds 60°F for three consecutive days.<br>• Temperature measurements relevant for criteria will be taken using portable temperature recorders above confluence with Spotted Bear River. Temperatures at this location are representative of temperatures throughout South Fork Flathead River. |

## FISHERIES MANAGEMENT DIRECTION FOR SOUTH FORK FLATHEAD RIVER DRAINAGE

| Water | Miles/acres | Species | Recruitment Source | Management Type | Management Direction |
|---|---|---|---|---|---|
| All South Fork Flathead River Drainage (see listed waterbodies for exceptions) | | Bull trout (N) | Wild | Conservation | Manage for catch and release angling in mainstem river and harvest in Hungry Horse Reservoir through a catch card permit system. Continue yearlong closure on angling for bull trout in tributaries and Big Salmon Lake. Educate anglers on catch and release techniques to reduce bycatch mortality. Continue to work with agencies to improve habitat in core areas. |
| | | Westslope cutthroat trout (N) | Wild | Conservation | Maintain numbers and quality of the fishery. Provide a limited harvest fishery allowing anglers to keep small fish for camp fare while maintaining large fish and spawning fish. Eliminate threats to genetic purity. |
| | | Mountain whitefish (N) | Wild | General | Maintain numbers. Begin to understand population size and trend. |
| South Fork Flathead River and tributaries (headwaters to Hungry Horse Reservoir) | 60 miles | Bull trout (N) | Wild | Conservation | Manage for catch and release angling through a catch card permit system. |
| | | Westslope cutthroat trout (N) | Wild | Conservation | Maintain numbers and quality of the fishery. Provide a limited harvest fishery allowing anglers to keep small fish for camp fare while maintaining large fish and spawning fish. Eliminate threats to genetic purity. Monitor westslope cutthroat trout for increases in hook scar rates and catch rates related to increases in angler use. Evaluate of the effectiveness of the short catch and release section. |

| Water | Miles/acres | Species | Recruitment Source | Management Type | Management Direction |
|---|---|---|---|---|---|
| | | Mountain whitefish (N) | Wild | General | Maintain numbers. Begin to understand population size and trend. |
| Spotted Bear Lake | 12 acres | Westslope cutthroat trout (N) | Wild/ Hatchery | Put-Grow-and-Take | Provide for harvest and recreational opportunity. Continue to monitor for stocking evaluation. Plants appear to have poor success in recent years. |
| Lion Lake | 39 acres | Westslope cutthroat trout (N) | Hatchery | Put-Grow-and-Take | Provide for harvest and recreational opportunity. Continue to monitor for stocking evaluation. |
| Hungry Horse Reservoir | 23,577 acres | Bull trout (N) | Wild | Conservation | Regulate harvest and monitor migratory populations for conservation and angling through a catch card permit system (see Special Management Issues). |
| | | Westslope cutthroat trout (N) | Wild | Conservation | Provide recreational angling opportunity. Eliminate threats to genetic purity. |
| | | Mountain whitefish (N) | Wild | General | Provide recreational angling opportunity. |
| Habitat needs and activities: Improve habitat to reduce disturbance, reconnect streams that have migration barriers, minimize future threats, and provide ecosystem function. Continue to work with USFS to identify opportunities to address habitat needs. | | | | | |
| Handkerchief Lake | 51 acres | Westslope cutthroat trout (N) | Wild | Conservation | Provide recreational angling opportunity. Eliminate threats to genetic purity. |
| | | Arctic grayling | Wild/ Hatchery | General | Provide for harvest and recreational opportunity. Continue establishment of Red Rock Arctic grayling genetic reserve. |
| Habitat needs and activities: Lake was treated with rotenone as part of the South Fork Flathead Westslope Cutthroat Conservation project. Red Rock Arctic grayling and genetically unaltered westslope cutthroat trout were stocked after treatment. Continued monitoring of Arctic grayling genetics will be necessary to ensure long-term viability of the population. Please reference the Special Management Issues description. | | | | | |

| Water | Miles/acres | Species | Recruitment Source | Management Type | Management Direction |
|---|---|---|---|---|---|
| South Fork Flathead River Drainage - Mountain Lakes | 60 lakes 2,245 acres | westslope cutthroat trout (N) | Wild/ Hatchery | Conservation/ Put-Grow-and-Take | Eliminate sources of non-native trout in 21 lakes to protect genetic purity of westslope cutthroat trout in the drainage (see Special Management Issues). Provide recreational fishing opportunity for a variety of fish sizes and catch rates. Manage with a basic stocking rate of 100 westslope cutthroat trout fingerlings per acre every 3 years. Adjust number and frequency of plants based on extent of natural reproduction, fishing pressure and creating different fishing opportunities. Coordinate with wilderness management when necessary. |