

Environmental Assessment
Hope Mining Company Area 5A, 19, 20A
Mining Plan of Operations

May 29, 2009

Lead Agency

USDA Forest Service
Seward Ranger District

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| What action is proposed? | The Proposed Action is the mining plan of operations submitted by Hope Mining Company for Areas 5A, 19 and 20A. The plan of operations proposes pickup and ATV access, mechanized placer mining in Area 5A and 19 and manual placer mining in area 20A, located adjacent to Resurrection Creek. The Proposed Action also includes a proposed interpretive site to interpret and raise public awareness about the mining history of the area and to preserve remnants of the historic tailing piles that were left by the hydraulic mining era in the early 1900's. |
| Why? | The Forest Service has a regulatory obligation to analyze proposed plan of operations (36 CFR §228.5). The Forest Service has received proposals for a plan of operations along Resurrection Creek. |
| What other action would meet the same need? | None |
| What would it mean to not meet the need? | The Forest Service would not meet their regulatory obligation for mining plan of operations approvals. |
| What factors will be used when making the decision between alternatives? | The environmental assessment does not identify any significant environmental consequences of the Proposed Action. However, any adverse environmental consequences of the Proposed Action are weighed against the benefit of having a long term plan for placer mining in the project area and the reduction in annual permit administration. |
| Are there any ways to mitigate adverse effects? | Mitigation measures were developed for the proposed plan of operations to minimize any potential resources affected by the Proposed Action. The entire project area will be reclaimed and will return the area to natural conditions upon expiration or termination of any resulting authorization. |
| What monitoring is required? | The Forest Service will monitor active operations regularly during the operating season for compliance with any approved plan of operations for the project area. The Forest Service will periodically monitor water quality and alert Alaska Department of Environmental Conservation (ADEC) of any potential violations. The Forest Service will monitor for non-native plants for three years following completion of approved plan of operations for the project area. After the interpretive area is implemented, annual inspections will be conducted for signs of vandalism or other damage. |

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Introduction

The Forest Service has prepared this Environmental Assessment (EA) in compliance with the National Environmental Policy Act (NEPA) and other relevant federal and State laws and regulations. This EA discloses the direct, indirect, and cumulative environmental impacts that would result from the proposed action and any alternatives. It also provides the supporting information for a determination to prepare a Finding of No Significant Impact (FONSI).

Additional documentation, including more detailed analyses of project-area resources, can be found in the project planning record located at the Seward Ranger District, Chugach National Forest in Seward, Alaska.

Background

Proposed plan of operations were submitted for Areas 5A, 19 and 20A. The proposal for area 5A was received in September 2008 and requests mechanized placer mining on 11.1 acres for duration of five years. The proposal for Area 19 was received August 3, 2007 (revised on 12/8/2008) and requests mechanized placer mining on 8.5 acres for duration of 5 years. The proposal for Area 20A was received October 12, 2007 and proposes manual placer mining on 1 acre for duration of 20 years.

Area 5A and 19 fall within the restoration corridor of the proposed Resurrection Creek Restoration Phase II Project. The Forest Service is currently completing an Environmental Impact Statement (EIS) for this restoration project. Mining activities would be limited in the proposed restoration corridor. Hope Mining Company wants to complete mining on areas 5A and 19 so these areas can be included in the proposed corridor if the restoration project was implemented.

Location

The project area includes the claims in Areas 5A, 19, 20A and the associated access routes. The project area is located on the west side of Resurrection Creek Road at approximately milepost three near Hope, AK. The legal land description of the project area is Sections 9 and 16, Township 9 North, Range 2 West; Seward Meridian. Access to the mining claims would be from Resurrection Creek Road and from the existing mining roads within the mining claims. No new roads or trails will be constructed.

Forest Plan Management Area Prescription

The Chugach National Forest Revised Land and Resource Management Plan (Forest Plan) provides a framework that guides the Chugach National Forest's day-to-day resource management operations. Part of Forest Plan direction consists of management area prescriptions (MAP) which provide specific direction for managing different geographic areas of the Chugach National Forest.

The project area is located in the 314 – Forest Restoration Management Area, which is described in the Forest Plan (Forest Plan pp. 4-68 through 4-72). Forest Restoration Management Areas are managed for multiple-use with an emphasis on managing and/or

restoring plant communities. Locatable and salable mineral activities are allowed within this prescription provided they are consistent with management intent.

Legal and Regulatory Framework

Mining claim holders on National Forest System Lands have certain rights related to their claims. Mining claim holders generally have the right to:

- (1) occupancy and use necessary for prospecting, mining, and processing;
 - (2) reasonable access for purposes of prospecting, locating, and mining; and,
 - (3) right to use timber from the claims for mining purposes and necessary clearing
- [Forest Service Manual 2813.13(b) and Forest Service Manual 2813.14]

Mining claimant rights are subject to applicable Federal and state laws and regulations; including 36 CFR 228 Subpart A and the 1955 Multiple Use Mining Act (30 U.S.C. 612). “[All] operations shall be conducted so as, where feasible, to minimize adverse environmental impacts on National Forest surface resources” (36 CFR §228.8). In addition, the 1955 Multiple Use Mining Act restricts mining operators to using reasonable methods of surface disturbance that are appropriate to their stage of operation (Forest Service Handbook 2809.15, Section 10.1).

Purpose and Need

The purpose of this project is to respond to the Forest Service’s regulatory obligation to process, and modify and/or approve the operator’s proposed plan of operations (36 CFR §228.5). The Forest Service has a responsibility to approve or require modifications to the proposed plan of operations in accordance with federal mining and environmental laws.

Proposed Action

The Proposed Action is the proposal submitted for the mining claims in Areas 5A, 19 and 20A and a proposed mining history interpretive site. This proposal essentially requests the approval of a five to twenty-year plan of operations for access to and placer mining on Area 5A claims (5 years), Area 19 claims (5 years), and manual placer mining on Area 20A claims (20 years), along Resurrection Creek. The proposed access to the mining claims includes vehicles, ATV and mechanized equipment use of the existing mining roads and trails within the HMC claims as well as pickup use of Resurrection Creek Road. The proposed mining contemplates use of structures including three existing camps and an existing cabin located along Resurrection Creek Road, as well as temporary structures such as trailers to house mine personnel.

Decision Framework

The Seward District Ranger is the authorized officer for this decision. This decision will determine under what terms and conditions (36 CFR §228.5) the proposed plan of operations will be approved.

Public Involvement

The public has been invited to participate in the following ways:

- This proposal was listed in the Chugach National Forest Schedule of Proposed Actions (SOPA) on December 12, 2008.
- Legal notice was published in the Anchorage Daily News, the newspaper of record for the Chugach National Forest, initiating the 30-day comment period on December 10, 2008.
- This proposal was provided to residents and business of Hope, adjacent landowners and environmental organizations for comment during scoping from December 10, 2008 to January 9, 2009.
- Using the comments received, the interdisciplinary team developed a list of issues to address. Project comments are located in the Hope Mining Company Areas 5A, 19 and 20A Mining Plan of Operations Project planning record located at the Seward Ranger District.

Issues

The following primary issues were identified for this project as being relevant considerations in developing alternatives:

- Effects of mining operations on wildlife resources
- Effects of mining operations on watersheds, hydrology, and fisheries resources
- Effects of mining operations on ecological resources
- Effects of mining operations on heritage resources
- Effects of mining operations on recreation resources and adjacent landowners

Alternatives

This section describes and compares the alternatives considered in this EA. All alternatives are consistent with the Forest Plan and will not require a Forest Plan amendment. All applicable standards and guidelines and Best Management Practices have been incorporated in the design of these alternatives.

Alternative A – No Action

The No Action Alternative would not approve or modify the proposed mining plan of operations. Although the No Action alternative is listed here and is required by NEPA, the Forest Service has a regulatory obligation to approve or require modifications to a proposed plan of operations (36 CFR §228.5). The No Action alternative is not discussed further in this document because it would not meet the Forest Service's responsibilities under 36 CFR §228.5. However, the "Affected Environment" section for each resource provides a discussion of the existing condition of the project area and can serve to make a comparison between the Proposed Action and the No Action Alternative.

Alternative B – Proposed Action

The Proposed Action is the proposals submitted for Areas 5A, 19 and 20A and is placer mining along Resurrection Creek and an interpretive site proposed by the Forest Service which includes the following elements:

Mining Operations

- (1) Mechanized placer mining in Area 5A (11.1 acres)

- Gravels will be excavated in successive parallel cuts with tailings filling in the previous cut. A maximum of ½ acre would be an open trench at any one time. Dimensions of an open trench would be 15 feet deep, 50 feet wide and up to 500 feet in length.
 - Use of existing settling pond and ditch system
- (2) Mechanized placer mining in Area 19 (8.5 acres)
- 20-foot buffer of trees and brush will be left undisturbed along Resurrection Creek Road to obscure mining operations
 - Prior to mining, brush and larger trees would be cleared using an excavator and dozer.
 - A new settling pond and ditch would be constructed for re-circulating water used in operations and would migrate with the operation. The new settling pond and ditch would join with the existing ditch and settling pond system downstream on other claims.
 - Gravels would be excavated in successive parallel cuts with tailings filling in the previous cut. A maximum of ½ acre would be an open trench at any one time. Dimensions of an open trench would be 15 feet deep, 50 feet wide and up to 500 feet in length.
- (3) Mechanized/manual placer mining in Area 20A (1acre)
- Prior to mining, brush and larger trees would be cleared.
 - Gravels would be excavated manually with dimensions of 8 feet in depth, 100 feet in width and 200 feet in length.
 - Use of existing settling pond and ditch system
 - Limited use of mechanized equipment to clear vegetation, stockpile soil, clean ditches and move large boulders.

Access

Access to the mining claims would be by vehicle, ATV and mechanized equipment utilizing existing mining roads and trails within the claims and vehicle use of Resurrection Creek Road. Maintenance of the mining road and trail system within the claims would consist of clearing brush, filling potholes, and keeping culverts functioning properly and clear of debris.

No new roads or trails would be constructed.

Structures

The proposed use of structures includes three existing camps, Camp #2, #3 and #6; and an existing cabin called Camp #1, located along the Resurrection Creek Road. Temporary structures such as trailers would be used for housing mine personnel and will be removed after operations are complete.

Equipment

The following equipment is proposed for use in mining and access to the mining claim:

- (1) Vehicles
- (2) 6 ATV's

- (3) Two existing fuel storage tanks of 8,500 gallons and 1,200 gallons, meeting Alaska Department of Environmental Conservation (ADEC) above ground storage tank regulations.
- (4) Mechanized placer mining (Area 5A and 19)
 - Dozer
 - Excavator
 - Loader
 - Wash/shaker or trammel plant with sluice
- (5) Mechanized/manual placer mining (Area 20A)
 - Excavator
 - Dozer
 - Bobcat
 - Shovels
 - Hoes
 - Rakes
 - Gold pan
 - Sluice box
 - Highbanker

Stream Protection

A 20-foot buffer of trees and brush is proposed to be left undisturbed in areas adjacent to Resurrection Creek, except in Area 19. In July 2008, Forest Service personnel visited the proposed Area 19 to identify areas of functional floodplain and met with the claimant to discuss ways in which these functional floodplains could be preserved. In August 2008, after collaboration with Hope Mining Company, the Forest Service proposed changes to the original Area 19 boundary and the claimant agreed to the changes and revised their proposal accordingly.

This proposal includes the following changes to Area 19 boundary, resulting in a decrease of the size of Area 19 from about 10.2 acres to about 8.5 acres, a reduction in size of 1.7 acres:

- 1) Exclude two half-acre areas of critical floodplain from the mining area boundary. These two areas, adjacent to Resurrection Creek, would remain as functional floodplain.
- 2) Add two 0.15-acre areas of tailings piles that are directly adjacent to the stream channel into the proposed mining area. These tailings piles impair the function of the stream and have little ecological value, but may have value to mining. Hope Mining Company would be able to mine the tops of these piles, but not excavate below the floodplain elevation of Resurrection Creek within 20 feet of the bank. The floodplain elevation is about 2 feet above the normal water surface elevation. Following mining, the reclamation plan would include reconstructing the bank to a more natural bank height, about 2 feet above low water conditions.

- 3) Modify the eastern boundary of the mining area so that a 15-foot buffer exists between the mining area boundary and the base of the fill slope below the Resurrection Creek Road. This is needed to preserve the structural integrity of the road. The boundary could be closer to the road where tailings piles exist adjacent to the road.
- 4) Exclude the 0.5-acre sliver at the southern end of Area 19 from the mining area boundary. This area would be used for an interpretation of mining history.

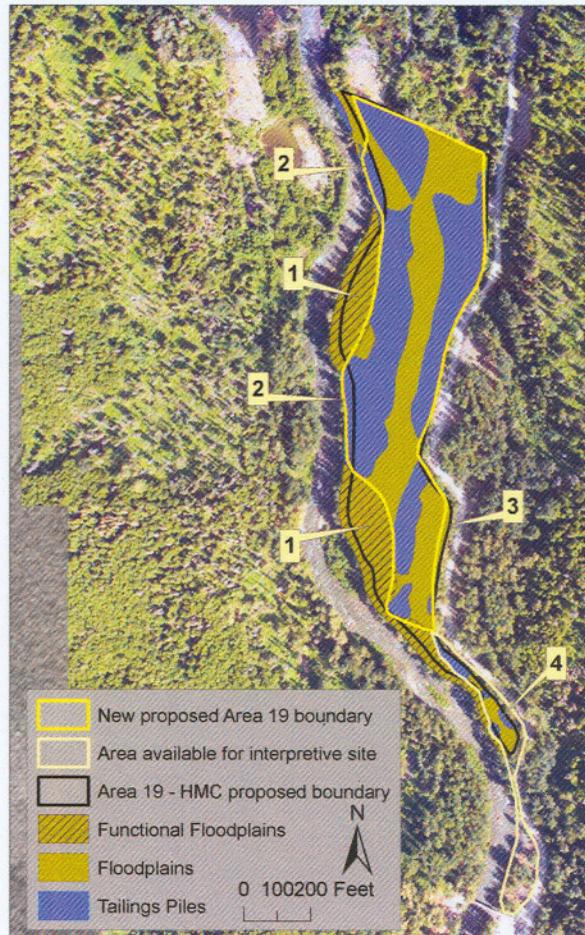


Figure 1: Changes made to the Area 19 boundary in collaboration with Hope Mining Company.

Proposed Interpretive Site

The Proposed Action would result in the redistribution of the historic tailings piles in Areas 5A and 19, which are contributing features for the Hope Mining Company Historic Mining District. Redistribution would constitute an adverse effect, which has been addressed by the Forest Service through consultation with the SHPO to create a Memorandum of Agreement (MOA). The MOA involves the development of an interpretive site which would be located on the claims north of the Resurrection Pass trailhead. The Forest Service will work with Hope Mining Company and SHPO to develop the design for the interpretive site. The purpose of the interpretive site is to interpret and raise public awareness about the mining history of the area and preserve remnants of the historic tailing piles that were left by the hydraulic mining era in the early 1900's. This site would consist of a small foot path from Resurrection Pass Trailhead winding north through the tailings piles with historic mining equipment such as riveted pipe and remnant pieces of hydraulic giants placed at various locations with interpretive signing.

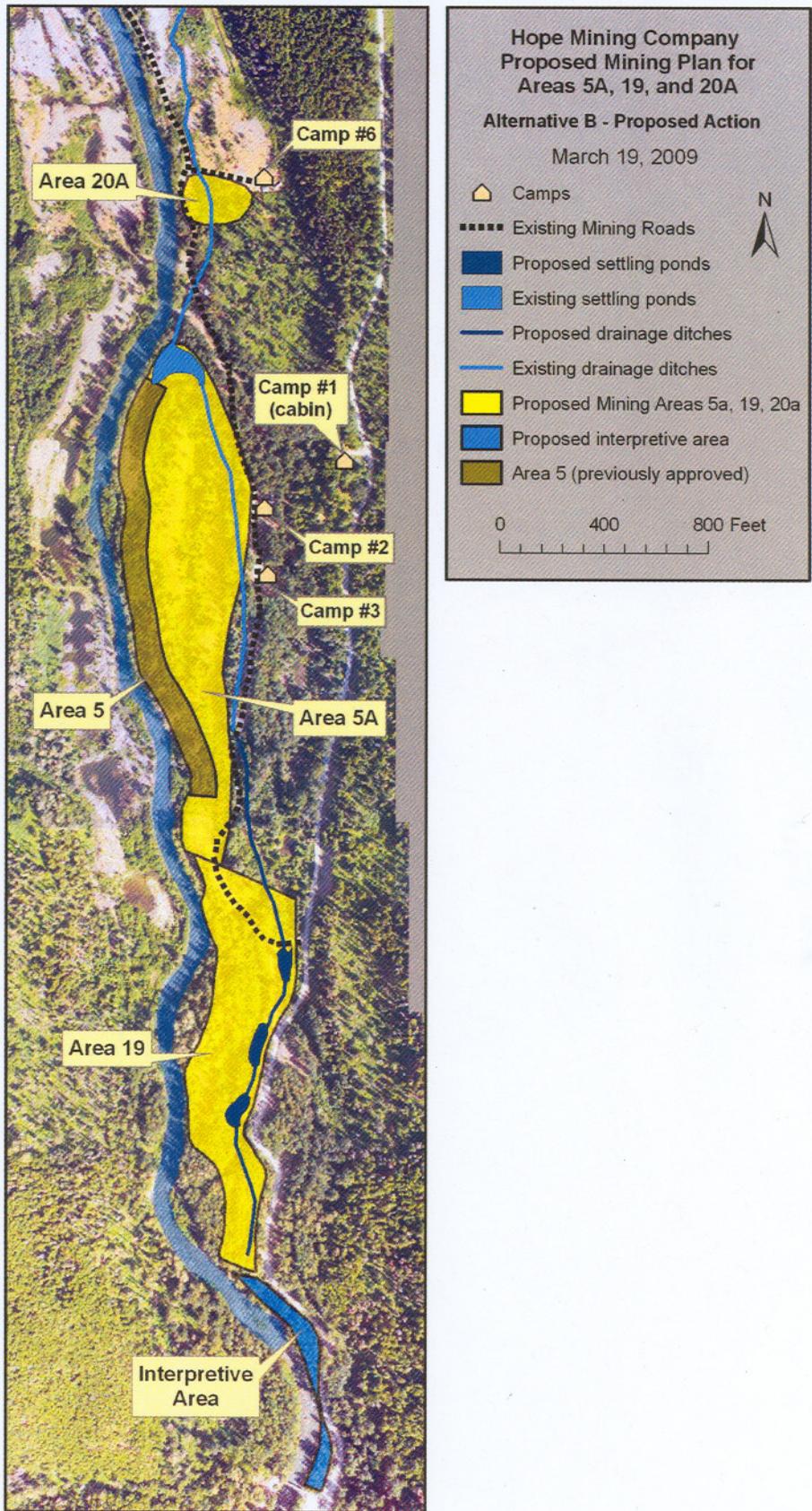


Figure 2: Mining operations proposed for Areas 5A, 19, and 20A.

Forest Plan Direction and Policy Common to All Alternatives

The Proposed Action incorporates the following forestwide standards and guidelines, Best Management Practices, Forest Service Policy and Forest Plan direction

- Forest Service Handbook (FSH) 2509.22 – Soil and Water Conservation Handbook Sections 12 through 18.
- Forest Plan Standards for Wildlife (Forest Plan 3-28 through 3-33)
- Forest Plan Standards for Threatened, Endangered, or Sensitive Plant Species (Forest Plan 3-27)
- Forest Plan Standards for Soils (Forest Plan 3-22 through 3-23)
- Forest Plan Standards for Heritage Resources (Forest Plan 3-34)
- 314 Forest Restoration Management Area (Forest Plan pp. 4-68 through 4-72)
- 512 Minerals Management Area (applied to approved mining plans of operations (Forest Plan 4-84))

Comparison of Alternatives

Table 1: Comparison of alternatives

| | Alternative A | Alternative B |
|---------------------------------------|---------------|---------------|
| Area 5A mining area | 0 acres | 11.1 acres |
| Area 19 mining area | 0 acres | 8.5 acres |
| Area 20A mining area | 0 acres | 1.0 acre |
| Riparian buffer zone | n/a | 20 feet |
| Tailings piles pulled back from bank? | No | Yes |

Alternative Eliminated from Consideration

In development of alternatives, potential effects of mining operations on water quality and hydrology was identified as an issue. Earlier collaboration with Hope Mining Company resulted in adjusted boundaries for Area 19 that removed critical floodplain areas and allowed mining tailings piles next to Resurrection Creek. The boundaries for Area 5A and 20A did not have these modifications so a third alternative was developed to adjust the boundaries removing floodplains and allow mining tailings piles along Resurrection Creek for Area 5A, and creating a 70 foot “conditional mining” area that added further protections for all three areas. This alternative made minor adjustment to acreages as follows: Area 5A was 10.2 acres of mining as proposed with 0.6 acres conditional (10.8 total); Area 19 was 7.5 acres as proposed and 1.0 acre conditional (8.5 total); and 20A was 0.85 acres as proposed.

Mitigations within the 70 foot zone allowed historic tailings piles to be mined, but no mining would be conducted below the elevation of the floodplain which is approximately 2 feet above the normal water level of Resurrection Creek; no equipment would be allowed in the Resurrection Creek channel; no new settling ponds or drainage ditches would be located within the 70 foot zone; and following mining the ground within the 70

foot zone would be left at an elevation of about 2 feet above the normal water surface elevation, which is the elevation of the historic floodplain.

This alternative was eliminated from consideration because previously approved Area 5 was incorrectly mapped when the alternative was first developed showing that Area 5A had more of its boundary adjacent to Resurrection Creek which allowed the modifications discussed above. Once the boundary was correctly adjusted for Area 5, which was previously approved with a 20 foot buffer on Resurrection Creek, Area 5A has only 200 feet of boundary adjacent to the stream with 40 feet of tailings piles. In addition, the changes discussed above are not substantially different from the proposed action. Despite the elimination of this alternative, the mitigations proposed for the 70 foot “conditional mining” zone have been incorporated into the mitigation measures for the proposed action.

Environmental Consequences

This section provides a summary of the environmental impacts under each alternative. It discusses the effects relative to applicable physical, biological, and social environments within the project area. To address cumulative effects, the Forest Service examined the environmental impacts of each alternative in conjunction with past, present, and reasonably foreseeable future actions. The discussions of resources and potential effects incorporate existing information included in the Forest Plan, project specific resource reports and related information, and other sources as indicated. The planning record for this analysis contains these resource sources of information as well as results of any field investigations. The planning record is located at the Seward Ranger District in Seward, Alaska, and is available for review during regular business hours. Information from the planning record is also available upon request.

Wildlife Resources

Affected Environment – Habitat

The project area was surveyed by a Forest Service wildlife biologist in 2008. The project area has a long history of mining from the early 1900’s to present day. The landscape in Areas 5A, 19 and 20A has been previously disturbed as a result of mining activities, the remnants of which are scattered old tailing piles covered with moss and little other vegetation. Vegetation in Area 19 consists of black cottonwood dominating the overstory with a range of diameter breast height (dbh) of 12-25 inches and heights up to 70 feet. The stand is approximately 60 years in age. The mid-story consists of spruce trees less than 12 inches dbh and the understory consists of green alder and Scouler’s willow. The total canopy coverage of the stand is approximately 60% coverage. The area shows no evidence of natural disturbance, coarse woody debris is minimal and there is no dead spruce present. Vegetation in Area 5A and 20A have already been disturbed as a result of mining operations. The existing condition prior to the removal of vegetation is unknown, but the vegetation was most likely similar to Area 19. Long and short term effects to wildlife habitat in terms of food, cover, nesting or roosting habitat have already occurred in this area.

Threatened and Endangered Species

No threatened, endangered, proposed, candidate or sensitive species or their habitats occur in the project area or adjacent areas that could be affected by mining activities. No direct, indirect or cumulative effects will occur for these species.

Management Indicator Species

The project area is potential and existing habitat for moose and brown bear. The project area is not considered to be especially important to population viability of these species as it does not serve as critical habitat or as an important migration corridor.

Species of Special Interest

The project area contains potential habitat for gray wolf, lynx, river otter, Townsend's warbler, wolverine, bald eagle and northern goshawk. Based on a survey of the project area, it is not believed that this area serves as critical habitat or as an important migration corridor for these species.

Migratory Birds

The project area contains potential habitat for migratory birds of concern including the chestnut-backed chickadee, golden-crowned sparrow, gray-cheeked thrush, northern strike, northwestern crow, Rufous hummingbird, varied thrush, northern goshawk and osprey. During wildlife surveys the varied thrush was the only species noted as occurring in the project area, however, surveys were generally conducted in late morning or late in the day when most birds are less vocal. Ospreys are known to travel through the area during migration.

Environmental Consequences

Alternative B: Proposed Action

The Proposed Action will result in short term disturbance to wildlife in the project area from noise and mining activities. Under Alternative B, an area of approximately 20.6 acres would be impacted by mining activities. It is expected that wildlife utilizing habitat near the project area would continue to avoid the use of the project area as potential or existing habitat when mining activity is occurring. Long term disturbance will occur on 20.6 acres as a result of the removal of vegetation and loss of habitat in terms of food, cover, nesting or roosting habitat for species that use mature forest.

The mining activity proposed under Alternative B is not expected to be continuous or result in wildlife avoiding the project area permanently. In addition, the project area is not considered critical habitat or a travel or migration corridor for any of the species and is not expected to cause meaningful effect on any species population viability either generally or locally because of the small size of the project area relative to the size of the existing intact habitat for these species.

The mining claims will cause short term cumulative impacts to management indicator species, species of special interest, and migratory birds and their habitats due to vegetation removal and disturbance from mining operations in conjunction with other

past, present and foreseeable activities. Although this will affect individuals, effects will be limited in space (11.1 acres) and time (5-20 years). It is unlikely that the small scale of the operation will impact populations of any species on the Chugach National Forest.

Alternative B: Findings for Wildlife Resources

There would be no direct, indirect, or cumulative impact to population viability to any species with potential or existing habitat in the project area from Alternative B.

Hydrology Resources

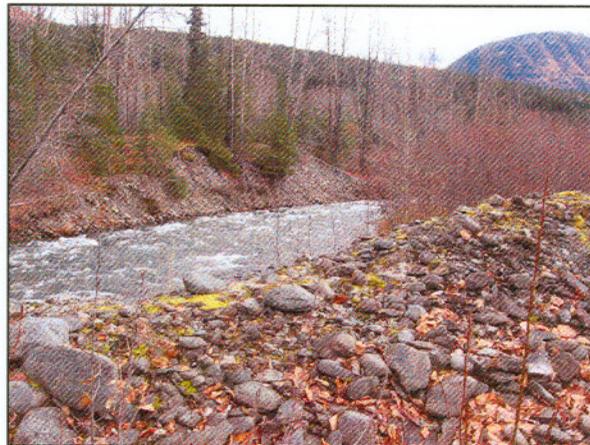
Affected Environment

The proposed mining area lies at elevations of about 300 feet, located about 4 miles upstream of the mouth of Resurrection Creek. Resurrection Creek drains 161 square miles north into Turnagain Arm through a large glacially formed U-shaped valley, but no glaciers are currently present in the watershed. The proposed mining would occur on the valley floor in an area of alluvial gravels that were deposited during glacial recession. High terraces between 50 and 100 feet rise up on both sides of the Resurrection Creek Valley as a result of the creek cutting into the alluvial gravels over time. The Hope area climate reflects a marine influence with an average annual temperature of 37 degrees F, with a maximum July average of 67 degrees F, and a minimum January average of 13 degrees F. Storms typically come from the east causing a rain shadow effect in the Resurrection Creek watershed. Hope receives an average annual precipitation of 22 inches, with winter snowpacks averaging 23 inches.

General Stream Channel Characteristics

Much of the lower 6.5 miles of Resurrection Creek, including the project area, have been extensively mined over the last century. Historic hydraulic mining operations, beginning in about 1895, washed much of the soil and fine substrate materials downstream and left primarily gravel and cobbles on the floodplains and tailings piles. Resurrection Creek was moved several times over the last century and currently does not lie in its original location throughout most of the Hope Mining Company mining claims.

Figure 3: Lateral confinement of Resurrection Creek near Area 5A. Tailings piles of gravel and cobble line both banks of the channel cutting off the floodplain, and little soil exists for riparian vegetation.



The stream channel in these areas could be characterized as an impaired *Wide Low* or *Low Gradient Floodplain Channel* (FP4 or FP5), using the *Channel Type Users Guide for the Tongass National Forest* (USDA Forest Service, Alaska Region, 1992). The channel types are alluvial with wide floodplains, low gradient (<2%) and high sinuosity when they are not impaired. Depositional processes occur but high flows will mobilize sediment. Large woody debris (LWD) is an important component for the maintenance of channel form and habitat. Channels are sensitive to sediment inputs from the watershed, especially bank erosion, and protection of riparian and floodplain off-channel features are important for aquatic habitat.

The Resurrection Creek channel through the project area averages about 70 feet in width. Hydraulic mining and the resulting relocation of the creek over the past 100 years has resulted in a steepened channel gradient, a riffle dominated channel with very few pools and an unnaturally straight stream channel. The channel substrate is predominately cobble and gravel sized material with large scattered boulders. A 200 foot long side channel is located adjacent to Area 5A, but side channels are short and very limited through this area. Side channels typically have high habitat values, but the lack of this type of habitat is a limiting factor for salmon production in this section of Resurrection Creek, particularly during low winter flows (Halt Crowser, 2002). The banks of the main channel of Resurrection Creek are composed of gravel and cobble and are abnormally high as a result of historic tailings piles deposited adjacent to the channel. The result is high eroding gravel banks as high as 20 feet with poor riparian vegetation. LWD is mostly absent from the channel because of the lack of wood recruitment from poorly developed riparian areas and the lack of channel complexity to retain wood in logjams.



Figure 4: Eroding tailings pile along Resurrection Creek near Area 5.

Wetlands

Wetlands are limited in the proposed mining areas. Based on the US Fish and Wildlife Service National Wetlands Inventory, the main channel corridor of Resurrection Creek is classified as Riverine wetlands, and scattered palustrine wetlands exist in the floodplain areas. Based on this mapping, 0.8 acres of riverine wetlands and 1.1 acres of palustrine wetlands lie within the proposed mining areas and the entire 1.1-acre interpretive area lies within riverine wetlands. This coarse wetland mapping is not very accurate at this scale, and it is likely that small, scattered areas of palustrine wetlands exist throughout these

areas. Wetlands that existed in Area 5A prior to 2008 have been modified or removed as a result of the mining preparation.

Streamflows

The US Geological Survey collected 18 years of flow data on Resurrection Creek (US Geological Survey, 2009). Peak flows on Resurrection Creek are typically generated by summer snowmelt. Snowmelt runoff generally starts in early May, with annual peak flows averaging about 800 cubic feet per second (cfs) in mid to late June. Warm, sunny periods during spring runoff can result in high flows. Large peak flow events can also occur in August, September, and October as the result of heavy fall rainstorms, with high water events lasting 1 to 3 days. Winter flows are generally less than 200 cfs, as snowpack covers most of the watershed, although ice buildup and/or ice dam breakout floods can cause winter flooding and ice scour.

Water Quality

Water quality data for Resurrection Creek are limited. All parameters measured by the US Geological Survey data (US Geological Survey, 2009) in Resurrection Creek from 1950 to 1959 and 1968 to 1971 met Alaska State standards (Alaska Department of Environmental Conservation, 2006). The US Forest Service measured heavy metals upstream of, within, and downstream of active placer mining sites in 1980 (Blanchet, 1981). Results of these studies showed a few instances where lead and manganese levels were elevated above State water quality standards.

Mercury was likely used for gold amalgamation during early 20th-Century mining operations, but it is not known how much mercury was deposited into the stream or onto the floodplains during this process. The Forest Service conducted a series of studies to assess the presence or absence of mercury in water, sediment, and fish in the main channel and side channels of Resurrection Creek (MacFarlane, 2004a; MacFarlane, 2004b; Olegario and MacFarlane, 2009). Results showed that mercury levels were slightly elevated, but still below the levels that would be considered harmful, and similar to levels measured in streams not impacted by mining in the region. It is possible that some mercury remains within localized areas of the gravels and tailings piles.

Placer mining operations in Alaska are required to meet State standards for water quality. Sediment washed into the existing Hope Mining Company settling pond system during current mining operations generally comes out of suspension in the settling ponds. It is not known how much turbid water has entered Resurrection Creek from these settling ponds through infiltration into the coarse gravels or overflow during flood events. Six of the settling ponds in the existing settling pond system on the east side of Resurrection Creek are within 70 feet of the Resurrection Creek channel, and 3 of these are located within 20 feet of the channel. These are areas of concern for water quality.

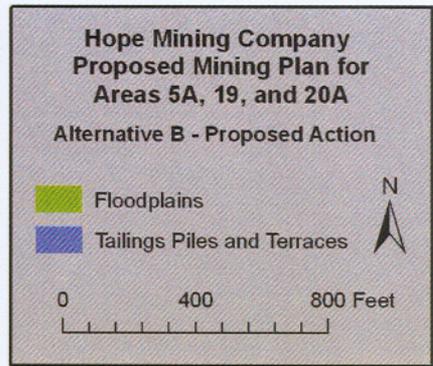
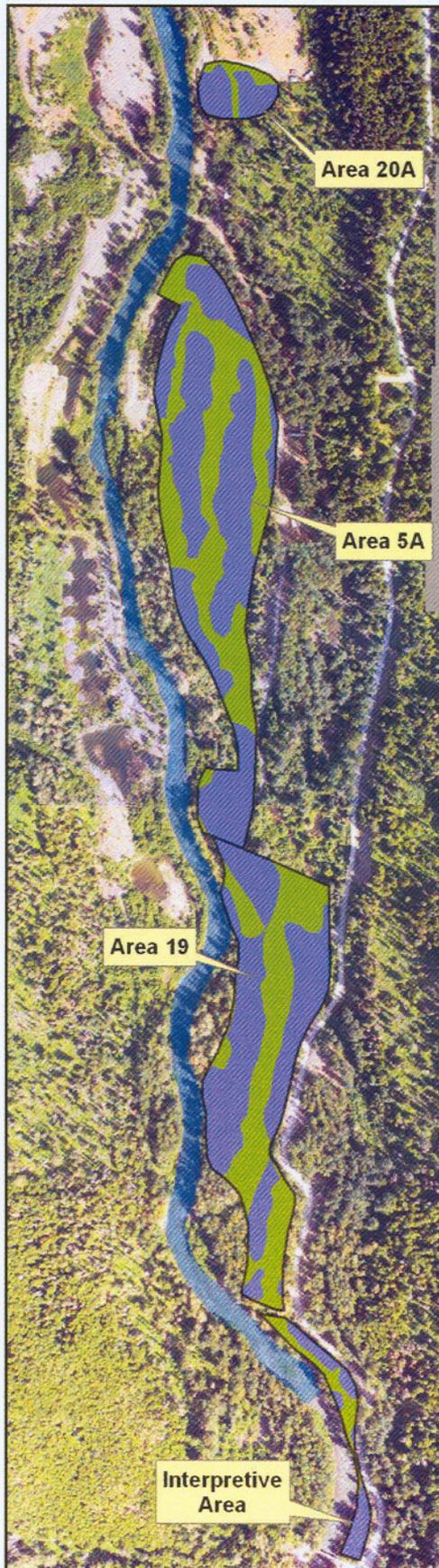


Figure 5: Locations of floodplains and tailings piles in the proposed Areas 5a, 19, and 20a, and the proposed interpretive area. Some areas of functional floodplains in Area 19 were left out of the proposal through collaboration with the mine claimant.

Existing mining operations in the area include the use of ATVs, trucks, and heavy equipment on the floodplains adjacent to Resurrection Creek, and in the settling ponds and drainage systems. Some of the mining roads that service the settling pond system and other active claims are directly adjacent to Resurrection Creek, causing bank erosion and direct input of sediment into the channel. The potential also exists for hydrocarbons and other pollutants from mining machinery to enter Resurrection Creek or other water bodies. Small oil spills have been observed in the past in close proximity to the Resurrection Creek stream channel, but any effects on water quality have not been measured.

Floodplain Conditions

A floodplain is a low area adjacent to a river or stream channel that is regularly inundated by high flow events. Functional floodplains are those that are hydrologically connected to the channel and have riparian vegetation that functions to reduce the intensity of floods and to provide flow refugia and LWD recruitment. Floodplains are present in the proposed mining areas and the proposed interpretive area, although historic tailings piles cover much of the ground. The alluvial substrate in the project area consists of coarse gravel and cobble as a result of historic mining activities washing away fine material. The ground is highly permeable as a result and water infiltrates the ground and travels quickly down the valley. Subsurface layers of clay are common and create infiltration barriers.

Area 19

Area 19 consists of alluvial river deposits, but floodplain areas are limited as a result of the numerous tailings piles left from historic mining. Over the last several decades, a thin layer of soil has reestablished itself after historic mining washed away much of the fine material. Area 19 consists of 43% coverage by low floodplain areas and 57% coverage by tailings piles up to 20 feet high. Mature vegetation has grown in this area because mining has not occurred for many decades. Large cottonwoods have grown in the low floodplain areas and spruce, birch, and alder have grown on the tailings piles. Some of the existing floodplain areas are not functional because they are isolated from Resurrection Creek by tailings piles. Tailings piles lie adjacent to Resurrection Creek over a distance of about 400 feet, with heights up to 16 feet. Tailings piles create high, unnatural banks that impair channel function, impede beneficial overbank flows, cause soil erosion, and impede the growth of healthy riparian vegetation.

During the summer of 2008, resource specialists identified areas that represented the most functional floodplains along Resurrection Creek in the project area and worked with the mine claimant to leave these areas outside of the proposed Area 19 in order to preserve the hydrologic and ecologic function. The sections of floodplain cover about 2 acres and are up to 150 feet wide. Areas were also identified where high tailings piles adjacent to the bank are impairing the function of the channel and impeding overbank flows. The tailings piles are within 20 feet of the bank, but resource specialists worked with the mine claimant to include these areas in the proposed Area 19. Mining the tailings piles will restore some of the floodplain function by reducing their height. The proposed Area 19 boundary reflects these changes.

Area 5A

The previously approved Area 5 contains patches of functional floodplain along Resurrection Creek, with tailings piles left along the creek isolating floodplain areas farther from the creek. A thin layer of soil reestablished itself over the last several decades after historic mining washed away the soils and fine grained material in the floodplain. Area 5A consists of 42% coverage by low floodplain area and 58% coverage by terraces and tailings piles up to 20 feet high. Area 5A is adjacent to Resurrection Creek for only 200 feet, with 40 feet of tailings piles up to 10 feet high. In Area 5, an additional 250 feet of tailings piles up to 20 feet high lie adjacent to the bank. The tailings piles near the creek in Areas 5 and 5A create unnatural banks that impair channel function, impede beneficial overbank flows, cause soil erosion, impair water quality, and impede the growth of healthy riparian vegetation. No modifications were made to proposed Area 5A to preserve floodplain function as was done in Area 19 because the previously approved Area 5 lies between Area 5A and Resurrection Creek. Approval in Area 5 currently allows with a 20 foot wide buffer zone along Resurrection Creek.

This area was covered by mature vegetation including cottonwood, spruce, birch, and alder. Most of the vegetation in Area 5A was removed during 2008 mining operations in preparation for mining Area 5A in conjunction with Area 5. A drainage ditch and settling pond system were constructed through this area in preparation for mining. An active settling pond exists in the northern portion of Area 5A. The pond outlet and ditch are located only 20 feet from the eastern bank of Resurrection Creek, with minimal vegetative buffer.



Figure 6: Active settling pond in the northern portion of Area 5A, Oct 12, 2007, showing beaver activity. HMC has been proactive in removal of structures made by beavers.

Area 20A

Area 20A contains a small area of floodplain, tailings piles, and a low vegetated terrace. A portion of this area has been mined in the past, and vegetation is partially cleared from the area. With its proximity to the Resurrection Creek channel, a portion of this area is susceptible to flooding during high flow events.

Interpretive Area

The proposed interpretive area consists of a combination of high tailings piles and low floodplains in a 5 to 85 foot wide strip of land between Resurrection Creek and the Resurrection Creek Road. The larger tailings piles north of the Resurrection Pass Trailhead are 20 feet high with steep sides along the creek. An informal camping area lies within the floodplain of this area and some of the floodplains are functional with healthy riparian vegetation. Most of the ground vegetation in the camping area has been severely damaged. Trampling along the bank of Resurrection Creek has caused considerable bank damage and erosion, causing the undermining of several large cottonwood trees along the bank. Mature cottonwood trees grow in the floodplain area and small spruce trees grow on the tailings piles. This area is frequently inundated by high water events and heavy ice buildup occurs in the winter.

Environmental Consequences

Alternative B: Proposed Action

Stream channel: The proposed action could potentially impact the stream channel because of the close proximity of the mining to the Resurrection Creek channel. Mining would be allowed up to the edge of the bank only in areas where high tailings piles are adjacent to the bank in Area 19. Proposed mining could cause irreversible damage to the banks unless the recommended mitigation measures are followed. Any mining directly adjacent to the channel and below the floodplain elevation would greatly increase the risk of catastrophic channel capture into mining ditches and settling pond systems, particularly during high flow or flood events. Reclamation of the banks as recommended in the mitigation measures and the mining and removal of tailings piles adjacent to the creek banks in Area 19 would reduce the constricted nature of the stream channel and allow for better hydrologic function in the long term.

The proposed mining in areas of existing floodplain near the channel could impact the integrity of the banks and the hydrologic function of the riparian area because of the limited size of the buffer zone in Areas 5A and 20A. Mining in areas adjacent to Resurrection Creek would also reduce the availability of riparian vegetation and woody debris production into the stream channel. A 20 foot wide buffer zone is not adequate to protect the integrity and function of the riparian area along Resurrection Creek. A 70 foot buffer zone, equal to the average channel width, would be more suitable to protect a stream of this size and maintain basic hydrologic function. A 70 foot buffer zone was not applied uniformly for the project area because the proposed action already retained functional floodplains and allowing tailings piles to be mined adjacent to Resurrection Creek would increase the amount of available floodplain.

The proximity of the settling pond to the Resurrection Creek channel at the north end of Area 5A and two other settling ponds further downstream poses a risk of channel capture into the settling pond system, as occurred at Pond 'O' on the west side of Resurrection Creek in the 1990s.

Floodplains: All existing floodplains within the proposed mining areas would be cleared of vegetation under the proposed action. Although portions of these floodplains are not functional because they are isolated by tailings piles, some of these floodplains function to attenuate flood flows, and overflow channels exist within some of these areas. Removal of riparian vegetation in the floodplains could impact flood dynamics. Fine sediments would be removed from the floodplain substrate through the mining process, increasing the ground permeability. Riparian productivity would be destroyed unless the recommended mitigation measures are followed and a suitable reclamation plan is implemented following mining. Reclamation as recommended in the mitigation measures and mining of the tailings piles adjacent to the banks in Area 19 would increase the amount of available floodplain along Resurrection Creek. This would benefit the stream channel and floodplain function in the long term, once riparian vegetation becomes reestablished.

Wetlands: Under the proposed action, any small existing wetland areas that are currently remaining within the proposed mining areas would be modified or eliminated as a result of the proposed mining.

Streamflows: The proposed mining operations would have no impact on the quantity or timing of streamflows in Resurrection Creek. Mining operations would not divert any water from Resurrection Creek.

Water Quality: The risk of erosion and sedimentation delivering sediment to the stream channel during high precipitation events could be greatly increased under the proposed action because the proposed mining operations would clear a maximum of 20.6 acres of land. Depending on how mining is conducted, the 20 foot wide buffer that would exist in Area 5A may not be sufficient to capture sediment before it runs into Resurrection Creek. The risk of sediment eroding into Resurrection Creek would be very high in the areas where mining would occur adjacent to the bank in portions of Area 19.

The risk of catastrophic failure of settling ponds near Resurrection Creek introducing large influxes of sediment into the channel would be high, as would the risk of intermittent bleeding or overflow of turbid water from these ponds into the channel. The three ponds that are within 20 feet of the Resurrection Creek channel pose the greatest risk to water quality impairment.

With mining equipment working up to the edge of the bank of Resurrection Creek, a high potential would exist for any hydrocarbons that are spilled to enter the stream channel, settling pond system, or groundwater. Disturbance of existing tailings piles in the proposed mining areas could also potentially release any existing mercury that might have been deposited during historic mining operations. Any mercury released into the environment and water resources could impact water quality, aquatic species, and human health.

Cumulative Effects: Resurrection Creek is currently an impaired system through the Hope Mining Company claims. This is the result of historical early 20th-Century placer

mining as well as recent and existing mining operations. Historical mining severely impacted the stream channel conditions, riparian health, and aquatic habitat through the Hope Mining Company claims by moving the channel, straightening the channel, and leaving tailings piles along the historic floodplains. A total of about 228 acres of valley floor along 4.5 miles of Resurrection Creek were affected in this way. The 2005-2006 Phase I Resurrection Creek Stream and Riparian Restoration Project restored about 1 mile of impacted stream channel to natural conditions, about 1 mile upstream of the Hope Mining Company claims.

Approval of the proposed mining areas would increase the total approved mining area on the Hope Mining Company Claims from 75 acres to 95 acres, further increasing the potential for impacts to water resources. However, the proposed mining Areas 5A and 19 lie within the proposed stream restoration corridor of the Resurrection Creek Phase II Stream and Riparian Restoration Project, a reasonably foreseeable project within the next 10 years that may occur after mining operations are completed in Areas 5a and 19. Under this restoration project, the Forest Service would restore about 76 acres along a 200 to 500-foot wide riparian corridor through the Hope Mining Company claims to its natural condition, and existing approved mining areas within the corridor (including most of Areas 5A and 19) would no longer be approved for mining. If this project were to occur, it would minimize the long term impacts of the proposed mining operations in Areas 5A and 19 by fully restoring the stream channel and riparian ecosystem within the restoration corridor. Also, approval of future additional mining areas outside of the restoration corridor would have a smaller impact on water resources than the existing mining areas because an adequate riparian buffer zone would be incorporated into the restoration corridor to protect the stream channel.

Considering the effects of the proposed mining and the cumulative effects of all of the past, present and future projects and activities in this area, the approval of 20.6 additional acres of mining within the riparian corridor of Resurrection Creek would not have a significant effect on water resources. Although it would increase the potential for impacts to water resources in the short term during active mining operations, the recommended mitigation measures and reclamation techniques would minimize these impacts. Mitigation measures allowing for the removal of high tailings piles that are directly adjacent to the banks would actually improve the stream channel condition in the long term by increasing the width of the floodplain in places. If the proposed Phase II Resurrection Creek Stream and Riparian Restoration Project were to occur following mining of these areas, most of Areas 19 and 5A would be restored to a natural "pre-mining" condition, further minimizing any potential effects of the proposed mining operations in those areas.

Alternative B: Findings for Hydrology Resources

The Proposed Action will result in impacts to the stream channel as far as bank integrity, hydrologic function and loss of riparian vegetation and woody debris recruitment. Floodplains in the project area would be effected by removal of vegetation and fine sediment impacting flood dynamics and ground permeability. Wetlands in the project area would be modified or eliminated. Water quality may be impacted by sedimentation

especially where mining activities and settling ponds occur adjacent to Resurrection Creek. Project design, mitigation measures and reclamation techniques were developed to minimize any adverse effects to the watershed. Cumulatively, the approval of 20.6 additional acres of mining within the riparian corridor of Resurrection Creek would not have a significant effect on water resources. If the proposed Phase II Resurrection Creek Stream and Riparian Restoration Project were to occur following mining of these areas, most of Areas 19 and 5A would be restored to a natural “pre-mining” condition, further minimizing any potential effects of the proposed mining operations in those areas.

Fisheries Resources

Affected Environment

Anadromous fish distribution has been identified up to river mile 30.6 of Resurrection Creek, with the lower 6.2 miles identified as critical habitat for spawning and rearing habitat for *Oncorhynchus kisutch* (coho salmon), *Oncorhynchus keta* (chum salmon), *Oncorhynchus gorbuscha* (pink salmon) and *Oncorhynchus tshawytscha* (Chinook salmon). *Oncorhynchus nerka* (sockeye salmon) may occasionally use Resurrection Creek, despite the absence of lakes and have been observed in pools and on spawning beds in the Palmer Creek confluence area. Resident fish include *Salvelinus malma* (Dolly Varden), *Prosopium spp.* (whitefish), *Cottidae spp.* (sculpin), *Gasterosteidae spp.* (stickleback), and possibly *Oncorhynchus mykiss* (rainbow trout). While Dolly Varden is known to be present, there is no information about their population status in the Resurrection Creek watershed. Rainbow trout may exist above impassible barriers further up the watershed, but the anadromous form of rainbow trout does not occur here. There are no population data on rainbow trout or whitefish.

Most salmon species that travel upstream appear to pass through the project area with limited observations of main channel spawning by any species. This reach of Resurrection Creek adjacent to the project area offers little quality spawning habitat as determined by a R10 Habitat Suitability Survey conducted in 2007. It is characterized by large streambed substrate and swift flows with an absence of pool habitat and slow water areas. Three side channels exist adjacent to Area 5A and 19 where spawning pink salmon have been observed during the summers of 2006, 2007 and 2008. Two side channels are adjacent to Area 5A and are 100 to 150 feet long and 15 feet wide; both channels have a cobble gravel substrate and an enclosed canopy of overhanging alder. The third channel is located adjacent to the southern end of the Area 19, with gravel to large cobble substrate and mixed canopy cover. Spawning activity in this channel complex has been observed as less than the others.

Dolly Varden char were observed in the existing drainage ditch, the series of settling ponds and the streams in Areas 5A and 20A, with over 30 Dolly Varden trapped in the summer of 2008 in the project area. Possible sources for fish getting into the drainage system is the stream used to feed water into the system or high flow events allowing fish to pass the man-made barriers put in place to prevent fish from entering the drainage system. No population data is available for Dolly Varden in the Resurrection Creek watershed, but they have been observed in most stream habitats in this section of the

watershed suggesting they are not rare and habitat is not limited. No other fish were observed within the project area boundaries.

Environmental Consequences

Alternative B: Proposed Action

The Proposed Action will not result in effects to the salmon species present in Resurrection Creek because of stream buffers. Adhering to applicable State of Alaska water quality standards (18 AAC 70.010-110), following Best Management Practices (BMP's) found in the Region 10 Soil and Water Conservation Handbook (USDA Forest Service, Alaska Region, 2006), and adhering to mitigations such as stream buffers recommended for water quality will further protect salmon in the creek.

Mining activities could effect Dolly Varden found in the drainage ditch and settling pond system in Areas 5A and 20A, assuming that the fish survived the winter. Trapping and relocating the fish out of the project area and installing temporary barriers on the stream feeding the system will limit upstream access for fish and reduce the likelihood that Dolly Varden will enter the drainage ditch and settling pond.

Cumulative effects from the Proposed Action and other projects in the area are insignificant because they were or will be implemented with adherence to water quality standards and BMP's. Resurrection Creek Restoration Phase II is expected to have short term impacts to stream resources during implementation of the channel restoration, similar to Resurrection Creek Restoration Phase I, one mile upstream of the project area. The Resurrection Creek Restoration projects are a benefit to fisheries resources, despite short term impacts during implementation. Three years of monitoring have shown a net benefit to fish and aquatic species in the Phase I reach and a similar response is expected in the Phase II reach following restoration.

No threatened or endangered species are known to occur in or immediately adjacent to the project area so there can be no meaningful effect to these species.

Alternative B: Findings for Fisheries Resources

The Proposed Action will result in no direct, indirect or cumulative impact to population viability for threatened and endangered species because they are not known to occur in the project area and for salmon and other fish present in Resurrection Creek because of mitigations such as stream buffers and proper application of water quality standards and Best Management Practices. Dolly Varden in the project area may be impacted directly by mining operations, but these effects will be mitigated through removal of the fish from the drainage system and prevention of future access.

Ecology Resources

Affected Environment

Tree species comprising the overstory within the project area includes *Populus balsamifera* ssp. *trichocarpa* (black cottonwood), *Betula papyrifera* (paper birch), *Picea*

x lutzii (Lutz spruce), *Picea glauca* (white spruce), and *Tsuga mertensiana* (mountain hemlock). Main understory shrubs include *Alnus crispa* spp. *tenuifolia* (Sitka alder), a variety of willow (*Salix scouleriana*, Scouler's willow; *S. barclayi*, Barclay's willow; *S. alaxensis*, felt-leaved willow), *Rosa acicularis* (prickly rose), *Viburnum edule* (highbush cranberry), *Ribes triste* (northern red currant), *Rubus idaeus* (red raspberry), and *Oplopanax horridus* (devil's club). Forb species include a variety of typical forested understory species such as *Rubus pedatus* (five-leaf bramble), *Cornus canadensis* (bunchberry dogwood), and *Trientalis europaea* (arctic starflower), as well as a number of disturbance species along the mining access roads and various other travel corridors in the project area, including *Epilobium angustifolium* (common fireweed), *Epilobium ciliatum* (purple-leaved willowherb), and *Geum macrophyllum* (large-leaved avens). Riparian areas also contain typical wet spot and streambank species, including *Viola* spp. (violets) and *Claytonia* spp. (miner's lettuce). Ferns and allies include a great deal of *Equisetum arvense* (horsetails), *Athyrium filix-femina* (lady fern), and *Gymnocarpium dryopteris* (oak fern). Graminoids including mainly *Calamagrostis canadensis* (bluejoint reedgrass), a variety of *Carex* spp. (sedge), and some *Juncus* spp. (rush).

The site is highly disturbed in many places due to past and present mining activities, transportation of mining equipment, construction, and recreational uses. There are a number of structures, roads, access trails, OHV trails, and equipment of various types throughout the project area. Non-native plant species within the project area include a fairly high concentration of *Taraxacum officinale* (*common dandelion*), as well as populations of *Crepis tectorum* (*narrowleaf hawksbeard*) and *Triplospermum perforata* (scentless false mayweed) along access roads on the east side of Resurrection Creek. Oxeye daisy (*Leucanthemum vulgare*) is found scattered on both sides of the creek. Other non native species include *Linaria vulgaris* (butter-n-eggs or toadflax), *Trifolium repens* and *T. pratense* (white and red clover), *Matricaria matricarioides* (pineapple weed), *Phleum pratense* (timothy), and *Plantago major* (common plantain). Plant community types are identified in *Plant Community Types of the Chugach National Forest: South-central Alaska* (DeVelice et al. 1999) which includes observations from three study plots within the Resurrection Creek watershed.

Mining has altered current vegetation, particularly in riparian areas directly adjacent to the stream channel where most mining is concentrated. Recreational and commercial placer operations in the Resurrection Creek are the most common and widespread form of mining, and have influenced riparian and floodplain vegetation plant community types including willow, cottonwood, and alder. Mining activities tend to shift vegetation assemblages to earlier seral phases like some of the tall scrub and broadleaf or mixed forest types described by DeVelice et al. (1999).

A Biological Evaluation for Plants was conducted for these sites in July 2007. This Biological Evaluation indicates that there are no sensitive or rare plant species in or directly near the project area, nor are any proximate populations expected to be affected in any way by project activities.

Environmental Consequences

Alternative B: Proposed Action

The Proposed Action will result in removal of the forested cover near Resurrection Creek for several years. Under Alternative B, an area of approximately 20.6 acres would be impacted by mining activities. Potential exists for non-native species to be brought to the project area by mining equipment, vehicles, foot traffic or from materials used for re-vegetation. The potential is great enough to warrant the washing of all equipment and vehicles prior to being brought into the project area. There is also a potential for existing non-native plant populations to increase as a result of areas of exposed soil being created from mining activities. Newly disturbed ground is an ideal bed for many non-native plants to become established especially if seed sources are nearby.

No sensitive plants have been found in the project area; therefore, there will be no effect to these species.

Alternative B: Findings for Ecology Resources

The Proposed Action will not result in direct, indirect, or cumulative impacts to sensitive plants because they do not exist in the project area. The Proposed Action will not contribute to the spread of non-native species as long as equipment and vehicles are washed prior to entry into the project area.

Heritage Resources

Affected Environment

The Resurrection Creek drainage and the project area have an extensive history of mining starting with the first claim staked in 1888. The gold rush to the Turnagain Arm in 1895-1896 would transform the towns of Sunrise and Hope. Hope is located at the mouth of Resurrection Creek and served those mining gold on the creek. A second smaller gold rush occurred in 1898.

Robert Burns Mathison and his family were the first to establish claims in the project area. In 1905, the Mathison claims consisted of the Bonanza, Cottonwood, Rob Mathison, Little Nell, Independence, and probably White Stocking as well. The Mathisons worked their claims with primitive methods at first, but purchased equipment for hydraulic mining in 1907. Hydraulic operations occurred in the project area and all along Resurrection Creek throughout this time period until about the 1930's, the evidence of which is still seen today in the many tailing piles and historic mining artifacts. The claims in the project area were held by several different people until they were quitclaimed to Albert Johnson and Christopher Mather in 1973, who continued to stake numerous claims on Resurrection Creek in the 1970's and 1980's. In 1993, Al Johnson consolidated all of these claims under the Hope Mining Company, an incorporated commercial entity.

In 1997, the claims under the Hope Mining Company were surveyed and inventoried by a Forest Service Archaeologist. The historic sites and attributing features were deemed

eligible for inclusion in the National Register of Historic Places as the Hope Mining Company Historic Mining District. The historic mining artifacts found in the area are remnants of the hydraulic mining period. The project area falls within the current boundaries of this historic mining district.

More detailed information about the history of the area can be found in the Heritage Report located in the project record.

Environmental Consequences

Alternative B: Proposed Action

The Proposed Action would result in the redistribution of the historic tailings piles, which are contributing features for the Hope Mining Company Historic Mining District. Redistribution would constitute an adverse effect, which has been addressed by the Forest Service through consultation with the SHPO to create a Memorandum of Agreement (MOA). The MOA involves the development of an interpretive site which will be located on the claims north of the Resurrection Pass trailhead. The purpose of the interpretive site is to interpret and raise public awareness about the mining history of the area and to preserve remnants of the historic tailing piles that were left by the hydraulic mining era in the early 1900's. Mining may also uncover previously undocumented mining artifacts, which would allow more information to be obtained about the history of the area.

The Resurrection Creek Restoration Project Phase II and additional mining may take place within and near the project area with potential to impact other historic features in the area. These effects will also be mitigated by the interpretive site and included in the MOA.

Alternative B: Findings for Heritage Resources

The Proposed Action will result in an adverse effect to historic tailings piles, but will be addressed through consultation with the Alaska State Historic Preservation Officer (SHPO). The development of the interpretive site would address the adverse effects of the Proposed Action and potential future actions by leaving remnant historic tailings piles and providing interpretation information to the public.

Recreation Resources

Affected Environment

Recreation resources have been analyzed within the project area. The Recreational Opportunity Spectrum (ROS) for the project area is designated Rural (R), allowing for a highly modified environment where human influences are dominant and there is significant evidence of vegetative manipulation. The Scenic Integrity Objective (SIO) for the project area is Very Low. SIO is a rating given to an area using the Scenery Management System and is used in the context of ecosystem management to determine the relative value and importance of scenery for the area.

The project area is located on Resurrection Creek Road near several popular recreation destinations. The project area is located downstream of the Resurrection Pass North

trailhead, the northern end of this National Recreation Trail and the highest used trail on the district. Common recreation activities in this area include hiking, biking and horse back riding in the summer season and snow machining and skiing in the winter. Overnight trail use during the non-snow season averages approximately 2,468 visitors annually and day use averages approximately 6,800 visitors annually. North of the project area and south of the trailhead is a Recreational Gold Panning Area, where recreational mining and dispersed camping commonly occur. The area has been withdrawn from mineral entry and is not subject to the 1892 mining laws. Use of this area averages 1,500 people per month during the summer with July seeing the heaviest use. Other recreation opportunities near the project area include Palmer Creek Road, which is often used for dispersed camping, and the Porcupine Campground, which provides developed site camping for visitors closer to the city of Hope.

Environmental Consequences

Alternative B: Proposed Action

The Proposed Action will result in short term effects to recreation users near the project area in terms of feelings of loss of the remote character of the land, increased visual disturbance, and the possible increase in noise, traffic and dust. Recreation users may be temporarily displaced to other drainages on the Forest during the implementation of mining operations. Following completion of mining activities, these effects should no longer exist.

Opening up the land and allowing easier access to Resurrection Creek may also have some effects that could result in additional resource damage; gold panners from the recreational mining area and sport fisherman may be attracted by new access to stream channels and dispersed camping and unauthorized ATV use will likely occur. A potential increase in bank fishing could cause damage to the stream banks.

The primary recreational resource affected by Alternative B is the scenic resource. The scenery of Resurrection Creek Valley is an amenity contributing to lifestyles and tourism in the Hope area. The proposed mining activities fall within the range of acceptable activities for the management area prescription in the Forest Plan, but may result in short term discontent among Forest Visitors and local residents. Temporary displacement of recreational users as a result of mining operations combined with the reconstruction of Porcupine Campground and the Hope Point Trail may result in decreased visitor revenues for the Hope Area.

Alternative B: Findings for Recreation Resources

Alternative B will result in short term effects to recreation users and adjacent landowners during mining operations and other projects occurring on National Forest System lands in the area in terms of visual disturbance, noise, traffic and dust. Temporary displacement of recreational users as a result of mining operations combined with the reconstruction of Porcupine Campground and the Hope Point Trail may result in the short term cumulative effect of decreased visitor revenues for the Hope Area.

Recommended Modifications to Mining Plan of Operations

The following modifications to the proposed mining plan of operations are recommended. The reason for these recommendations is that they will minimize adverse environmental consequences associated with the Proposed Action.

- Food and garbage will be contained to prevent attraction and habituation of wildlife and would be taken to a transfer depository at least once every seven days.
- Best Management Practices (BMPs) would be applied to the project for the protection of water quality, floodplains, wetlands, and riparian areas. Region 10 BMPs are found in the Region 10 Soil and Water Conservation Handbook (USDA Forest Service, Alaska Region, 2006). These are standard procedures as required by the Forest Plan. Specific BMP's that may apply to this project include the following:
 - 12.4 Floodplain Identification, Evaluation, and Protection
 - 12.5 Wetland Identification, Evaluation, and Protection
 - 12.6 Riparian Area Designation and Protection
 - 12.7 Oil Pollution Prevention and Servicing/Refueling Operations
 - 12.8 Oil and Hazardous Substances Pollution and Contingency Planning
 - 12.15 Management of Sanitary Facilities and Sanitary Guidelines for Temporary Camps and Primitive Developments
 - 12.16 Revegetation of Disturbed Areas
 - 14.3 Design of Transportation Facilities
 - 14.4 Road and Trail Erosion Control Plan
 - 14.5 Timing Restrictions for Construction Activities
 - 14.8 Measures to Minimize Surface Erosion
 - 14.9 Drainage Control to Minimize Erosion and Sedimentation
 - 14.18 Road Maintenance
 - 17.1 Mining Site Conditions, Planning, and Design
 - 17.2 Placer Mining
 - 17.5 Site Closure and Rehabilitation
- Any surface water outflow from the settling pond system must meet Alaska State water quality standards for turbidity (18 AAC 70.020 12C). The Alaska Department of Environmental Conservation (ADEC) is responsible for monitoring water quality. The Forest Service would periodically monitor water quality and alert ADEC of any potential violations.
- No new settling ponds or drainage ditches would be constructed within 70 feet of the bank of Resurrection Creek or its side channels.

- The following mitigation measures would be followed where mining would be allowed up to the edge of the bank of Resurrection Creek (where tailings piles are adjacent to the bank):
 - No mining would occur below the floodplain elevation within 20 feet of the bank of Resurrection Creek. The floodplain elevation is about 2 feet above the normal water surface elevation.
 - Although tailings material can be pulled off of the near-bank tailings piles, no modifications will be made to the position of the streambanks.
 - Equipment would not be allowed to work in the Resurrection Creek stream channel.

- A Spill Prevention Control and Countermeasure (SPCC) plan is required to be prepared by the operator. The Forest Service is required to inspect operations for compliance with Best Management Practice 12.8 and the SPCC plan [FSH 2509.22 (12.8)]. A spill prevention plan would be required for heavy equipment working in all approved mining areas. This plan would include provisions for hydrocarbon spills that comply with Alaska State requirements.

- If any mercury is encountered or observed during mining operations, all mining in that area will stop, and mining would not resume until a qualified professional completes an assessment and clean-up.

- Reclamation plan would include the following items:
 - Tailings material would be spread out evenly over the mined area.
 - Within 70 feet of the bank of Resurrection Creek, the ground would be left at “floodplain elevation,” which is approximately 2 feet above the normal water surface elevation.
 - Fine material captured by settling ponds would be redistributed over the ground surface following final contouring.
 - Soils and organic debris would be stockpiled prior to clearing and redistributed across the area following mining.
 - The landscape would be recontoured with uneven topography to mimic natural disturbance regimes. Final reclamation would not result in a flat unnatural contour.

- Dolly Varden present in the existing drainage ditch and settling pond system in Areas 5A and 20A would be trapped and relocated out of the project area by the Forest Service. Future upstream access for the fish would be prevented by placing temporary barriers on the stream feeding the drainage system.

- During revegetation of disturbed areas, natural revegetation would be used where seed source and site conditions are favorable. When conditions are not favorable, use native plant species with a preference given to plant materials from the local environment to maximize adaptation and maintain local genetic composition.

- All hay, straw or mulch used for mulching, erosion control and rehabilitation would be free of invasive plants and their seeds.

- Where ground disturbing activities occur within existing invasive plant populations, appropriate plant treatment applications would be conducted prior to project implementation to reduce future spread and establishment. Ideally, ground disturbing activities would be timed to minimize the potential of providing favorable seed beds when invasive plant species have developed mature seeds.
- All equipment and vehicles would be cleaned to remove invasive plant seed source prior to working on National Forest System Land.
- The Forest Service would work with Hope Mining Company and Alaska State Historic Preservation Officer (SHPO) to develop an interpretive site to mitigate the effects of redistributing historic tailings piles in Area 19.
- For all mining in Area 19 or adjacent to Resurrection Creek Road, a buffer of approximately 20 from the toe of the roadbed slope is required and would be flagged and agreed upon by both the Forest Service and the claimant prior to starting mining activities in this area.
- Appropriate signage or other cautionary measures would be required during operations to notify the public of mining activities and will be the responsibility of the operator as approved by the Forest Service.
- Closures of potential newly created access points for recreation users would be completed in a timely manner after operations have been complete to prevent dispersed camping, bank degradation, and unauthorized ATV use.
- Trenches would not be left open beyond the end of each year's operating season.

Compliance with Other Laws and Regulations

National Forest Management Act – The proposed action is consistent with the Forest Plan, and all proposed activities are allowable under the 314 Forest Restoration management area prescriptions. No Forest Plan amendment is would be required.

Coastal Zone Management Act of 1972, as amended – The operator is required to provide evidence to the Forest Service of consistency with the Alaska Coastal Management Program (ACMP). Consistency with ACMP is determined through the Alaska Placer Mining Application Process. A consistency determination is required prior to approval of any mining plans of operation.

Endangered Species Act – Biological evaluations were completed for threatened, endangered, proposed, and sensitive plant and animal species. No threatened and endangered plant or animal species would be affected by the action alternatives.

Bald Eagle Protection Act – Management activities within bald eagle habitat will be in accordance to a Memorandum of Understanding between the Forest Service and the U.S. Fish and Wildlife Service. No bald eagle nests are known in the project area.

ANILCA Section 810, Subsistence Evaluation and Finding – There is no documented or reported subsistence use that would be restricted by any of the action alternatives. For this reason, none of the alternatives would result in a significant possibility of a restriction of subsistence use of wildlife, fish, or other foods.

National Historic Preservation Act of 1966 – Section 106 of the National Historic Preservation Act requires that all federal undertakings follow the regulations found at 36 CFR § 800 to identify and protect cultural resources that are within the project areas and which may be effected by projects. The Chugach National Forest will follow the procedures in the Programmatic Agreement between the Chugach National Forest, the Advisory Council on Historic Preservation, and the Alaska State Historic Preservation Officer (SHPO) regarding management of the project area. The Proposed Action would result in the redistribution of the historic tailings piles, which are contributing features for the Hope Mining Company Historic Mining District. Redistribution would constitute an adverse effect, which has been addressed by the Forest Service through consultation with the SHPO to create a Memorandum of Agreement (MOA). The MOA involves the development of an interpretive site which will be located on the claims north of the Resurrection Pass trailhead. The purpose of the interpretive site is to interpret and raise public awareness about the mining history of the area and preserve remnants of the historic tailing piles that were left by the hydraulic mining era in the early 1900's.

Executive Order 12898 – Environmental Justice – Implementation of this project is not anticipated to cause disproportionate adverse human health or environmental effect to minority or low-income populations because the proposed activities are not expected to cause any affects to human health or result in meaningful adverse environmental consequences.

Clean Air Act – Emissions anticipated from the implementation of the Proposed Action would be of short duration and would not be expected to exceed State of Alaska ambient air quality standards (18 AAC 50).

Executive Order 13112 – Invasive Species – Invasive species populations have the potential to spread in the project area; mitigations and yearly monitoring will be required to reduce this potential and to determine effectiveness.

Magnuson-Stevens Fishery Conservation and Management Act, Public Law 94-265 This project is not expected to result in any adverse effects to fisheries habitat because it will take place outside of Resurrection Creek, with mitigations and design features to protect salmon and adjacent habitat.

Executive Order 12962 – Recreational Fisheries – Federal agencies are required, to the extent permitted by law and where practicable, and in cooperation with States and Tribes, to improve the quantity, function, sustainable productivity, and distribution of U.S. aquatic resources for increased recreational fishing opportunities. As required by this Order, the effects of this action on aquatic systems and recreational fisheries have been evaluated and the effects relative to the purpose of this order have been documented.

This action is consistent with this order because it allows for sound aquatic conservation and restoration activities that will benefit recreational fisheries.

Agencies and Persons Consulted

The Forest Service consulted an interdisciplinary team of resource specialists in the development of this environmental analysis. The Forest Service placed a legal notice describing the proposed action and soliciting comments in the Anchorage Daily News on December 10, 2008, the newspaper of record for the Chugach National Forest. The proposal was provided to residents and business of Hope, adjacent landowners and environmental organizations for comment during the comment period from December 10, 2008 to January 10, 2009. This project has been listed on the Chugach National Forest Schedule of Proposed Actions. Comments have been received in the form of letters and emails and the interdisciplinary team developed and addressed a list of issues from the comments.

Table 2: Hope Mining Company Areas 5A, 19, and 20A Mailing List

| Name | Location | Name | Location |
|-----------------------------|-------------------------|------------------------------|---------------|
| Camille Abrego | Hope, AK | Richard T & Gloria Allison | Anchorage, AK |
| Larry W & Susan C Anderson | Hope, AK | Reid Bahnson | Girdwood, AK |
| Jeanne K Berger | Hope, AK | Leonard & Gail Booth | Hope, AK |
| Barbara J Bowers | Girdwood, AK | John Kent & Melanie K Bowman | Hope, AK |
| Pam Brewster | Hope, AK | Jeffrey Bristow | Anchorage, AK |
| Debra J Brown | Anchorage, AK | Daniel L Beuchner | Anchorage, AK |
| Todd & Barbara Bureau | Hope, AK | Tom & Joyce Burgin | Hope, AK |
| Shawn A Butler | Hope, AK | David Butler | Anchorage, AK |
| Bryan E Carey | Anchorage, AK | Jamie A & Lisa G Carlon | Soldotna, AK |
| Johnny Chandler | Hope, AK | Kirsti M Coel | Anchorage, AK |
| Art E & Lynn J Copoulos | Anchorage, AK | Wayne L Couwenhoven | Hope, AK |
| Geraldeen V Cox | Hope, AK | Virginia A Cuffe | Ninilchik, AK |
| Mark A & Tania M Cunningham | Hope, AK | Gail C Dalrymple | Hope, AK |
| Velma Davidson | Hope, AK | Brenda Gail Davis | Anchorage, AK |
| Jesse Ray Davis et al | Hope, AK | Shawn Deford | Hope, AK |
| Ray Defrance | Hope, AK | Warren E Dent | Hope, AK |
| Robert L & Linda S Devassie | Hope, AK | Henry Drechnowicz | Hope, AK |
| William M Durrant | Hope, AK | Chelton S Feeny | Hope, AK |
| Julian B Fisher | Anchorage, AK | Charles E & Clara M Fultz | Hope, AK |
| Richard R & Averill F Gay | Hope, AK | Paul L Genne | Hope, AK |
| James B Gilbert Jr | Saint Simons Island, GA | Charles Graham | Hope, AK |
| Karl D & Debra L Hageman | Anchorage, AK | Andrew B Hall | Anchorage, AK |
| Lee F Hall | Anchorage, AK | Peck & Dianne Hassler | Hope, AK |
| Daniel A Hawksworth | Hope, AK | Melvin Hislop | Hope, AK |
| Dovie Hogan | Hope, AK | Margaret E Holeman | Hope, AK |
| Eric Keith Johnson | Hope, AK | Al Johnson | Anchorage, AK |
| Warren R & Janet B Jones | Anchorage, AK | Torao Kagimoto | Hope, AK |
| Gregory D & Cornelia Kaser | Hope, AK | Kelly L Keisling | Hope, AK |
| Joseph F Knyszek | Hope, AK | Celina K Kwan | Hope, AK |

| | | | |
|---|---------------|---|---------------|
| James & Diane Lee | Hope, AK | Andrzej R Maciejewski | Anchorage, AK |
| John R Markis | Chugiak, AK | Adrienne Martin | Hope, AK |
| Felix J Martinez | Anchorage, AK | James M McLeod Jr | Homestead, FL |
| Brady Meeks | Hope, AK | Arthur H Melickian | Palmer, AK |
| William L & Phyllis Miller | Hope, AK | Hugh W Moore | Hope, AK |
| James M Morgan | Anchorage, AK | Rochelle S Morris | Hope, AK |
| Henry Robert & Angela Yvonne Motoyama | Hope, AK | Orville G & Carol A Mousley | Hope, AK |
| Jo Ann Z Nelson | Anchorage, AK | Cameron Newton | Hope, AK |
| Stanley E Olchowski | Chugiak, AK | Diane L Olthius | Hope, AK |
| Stuart J Parks | Anchorage, AK | Jeffrey J & Carolyn L Rios | Anchorage, AK |
| James S & Debra J Roberts | Anchorage, AK | Dave P Scanlan | Hope, AK |
| Joseph P Schumacher | Anchorage, AK | Frederick S Sriver | Girdwood, AK |
| Pamela J Shepherd | Hope, AK | Scott & Fayrene Sherritt | Hope, AK |
| Daniel & Gyöngyver Shilling | Hope, AK | Friday Mark Simmons | Hope, AK |
| Jason Skaaren | Hope, AK | James W & Pamela Skogstad | Hope, AK |
| Gregory John & Dru Sorenson | Hope, AK | Bruce M & Cherryl M Stavish | Hope, AK |
| James M Stehn | Hope, AK | Christopher Stinson | Girdwood, AK |
| Sara W Stoops | Anchorage, AK | Linda Stroecker | Fairbanks, AK |
| Guy V & Laura F Trimmingham | Hope, AK | Carla Mae & Robert Eugene Twait | Hope, AK |
| Frank & Marianne Vonhippel | Anchorage, AK | Ernie & Carey Wenn | New Zealand |
| Walter Edward Wilkens | Hope, AK | Gordon F Wisdorf | Hope, AK |
| Barbara J Wright | Hope, AK | Joshuan Bow Wright | Hope, AK |
| Richard W Yoter | Hope, AK | Robert H Yoter | Hope, AK |
| Noah Zogas | Anchorage, AK | Chugach Outdoor Center | Hope, AK |
| Hope Christian Church | Hope, AK | Hope Inc | Hope, AK |
| Hope Sunrise Community Library | Hope, AK | Hope Sunrise Historical Society | Hope, AK |
| Hope Sunrise Emergency Medical Services | Hope, AK | Postmaster | Hope, AK |
| Tito's Discovery Café | Hope, AK | Nordic Skiing Association | Anchorage, AK |
| Alaska Center for the Environment | Anchorage, AK | Resurrection Bay Conservation Alliance | Seward, AK |
| Turnagin Arm Conservation League | Girdwood, AK | Alaska State Historic Preservation Office | Anchorage, AK |

Response to Comments Received

The following comments were received during the scoping period for this project and have been addressed during interdisciplinary review:

- 1) Some commenters expressed concern that sedimentation will enter Resurrection Creek as a result of placer mining and will adversely affect fish habitat and fish numbers in Resurrection Creek. *Operations are required to comply with applicable state and federal standards, including Forest Service Handbook 2509.22 Soil and Water Conservation Handbook (Best Management Practices), and should not effect fish habitat and populations as long as standards are complied with. The Forest Service will be regularly inspecting mining operations*

for compliance. In addition, stream protection has been built into the proposal to minimize sedimentation from entering Resurrection Creek (See Comment 7).

- 2) *Some commenters felt that it was not appropriate to allow placer mining on Resurrection Creek because it will conflict with the ongoing restoration project (Resurrection Creek Phase I) and future restoration project (Resurrection Creek Phase II). Commenters felt that allowing placer mining would negate the beneficial effects from these ongoing and planned restoration projects. The Forest Service has negotiated with Hope Mining Company to complete the activities associated with the Proposed Action prior to implementation of Resurrection Creek Phase II, so that there is no conflict between mining operations and restoration operations. Hope Mining Company will be leaving some flood plains intact and removing old tailing piles from next to Resurrection Creek which will assist in restoring flood plain function. The project area is not located near Resurrection Creek Phase I and will have no effect on the restoration activities already completed.*
- 3) *Some commenters expressed concern that placer mining would result in increased traffic and noise and would leave a visual "scar" on the land. Commenters suggested that operations be confined to certain hours of the day. Miners have the right of reasonable access for the purpose of prospecting, locating and mining. The Forest Service may not prevent lawful mineral activities or cause undue hardship (FSM 2813.14). Restricting operations to certain hours of the day would restrict reasonable access and may cause undue hardship. Reclamation is required following the completion of mining operations (36 CFR §228.8).*
- 4) *Some commenters expressed concern regarding Hope Mining Company's past compliance with mining plans of operation. All operations described under the Proposed Action will be appropriately bonded and the Forest Service will be conducting regular inspections to ensure compliance with approved mining plan of operations.*
- 5) *Some commenters felt that the 30 day comment period was not long enough and requested that the comment period be extended. The time period for submission of comments for an environmental assessment is 30 days and shall not be extended (36 CFR §215.6).*
- 6) *Some commenters felt that the proposed mining plan of operations was vague. The Forest Service has a regulatory obligation to process, and modify and/or approve the operator's proposed plan of operations (36 CFR §228.5). The Forest Service does request additional information if the proposed mining plan of operation does not have sufficient detail and has met with Hope Mining Company representatives in order to refine this proposal. The scoping letter sent out to the public included a summary of the proposal with the information necessary for the public to make informed and meaningful comments. This letter identified the location of the project area, the scale and timing of the project, the operations*

and equipment use in each area, the access and structure use, the proposed interpretive site, and the rights of mining claim holders and responsibility of the Forest Service to process mining plan of operations. Forest Service personnel were available to answer questions about the proposal during the comment period.

- 7) *Some commenters recommended a 100 foot buffer in area 5A and a 100 foot buffer along the stream anywhere there is mature vegetation. The Forest Service hydrologist determined that an appropriate buffer would be 70 feet, the mean bankfull width of Resurrection Creek, and protections have been put in place to exclude construction of settling ponds and ditch systems within this buffer. A uniform buffer of 70 feet is not the best option because allowing tailings piles to be mined adjacent to Resurrection Creek would benefit the watershed by increasing the amount of available floodplain. These tailings piles impair the hydrological function of the stream channel and floodplain by constricting flows in the Resurrection Creek channel and preventing overbank flows during floods. In Area 19, Hope Mining Company agreed to exclude two half acre areas of functional floodplain creating a buffer wider than 70 feet in those areas. A 70 foot buffer is not possible in Area 5/5A because the previously approved Area 5 has an approved buffer of 20 feet and Area 5A only has 200 feet of its boundary next to the stream, with little functional floodplain to exclude.*
- 8) *Some commenters felt that the proposed 20 foot buffer on Resurrection Creek Road is not adequate in general. The project area is located in the 314 – Forest Restoration Management Area and the 521 – Minerals Management Area, which have low and very low scenic integrity objectives. For all mining in Area 19 or adjacent to Resurrection Creek Road, a buffer of approximately 20 from the toe of the roadbed slope is required and will be flagged and agreed upon by both the Forest Service and the claimant prior to starting mining activities in this area. A wider buffer would interfere with a miner’s right of reasonable access for the purpose of prospecting, locating and mining.*
- 9) *Some commenters felt that the dimensions of the proposed trenches are excessive and that the mining plan of operations should state how long the trench will be open for. Appropriate signing or other cautionary measures are required during operations to notify the public of mining activities (36 CFR §228.9). Miners have the right of reasonable access for the purpose of prospecting, locating and mining. The Forest Service may not prevent lawful mineral activities or cause undue hardship (FSM 2813.14). A mitigation to the proposed action includes a requirement for trenches to be filled when operations cease at the end of each season, but restrictions on depth or other restrictions on timing may cause undue hardship.*
- 10) *Some commenters felt that the mining plan of operations should include a “back up plan” in case the proposed settling ponds fail. Operations must comply with applicable State and Federal standards for water quality. Operations will be inspected by the Forest Service to ensure compliance with regulations and the*

approved mining plan of operations. The Forest Service will periodically monitor water quality and alert the Alaska Department of Environmental Conservation (ADEC) of any potential violations. The ADEC is responsible for monitoring water quality.

- 11) Some commenters felt that the Forest Service must comply with AS 16.05.871 (Anadromous Fish Act). *Operations are required to comply with AS 16.05.871 and the Forest Service will be regularly inspecting mining operations to ensure compliance. Current operations as well as proposed operations do not take water directly from Resurrection Creek, a catalogued anadromous fish stream.*
- 12) Some commenters requested that any approved mining plan of operations be monitored by the Forest Service. *The Forest Service is required to inspect mining operations to determine if the operator is complying with regulations and an approved mining plan of operations (36 CFR §228.7).*
- 13) Some commenters felt that Area 20A is too close to residences and no placer mining should be allowed in this area. *Miners have the right of reasonable access for the purpose of prospecting, locating and mining. The Forest Service may not prevent lawful mineral activities or cause undue hardship (FSM 2813.14). Property owners adjacent to National Forest Lands run the risk of having a mining claim established near their property. Mining plan of operations approvals are not new to this area and historic mining has occurred in this area since about 1895.*
- 14) Some commenters felt that reclamation of already disturbed areas should occur before any mining plan of operations is approved. *Disturbance that has already occurred is part of other previously approved mining plan of operations. In a settlement agreement between Hope Mining Company and the Forest Service, a decision was made in United States District Court that restricted the Forest Service from requiring the operator to modify existing plans of operations based on any disturbance of surface resources allegedly due to any operations of Hope Mining Company conducted prior to April 29, 2002. Reclamation is required for mining operations after mining of an area has taken place (36 CFR §228.8). All new disturbances will be appropriately bonded to ensure reclamation of the area in case the operator does not comply (36 CFR §228.13).*
- 15) Some commenters felt that an EIS should be prepared. *The purpose of preparing an Environmental Assessment is to provide sufficient evidence and analysis to determine whether to prepare an Environmental Impact Statement or a Finding of No Significant Impact [FSH 1909.15 (41.1)].*
- 16) Some commenters expressed concern regarding personnel living on the mining claims. *Miners have the right of reasonable access for the purpose of prospecting, locating and mining. The Forest Service may not prevent lawful mineral activities or cause undue hardship (FSM 2813.14) and would be in*

violation. Camps for mining personnel are currently approved as part of the existing plans of operation.

- 17) Some commenters felt that the proposed mining plan of operations is contrary to Forest Plan goals and objectives. *The Chugach National Forest Revised Land and Resource Management Plan (Forest Plan) specifically states an objective to provide exploration and development opportunities in areas with moderate to high locatable mineral potential (Forest Plan 3-6). Mining plans of operation have been approved in the area for many years and the mining claims have access from the road system.*
- 18) Some commenters felt that any plan of operations should occur in a “phased manner” allowing for ongoing reclamation. *The scale and scope of this project (20.6 acres of disturbance) does not warrant a specific requirement for phasing, however, bonding is required prior to mining activities taking place and is only released after reclamation is complete (36 CFR §228.13). The cost of putting up the bond often creates a situation similar to phasing.*
- 19) Some commenters were concerned that fuel and oil from equipment will leak into Resurrection Creek thereby adversely affecting fish habitat and fish numbers. *Mining operations are required to comply with applicable state and federal standards for water quality as well as taking all practicable measures to maintain and protect fisheries and wildlife habitat which may be affected by operations (36 CFR 228.8). A Spill Prevention Control and Countermeasure (SPCC) plan is required to be prepared by the operator. The Forest Service is required to inspect operations for compliance with Best Management Practice 12.8 and the SPCC plan [FSH 2509.22 (12.8)]. The Alaska Department of Environmental Conservation (ADEC) is responsible for monitoring water quality. The Forest Service will periodically monitor water quality and alert ADEC of any potential violations.*
- 20) Some commenters felt that the proposed trenches will increase erosion on adjacent private property on the bluff. *Operations are required to comply with applicable state and federal standards, including Forest Service Handbook 2509.22 Soil and Water Conservation Handbook (Best Management Practices), and should not increase erosion on adjacent private property.*
- 21) Some commenters felt that Area 19 should have a 40 foot stream buffer as opposed to a 20 foot stream buffer. *The Forest Service hydrologist determined that an appropriate buffer would be 70 feet, the mean bankfull width of Resurrection Creek, and protections have been put in place to exclude construction of settling ponds and ditch systems within this buffer. A uniform buffer of 70 feet is not the best option because allowing tailings piles to be mined adjacent to Resurrection Creek would benefit the watershed by increasing the amount of available floodplain. These tailings piles impair the hydrological function of the stream channel and floodplain by constricting flows in the Resurrection Creek channel and preventing overbank flows during floods. In*

Area 19, Hope Mining Company agreed to exclude two half acre areas of functional floodplain creating a buffer wider than 70 feet in those areas. A 70 foot buffer is not possible in Area 5/5A because the previously approved Area 5 has an approved buffer of 20 feet and Area 5A only has 200 feet of its boundary next to the stream, with little functional floodplain to exclude.