



# **Juneau Access Improvements Project Draft Supplemental Environmental Impact Statement**

## **2014 Update to Appendix P Anadromous and Resident Fish Streams Technical Report**

**Prepared for:**

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**State Project Number: 71100  
Federal Project Number: STP-000S(131)**

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**May 2014**

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## **Attachments**

Attachment A: Updated Tables

Attachment B: Updated Figures

Attachment C: Update to Attachment A of the 2004 *Anadromous and Resident Fish Streams Technical Report*

## **Acronyms and Abbreviations**

ACF	Alaska Class Ferry
ADF&G	Alaska Department of Fish and Game
ADNR	Alaska Department of Natural Resources
AMHS	Alaska Marine Highway System
AWC	Anadromous Waters Catalog
DOT&PF	Alaska Department of Transportation and Public Facilities
EIS	Environmental Impact Statement
FHWA	Federal Highway Administration
FVF	Fast Vehicle Ferry
JAI	Juneau Access Improvements
NEPA	National Environmental Policy Act
NHS	National Highway System
OHMP	ADF&G Office of Habitat Management and Permitting
ROD	Record of Decision
SEIS	Supplementary Environmental Impact Statement
USACE	U.S. Army Corps of Engineers

## **ERRATA SHEET**

### **ANADROMOUS AND RESIDENT FISH STREAMS TECHNICAL REPORT**

1. Page 3-5, Table 3-1, streams 60E and 12AE have been added as Class I streams and stream 59E added as a Class IIA stream.
2. Page 3-5, Table 3-2, streams 12AE and 60E have been added as an anadromous streams and additional fish species have been added to streams 10AE, 14E, 15E, 17E, 18E, 46E and 47E which were previously identified as containing anadromous or resident fish. The addition of fish species is based on the contents of the ADF&G *Anadromous Waters Catalog* as of 2012.
3. Page 3-6, Table 3-3, pink salmon were added to streams 4BW and 7W and pacific lamprey as added for stream 22W.
4. Page 4-1, Section 4.2, 1st paragraph, 2nd sentence. Correction: “Three of the anadromous rivers, the Antler, Berners/Lace, and Katzehin rivers would require multi-span bridges with in-stream piers.”
5. Page 4-2, Section 4.2, 1st paragraph, 5th sentence. Correction: “The areas where the Antler and Berners/Lace Rivers would be crossed are within an area where eulachon spawn.”
6. Page 4-3, Section 4.3, 1st paragraph, 2nd sentence. Correction: "As with Alternative 2, the Katzehin River would require a multi-span bridge with in-stream piers, and the remaining four anadromous streams would be crossed with single-span bridges with no in-stream piers.”
7. Page 4-4, Section 4.6, 1st paragraph, 2nd sentence. Correction: “Alternative 3 would cross 10 streams on the west side and one stream on the east side.”
8. Page 4-6, Table 4-1, stream 12AE was added as a Class I stream with a maximum stream width of 30 feet with a proposed crossing structure consisting of a single-span bridge.
9. Page 4-7, Table 4-2, West Lynn Canal Stream Crossings by Structure. Correction to 1st column, 4th row: “4W, 4AW, 14W, 15W, 19W (Ludaseska Creek).”
10. Figure 3-1, Sturgill’s creek (59E) added as a Class II stream on revised Figure 1.
11. Figure 3-1, Pullen (60E) creek and Unnamed 12AE added as a Class I anadromous streams on revised Figure 1.
12. Figure 3-1, Title correction has been made in revised Figure 1 as “Streams in the Project Area.”
13. Figure 3-1, Stream 51E: The name of Stream 51E has been corrected in revised Figure 1 to “Dayebas Creek.”
14. Figure 3-1, Stream 6E: Stream 6E is correctly depicted as a Class IIA stream and not as a dry channel, as was the case in the October 2004 Figure 3-1.
15. Figure 3-1, Stream 7E: Stream 7E is correctly depicted as being south of its location on the October 2004 Figure 3-1, as was originally depicted on the 1997 DEIS figure.
16. Figure 3-1, Stream 8E: In the October 2004 Figure 3-1, stream 8E appeared to be an outlet of Stream 9E. In the revised Figure 1, stream 8E has been correctly identified as located south of stream 9E at the location labeled stream 7E in the October 2004 Figure 3-1. Stream 8E is also a dry channel with no stream number as corrected on the revised Figure 1.

17. Figure 3-1, Stream 9E: The configuration of stream 9E has been revised. In the October 2004 Figure 3-1, stream 9E appeared to have two forked outlets; however, if there are two outlets, one outlet is currently dry. The revised stream configuration, presented in Figure 1, now matches the 1997 DEIS figure.
  18. Appendix A – Table 4-1, Streams 33AE and 49E added as Class III, and 52E added as a dry bed.
  19. Appendix C – Table A-1, Sturgill’s creek (59E) added as a Class IIA stream.
  20. Appendix C – Table A-1, Dewey creek (58E) added as a Class IIA stream.
  21. Appendix C – Table A-1, Pullen (60E) and Unnamed 12A added as Class I anadromous streams.
  22. Appendix C – Stream Narratives is an update to “Attachment A: Stream Narratives” in the 2004 Anadromous and Resident Fish Streams Technical Report. Descriptions for Pullen Creek and Unnamed 12AE have been added. Description for Dewey Creek has been expanded and Sturgill’s Creek has been updated to reflect a change to a Class IIA stream.
- Note: The Alaska Department of Transportation and Public Facilities (DOT&PF) has committed to crossing anadromous streams, other than those requiring multi-span bridges, with a single span above the creek, resulting in no in-stream piers. For multi-span bridges, the approximate minimum pier spacing would be 130 feet.

## 1. Introduction

This report is an update to the October 2004 *Anadromous and Resident Fish Streams Technical Report*, which was prepared as Appendix P of the Juneau Access Improvements (JAI) Project Supplemental Draft Environmental Impact Statement (EIS). The 2004 report analyzed the potential impacts of Alternatives 2, 2A, 2B, 2C, 3, 4B, and 4D on anadromous and resident fish streams.

The 2004 *Anadromous and Resident Fish Streams Technical Report* documented that the proposed JAI reasonable alternatives under evaluation would result in varying effects to anadromous and resident fish habitat. The 2004 report stated that Alternatives 1, 4A, and 4C would likely have similar effects, with impacts limited to possible disturbance due to continued and expanded use of existing facilities. No effects on anadromous or resident fish streams were identified from proposed terminal modifications at Auke Bay Ferry Terminal. Alternatives 2, 2A, 2B, 2C, 3, 4B, and 4D would have varying effects on anadromous and resident fish streams from noise, vibration, and increased turbidity during construction of stream crossing structures. These effects would be temporary and reversible, occurring only during the time periods associated with construction activities. The multi-span bridges, culverts, and single-span bridge abutments proposed for use would not impede fish passage once in place adjacent to or within the streams and rivers. Ferry terminal construction was not expected to impact anadromous or resident fish streams.

During development of the JAI Project 2006 Final EIS, the Federal Highway Administration (FHWA) and Alaska Department of Transportation and Public Facilities (DOT&PF) responded to comments on the Supplemental Draft EIS, incorporated new data and further analysis for some resources, and incorporated additional mitigation measures to reduce impacts to wildlife and habitat. The FHWA and DOT&PF also made some changes to Alternative 2B and eliminated Alternatives 2, 2A, and 2C from consideration as reasonable alternatives. Many of these changes required updates to supporting technical reports with addenda. That effort included the 2005 *Addendum to Appendix P – Anadromous and Resident Fish Streams Technical Report*, which was incorporated into Appendix W of the 2006 Final EIS.

Seven years have passed since the 2006 Final EIS and Record of Decision (ROD) were published, and the FHWA and DOT&PF recognized the need to update previous technical reports as part of the JAI Project 2014 Draft Supplemental Environmental Impact Statement (SEIS). Updates are needed to reflect changes in regulations, new information related to the potentially affected environment or conditions, updated analysis, evaluation of the newly added Alternative 1B, changes in the design or alignment for Alternatives 2B and 3, and the widening of the recently constructed Glacier Highway Extension between Echo Cove and Cascade Point that is common to Alternatives 2B, 3, 4B, and 4D. Three key components that affected changes to the design and alignment of Alternative 2B and 3 since the 2006 ROD are changes during the U.S. Army Corps of Engineers (USACE) permitting process to further avoid and minimize impacts to wetlands and reduce the extent of rock side cast areas, changes based on advanced geotechnical survey information, and recent changes in 2012 in response to updated bald eagle nest survey data.

This 2014 update replaces the 2006 *Addendum to Appendix P – Anadromous and Resident Fish Streams Technical Report*. It also describes new regulations, new anadromous stream listings, and updated project conditions since the 2004 *Anadromous and Resident Fish Streams Technical Report* was issued. Much of the 2004 report remains valid. This 2014 update provides:

- Changes to the regulatory classification of streams that were previously identified as containing resident or anadromous fish that were either not cataloged by the Alaska Department of Fish and Game (ADF&G) or additional fish species that have been added for streams located in the project area.
- New fish streams identified after publication of the 2004 *Anadromous and Resident Fish Streams Technical Report*.
- Addition of descriptions of Sturgill’s (#59E), Pullen (#60E), and Unnamed 12AE creeks, and a more extensive description of Dewey Creek (#58E).
- Supplemental information regarding potential effects to anadromous and resident fish streams within the project area.
- Evaluation of a new Alternative 1B and alignment/design revisions to Alternatives 2B and 3 with respect to potential impacts to streams containing anadromous and resident fish.

## **1.1 Project Description**

As required by the National Environmental Policy Act (NEPA), this technical report considers the following reasonable alternatives.

### **1.1.1 Alternative 1 – No Action**

The No Action Alternative (Alternative 1) includes a continuation of mainline ferry service in Lynn Canal and incorporates two Day Boat Alaska Class Ferries (ACFs). The Alaska Marine Highway System (AMHS) would continue to be the National Highway System (NHS) route from Juneau to Haines and Skagway, and no new roads or ferry terminals would be built. In addition to the Day Boat ACFs, programmed improvements include improved vehicle and passenger staging areas at the Auke Bay and Haines ferry terminals to optimize traffic flow on and off the Day Boat ACFs as well as expansion of the Haines Ferry Terminal to include a new double bow berth to accommodate the Day Boat ACFs. This alternative is based on the most likely AMHS operations in the absence of any capital improvements specific to the JAI Project.

Mainline service would include two round trips per week in the summer and one per week in the winter with Auke Bay-Haines-Skagway-Haines-Auke Bay routing. During the summer, one Day Boat ACF would make one round trip between Auke Bay and Haines six days per week, and one would make two round trips per day between Haines and Skagway six days per week. The Day Boat ACFs would not sail on the seventh day because the mainliner is on a similar schedule. In the winter, ferry service in Lynn Canal would be provided primarily by the Day Boat ACFs three times per week. The *M/V Malaspina* would no longer operate as a summer day boat in Lynn Canal.



### **1.1.2 Alternative 1B – Enhanced Service with Existing AMHS Assets**

Alternative 1B includes all of the components of Alternative 1, No Action, but focuses on enhancing service using existing AMHS assets without major initial capital expenditures. Similar to Alternative 1, Alternative 1B includes a continuation of mainline ferry service in Lynn Canal; the AMHS would continue to be the NHS route from Juneau to Haines and Skagway; no new roads or ferry terminals would be built; and in addition to the Day Boat ACFs, programmed improvements include improved vehicle and passenger staging areas at the Auke Bay and Haines ferry terminals to optimize traffic flow on and off the Day Boat ACFs as well as expansion of the Haines Ferry Terminal to include a new double bow berth to accommodate the Day Boat ACFs. Service to other communities would remain the same as with the No Action Alternative.

Alternative 1B keeps the *M/V Malaspina* in service after the second Day Boat ACF is brought online to provide additional capacity in Lynn Canal. Enhanced services included as part of Alternative 1B are a 20 percent reduction in fares for trips in Lynn Canal and extended hours of operations for the reservation call center.

Mainline service would include two round trips per week in the summer and one per week in the winter with Auke Bay-Haines-Skagway-Haines-Auke Bay routing. During the summer, the *M/V Malaspina* would make one round trip per day seven days per week on a Skagway-Auke Bay-Skagway route, while one Day Boat ACF would make one round trip between Auke Bay and Haines six days per week, and one would make two round trips per day between Haines and Skagway six days per week. The Day Boat ACFs would not sail on the seventh day because the mainliner would be on a similar schedule. In the winter, ferry service in Lynn Canal would be provided primarily by the Day Boat ACFs three times per week.

### **1.1.3 Alternative 2B – East Lynn Canal Highway to Katzehin, Shuttles to Haines and Skagway**

Alternative 2B would construct the East Lynn Canal Highway (50.8 miles, including 47.9 miles of new highway widening of 2.9 miles of the existing Glacier Highway) from Echo Cove around Berners Bay to a new ferry terminal 2 miles north of the Katzehin River. Ferry service would connect Katzehin to Haines and Skagway. In addition, this alternative includes modifications to the Skagway Ferry Terminal to include a new end berth and construction of a new conventional monohull ferry to operate between Haines and Skagway. Mainline ferry service would end at Auke Bay. This alternative assumes the following improvements will have been made independent of the JAI Project before Alternative 2B would come on-line: two Day Boat ACFs, improved vehicle and passenger staging areas at the Haines Ferry Terminal to optimize traffic flow on and off the Day Boat ACFs, and expansion of the Haines Ferry Terminal to include two new double bow berths.

During the summer months, one Day Boat ACF would make eight round trips per day between Haines and Katzehin, a second Day Boat ACF would make six round trips per day between Skagway and Katzehin, and the Haines-Skagway shuttle ferry would make two trips per day. During the winter, one Day Boat ACF would make six round trips per day between Haines and Katzehin, and a second Day Boat ACF would make four round trips per day between Skagway and Katzehin. The Haines-Skagway shuttle would not operate; travelers going between Haines and Skagway would travel to Katzehin and transfer ferries.

### **1.1.4 Alternative 3 – West Lynn Canal Highway**

Alternative 3 would upgrade/extend the Glacier Highway (5.2 miles, including 2.3 miles of new highway and widening of 2.9 miles of the existing Glacier Highway) from Echo Cove to Sawmill Cove in Berners Bay. New ferry terminals would be constructed at Sawmill Cove in Berners Bay and at William Henry Bay on the west shore of Lynn Canal, and the Skagway Ferry Terminal would be modified to include a new end berth. A new 38.9-mile highway would be constructed from the William Henry Bay Ferry Terminal to Haines with a bridge across the Chilkat River/Inlet connecting into Mud Bay Road. A new conventional monohull ferry would be constructed and would operate between Haines and Skagway. Mainline ferry service would end at Auke Bay. This alternative assumes the following improvements will have been made independent of the JAI Project before Alternative 3 would come on-line: two Day Boat ACFs, improved vehicle and passenger staging areas at the Haines Ferry Terminal to optimize traffic flow on and off the Day Boat ACFs, and expansion of the Haines Ferry Terminal to include two new double bow berths.

During the summer, two Day Boat ACFs would make six round-trips per day between Sawmill Cove and William Henry Bay (total of 12 trips each direction), and the Haines-Skagway shuttle ferry would make six round-trips per day. During the winter, one Day Boat ACF would make four round-trips per day between Sawmill Cove and William Henry Bay, and the Haines-Skagway shuttle ferry would make four round-trips per day.

### **1.1.5 Alternatives 4A through 4D – Marine Alternatives**

All four marine alternatives would include continued mainline ferry service in Lynn Canal with a minimum of two trips per week in the summer and one per week in the winter with Auke Bay-Haines-Skagway-Haines-Auke Bay routing. Each marine alternative includes a new conventional monohull shuttle that would make two round trips per day between Haines and Skagway six days a week in the summer and a minimum of three round trips per week between Haines and Skagway in the winter. The AMHS would continue to be the NHS route from Juneau to Haines and Skagway. These alternatives assume the following improvements will have been made independent of the JAI Project before the alternative comes on-line: improved vehicle and passenger staging areas at the Auke Bay and Haines ferry terminals to optimize traffic flow on and off the Day Boat ACFs, and expansion of the Haines Ferry Terminal to include new double bow berths.

#### **1.1.5.1 Alternative 4A – Fast Vehicle Ferry Service from Auke Bay**

Alternative 4A would construct two new fast vehicle ferries (FVFs). No new roads would be built for this alternative, and the Auke Bay Ferry Terminal would be expanded to include a new double stern berth. A new conventional monohull ferry would be constructed and would operate between Haines and Skagway. The *M/V Malaspina* would no longer operate as a summer day boat in Lynn Canal, and the Day Boat ACFs would no longer operate in Lynn Canal. The FVFs would make two round trips between Auke Bay and Haines and two round trips between Auke Bay and Skagway per day in the summer. During the winter, one FVF would make one round trip between Auke Bay and Haines and one round trip between Auke Bay and Skagway each day.

### **1.1.5.2 Alternative 4B – Fast Vehicle Ferry Service from Berners Bay**

Similar to Alternative 4A, Alternative 4B would construct two new FVFs. This alternative would upgrade/extend Glacier Highway (5.2 miles, including 2.3 miles of new highway and widening of 2.9 miles of the existing Glacier Highway) from Echo Cove to Sawmill Cove in Berners Bay, where a new ferry terminal would be constructed. The Auke Bay Ferry Terminal would be expanded to include a new double stern berth. A new conventional monohull ferry would be constructed and would operate between Haines and Skagway. The *M/V Malaspina* would no longer operate as a summer day boat in Lynn Canal, and the Day Boat ACFs would no longer operate in Lynn Canal. In the summer, the FVFs would make two round trips between Sawmill Cove and Haines and two round trips between Sawmill Cove and Skagway per day. During the winter, one FVF would make one round trip between Auke Bay and Haines and one round trip between Auke Bay and Skagway each day.

### **1.1.5.3 Alternative 4C – Conventional Monohull Service from Auke Bay**

Alternative 4C would use Day Boat ACFs to provide additional ferry service in Lynn Canal. No new roads would be built for this alternative. The Auke Bay Ferry Terminal would be expanded to include a new double stern berth, and the Skagway Ferry Terminal would be expanded to include a new end berth. A new conventional monohull ferry would be constructed and would operate between Haines and Skagway. In the summer, one Day Boat ACF would make one round trip per day between Auke Bay and Haines, and one Day Boat ACF would make one round trip per day between Auke Bay and Skagway. During the winter, one Day Boat ACF would alternate between a round trip to Haines one day and a round trip to Skagway the next day.

### **1.1.5.4 Alternative 4D – Conventional Monohull Service from Berners Bay**

Alternative 4D would use Day Boat ACFs to provide additional ferry service in Lynn Canal. This alternative would upgrade/extend Glacier Highway (5.2 miles, including 2.3 miles of new highway and widening of 2.9 miles of the existing Glacier Highway) from Echo Cove to Sawmill Cove in Berners Bay, where a new ferry terminal would be constructed. The Auke Bay Ferry Terminal would be expanded to include a new double stern berth, and the Skagway Ferry Terminal would be expanded to include a new end berth. This alternative includes construction of a new conventional monohull ferry that would operate between Haines and Skagway. In the summer, the Day Boat ACFs would make two trips per day between Sawmill Cove and Haines and two trips per day between Sawmill Cove and Skagway. During the winter, a Day Boat ACF would operate from Auke Bay, alternating between a round trip to Haines one day and to Skagway the next day.

## **2. Regulatory Update**

No additional regulations have been promulgated since 2004 that would affect the analysis of anadromous and resident fish streams. However, it is important to note that there has been a regulatory classification change for some streams in the project area. Some streams that were previously not cataloged as containing anadromous fish have since been listed as anadromous streams in the ADF&G *Anadromous Waters Catalog (AWC)*. These are described in Section 3.

### **3. Affected Environment**

#### **3.1 East Lynn Canal**

This section updates information provided in Section 3.3.1 of the 2004 *Anadromous and Resident Fish Streams Technical Report*. In response to comments provided by the Alaska Department of Natural Resources (ADNR) Office of Habitat Management and Permitting (OHMP) in 2005, descriptions of Sturgill's (59E) and Pullen (60E) creeks, located in the Skagway area, have been added to this report. In addition, a description of Unnamed 12AE and a more detailed description of Dewey Creek (58E) have been added. These additional descriptions are in Attachment C.

Pullen Creek (60E) is identified as an anadromous stream for Dolly Varden. Sturgill's Creek (59E) is a Class II creek meaning that it is not listed in the *AWC* as an anadromous stream, but has the potential to support fish. In addition, a small tributary (Unnamed 12AE) of the Lace River located on the isthmus between the Lace and Antler rivers was identified as anadromous fish habitat during 2006 field studies conducted at the request of the USACE. Table 3-2 and Table 4-1 (see Attachment A) have been updated to include these creeks, increasing the total number of anadromous streams along the east side of Lynn Canal to 15.

#### **3.2 West Lynn Canal**

This section updates information provided in Section 3.3.2 of the 2004 *Anadromous and Resident Fish Streams Technical Report*. No additional anadromous or resident fish streams have been added within the West Lynn Canal Project area. However, Tables 3-3 and Table 4-2 (see Attachment A) have been updated to include the most recent life history information for fish streams located on the west side of Lynn Canal. These streams may have been previously observed to contain anadromous fish during field sampling efforts. However, they were either not yet listed in the ADF&G *AWC* at the time of the 2004 *Anadromous and Resident Fish Streams Technical Report* or additional species and life stage information has been added to the *AWC* since 2004. Updated information for West Lynn Canal Streams is contained in Table 3-3 of Attachment A.

## 4. Environmental Consequences

The following subsections describe impacts to anadromous and resident fish habitat associated with Alternatives 1B, 2B, and 3.

### 4.1 **Alternative 1B – Enhanced Service with Existing AMHS Assets**

Alternative 1B would enhance service with existing AMHS assets and would not result in the construction of any new highways or ferry terminals. There are no effects to anadromous or resident streams identified for this alternative.

### 4.2 **Alternative 2B – East Lynn Canal Highway to Katzeihin, Shuttles to Haines and Skagway**

This section updates information provided in Section 4.4 of the 2004 *Anadromous and Resident Fish Streams Technical Report*. Alternative 2B would cross 10 anadromous fish streams, including Sawmill Creek (5E), 10AE, Antler River (11E), Unnamed 12AE, Berners/Lace River (12E /13E), Slate Creek (14E), Sweeny Creek (16E), Sherman Creek (17E), Independence Creek (18E), and Katzeihin River (46E). The Katzeihin, Antler, and Berners/Lace rivers would require multi-span bridges with in-stream piers.

In 2005, realignment of Alternative 2B changed the Antler River crossing to have fewer in-stream piers and to avoid eulachon spawning habitat. This realignment reduced the number of in-water bridge piers and required no bridge piers in the northern channel, which is documented as high-density eulachon spawning habitat. The Lace River crossing was moved 700 feet upstream to further avoid vegetated intertidal habitat. This lengthened the bridge at the Lace River by 300 feet. The alignment for Alternative 2B continues to primarily traverse uplands and avoids bald eagle trees and Johnson Creek. The small tributary of the Lace River located on the isthmus between the Lace and Antler rivers (Unnamed 12AE) would be crossed with a single clear span bridge and would not be directly affected. As such, there would be no additional impacts to fish streams located in Berners Bay.

Refer to the updated Table 4-1, provided in Attachment A of this Update, for a summary of East Lynn Canal streams and proposed crossing structures.

In 2012, additional adjustments to the Alternative 2B alignment have resulted in revisions to the acres of affected anadromous and resident fish habitat at the Katzeihin River. The intertidal fill area associated with the bridge abutment located on the south shore of the Katzeihin River has increased from 2.6 acres to 3.24 acres to provide rock armor for scour protection. The south bank of the Katzeihin River is a steep bluff with silty deposits below. Previous discussions with resource agencies indicated that avoidance of impacts to fish and wildlife habitat on the north side would be more critical, and that placing fill on the south bank would be less environmentally damaging. The additional fill could result in short-term increases in turbidity during construction. However, it is not expected that the increases would be noticeable relative to the ambient turbidity levels in the Katzeihin River.

To avoid impacts to outmigrant salmonids and spawning eulachon, construction of all river crossings with in-stream piers would not occur from March 15 through June 15. Some direct disturbance of anadromous and resident fish would occur at and downstream of the Katzehin, Berners/Lace, and Antler river crossings during multi-span bridge construction. Typical construction techniques for multi-span structures include the erection of falsework to provide a platform for equipment, thereby eliminating the need for equipment to actively work in the river below ordinary high water levels. Impacts within the river could occur due to noise and vibration generated during pile driving and increased turbidity (at the crossing and downstream) as the falsework is erected. However, these rivers are braided with many channels, and not all channels would be impacted simultaneously. Bridge construction would either occur from one side of the river to the other or from both sides to the middle. Short-term increases in turbidity would occur during construction of all three multi-span bridges. However, it is not expected that the increases would be noticeable relative to the ambient turbidity in the Antler, Berners/Lace, and Katzehin rivers. Airborne dust is not likely to occur during in-water construction.

Runoff during construction and from the completed highway could potentially contain sediments, heavy metals, salts, organic molecules, ozone, and nutrients. However, none of these components are expected to be sufficiently concentrated to cause direct mortality or disturbance of anadromous and resident fish. Impacts of runoff on fish habitat are discussed in the 2004 *Essential Fish Habitat Assessment*.

No direct effects on anadromous fish streams would result from construction of the Katzehin Ferry Terminal due to its distance from the Katzehin River and other anadromous streams. The design of the breakwaters for the Katzehin Ferry Terminal would include either fish passage gaps or large box culverts to ensure proper fish passage. In addition, no in-water construction would occur between March 15 through June 15 to protect migrating anadromous and/or resident species.

### **4.3 Alternative 3 – West Lynn Canal Highway**

This section updates information provided in Section 4.6 of the 2004 *Anadromous and Resident Fish Streams Technical Report*. All anadromous and resident stream crossings for Alternative 3 would be clear spanned, and no additional stream crossings would occur as a result of updated alignment changes. Minor alignment changes along the west Lynn Canal highway occurred with Alternative 3 to avoid new eagles' nests that were documented in a 2012 survey. Consequently, the alignment changes to Alternative 3 do not result in any additional impacts to the anadromous and resident fish streams described in the 2004 *Anadromous and Resident Fish Streams Technical Report*.

## 5. References

- Alaska Department of Transportation and Public Facilities (DOT&PF). 2004. *Appendix P, Anadromous and Resident Fish Streams Technical Report for the Juneau Access Improvements Supplemental Draft Environmental Impact Statement*. Juneau, Alaska, October 2004. Available online at [http://dot.alaska.gov/sereg/projects/juneau\\_access/assets/SDEIS\\_JAN05/Appendix\\_P.pdf](http://dot.alaska.gov/sereg/projects/juneau_access/assets/SDEIS_JAN05/Appendix_P.pdf)
- . 2005. *Juneau Access Improvements Supplemental Draft Environmental Impact Statement*. Juneau, Alaska. January, 2005. Available online at [http://dot.alaska.gov/sereg/projects/juneau\\_access/assets/SDEIS\\_JAN05/RevisedCAR\\_070605.pdf](http://dot.alaska.gov/sereg/projects/juneau_access/assets/SDEIS_JAN05/RevisedCAR_070605.pdf)
- . 2006. *Juneau Access Project: Final Environmental Impact Statement*. Juneau, Alaska. Available online at: [http://dot.alaska.gov/sereg/projects/juneau\\_access/documents.shtml#feis](http://dot.alaska.gov/sereg/projects/juneau_access/documents.shtml#feis).



## Attachment A Updated Tables

The section includes updated versions of the following tables that were presented in the 2004 *Anadromous and Resident Fish Streams Technical Report*:

Table 3-1	Types of Streams within Lynn Canal
Table 3-2	Anadromous Fish Streams, East Lynn Canal Project Area
Table 3-3	Anadromous Streams West Lynn Canal Project Area
Table 4-1	East Lynn Canal Stream Crossings By Structure
Table 4-2	West Lynn Canal Stream Crossings By Structure

**Table 3-1: Types of Streams Within Lynn Canal**

Stream Classification	East Lynn Canal	West Lynn Canal
Class I Confirmed or Apparent Anadromous Fish Streams (Fish Observed)	5E, 10AE, 11E, 12E, 12AE*, 13E, 13AE, 14E, 15E, 16E, 17E, 18E, 46E, 47E, 60E*	1W, 2W, 3W, 4BW, 5W, 7W, 8W, 9W, 9AW, 10W, 17BW, 22W
Class IIA Streams with Potential Fish Habitat or Fish Observed	6E, 8E, 9E, 58E, 59E*	6W, 16W, 17W, 20W
Class IIB Streams with Poor Quality Fish Habitat (No Fish Observed)	1E, 2E, 3E, 7E, 43E, 44E, 45E	4W, 4AW, 14W, 15W, 19W
Class III Very Steep Stream or Waterfall (No Fish Observed)	10E, 19E-25E, 28E-33E, 33AE, 37E, 39E, 40E, 48E, 49E, 50AE, 51E, 53E	8AW, 11W, 12W, 13W, 14AW, 18W

Notes: \*Streams 59E and 60E were added as a result of additional field sampling efforts in 2006. Stream 12AE has been added as an update to the AWC since 2006.

Refer to area map for the location of the streams by stream numbers.

The following streams shown on Figure 1 were either not found or were dry channels during the 1994 Field Study: 4E, 26E, 27E, 34E, 35E, 36E, 38E, 41E, 42E, 50E, 52E, 54E, 55AE, 56E, 17AW, and 21W.

**Table 3-2: Anadromous Fish Streams, East Lynn Canal Project Area**

Anadromous Stream		Fish Species Inventory		
Stream Number and Name		Catalog 1998 / 2004 <sup>1</sup>	1994 Field Observations	Catalog 2012
5E	Sawmill Creek	Chum and pink salmon, Dolly Varden	Pink salmon	No change from previous documentation
10AE	Unnamed	(Stream not listed as of 2002)	Coho <sup>2</sup> and pink <sup>2</sup> salmon	Added - Coho and pink salmon
11E	Antler River	Coho and chum salmon, eulachon	Coho smolt	No change from previous documentation
12E	Lace River	Coho salmon, eulachon	Coho salmon	No change from previous documentation
12AE	Unnamed	Not listed	Not surveyed	Added - Coho and Chinook salmon
13E	Berners River	Coho salmon, eulachon	Coho salmon	Added - Chum, sockeye, cutthroat and Dolly Varden
13AE	Johnson Creek	Coho, chum, and pink salmon	Coho, chum, and pink salmon	No change from previous documentation
14E	Slate Creek	Chum salmon (coho and pink salmon not listed as of 1998)	Coho <sup>2</sup> and pink <sup>2</sup> salmon	Added – Eulachon, coho and pink salmon
15E	Unnamed	(Stream not listed as of 2002)	Coho <sup>2</sup> and pink <sup>2</sup> salmon	Added – coho and pink salmon
16E	Sweeny Creek	Pink salmon	Pink salmon	No change from previous documentation
17E	Sherman Creek	Pink salmon	Pink salmon	Added – chum and coho salmon
18E	Unnamed	Sockeye salmon (pink salmon not listed as of 2002)	Pink <sup>2</sup> salmon	Added - pink salmon
46E	Katzeihin River	Coho and chum salmon, Dolly Varden (pink salmon not listed as of 1998)	Coho and pink <sup>2</sup> salmon	Added – pink salmon
47E	Side channel of Katzeihin River	(Stream not listed as of 2002)	None observed	Added – coho salmon and Dolly Varden
60E	Pullen Creek	Coho, pink, and Chinook salmon, Dolly Varden	Not observed during the Juneau Access 1994 Stream Survey	No change from previous documentation

<sup>1</sup> Includes updates to ADF&G anadromous waters catalog as 1998 and 2002

<sup>2</sup> Submitted to ADF&G to be cataloged for species found in streams during the Juneau Access 1994 Stream Survey

**Table 3-3: Anadromous Fish Streams West Lynn Canal Project Area**

Stream Number and Name		Fish Species Inventory		
		Catalog 1998 / 2004 <sup>1</sup>	Field Observations	Catalog 2012
1W	Beardslee River	Coho, pink and chum salmon; Dolly Varden	Coho, pink and chum salmon; Dolly Varden	No change from previous documentation
2W	William Henery Creek (cataloged as unnamed)	Pink and chum salmon	Pink <sup>1</sup> and chum salmon	No change from previous documentation
3W	Unnamed	Stream not listed as of 2002	Pink <sup>1</sup> and chum salmon	No change from previous documentation
4BW	Endicott River	Coho and Chum Salmon; Dolly Varden; eulachon	Coho and pink <sup>2</sup> salmon	Added - Pink salmon
5W	Unnamed	Stream not listed	ADF&G observed Dolly Varden in previous surveys	Stream not listed / no change
7W	Unnamed	Stream not listed	Pink <sup>2</sup> salmon	Added - Pink salmon
8W	Unnamed	Pink and chum salmon	No fish observed	No change from previous documentation
9W	Sullivan River	Chum salmon and Dolly Varden (coho and pink salmon not listed)	Coho and pink <sup>2</sup> salmon	No change from previous documentation
9AW	Side Channel of Sullivan River	Not listed	Unidentified smolt, potentially coho salmon observed	No change from previous documentation
10W	Sullivan Creek (listed as unnamed in 1994 survey)	Chum and pink salmon (coho salmon not listed)	Coho <sup>2</sup> and pink <sup>2</sup> salmon	No change from previous documentation
17BW	Glacier River	Coho salmon and Dolly Varden	None	No change from previous documentation
22W	Chilkat River	Chinook, coho, pink, chum, and sockeye salmon; steelhead and cutthroat trout; Dolly Varden; white fish and eulachon	Not surveyed	Added - Pacific lamprey

<sup>1</sup> Includes updates to ADF&G anadromous waters catalog as 1998 and 2002

<sup>2</sup> Submitted to ADF&G to be cataloged for species found in streams during the Juneau Access 1994 Stream Survey

**Table 4-1: East Lynn Canal Stream Crossings By Structure**

Stream Number <sup>1</sup>	Class	Maximum Stream Width (Feet) <sup>2</sup>	Proposed Crossing Structure
5E Sawmill Creek	I	20	Single-span bridge
9E	IIA	15	Single span bridge
10AE	I	25	Single-span bridge
11E Antler River	I	500	Multi-span bridge
12E/13E Berners/Lace River	I	400	Multi-span bridge
12AE <sup>3</sup>	I	30	Single-span bridge
13AE Johnson Creek	I	10	Not crossed under current alignment
14E Slate Creek	I	20	Single-span bridge
15E	I	20	Not crossed under current alignment
16E Sherman Creek	I	15	Single-span bridge
17E Sherman Creek	I	15	Single-span bridge
18E	I	10	Single-span bridge
43E, 44E, 45E	IIB	Varies	Single-span bridge
46E Katzehin River	I	+2800 (including tidal channels)	Multi-span bridge
47E, (Pullen Creek) 60E <sup>3</sup>	I	Varies	Not crossed under current alignment
6E, 8E	IIA	Varies	Culvert
1E, 2E, 3E, 7E	IIB	Varies	Culvert
59E <sup>3</sup> Sturgill's Creek	IIA	Varies	Not crossed under current alignment
10E, 19E, 20E, 21E, 22E, 23E, 24E, 25E, 26E, 27E, 28E, 29E, 30E, 31E, 32E, 33E, 33AE, 34E, 35E, 36E, (Yeldagalga Creek) 37E, 38E, 39E, 40E, 41E, 42E	III (or dry at time of survey)	Varies	Culvert
48E, 49E, 50E, (Dayebas Creek) 51E, 52E, 53E, 54E, 55E, 56E, (Kasidaya Creek) 57E, (Dewey Creek) 58E	III (or dry at time of survey)	Varies	Not crossed under current alignment

Notes: <sup>1</sup> Source: 1994 Anadromous Fish Stream and Habitat Report and 2012 Anadromous Waters Catalog

<sup>2</sup> Width taken from the Anadromous Fish Stream and Habitat Report, Attachment A, 1994 Fishery Habitat Field Surveys.

<sup>3</sup> Streams 59E and 60E were added as a result of additional field sampling efforts in 2006. Stream 12AE has been added as an update to the AWC since 2006.

**Table 4-2: West Lynn Canal Stream Crossings By Structure**

Stream Number <sup>1</sup>	Class	Maximum Stream Width (feet) <sup>2</sup>	Proposed Crossing Structure
1W Beardlee River	I	20	None ferry terminal access road does not cross stream
2W William Henery Creek	I	15	Single-span bridge
3W	I	20	Single-span bridge
4W, 4 AW, 14W, 15W, 19W (Ludaseska Creek)	IIB	Varies	Single-span bridge
4BW Endicott River	I	300	Multi-span bridge
5W	I	5	Single-span bridge
6W, 16W, 17W, 20W, (Anchorage Point Stream)	IIA	Varies	Single-span bridge
7W	I	25	Single-span bridge
9W, 9AW Sullivan River	I	300	Multi-span bridge
10W Sullivan Creek	I	20	Single-span bridge
17BW Glacier Creek	I	25	Single-span bridge
22W Chilkat River	I	11,000	Multi-span bridge
8W	I	2	Single-span bridge
8AW, 11W, 12W, 13W, 14AW, 17AW, 18W, 21W	III (or dry at time of survey)	Varies	Culvert or bridge depending on topography

<sup>1</sup> Source: Anadromous Fish Stream and Habitat Report

<sup>2</sup> Width taken from Anadromous Fish Stream and Habitat Report, Attachment A, Fishery Habitat Field Surveys at proposed highway crossing site.

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## Attachment B Updated Figures

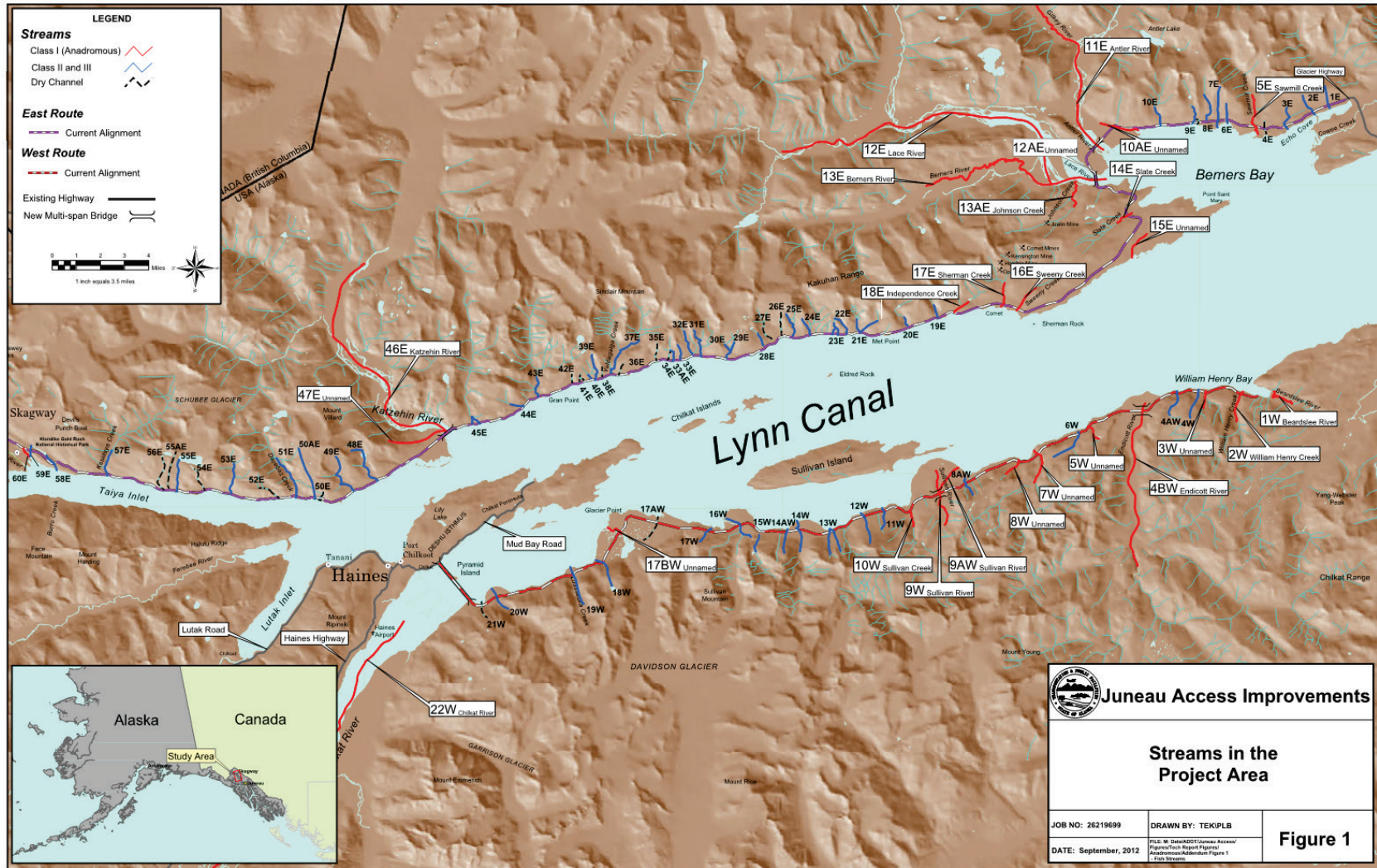
This section presents Figure 1, “Streams in the Project Area.” The figure is a revised version of Figure 3-1, which was originally provided in the 2004 *Anadromous and Resident Fish Streams Technical Report*. Below are revisions included in Figure 1:

- Sturgill’s creek (59E) added as a Class II stream.
- Pullen (60E) creek and Unnamed 12AE added as a Class I anadromous streams.
- Title correction has been made in revised Figure 1 as “Streams in the Project Area.”
- Stream 51E: The name of Stream 51E has been corrected in revised Figure 1 to “Dayebas Creek.”
- Stream 6E: Stream 6E is correctly depicted as a Class IIA stream and not as a dry channel, as was the case in the October 2004 Figure 3-1.
- Stream 7E: Stream 7E is correctly depicted as being south of its location on the October 2004 Figure 3-1, as was originally depicted on the 1997 DEIS figure.
- Stream 8E: In the October 2004 Figure 3-1, stream 8E appeared to be an outlet of Stream 9E. In the revised Figure 1, stream 8E has been correctly identified as located south of stream 9E. This location was labeled stream 7E in the October 2004 Figure 3-1. Stream 8E is also a dry channel with no stream number as corrected on the revised Figure 1.
- Stream 9E: The configuration of stream 9E has been revised. In the October 2004 Figure 3-1, stream 9E appeared to have two forked outlets; however, if there are two outlets, one is currently dry. The revised stream configuration, presented in Figure 1, now matches the 1997 DEIS figure.

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Figure 1. Streams in the Project Area



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## **Attachment C**

# **Update to Attachment A of the 2004 *Anadromous and Resident Fish Streams Technical Report***

Table A-1, provided in this addendum, is an updated version of Table A-1 in the 2004 *Anadromous and Resident Fish Streams Technical Report*. The following changes have been made to Table A-1:

- Sturgill’s creek (59E) added as a Class IIA stream.
- Dewey creek (58E) added as a Class IIA stream.
- Pullen (60E) and Unnamed 12AE added as Class I anadromous streams.

Stream Narratives is an update to “Attachment A: Stream Narratives” in the 2004 *Anadromous and Resident Fish Streams Technical Report*. Pullen Creek and Unnamed 12AE were not identified or described in the 2004 *Anadromous and Resident Fish Streams Technical Report* and descriptions of these creeks have been added. The Dewey Creek description has been expanded and the Sturgill’s Creek description is revised to reflect that ADF&G identified it as a Class IIA stream in 2003.

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**Table A-1: Juneau Access Stream Data**

Stream	Class	Catalog #	Fish Species	Fish Observed or Traps Set in 1994	Planned Crossing Structure
Sawmill Creek 5E	I	115-20-10520	Chum and pink salmon, and Dolly Varden	Adult pink salmon were observed; no traps set.	Single-span bridge
Unnamed 10AE	I	Submitted	Coho and pink salmon	Spawning pink salmon observed; traps set; coho smolt caught.	Single-span bridge
Antler River 11E	I	115-20-10300	Coho and chum salmon	Unidentified smolt observed in side slough; traps set; no fish caught.	Multi-span bridge
Lace River 12E	I	115-20-10200	Coho salmon	Coho smolt observed in side slough; no traps set.	Multi-span bridge
Unnamed 12AE	I	115-20-10290	Coho and Chinook salmon	N/A	Single-span bridge
Johnson Creek 13AE	I	115-20-10070	Coho, pink, and chum salmon	Rearing coho and spawning pink and chum salmon observed; no traps set.	Not crossed by current alignment
Slate Creek 14E	I	115-20-10030	Chum salmon (submitted for coho and pink salmon)	Spawning chum and pink salmon observed; traps set; coho smolt caught.	Single-span bridge
Unnamed 15E	I	Submitted	Submitted for coho and pink salmon	Spawning pink salmon observed; traps set; coho smolt caught.	Not crossed by current alignment
Sweeny Creek 16E	I	115-31-10350	Pink salmon	Spawning pink salmon observed at the mouth of the stream; no traps set.	Single-span bridge
Sherman Creek 17E	I	115-31-10330	Pink salmon	Spawning pink salmon observed; no traps set.	Single-span bridge
Unnamed 18E	I	115-31-10300	Sockeye salmon (submitted for pink salmon)	Spawning pink salmon observed; no traps set.	Single-span bridge
Katzehin River 46E / Side Channel 47E	I	115-34-10700	Coho and chum salmon, and Dolly Varden (submitted for pink salmon)	Spawning pink salmon and coho smolt observed; traps set; coho smolt caught.	47E is not crossed by current alignment; runs through floodplain of 46E
Berners River 13E	I	115-20-10100	Coho salmon	Coho smolt observed in side channel; no traps set.	Not crossed by current alignment
Pullen Creek 60E	I	115-34-10310	Coho, pink, and chinook salmon, Dolly Varden	Stream not observed during 1994 Field Study.	Not crossed by current alignment
9E	IIA	N/A	Potential fish habitat	No fish observed; no traps set.	Single-span bridge due to topographical constraints
6E, 8E	IIA	N/A	Potential fish habitat	No fish observed; traps set at 8E; no fish caught.	Culverts
Sturgill's Creek 58E	IIA	N/A	Brook trout and Dolly Varden	Stream not surveyed during the 1994 Field Study.	Not crossed by current alignment

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Dewey Creek 59E	IIA	N/A	Brook trout and Dolly Varden	Stream not surveyed during the 1994 Field Study.	Not crossed by current alignment
4E	N/A	N/A	Not located during survey	N/A	N/A
43E, 44E, 45E	IIB	N/A	N/A (high velocity, boulder cobble substrate)	No fish observed; no traps set.	Single-span bridges due to topographical constraints
1E, 2E, 3E, 7E	IIB	N/A	N/A (no fish, poor habitat or waterfall)	No fish observed; no traps set.	Culverts
Stream	Class	Catalog #	Fish Species	Fish Observed or Traps Set in 1994	Planned Crossing Structure
10E, 19E-42E	III	N/A	N/A (waterfall, dry channels, or otherwise poor habitat)	No fish observed; no traps set.	Culverts
48E-58E (Includes Yeldagalga, Dayebas, and Kasidaya creeks)	III	N/A	N/A (waterfall, dry channels, or otherwise poor habitat)	No fish observed; no traps set.	Not crossed by current alignment
Berners Bay	N/A	N/A	Eulachon spawning habitat; extends into Johnson Creek, Antler and Berners / Lace rivers	N/A	N/A
Unnamed	N/A	115-34-10310	Coho, chum, and pink salmon; Dolly Varden	NEW. Parallels coastline/north portion of highway to Skagway. Outside of highway alignment.	N/A
Unnamed	N/A	115-34-10310-2018	Coho salmon and Dolly Varden	NEW. Short stream, between 115-34-10310 and coast / highway. Upper Taiya Inlet. Outside of highway alignment.	N/A
Takhin River	N/A	115-32-10300	Coho salmon, cutthroat trout, and Dolly Varden	NEW. Skagway A2. Across from Haska Creek, appears to have branches that are bisected by proposed highway alignment.	N/A
Haska Creek	N/A	115-32-10290	Coho and pink salmon	NEW. North of bridge to Haines. Bridge construction may affect influx of fish.	N/A
South Kicking Horse River	N/A	115-32-10280	Coho and sockeye salmon	NEW. North of bridge to Haines. Bridge construction may affect influx of fish.	N/A
Unnamed	N/A	115-32-10230	Coho salmon and Dolly Varden	NEW. South of bridge to Haines. Bridge construction may affect influx of fish.	N/A
Unnamed	N/A	115-32-10240	Coho salmon and cutthroat trout	NEW. South of bridge to Haines. Bridge construction may affect influx of fish.	N/A

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Unnamed	N/A	115-32-10260	Coho and king salmon, cutthroat trout, and Dolly Varden	NEW. Slightly north of bridge to Haines. Bridge construction may affect influx of fish.	N/A
Auke Nu Creek	N/A	111-50-10350	Pink salmon	In area of existing Auke Bay Ferry Terminal.	N/A
Waydelich Creek	N/A	111-50-10370	Pink and chum salmon	In area of existing Auke Bay Ferry Terminal.	N/A
Bay Creek	N/A	111-50-10390	Coho and pink salmon	In area of existing Auke Bay Ferry Terminal.	N/A
Auke Creek	N/A	111-50-10420	Silver, coho, pink, and chum salmon; steelhead and cutthroat trout; and Dolly Varden	In area of existing Auke Bay Ferry Terminal.	N/A
Stream	Class	Catalog #	Fish Species	Fish Observed or Traps Set in 1994	Planned Crossing Structure
Beardslee River 1W	I	115-10-10650	Coho, pink, and chum salmon; Dolly Varden	Anadromous fish were observed during 1994 survey; no traps set.	None, ferry terminal access road does not cross this river
William Henry Creek 2W	I	115-10-10680	Pink and chum salmon (submitted for pink salmon in 1994)	Pink salmon were observed; no traps set.	Single-span bridge
Unnamed 3W	I	Submitted	Submitted for pink salmon	Pink salmon were observed; no traps set.	Single-span bridge
Endicott River 4BW	I	115-10-10800	Coho and chum salmon, and Dolly Varden (submitted for pink salmon)	Traps set; coho smolt caught. Sculpin and spawning pink salmon observed.	Multi-span bridge
Unnamed 5W	I	N/A	Dolly Varden found in previous ADF&G surveys	No fish observed; no traps set.	Single-span bridge
Unnamed 7W	I	Submitted	Submitted for pink salmon	Pink salmon and sculpins observed; no traps set.	Single-span bridge
Unnamed 8W	I	115-31-10380	Pink and chum salmon	No fish observed; no traps set.	Single-span bridge
Sullivan River 9W	I	115-31-10430	Chum salmon and Dolly Varden (submitted for pink salmon)	Spawning pink salmon observed; no traps set.	Multi-span bridge
9AW (small branch of Sullivan River)	I	N/A	Unidentified smolt observed; possibly coho salmon	Pink salmon and possibly coho observed; no traps set.	Multi-span bridge (part of Sullivan River bridge; see above)
10W	I	115-31-10450	Chum and pink salmon (Submitted for coho and pink salmon)	Pink salmon and coho smolt observed; fish traps set but no fish caught.	Single-span bridge
Unnamed 17BW	I	115-32-10010	Coho salmon and Dolly Varden	No fish observed; no fish traps set.	Single-span bridge

Chilkat River 22W	I	115-32-10250	King, coho, pink, chum, and sockeye salmon; steelhead and cutthroat trout; Dolly Varden; and whitefish	Not surveyed; no traps set.	Multi-span bridge
6W, 16W, 17W, 20W	IIA	N/A	Potential fish habitat	No fish observed; no traps set.	Single-span bridges due to topographical constraints
4W, 4AW, 14W, 15W, 19W	IIB	N/A	N/A (waterfall, high velocity or no flow)	No fish observed; no traps set.	Single-span bridges due to topographical constraints
8W, 17AW, 11W, 12W, 13W, 14AW, 18W, 21W	III	N/A	N/A (waterfalls or dry streams)	No fish observed; no traps set.	Culverts or bridges depending on topography

Notes: Classes (assigned from 1994 survey): I – confirmed anadromous fish stream; IIA – streams with potential fish habitat; IIB – streams with poor quality fish habitat; III – very steep stream or waterfall; Dry streams – not classified



## Updated Stream Narrative

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### Stream #12AE      Unnamed – Class I

This stream was not observed during the 1994 Field Study.

Catalog #: 115-34-10310

Description of Overall Stream: This stream channel was not found during the 1994 field studies. Unnamed 12AE provides habitat for coho and Chinook rearing. Unnamed 12AE is a tributary to the Lace River near the confluence of the Lace River and Berners Bay. Unnamed 12AE originates less than a quarter mile upstream from its confluence with the Lace River.

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### Stream #58E      Dewey Creek – Class IIA

This stream was not observed during the 1994 Field Study.

Description of Overall Stream: Dewey Creek originates from Upper Dewey Lake, flows into the north end of Lower Dewey Lake, and discharges at the northeast corner of the City of Skagway's waterfront through the existing Dewey Lakes hydroelectric project pipelines (tailrace) into Pullen Creek. The hydroelectric project has been in operation since its construction in the early 1900s. At the confluence of Dewey Creek with Lower Dewey Lake, Dewey Creek provides spawning habitat for resident fish in the lake. On most maps, including USGS quad maps, Dewey Creek is shown as both the inlet and outlet of a small lake (now known as the "reservoir") northwest of Lower Dewey Lake. Starting in the early 1900s, the hydroelectric project dammed the outlet of this lake, diverting all flow down the ravine to Skagway in flume pipelines. A second dam at the south end of Lower Dewey Lake diverts water from the lake into the reservoir and flume pipelines. Both dams have overflow spillway, but approximately 30 years ago a lower spillway was built adjacent to the southern dam and diverts any overflow to Sturgill's Creek.

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### Stream #59E      Sturgill's Creek – Class IIA

Location: LAT N 59° 25' 18.4" / LONG W 135° 20' 19.3"      SKAGWAY B1

Description of Overall Stream: Description of stream 58E provided in the 2004 technical report and based on observations recorded during the 1994 Field Survey: This steep, low-velocity stream originates from Lower Dewey Lake. It travels around a knoll and between rock walls before emptying into Taiya Inlet. A trail parallels this creek and provides access from Skagway starting at Lower Dewey Lake and traveling down to the mouth of the creek. Sturgill's Landing, an historical sawmill site, is at the mouth of the creek. Picnic tables, an outhouse, and fire pits are found here, which the USDA Forest Service maintains for public use. Sturgill's Creek flows from Dewey Lake towards Sturgill's Landing at the marine outlet. On August 4, 2003, the ADF&G documented brook trout and Dolly Varden in Sturgill's Creek. Brook trout were documented above and Dolly Varden below a presumed barrier to anadromous fish passage.

**Stream #60E      Pullen Creek – Class I**

This stream was not observed during the 1994 Field Study.

Catalog #: 115-34-10310

Description of Overall Stream: Pullen Creek provides habitat for coho spawning and rearing, pink spawning, Chinook presence, and Dolly Varden spawning and rearing. Chinook salmon are enhanced through the Jerry Myers Hatchery, located on Pullen Creek. Upper Pullen Creek consists of two branches, one flowing from the White Pass and Yukon Route railroad yard along the length of the east side of the City, and one flowing from the Jerry Myers hatchery vicinity. Pullen Creek originates from the springs at the base of the steep mountainside at the north end of Skagway, on the east side of the Skagway River valley. Dewey Creek enters Pullen Creek through the Dewey Lakes hydroelectrical project tailrace, and Pullen Creek discharges at the city waterfront adjacent to the State of Alaska ferry terminal. Humans have modified the stream since the late 1890s for various purposes, including stream restoration and enhancement and fish introductions (Draft License Application, Dewey Lakes Hydroelectric Project, 2/18/2005).