

**KETCHIKAN INTERNATIONAL AIRPORT
RUNWAY OVERLAY AND SAFETY AREA UPGRADE
MITIGATION MONITORING PLAN**

STATE PROJECT NO. 68306
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Prepared For:

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TABLE OF CONTENTS

1	INTRODUCTION	1
2	PROJECT DESCRIPTION.....	1
2.1	Proposed Action.....	1
2.2	Estimated Impacts.....	2
2.3	Mitigation Measures	3
3	MITIGATION GOALS AND OBJECTIVES	4
4	MONITORING METHODS	4
5	NEW ESTUARY	5
5.1	New Estuary Goals and Objectives.....	5
5.2	New Estuary Monitoring Methods.....	6
6	GOVERNMENT CREEK REROUTE.....	7
6.1	Government Creek Reroute Goals and Objectives	7
6.2	Government Creek Reroute Monitoring Methods	8
7	NORTH TRIBUTARY REROUTE	10
7.1	North Tributary Reroute Goals and Objectives	10
7.2	North Tributary Reroute Monitoring Methods	11
8	SOUTH DITCH REROUTE.....	12
8.1	South Ditch Reroute Goals and Objectives	12
8.2	South Ditch Reroute Monitoring Methods	12
9	SCHEDULE OF MONITORING.....	13
10	REPORTING	14
11	CONTINGENCY PROCESS	14
12	INTERDISCIPLINARY TEAM.....	14

Tables

Table 1: Waterbody and Wetland Impacts.....	2
Table 2: Monitoring Schedule	12

Appendices

Field Data Recording Forms
Report Format Outlines

1 INTRODUCTION

The Alaska Department of Transportation and Public Facilities (DOT&PF) intends to upgrade the runway safety area (RSA) and overlay the existing asphalt runway with new pavement at Ketchikan International Airport (KTN). The purpose of the RSA upgrade is to improve safety and meet Federal Aviation Administration (FAA) RSA design standards. The purpose of the runway pavement overlay is to preserve the existing runway surface in a timeframe that avoids an expensive reconstruction of the runway.

DOT&PF prepared an environmental assessment (EA) to evaluate alternatives to meet the project purpose and need. Following initial scoping for the EA, DOT&PF determined that the nature and complexity of potential project impacts required continual involvement of resource agencies throughout the development of the Proposed Action alternative. An interdisciplinary team (IDT), comprised of representatives from the project team and resource agencies, met four times to provide feedback on the conceptual design of the constructed stream channels and estuary. This effort enabled the alternative to be developed such that the DOT&PF could appropriately analyze its impacts in the EA.

On January 6, 2006, the FAA signed a Finding of No Significant Impact (FONSI) for the Proposed Action alternative. Its design first sought to avoid, and then minimize, impacts to existing marine resources, wetlands, and essential fish habitat. Mitigation was then designed to replace habitat and habitat functions unavoidably lost. The FONSI commits to mitigation measures that are described in the following section and commits DOT&PF to develop and implement a monitoring plan for the constructed stream channels and new estuary for these mitigation measures.

A second IDT was convened to develop the monitoring plan. The team was comprised mainly of the same agency and project representatives. A full list of IDT participants and roles can be found at the end of this report. This IDT collaborated to determine evaluation criteria and monitoring methods to be used to ensure the mitigation goals and objectives identified during the EA process are met. The following monitoring plan is the result of these meetings.

2 PROJECT DESCRIPTION

2.1 Proposed Action

The Proposed Action will do the following:

- Extend the RSA 50 feet (ft) west and 1,550 ft east of the existing embankment by shifting the runway thresholds 750 ft to the east to provide the full 1,000 ft of RSA beyond both runway ends.
- Fill the lower 1,190 ft of Government Creek under the RSA (diversion reach). Reroute Government Creek to a new 1,250 ft long stream channel (constructed reach) connecting to an unnamed creek (Boulder Creek).

- Fill a 545 ft segment of a tributary that currently flows into Government Creek (North Tributary). Reroute the North Tributary to connect to Government Creek upstream of the RSA with a new 1,030 ft channel.
- Use material excavated for these stream reroutes to construct a portion of the RSA embankment.
- Extend the embankment northwest of Taxiway B into Tongass Narrows. Place riprap on this embankment for erosion protection.
- Relocate the North and South Ditches, which run parallel to the RSA.
- Relocate navigational aids and approach lights.
- Cause reevaluation of the airport approaches and the update of flight publications.
- Resurface the existing runway pavement.
- Create a 1.6-acre estuary at the mouth of Boulder Creek (includes 0.7 acres of existing estuarine wetlands).

2.2 Estimated Impacts

The Proposed Action is estimated to cause the waterbody and wetland impacts listed in Table 1. Impacts presented in the EA are provided, along with changes resulting from design refinement since the FONSI was signed, and the modified total impacts.

Table 1: Waterbody and Wetland Impacts

WATERBODY/WETLANDS	EA	CHANGE	TOTAL IMPACTS
Tongass Narrows (Acres)	2.3	+ 0.3	2.6
Government Creek and Tributary (Linear Feet)	1,735	--	1,735
North Ditch (Linear Feet)	3,470	--	3,470
South Ditch (Linear Feet)	6,400	--	6,400
Estuarine Wetlands (Acres)	0.4	+ 0.6	1.0
Palustrine Wetlands (Acres) ¹	51.5	+ 8.9	60.4
Temporary Palustrine Wetlands Impact (Acres)	10.6	- 3.3	7.3

¹ Includes: RSA; Approach Lights; Government Creek Reroute (Connection from existing Government Creek to Tongass Narrows); Tributary Reroute (Connection from existing tributary to Government Creek); and Material Site.

The proposed project also includes in-lieu fee compensation for unavoidable loss of palustrine wetlands pursuant to the Memorandum of Agreement (MOA) among the FAA, U.S. Army Corp of Engineers (USACE), DOT&PF, U.S. Fish and Wildlife Service (USFWS), and Alaska Department of Fish and Game (ADF&G), *Regarding Impacts to Wetland and Other Aquatic Resources, Mitigation and Airport Improvement projects in Alaska, effective November 2002.*

Per this MOA, DOT&PF will pay \$ 34,000 (\$500/acre) to the Alaska Wetlands Conservation Fund to compensate for wetland impacts. DOT&PF will also give \$62,400 (\$24,000/acre) to the Klawock Watershed Council for culvert repair and/or replacement on the Klawock-Hollis Highway to compensate for 2.6 acres of fill on the unvegetated shoreline of Tongass Narrows.

The Proposed Action will have a short-term effect on spawning and rearing fish habitat in Government Creek. However, in the longer term, this alternative is expected to result in a net increase in both spawning and rearing habitat for salmon. DOT&PF worked with the IDT of resource agency habitat biologists, and a consulting biologist and fluvial geomorphologist experienced in stream and estuary design, to design the new creek channels and estuarine area. Government Creek, upstream of the diversion, is a more productive habitat than the area to be filled by the RSA. This existing stretch of channel (reference reach) is the model for the new Government Creek channel (constructed reach). The design was developed with the intention of providing continued upstream and downstream passage for salmonids as well as an increase in salmon spawning and rearing habitat over that which will be lost. The existing Government Creek estuary was used as a model for the design of the new estuarine area. Another impact of the Proposed Action is that salmon access will be blocked to the upper reach of the unnamed creek that Government Creek will be routed to and the lower reach reconstructed. To compensate for this loss of salmon rearing habitat, side-channel rearing habitat will be constructed within the Government Creek reroute. This monitoring plan will evaluate the created habitat to ensure it meets the stated objectives.

The Proposed Action will relocate the North and South Ditches. Monitoring the North Ditch is not necessary, as fish do not use this drainage. Fish have been observed within the northwest portion of South Ditch and, while DOT&PF is not constructing fish habitat in its reroute, the channel will be qualitatively monitored to ensure the continued access and use by fish.

2.3 Mitigation Measures

Conditions of approval associated with this project are detailed in the EA, FONSI and EA Re-evaluation. They will also be included in the project permits and construction contract documents. The project has been coordinated with the appropriate agencies and includes measures to minimize impacts.

The FONSI commits to mitigation and enhancement measures to reduce environmental impacts and to compensate for unavoidable impacts. This monitoring plan addresses the following commitments from the FONSI that are restated here:

- Government Creek will be rerouted to connect with Tongass Narrows through the present location of the lower reach of the Boulder Creek channel. The new Government Creek channel will be optimized for fish habitat characteristics with increases in both spawning and rearing habitat for anadromous fish beyond what is currently found in the lower reach of Government Creek.
- A minimum of 5,400 square feet of side channel habitat will be constructed in the floodplain of the rerouted reach of lower Government Creek to offset loss of access by coho salmon to

rearing areas in Boulder Creek above the location where its flow is intercepted by the excavation for the new Government Creek channel.

- The first north tributary of Government Creek will be relocated. It will not be designed for Essential Fish Habitat, as the existing tributary provides unique habitat for resident fish in the absence of anadromous fish.
- The existing Boulder Creek estuary will be enlarged to provide a riparian marsh fringe that will mimic the habitat that now exists along the north side of the existing Government Creek estuary, and provide increased high tide feeding opportunities for juvenile salmonids, especially coho, from the relocated Government Creek.
- In consultation with the IDT, DOT&PF committed to development of this Monitoring Plan so that it is in place to begin monitoring after construction to evaluate the created habitat. The final Monitoring Plan will be a special condition of the USACE permit and will establish objectives and field methods. FAA will provide funding for monitoring through the construction grant and through a subsequent monitoring grant.
- DOT&PF will create 0.5 acres of additional estuarine wetlands at the existing mouth of Boulder Creek to replace the 0.4 acres of Government Creek estuary impacted.

3 MITIGATION GOALS AND OBJECTIVES

The goals are the ultimate desired outcome of the stream construction and estuarine creation project. They were established in collaboration with the IDT while the EA was being developed. Achievement of these goals will effectively mitigate for impacts from the KTN RSA expansion project. Each constructed habitat: the estuary, Government Creek and associated side channel habitat, North Tributary, and the constructed route of South Ditch are described individually in Sections 5, 6, 7 and 8

The objectives establish the intent of the mitigation project. Design features, established during the EA and developed with assistance from the IDT, will be incorporated into the development of the rerouted streams and new estuarine area in order to achieve the objectives stated below.

The evaluation criteria will assist the monitoring team in judging the success of created habitat functions. If the evaluation criteria are not met, the created habitat will be examined and adjustments made, as appropriate. Evaluation criteria are applicable at the start of the monitoring process (end of construction) unless otherwise specified.

4 MONITORING METHODS

Monitoring is planned over a five-year period following completion of construction. Additionally, a couple of the methods include gathering of pre-construction information in order to document the change. Year 0 represents baseline conditions immediately following

construction. Each year monitoring results will be provided to the IDT for review as described in Section 9 of this monitoring plan. See Appendix A for field data recording forms. To aid in definition of locations, the reconstructed streams will be permanently marked off in 300-foot increments on both sides of the banks at the completion of construction. Marks may be flagged rebar, steel posts, or monuments, with an identifying distance.

The monitoring methods were developed to address the monitoring objectives. Progress toward achieving each monitoring objective is tracked by one or more of the monitoring methods and success is indicated by meeting the evaluation criteria.

5 NEW ESTUARY

5.1 New Estuary Goals and Objectives

Goals

The new estuary at the mouth of the rerouted Government Creek will provide the following ecological functions:

- Protection of marine resources (e.g., marshes, bivalves, eelgrass)
- Migration of anadromous fish (all existing Government Creek species – coho, pink, chum)
- Rearing of juvenile salmonids (coho)

Objectives

A. The created estuary will provide habitat to replace estuarine habitat that will be unavoidably lost due to fill for the RSA in the existing Government Creek estuary.

Evaluation Criteria:

1. The new estuarine area will have at least 4,000 square feet (sf; 0.1 acres) of saltmarsh area with at least 25 percent coverage by saltmarsh species by Year 3. The new estuarine area will have at least 8,000 sf (0.2 acre) saltmarsh area with at least 25 percent coverage by saltmarsh species by Year 5. Of that, at least 4,000 sf (0.1 acre) will have at least 50 percent coverage by saltmarsh species by Year 5 (subject to change, based on existing conditions survey at Government Creek estuary).
2. Changes in alignment of the low tide channel will not cause excessive erosion of adjacent intertidal areas (e.g., deposition of channel sediments on adjacent eelgrass and clam beds).
3. Juvenile coho salmon will be present in created estuarine area during the spring and summer.

B. It is the intent of the estuary creation to provide fish passage between Tongass Narrows and the constructed Government Creek channel.

Evaluation Criterion:

1. There will be a persistent low tide channel between Tongass Narrows, at mean lower low water (MHHW) and the mouth of the rerouted Government Creek channel.

- C. Rearing coho habitat will be constructed by providing a low tide channel, relocating boulders and expanding the existing high tide saltmarsh fringe. It is expected that juvenile coho salmon will use the channel for rearing during low tide and use the saltmarsh for protection from predators and for feeding during high tide. The boulders will provide partial protection from Tongass Narrows wave action during high tides.

Evaluation Criteria:

1. Juvenile coho salmon will be present in the created estuarine area during high tides in the spring and early summer.
2. Upper intertidal areas (e.g., above +10 feet MLLW) will not experience wave erosion that interferes with colonization of saltmarsh vegetation.

5.2 New Estuary Monitoring Methods

DOT&PF will use the following methods to determine if the new estuary mitigation goals and objectives are met.

Saltmarsh survey

Saltmarsh vegetation will be mapped in the vicinity of the new channel mouth prior to construction and in Years 1, 3, and 5. The mapping will include all areas disturbed by construction and adjacent undisturbed areas. Mapping will identify obvious assemblage types and shifts in species dominance along lateral and vertical gradients. It is expected that by Year 3, the new estuarine area will have at least 4,000 sf with 25 percent coverage (or greater) of native saltmarsh vegetation. By Year 5, the new estuarine area is expected to have at least 8,000 sf with 25 percent coverage (or greater) by native saltmarsh species, and of that area, 4,000 sf will have at least 50 percent coverage.

Coverage will be estimated by running a transect along the high water line above the vegetated area(s). At randomly selected intervals (minimum of 10), a perpendicular line will be run and measurements will be made of the width (perpendicular to the horizontal transect) of the vegetated zone supporting saltmarsh vegetation (greater than 25 percent cover). If multiple vegetation assemblages are present, width of each assemblage will be documented. At randomly selected distances down each cross transect, a 0.25-m² (2.7-sf) quadrat will be placed, labeled and photographed. Each plant species within each quadrat will be identified and its percent cover estimated. Also, the area of bare ground will be estimated. Mobile macrofauna (e.g., snails, limpets, isopods) will be counted and presence of other biota (e.g., algae, barnacles) documented. Quadrats will be marked and revisited each year, unless the estuary zones change to require re-randomization.

Monitor channel stability

An "as-built" survey will be conducted in Year 0 and in Years 1, 3 and 5 to provide documentation of the site topography immediately following construction and of subsequent accretion and erosion that may result from channel meandering or delta formation. The survey will include a thalweg profile of the Government Creek stream as it passes through the estuary and low tide channel out to MLLW and a minimum of 6 cross sections at specified points. Cross

section locations will be permanently marked for repeated surveys. A photo log will also be kept of photos from established points and directions.

Document juvenile salmonid use

Use of the site by juvenile salmonids will be monitored in the newly created estuary once in the period May through August of Years 1, 3, and 5 using a small (30-ft) beach seine and systematic visual surveys.

Document effects on eelgrass

Eelgrass on the low tide flat near the mouth of the stream channel below MLLW is expected to be impacted by the flow from the new Government Creek. The degree of impact will be documented for use in planning future projects. No success criterion is associated with this monitoring. Extent of existing eelgrass will be mapped in the summer, prior to construction, and remapped in Years 1, 3, and 5. Mapping will be conducted by walking the margins of eelgrass patches using a handheld geographic positioning system (GPS), during a tide of -2 ft MLLW or lower.

6 GOVERNMENT CREEK REROUTE

6.1 Government Creek Reroute Goals and Objectives

Goals:

The constructed reach of Government Creek will provide the following ecological functions:

- Fish migration (all existing Government Creek species, up and downstream)
- Salmon spawning (pink and chum) in the main stem
- Fish rearing (coho, cutthroat trout and steelhead trout) in both the main stem and the constructed side channel habitat

Objectives:

A. Provide an upstream migration pathway in the constructed Government Creek reach.

Evaluation Criteria:

1. There will be no barriers to upstream migration of juvenile fish during normal flow. (Normal flow is defined as flows between low flow and the 40 percent of the instantaneous 2-year flood.)

B. Pink and chum salmon will spawn in the constructed Government Creek channel and suitable spawning gravels will be retained in the channel over time.

Evaluation Criteria:

1. A minimum of 1200 sf of spawning gravel will be established and maintained over time.
2. Pink and chum salmon will spawn in the new reach.

- C. Juvenile coho, cutthroat trout and steelhead trout rearing habitat will be available in the constructed Government Creek reach and side channel habitat ; rearing habitat quality will be increased by providing in-stream habitat structures, re-establishing riparian vegetation and by maintaining water quality.

Evaluation Criteria:

1. In-stream habitat structures and side channel features that support juvenile salmonid rearing habitat will persist with 60 percent retained through Year 5.
2. Coho will rear in new reach and in the constructed side channels.
3. At least two pioneering species of native trees or shrubs will grow and persist within cut slopes and overbank area of the constructed Government Creek channel by Year 3. At least four species of native trees or shrubs will grow and persist within cut slopes and overbank area of the Government Creek constructed channel by Year 5.
4. Cut slopes will not display excessive gullying or erosion or become a chronic source of fine sediment.
5. Side channel habitat features will have sufficient freshwater inflow to maintain acceptable water quality for juvenile salmonid rearing.
6. Side channel side slopes will not experience excessive erosion.

6.2 Government Creek Reroute Monitoring Methods

DOT&PF will use the following methods to determine if the Government Creek reroute mitigation goals and objectives are met.

Document stream channel morphology and habitat structures

An "as-built" survey of the constructed stream and side channels will be conducted in Year 0, before any flow is diverted into the channel, and in Years 1, 3 and 5 and after the first flood exceeding a 2-year recurrence frequency following flow initiation in the new channel. The survey will include a thalweg profile of the constructed stream and at least 15 selected cross sections. Cross section locations will be permanently marked or referenced to the stream bank permanent markers for repeated surveys.

An "as-built" survey of constructed habitat structures will be conducted in Year 0, after flow is diverted into the channel. The survey will map constructed woody structures.

Qualitative habitat inspection

An annual qualitative inspection will be conducted of the entire upstream reference reach and the new channel section to identify areas of major erosion or accretion, channel or bank instability, or other areas with changes of concern. Monitoring will be done during stream flow that allows for at least 3 ft of visibility through the water and safe wading of pools and riffles. Inspect for barriers to upstream fish migration and if any are found, location will be identified. The presence or absence of each constructed woody habitat structure will be recorded. A photo log will be used as documentation from marked photo points. Photos of unusual conditions and changes of concern from previous years will be logged and located using a handheld GPS unit.

Quantitative stream habitat monitoring

Stream habitat will be monitored to document habitat composition and stability over time. Quantitative data will be collected in Year 0 (two to four weeks after initiation of flow), and in Years 1, 3 and 5 to show how the stream morphology adjusts to flow events and the passing of time. Monitoring will be done during stream flow that allows for at least 3 ft of visibility through the water and safe wading of pools and riffles. There is no success criterion associated with this monitoring except for the area of spawning gravel.

Quantitative habitat monitoring will involve measuring and recording the physical dimensions or measurable descriptors of channel morphology at a minimum of five subreaches in the constructed channel, two subreaches in the constructed side channel, and one subreach in the reference reach. Subreaches in the main channel typically will include a step-pool-riffle sequence. In the constructed channel, three of the subreaches will be selected because they are typical of the newly created reach as a whole, and two reaches will be selected because they differ in some way from the reach as a whole. The initial sequence of habitat downstream of the point of diversion would be a good example of a subreach that differs from the whole. The two subreaches in the side channel habitat will be selected to best represent the range of habitat types in the side channel.

The following data will be collected for each subreach:

- Subreach number
- Overall subreach gradient
- Habitat types (pool, cascade, riffle, etc.)
- Habitat unit dimensions (total length, average existing and bankful width and depth)
- Habitat unit variables (In the main stem: percentage bank cover, percentage in-stream cover, maximum depth of pool, woody debris, riparian vegetation and spawning gravel including area, embeddedness, and pebble counts; In the side channels: water temperature, flow, percentage bank cover, riparian vegetation, maximum depth of pool)

Photo log to document growth of bank vegetation

Color photos will be taken from a variety of photo point locations in Year 0, two to four weeks after initiation of flow, and in Years 1, 3 and 5. Photo points will be monumented with metal fence posts or rebar with photo point number permanently attached. Monuments will be further located with reference to geographic position either by GPS or triangulation methods using markers on sides of stream banks. A minimum of 20 photo points will be oriented so that percent cover of vegetation can be estimated. A photo log will be kept that lists date, time, photo number, description and orientation of the view and zoom factor. Photos of the site should be clear and similar in view for each record. Vegetation species present will be identified and recorded at each photo point. Each photo will be captioned with interpretation relative to evaluation criteria.

In-stream trapping to document juvenile salmonid presence

Baited minnow traps will be placed in pool or slack water habitats where flow velocities will not make entrapment difficult. Traps will be left for 12 to 24 hours to fish and then retrieved.

Captured fish will be counted by species and returned to the stream. Two traps will be placed in each stream element (pool or riffle) in three of the different Government Creek main channel subreaches (two typical and one at uppermost end of the constructed reach) where physical measurements for the stream habitat monitoring are taken in the constructed channel, in one subreach of the reference reach, and in one subreach of a side channel, for a total of 20 traps.

Soak time, location and numbers and species of juvenile fish will be recorded. Minnow traps will be made with 1/4-inch galvanized wire mesh with an inlet opening no greater than 1 inch.

This trap size will ensure capture of juvenile fish and protect captured fish from predation.

Surveys will be conducted in June or July of Years 1, 3, and 5.

Spawner surveys

The entire reference reach and constructed main channel and side channel reaches will be walked starting at the downstream end of each reach and working upstream. To document the presence of adult fish within a reach of stream, surveys will be conducted during the height of the pink and chum spawning season (late August or early September). Spawning/carcass surveys will enumerate dead fish (by species) and include a tally of observed fish for the reach of stream within the project area. Individual fish parts that may have comprised a single fish will be counted as one fish to avoid overestimating fish counts. Live fish observed will be recorded by species, life stage and location. Surveys will be conducted in Year 0 (after initiation of full flow), and in Years 1 through 5.

7 NORTH TRIBUTARY REROUTE

7.1 North Tributary Reroute Goals and Objectives

Goal:

- The constructed reach of the Government Creek North Tributary will provide the ecological function of resident fish habitat similar to that lost.

Objective:

- A. The constructed North Tributary reach will be accessible only to resident fish, and not to anadromous fish.

Evaluation Criterion:

1. There will be a barrier that effectively prevents anadromous fish from entering the North Tributary. Physical barriers could include a vertical drop, a vertical drop without a corresponding plunge pool, and/or an angle of entry to Government Creek that masks the tributary's presence from anadromous fish.
- B. The constructed North Tributary reach will provide resident fish rearing habitat by providing in-stream habitat structures and re-establishing riparian vegetation.

Evaluation Criteria:

1. In-stream habitat structures that support resident fish rearing habitat will persist with 60 percent retained through Year 5.
2. Resident fish will rear in the new reach.
3. At least two pioneering species of native trees or shrubs will grow and persist within the cut slopes of the North Tributary constructed channel by Year 3. At least four species of native trees or shrubs will grow and persist within cut slopes of the North Tributary constructed channel by Year 5.
4. Cut slopes will not display excessive gullying or erosion or become a chronic source of fine sediment.

7.2 North Tributary Reroute Monitoring Methods

DOT&PF will use the following methods to determine if the Government Creek North Tributary reroute mitigation goals and objectives are met.

Document stream channel morphology

Same method used to monitor Government Creek will be used to monitor the North Tributary, except that a minimum of five selected cross sections will be surveyed.

Qualitative habitat monitoring

Same methods used to monitor Government Creek will be used to monitor the North Tributary, except that a minimum of two subreaches in the constructed channel (one above the Airport Access Road culvert and one below the culvert) and one subreach in the reference reach will be monitored quantitatively.

Photo log to document growth of bank vegetation

Same method used to monitor Government Creek will be used to monitor the North Tributary, except that a minimum of five photo points will be established.

In-stream trapping to document presence of resident fish and absence of anadromous fish

Same method used to monitor Government Creek will be used to monitor the North Tributary. Two traps will be placed in each stream element (pool or riffle, if sufficient water) in the three subreaches (two in the constructed channel and one in the reference reach) where physical measurements for the stream habitat monitoring are taken, for a total of 12 traps.

Spawner surveys

To document the effectiveness of the designed fish barrier, the constructed channel reach will be walked starting at the main stem of Government Creek and working upstream. Surveys will be conducted during the height of the pink and chum spawning season (late August or early September). Any adult salmon seen above or below the barrier will be documented. Spawning/carcass surveys will enumerate dead fish (by species) and include a tally of observed fish for the reach of stream within the project area. Individual fish parts that may have comprised a single fish will be counted as one fish to avoid overestimating fish counts. Live fish

observed will be recorded by species, life stage and location. Surveys will be conducted in Year 0 (after initiation of full flow), and in Years 1 through 5.

8 SOUTH DITCH REROUTE

8.1 South Ditch Reroute Goals and Objectives

Goal:

- The constructed reroute of the South Ditch will provide the ecological function of rearing fish habitat similar to that lost.

Objective:

The constructed South Ditch reach will be accessible to fish.

Evaluation Criterion:

1. There will be no barriers to migration of fish during normal flow.

8.2 South Ditch Reroute Monitoring Methods

DOT&PF will use the following method to determine if the South Ditch reroute goal and objective are met.

Qualitative habitat inspection

The same method used to monitor Government Creek and North Tributary will be used to visually inspect South Ditch annually.

9 SCHEDULE OF MONITORING

Table 2: Monitoring Schedule

Monitoring Action	Month of activity	Year
New Estuary Monitoring		
Salt marsh survey	July or August	1, 3, 5 and prior to construction
Monitor channel stability	July or August	0, 1, 3, 5
Document juvenile salmonid use	July or August	1, 3, 5
Document effects on eelgrass	July or August	1, 3, 5 and prior to construction
Government Creek and North Tributary Reroute Monitoring		
Document stream channel morphology	July or August	0, 1, 3, 5 and after first 2-year flood event
Qualitative habitat	July or August (prior to spawning season)	0, 1, 2, 3, 4, 5
Quantitative stream habitat monitoring	July or August	0, 1, 3, 5
Photo log to document growth of bank vegetation	July or August	0, 1, 3, 5
In-stream trapping to document fish use	June or July	1, 3, 5
Spawner surveys	Late August Early September	0, 1, 2, 3, 4, 5
South Ditch Reroute Monitoring		
Qualitative habitat	July or August	0, 1, 2, 3, 4, 5

10 REPORTING

Reports detailing the monitoring completed and the results documented within the reporting year will be prepared. Status of each monitored parameter with respect to project success criteria will be summarized. See Appendix B for report format outlines.

The following review process will be followed:

- IDT will review the report for completeness. Members will identify needed revisions or concerns.
- Each IDT member will be polled by DOT&PF two weeks following the distribution of the annual report to see if the member has comments or concerns, or believes an IDT meeting or field trip is needed to discuss changes in the monitoring program or the need for contingency measures.
- DOT&PF will inform FAA of comments and concerns.

11 CONTINGENCY PROCESS

If the IDT identifies any conditions they believe require remediation, then:

- IDT may meet to develop recommendations for possible corrective actions
- DOT&PF will design and specify corrective action and identify whether Airport Maintenance or FAA will fund the work.
- DOT&PF will obtain required permits/clearances.
- The IDT will be informed once the corrective action has been completed.

12 INTERDISCIPLINARY TEAM

Name	Organization
Steve Brockmann* (meeting 3 only)	U.S. Fish and Wildlife Service
Katharine Miller	National Marine Fisheries Service
Mark Minnillo	Alaska Department of Natural Resources
Carol Sanner**	U.S. Army Corps of Engineers
Neil Stichert**	U.S. Fish and Wildlife Service
Mark Voight* (meeting 1 and 2 only)	U.S. Fish and Wildlife Service

* *Design IDT only*

** *Monitoring Plan IDT only*