APPENDIX E

Anadromous Fish Habitat Permit and Essential Fish Habitat Assessment

From:	Alas, Jeanette M (DFG)
To:	jhaddox@gci.com
Cc:	Ott, Alvin G (DFG); Polum, Tyler B (DFG); Burnside, Carlton S (DFG); Larson, Clifford A (DNR); Rypkema, James (DEC); regpagemaster@usace.army.mil; Miller, Donna (DPS); Cubbedge, Shelley D (DPS); Josh Grabel; Emily Creely
Subject:	[EXT] Fish Habitat Permit FH24-II-0003_Fiber Optic Cable Installation_Chignik River
Date:	Friday, January 19, 2024 9:19:39 AM
Attachments:	FH24-II-0003_Fiber Optic Cable Installation_Chignik River.pdf

Good morning,

Fish Habitat Permit FH24-II-0003 for installation of a fiber optic cable in the Chignik River is attached. A hard copy of this permit will not be mailed unless requested. Please let me know if you have any questions about this permit.

Sincerely,
Jeanette

Jeanette Alas
(*she/her*)
ADF&G Habitat Section
333 Raspberry Rd
Anchorage, AK 99518
907-267-2805
https://www.adfg.alaska.gov/index.cfm?adfg=uselicense.main

THE STATE of ALASKA
GOVERNOR MIKE DUNLEAVY

Department of Fish and Game

HABITAT SECTION
Southcentral Regional Office

333 Raspberry Road
Anchorage, Alaska
Main: 907.267.2342
Fax: 907.267.2499

FISH HABITAT PERMIT FH24-II-0003

ISSUED: January 19, 2024
EXPIRES: June 30, 2025

Unicom, Inc.
Attn: Christoper Haddox
2550 Denali Street, Suite 1000
Anchorage, AK 99503

RE: Fiber Optic Cable Installation
Chignik River (Water Body No. 271-10-10310)
Sections 15, 20, 21, 22, 29, and 30, T 45 S, R 60 W, SM
Location: 56.261911 N, 158.701054 W

Dear Christoper Haddox:

Pursuant to the Anadromous Fish Act at AS 16.05.871(b), the Alaska Department of Fish and Game (ADF&G) Habitat Section has reviewed your proposal to install a fiber optic cable in the Chignik River.

Project Description
You propose to install a fiber optic cable in portions of the Chignik River for community access to high-speed internet. The cable will be installed in about 3 river miles of the Chignik River from the mouth to Chignik Lake Road where it will transition to a land-based route (see Figures 2 and 3 and Photo 1). During installation, the cable will be laid directly on the riverbed for most of the route where currents may slowly bury the cable over time. About 300 meters prior to landfall the cable will be buried by hand jetting. A diver will use a water hose that liquefies the sediments allowing the cable to fall into the sediment and bury it. Burial depth is dependent on streambed materials and may be up to a meter in silts and clays. Hand jetting is expected to take about 1 day. A shallow trench may remain following cable burial until normal water movement allows sediments to level the riverbed. The cable will be installed using a landing craft, small utility boat, and a dive boat.

The fiber optic cable will be trenched in the streambank as it reaches landfall and will be connected into a beach manhole (BMH). Installation of the cable between the streambed and the BMH will require digging a trench a maximum of 3 ft deep by 3 ft wide. Vegetation will be cleared for the cable trenching and to construct the BMH. The BMH will be 4 ft by 5 ft and require about a 5 ft by 6 ft (30 sq ft) excavation area. It will be installed 25 to 50 ft back from mean high water (MHW) of the Chignik River. The trenched streambank and BHM excavation areas will be regraded to original contours. The vegetative mat will be set aside during streambank trenching and replaced after the area is regraded. Cloth matting, waddles, willow bundles, or other native plants may also be used to stabilize the bank. Streambank trenching and BHM installation will be conducted using a rubber wheeled backhoe, tracked excavator or backhoe, hand tools, and a chain trencher or cable plow. Any heavy equipment operated below MHW in Chignik River or in wetlands will be placed on mats. Heavy equipment will operate below MHW but above wetted portions of the Chignik River to the extent practicable. Trenching and cable burial from the riverbed to the BHM will take about 0.5 days.

Anadromous Fish Act
Water Body No. 271-10-10310 has been specified as being important for the spawning, rearing, or migration of anadromous fishes pursuant to AS 16.05.871(a). The water body provides habitat for chum, coho, Chinook, pink, and sockeye salmon, Dolly Varden, and steelhead trout.

In accordance with AS 16.05.871(d), your project is approved subject to the project description, the following stipulations, and the permit terms.

1. All instream activity below MHW in the Chignik River shall be conducted from June 1 to July 7, 2024 or June 1 to June 30, 2025.

2. Vehicles and equipment shall not be fueled or serviced below MHW in the Chignik River; and vehicles with fuel, oil, or hydraulic fluid leaks, shall not be operated or moved in the river.

3. The Habitat Section must be contacted by phone (907-267-2805) or email (jeanette.alas@alaska.gov) at least three days prior to beginning permitted activities.

Permit Terms
This letter constitutes a permit issued under the authority of AS 16.05.871 and must be retained on site during project activities. Please be advised that this determination applies only to activities regulated by the Habitat Section; other agencies also may have jurisdiction under their respective authorities. This determination does not relieve you of your responsibility to secure other permits; state, federal, or local. You are still required to comply with all other applicable laws.

You are responsible for the actions of contractors, agents, or other persons who perform work to accomplish the approved project. For any activity that significantly deviates from the approved plan, you shall notify the Habitat Section and obtain written approval in the form of a permit amendment before beginning the activity. Any action that increases the project's overall scope or that negates, alters, or minimizes the intent or effectiveness of any provision contained in this permit will be deemed a significant deviation from the approved plan. The final determination as to the significance of any deviation and the need for a permit amendment is the responsibility of

the Habitat Section. Therefore, we recommend you consult the Habitat Section immediately before considering any deviation from the approved plan.

You shall give an authorized representative of the state free and unobstructed access to the permit site, at safe and reasonable times, for the purpose of inspecting or monitoring compliance with any provision of this permit. You shall furnish whatever assistance and information the authorized representative reasonably requires for monitoring and inspection purposes.

In addition to the penalties provided by law, this permit may be terminated or revoked for failure to comply with its provisions or failure to comply with applicable statutes and regulations. You shall mitigate any adverse effect upon fish or wildlife, their habitats, or any restriction or interference with public use that the commissioner determines was a direct result of your failure to comply with this permit or any applicable law.

You shall indemnify, save harmless, and defend the department, its agents, and its employees from any and all claims, actions, or liabilities for injuries or damages sustained by any person or property arising directly or indirectly from permitted activities or your performance under this permit. However, this provision has no effect if, and only if, the sole proximate cause of the injury is the department's negligence.

You may appeal this permit decision relating to AS 16.05.871 in accordance with the provisions of AS 44.62.330-630.

Please direct questions about this permit to Habitat Biologist Jeanette Alas at 907-267-2805 or jeanette.alas@alaska.gov.

Sincerely,
Doug Vincent-Lang
Commissioner

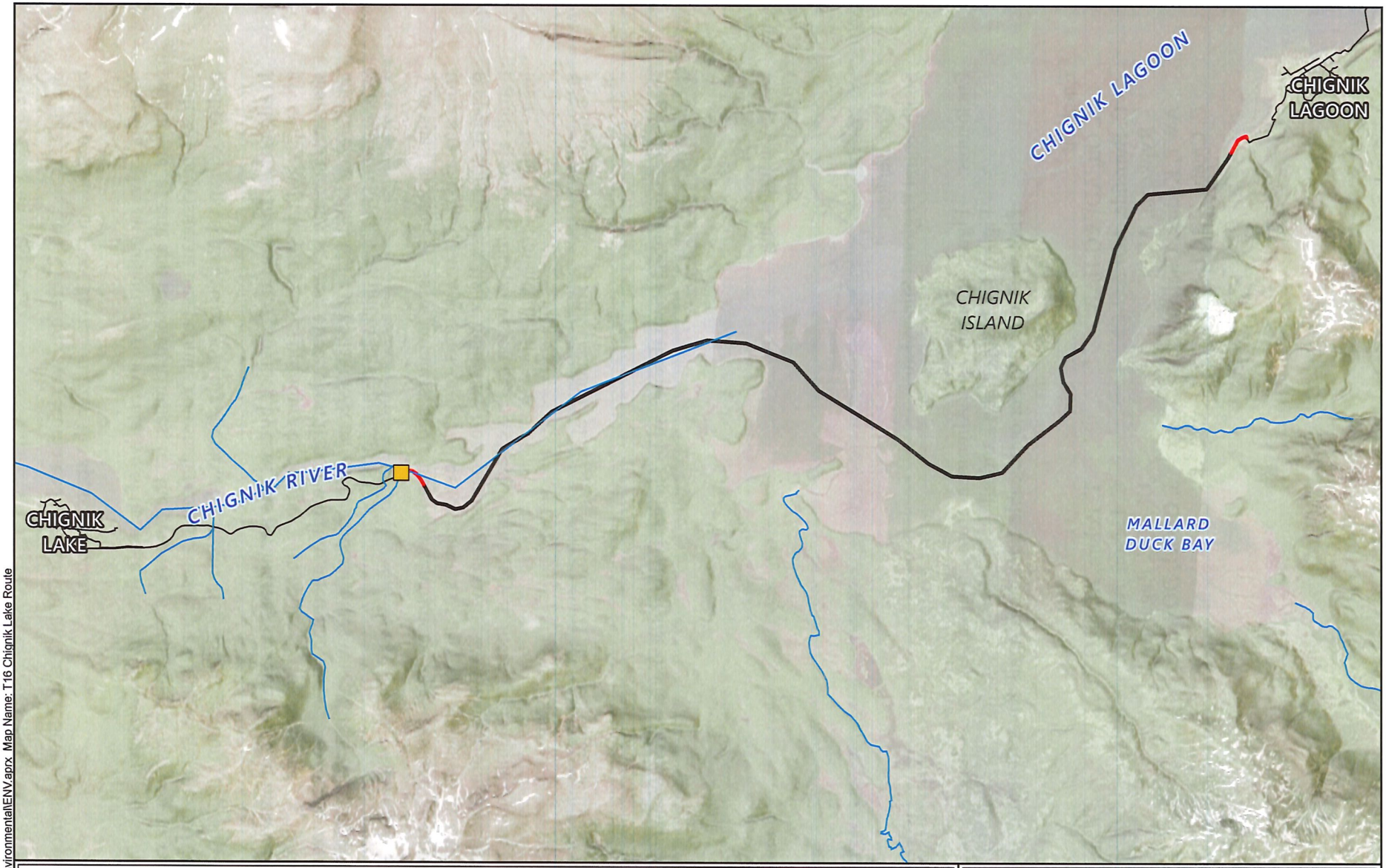
Ron Benkert

By Ron Benkert
Southcentral Regional Supervisor

Enclosures: Figure 2: Fiber Optic Alignment from Chignik Lagoon to Chignik Lake
Figure 3: Chignik Lake Landfall
Photo 1: Route of fiber optic cable from the Chignik River to land

Email cc:

A. Ott, ADF&G-HAB
C. Burnside, ADF&G-CF
J. Rypkema, ADEC
AWT, Kodiak, Cold Bay
E. Creely, DOWL
T. Polum, ADF&G-SF
C. Larson, ADNR DMLW
USACE, Regulatory
J. Grabel, DOWL



PROPOSED FACILITY

BMH

PROPOSED FIBER OPTIC PLACEMENT

RIVER - BURIAL

RIVER - LAY

PROPOSED FIBER OPTIC ALIGNMENT

ANADROMOUS STREAM (ADF&G)

N

0 0.25 0.5 1 Miles

FIBER OPTIC ALIGNMENT FROM CHIGNIK LAGOON TO CHIGNIK LAKE

AU-ALEUTIANS II

DECEMBER 2023

FIGURE 2

J:\64\63712-01\60GIS\Carto\Environmental\ENV.aprx Map Name: T16 Chignik Lake Route

Imagery Credit: Esri, NASA, NGA, USGS, Earthstar Geographics

PROPOSED FACILITY

BMH

PROPOSED FIBER OPTIC PLACEMENT

RIVER - BURIAL

PROPOSED FIBER OPTIC ALIGNMENT

ANADROMOUS STREAM (ADF&G)

N

0 37.5 75 150 Feet

CHIGNIK LAKE LANDFALL

AU-ALEUTIANS II

DECEMBER 2023

FIGURE 3

J:\64\63712-01160\GIS\Carto\Environmental\ENV.aprx Map Name: T16 Chignik Lake Landfall

Imagery Credit: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

Photo 1. Red line indicates route of the fiber optic cable from the Chignik River to land.

From:	Josh Grabel
To:	Alas, Jeanette M (DFG)
Cc:	Emily Creely; Nathan Mennen; Cameron Miller
Subject:	Chignik River, AU ALEUTIAN-II
Date:	Friday, December 22, 2023 5:16:42 AM
Attachments:	AU Aleutian II Title 16 Application 12.21.23.pdf

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Jeanette,

Please see the attached Title 16 Fish Habitat Permit Application for your review. Please let me know if you have any questions.

Thanks,

Josh Grabel, PWS
Environmental Specialist

DOWL

(907) 562-2000 | office
(907) 865-1258 | direct

dowl.com

DOWL

December 21, 2023

Jeanette Alas
Alaska Department of Fish and Game
Habitat Section
333 Raspberry Rd
Anchorage, AK 99518
Email: jeanette.alas@alaska.gov

Subject: **Chignik River, AU ALEUTIAN-II**
Title 16 Fish Habitat Permit

Dear Ms. Alas,

DOWL is submitting the enclosed Title 16 Fish Habitat Permit application on behalf of Unicom, Inc. (Unicom), a wholly owned subsidiary of GCI Communications Corp. (GCI), to construction a fiber optic cable (FOC) in the Chignik River. Please see the attached Fish Habitat Permit Application for the Chignik River (Attachment 1).

Project Description and Background

In 2021, with support from the U.S. Department of Agriculture (USDA) Rural Development (RD), Unicom, Inc. (Unicom), a wholly owned subsidiary of GCI Communications Corp. (GCI), installed a nearly 800-mile subsea fiber optic cable (FOC) to extend broadband service to seven remote communities for the AU-Aleutians (AU-A I) fiber project.

The Native Village of Port Lions (NVPL), with support from the National Telecommunications and Information Administration (NTIA) Tribal Broadband Connectivity Program (TBCP), proposes to extend the AU-A project through Phase II and bring high-speed internet service to approximately 800 people in six remote Alaska Native villages for the first time. The AU-A II Fiber Project (AU-A II) builds on the AU-A I project by connecting communities to its existing subsea fiber backbone.

NVPL, grant recipient partnered with GCI, subrecipient who will design, construct and maintain AU-A II, with Unicom responsible for permitting, oversight of regulatory commitments and management of subcontractors. The AU-A I project is currently in the process of connecting Larsen Bay, Chignik Bay, Sand Point, King Cove, Akutan, and Unalaska. AU-A II proposes to connect the communities of Port Lions, Ouzinkie, Chignik Lagoon, Chignik Lake, Cold Bay, False Pass, and Perryville.

Project Purpose: The purpose of the proposed project is to bring fast 2,500 megabits per second (Mbps) (approximately 2.4 gigs) internet speeds and affordable, unlimited data plans to six rural Alaska Native villages and one city (Cold Bay) for the first time, closing the digital divide and bringing digital equity to the region. The project will support economic development and expansion of social services. The proposed project's seven isolated communities are neither connected by road nor an intertied electrical grid. The lack of broadband access limits economic development and efficiency of services delivered by health care providers, schools, and tribal entities.

Location: The proposed project is located within Section 6, 15, 20, 21, 22, 29, 30; Township 45 South, Range 60 West, on USGS Quad Map Chignik B-3 SE, Seward Meridian beginning at Latitude 56.277720, Longitude -158.643651 and ending at Latitude 56.261190, Longitude -158.700238 in Chignik Lake, Alaska (Attachment 2: Figures).

Nature of Activity: The following describes project elements that would occur in the marine environment, outside of intertidal areas. Over 99% of the FOC would be surface laid directly on the sea

floor. In waters within approximately 300 feet from MLW, the FOC would be buried via diver held water jet (maximum 3-foot depth). No post-lay inspection and burial would be conducted. In general, equipment in the near shore marine environment may include:

- Small utility boat to run pull line to beach (80-foot and less than 3,000 horsepower engine)
- Dive boat with hand jetting tools
- Hand jetting would take 1 day (12 hours)
- Smaller boat such as the Chignik Lake landing craft for the final shallow river section

See supplemental information for more details on equipment and installation methods.

Project Schedule: The anticipated construction schedule is contingent upon receipt of permits and environmental authorizations with June 1, 2024 as the estimated start date and June 30, 2024 as the estimated completion date for subsea FOC installation in the Chignik River.

Please review the provided information at your earliest convenience and deem whether the application is complete. If you have any questions or require additional information, please contact me by email at jgrabel@dowl.com or by telephone at (907) 562-2000.

Sincerely,
DOWL

Joshua Grabel
Environmental Specialist

Attachment(s):

1. Title 16 Fish Habitat Permit Application
2. Figures
3. Supplemental Information

ATTACHMENT 1 – TITLE 16 FISH HABITAT PERMIT APPLICATION

FH#_____
(Office Use Only)

FISH HABITAT PERMIT APPLICATION

Alaska Department of Fish and Game - Division of Habitat

Office Locations

A. APPLICANT

Name: Unicom, Inc.

Mailing Address: 2550 Denali Street; Suite 1000, Anchorage, Alaska 99503

Email Address: jhaddox@gci.com

Phone: 907-632-0762 Alt Phone: _____

AGENT / POINT OF CONTACT:

Name: Josh Grabel, DOWL

Mailing Address: 5015 Business Park Blvd., Suite 4000, Anchorage, Alaska 99503

Email Address: jgrabel@dowl.com

Phone: 907-562-2000 Alt Phone: _____

B. PROJECT DESCRIPTION:

See Cover Letter.

C. PROJECT TIME FRAME: June 1, 2024 to June 30, 2024

D. PROJECT LOCATION:

Water body name: Chignik River

Anadromous stream number: 271-10-10310

Latitude & longitude in decimal degrees: 56.261911N 158.701054W

Section 6, 15, 20, 21, 22, 2 Township 45S Range 60W Meridian Seward USGS Quad Chignik B-3 SE

E. WATERBODY CHARACTERISTICS:

Water body width: 300-1500 feet Water body depth: 1-3 feet

Substrate type (Boulder, cobble, gravel, sand, mud): mud, cobbles

Stream gradient: 0-1 percent

PLEASE COMPLETE THE APPLICABLE SECTIONS BELOW:
A list of best practices for many commonly authorized activities can be found at our Habitat Permits Website.

F. IN-WATER WORK:

Will you place a structure or any fill below ordinary high water? ☒ Yes ☐ No

Will you remove material from below ordinary high water? ☒ Yes ☐ No

Type and amount: Hand jetting will remove minor amounts of material for burial along the streambank

Will you alter the bed or banks of the water body? ☒ Yes ☐ No

How? Fiber optic cable burial at 3 feet depth close to bank and laid directly on the stream bed further from landing.

Will you use tracked or wheeled equipment below ordinary high water? ☐ Yes ☒ No

What type? N/A

Will you drive piles below ordinary high water? ☐ Yes ☐ No

How many and what type? N/A

Pile installation method: ☐ vibratory hammer ☐ impact hammer ☐ drilled

☐ other:

Will you divert the stream around the work area? ☐ Yes ☒ No

How long will the stream be diverted? N/A

How will you divert the stream? N/A

Will you be placing a coffer dam or silt fencing to isolate the work area? ☐ Yes ☒ No

Will you dewater the work area with a pump? ☐ Yes ☒ No

Who will trap fish and remove them from the work area? N/A

Capture and relocation of fish will require an Aquatic Resource Permit from the ADF&G Division of Sport Fish.

G. **STREAM CROSSINGS:**

What type of vehicles or equipment will cross the stream or lake?

Small utility boat to pull line to beach, dive boat with hand jetting tools

How many crossings (one-way) will be required? Hand jetting would take one day

Will you build ice bridges for winter crossing? ☐ Yes ☒ No

H. **WATER WITHDRAWAL**:

Pump intake size (inches): N/A Maximum pumping rate (gpm): N/A

Total daily amount (gal): N/A Total seasonal amount (gal): N/A

Water withdrawal from fish-bearing waterbodies will require appropriate intake screening to avoid impacts to fish. Screening criteria can vary by location depending on the species of fish and life stages present at the time of withdrawal. Contact the Division of Habitat for more information on intake screens.

Intake screening specifications (attach photos if available):

N/A

Please attach plans, specifications, aerial photographs, site rehabilitation plans, or other information in support of your application. Submit your completed application by postal mail, email, or in person at the appropriate Division of Habitat office.

I certify all information provided in my application and supporting documents is true and complete to the best of my knowledge.

DocuSigned by:
Christopher Haddox
EB2865BF2D1B43E...

Applicant Signature

12/20/2023

Date

ATTACHMENT 2 – FIGURES

FIBER OPTIC ALIGNMENT

EXISTING

PROPOSED

LANDFALL COMMUNITY

EXISTING

PROPOSED

N

0 0.63 1.25 2.5 Miles

PROJECT LOCATION & VICINITY

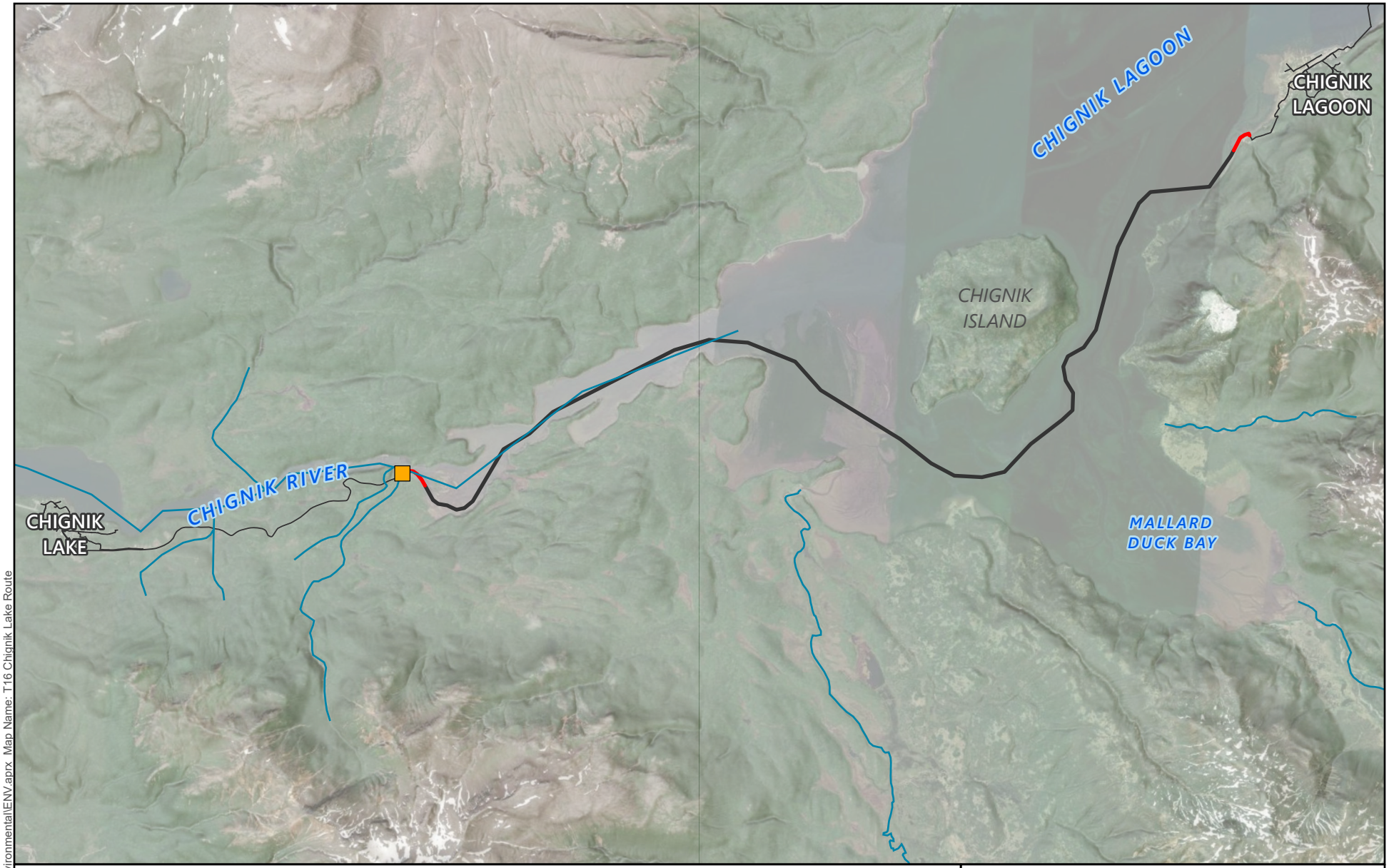
AU-ALEUTIANS II

DECEMBER 2023

FIGURE 1

J:\6463712-01160GIS\Carto\Environmental\ENV.aprx Map Name: T16 Vicinity

Imagery Credit: Esri, Garmin, NaturalVue, Esri, NASA, NGA, USGS, State of Alaska, Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS, EPA, NPS, USDA



PROPOSED FACILITY

BMH

PROPOSED FIBER OPTIC PLACEMENT

RIVER - BURIAL

RIVER - LAY

PROPOSED FIBER OPTIC ALIGNMENT

ANADROMOUS STREAM (ADF&G)

N

0 0.25 0.5 1 Miles

FIBER OPTIC ALIGNMENT FROM CHIGNIK LAGOON TO CHIGNIK LAKE

AU-ALEUTIANS II

DECEMBER 2023

FIGURE 2

J:\6463712-01160GIS\Carto\Environmental\ENV.aprx Map Name: T16 Chignik Lake Route

Imagery Credit: Esri, NASA, NGA, USGS, Earthstar Geographics

PROPOSED FACILITY

BMH

PROPOSED FIBER OPTIC PLACEMENT

RIVER - BURIAL

PROPOSED FIBER OPTIC ALIGNMENT

ANADROMOUS STREAM (ADF&G)

N

0 37.5 75 150 Feet

CHIGNIK LAKE LANDFALL

AU-ALEUTIANS II

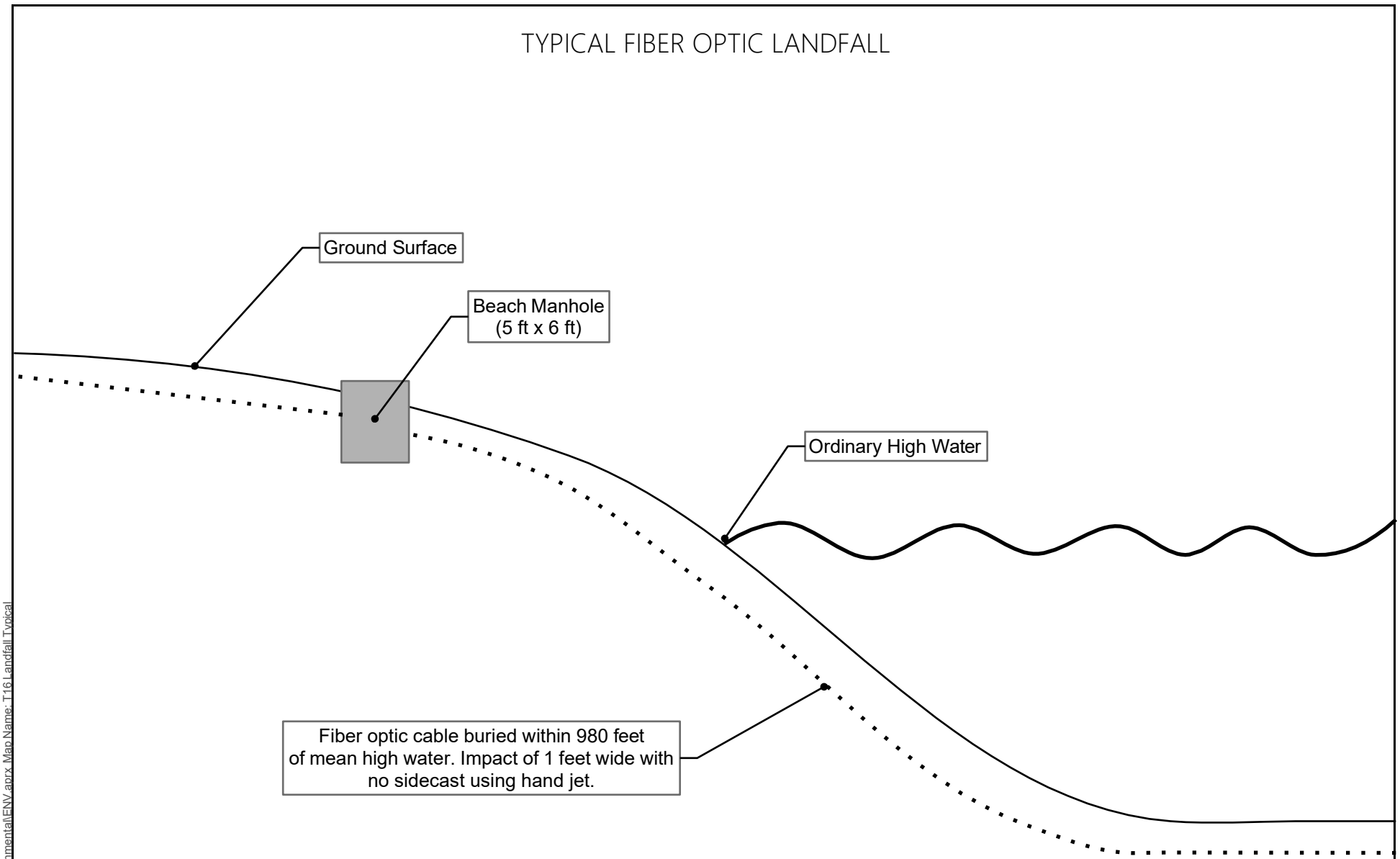
DECEMBER 2023

FIGURE 3

Imagery Credit: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

J:\6463712-01160GIS\Carto\Environmental\ENV.aprx Map Name: T16 Chignik Lake Landfall

TYPICAL FIBER OPTIC LANDFALL



NOT TO SCALE

CHIGNIK LAKE LANDFALL

AU-ALEUTIANS II

DECEMBER 2023

FIGURE 4

J:\64637\12-01\60\GIS\Carto\Environmental\ENV.aprx Map Name: T16 Landfall Typical

ATTACHMENT 3 – SUPPLEMENTAL INFORMATION

Supplemental Information

Installation Methods:

- The cable will be laid off the vessel whilst attempting to lay with sufficient slack to conform to the riverbed.
- In active sediment areas such as high current rivers or tidal current areas, active sediment movement will slowly bury the cable over time.
- The cable tends not to move due to its small size and heavy weight and being one continuous length. This has been the case in area with currents in the range of 8 kts, Peril straits in SE, Turnagain Arm, Kvichak River and Six Mile River – all surface laid cable of generally same size and weight as this cable.

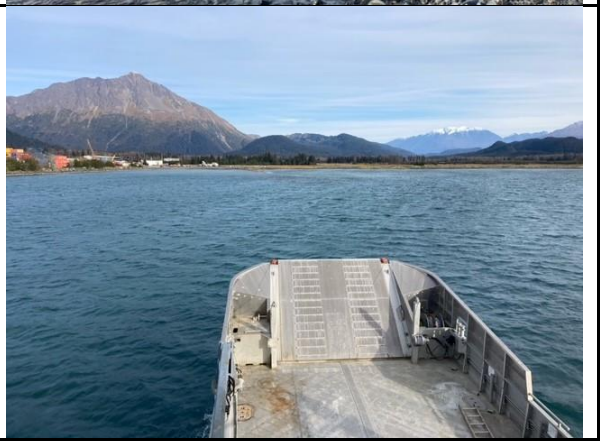
Landing Route:

Cable:

Hand Jetting:

Diver Installation:

80-foot landing craft
Official #11136334
Owner: UIC Bowhead Transport LLC
Year Built: 2001
Net Tons: 64
Beam: 23’
Estimated Draft: 3’
Length Overall: 75’
Hull Material: Aluminum
Main Engines: Volvo D8s / 600 HP each



PRINCIPAL CHARACTERISTICS

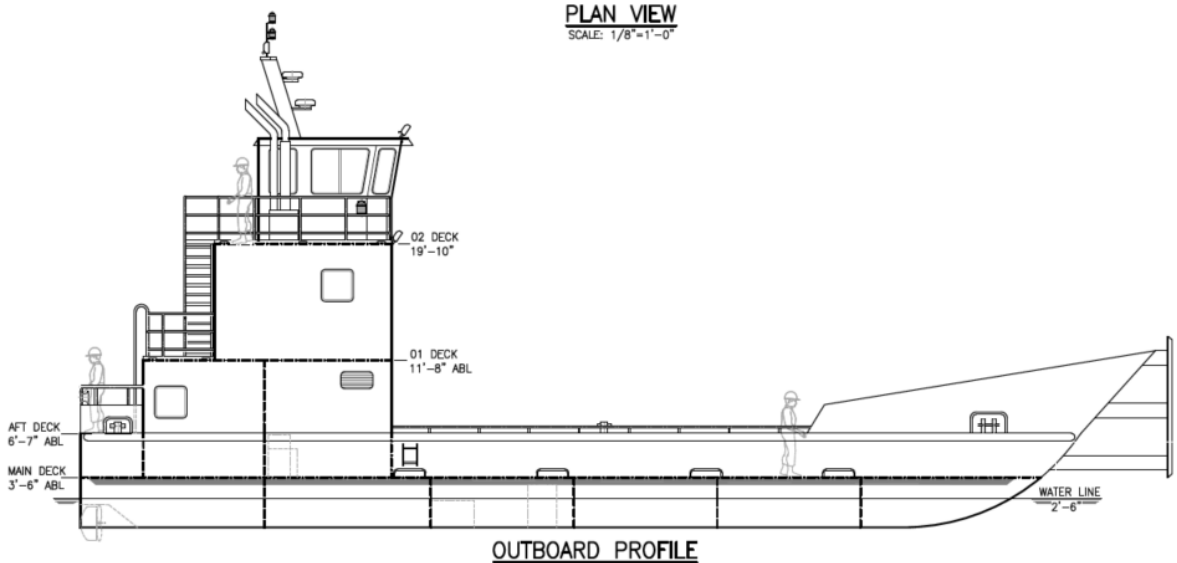
LENGTH, OVERALL	74'-6"
LENGTH, MOLDED	65'-4"
LENGTH, 2'-6" WL	64'-3"
BREADTH, OVER GUARDS	23'-0"
BREADTH, MOLDED	22'-1 1/2"
DEPTH, MOLDED AMIDSHIPS TO MAIN DECK	3'-1"
DRAFT, MOLDED (APPROX MAX. LOADED)	3'-1"
GROSS TONNAGE, US REGULATORY	81 GRT

CAPACITIES: (APPROXIMATE)

FUEL OIL (98%)	5,585 GAL
HYDRAULIC OIL	118 GAL
FRESH WATER	700 GAL
SEWAGE HOLDING TANK	65 GAL

PLAN VIEW

SCALE: 1/8"=1'-0"



OUTBOARD PROFILE

SCALE: 1/8"=1'-0"

PRELIMINARY

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
P.O. Box 21668
Juneau, AK 99802-1668

January 29, 2024

Amanda Pereira
Environmental Program Officer
Office of Internet Connectivity and Growth (OICG)
National Telecommunications and Information Administration
U.S. Department of Commerce Room 4874
1401 Constitution Avenue, NW Washington, DC 20230

Re: AU-Aleutian II Fiber Optic Cable Installation Project, NT22TBC0290091

Dear Ms. Pereira:

Thank you for notifying us about the above referenced project from Unicom, Inc. in a letter dated December 21, 2023. The purpose action would provide funding to support the installation of fiber optic cable from an existing undersea cable to bring high-speed internet to seven remote villages. Five of the communities are on the Alaska Peninsula and two communities are within the Kodiak Archipelago. The proposed scope of work for this funding action includes 109 miles of submerged cable laid on or buried in the seafloor and within the tidally-influenced reaches of anadromous streams.

Section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act and the Fish and Wildlife Coordination Act requires federal agencies to consult with us on all actions that may adversely affect essential fish habitat (EFH) and other aquatic resources. The EFH consultation process is guided by the requirements of our EFH regulation at 50 CFR 600 Subpart K, which mandates the preparation of EFH assessments and generally outlines each agency's obligations in this consultation process. In support of this consultation process, you provided a notice of the proposed action and your agency's conclusion regarding impacts on EFH. We offer the following comments on this project pursuant to the above referenced regulatory process.

Essential Fish Habitat

The North Pacific Fishery Management Council has identified EFH for nearshore marine waters in the vicinity of the project footprint for Chinook, chum, coho, pink, and sockeye salmon (NPFMC 2021). The Alaska Department of Fish and Game's Anadromous Waters Catalog identifies 11 anadromous streams in the vicinity of the proposed new fiber optic cable installation. These streams support runs of all five species of Pacific salmon (Giefer and Graziano 2023). Juvenile salmon use nearshore habitat during spring and early summer for feeding and predator avoidance prior to migration out to sea.

The proposed project location is also designated as EFH for species of groundfish such as Sablefish and multiple species of rockfish (NPFMC 2020). Additional location-specific

information on the presence of nearshore fish can be found on the Nearshore Fish Atlas (NMFS 2021.

Assessment of Effects to EFH

Your agency has concluded that the proposed project activity may adversely affect EFH in the project area. You also concluded those effects would be minimal and temporary in nature. The EFH final rule published in the Federal Register on January 17, 2002, defines an adverse effect as "any impact which reduces the quality and/or quantity of EFH" (50 CFR 600.810(a)). Based on our review of the project plans and the information provided, we agree with your conclusion that these potential adverse effects to EFH would be minimal and temporary in nature if your identified conservation recommendations and best management practices are implemented. Therefore, we have no conservation recommendations for the proposed action and additional EFH consultation is not necessary.

We appreciate the opportunity to comment on this action. Significant changes to the project may require reinitiating a consultation. Additional information regarding the EFH consultation process can be found in our EFH Fact Sheet and our Regional website, where you can find FAQs. Lucas Byker, lucas.byker@noaa.gov, is available to answer questions or discuss further actions.

Sincerely,

Catherine Coon
Assistant Regional Administrator
Habitat Conservation

cc: Stacy Korsmo, stacy.aughe@westonsolutions.com
Emily Creely, ecreely@dowl.gov
Andrew Bielakowski, andrew.bielakowski@firstnet.gov

References

Giefer, J., and S. Graziano. 2023. Catalog of waters important for spawning, rearing, or migration of anadromous fishes – Southwestern Region, effective June 15, 2023, Alaska Department of Fish and Game, Special Publication No. 23-05, Anchorage.

National Marine Fisheries Service (NMFS). 2021. NOAA Fisheries Nearshore Fish Atlas of Alaska database (alaskafisheries.noaa.gov/mapping/sz/index.html?tab=fa). Database was accessed (December 1, 2023).

North Pacific Fishery Management Council (NPFMC). 2021. Fishery Management Plan for the Salmon Fisheries in the EEZ off Alaska. Appendix A. Anchorage, Alaska, North Pacific Fishery Management Council

North Pacific Fishery Management Council (NPFMC). 2020. Fishery Management Plan for Groundfish of the Gulf of Alaska. Appendices D and E. Anchorage, Alaska, North Pacific Fishery Management Council.

From:	Korsmo (Aughe), Stacey
To:	Sean McDermott - NOAA Federal
Cc:	Emily Creely; Larson, Meghan; NMennen@gci.com; CMiller3@gci.com; apereira@ntia.gov; andrew.bielakowski@firstnet.gov
Subject:	[EXT] Re: AU-Aleutian II Fiber Project Essential Fish Habitat Assessment Submittal
Date:	Wednesday, December 27, 2023 12:17:34 PM
Attachments:	image001.png image002.png image003.png image004.png image005.png image006.png

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Thank you, Sean. Extending the comment period to January 30 would be fine. I hope you all are having a wonderful holiday season.

Kind regards,
Stacey

Get Outlook for iOS

From: Sean McDermott - NOAA Federal <sean.mcdermott@noaa.gov>
Sent: Wednesday, December 27, 2023 9:46:50 AM
To: Korsmo (Aughe), Stacey <Stacey.Aughe@WestonSolutions.com>
Cc: Emily Creely <ecreely@dowl.com>; Larson, Meghan <Meghan.Larson@WestonSolutions.com>; NMennen@gci.com <NMennen@gci.com>; CMiller3@gci.com <CMiller3@gci.com>; apereira@ntia.gov <apereira@ntia.gov>; andrew.bielakowski@firstnet.gov <andrew.bielakowski@firstnet.gov>
Subject: Re: AU-Aleutian II Fiber Project Essential Fish Habitat Assessment Submittal

Stacy,
Thank you for reaching out regarding the subject project and associated EFH assessment. Apologies for the delayed response. I have been out of the office. Per the regulations we have 30 days to comment once the action agency (or non-federal representative) provides the EFH assessment. As you likely know, the week between Christmas and New Years is typically used for vacation, which takes up a good deal of the comment period. What is your timeframe completing this consultation? Is it possible to extend the comment period to January 30?
-Sean

On Thu, Dec 21, 2023 at 5:33 PM Korsmo (Aughe), Stacey <Stacey.Aughe@westonsolutions.com> wrote:

> Good afternoon, Mr. McDermott,
>
> On behalf of Unicom, Inc. please find attached Essential Fish Habitat Assessment prepared for the AU-Aleutian II Fiber Project. Unicom proposes to build on the AU-Aleutian I Fiber Project which is in the process of connecting the communities of Larsen Bay, Chignik Bay, Sand Point, King Cove, Akutan, and Unalaska. The AU-A II Project proposes to connect

the additional communities of Chignik Lagoon, Chignik Lake, Cold Bay, False Pass, Perryville, Ouzinkie, and Port Lions to the existing subsea fiber backbone. Installation of the FOC has potential to affect Essential Fish Habitat for a variety of species and lifestages. Weston Solutions was designated as the non-Federal representative of the National Telecommunications and Information Administration (NTIA) for the purposes of EFH consultation under the Magnuson-Stevens Fishery Conservation and Management Act in a letter from Amanda Pereira, dated 12 October 2023 (attached). Please let me know if you have any questions upon review of this EFH Assessment.

Kind Regards,

Stacey Korsmo

Working part-time: Monday - Wednesday

Stacey Korsmo

Senior Project Scientist

(907) 301-5815 Stacey.Aughe@WestonSolutions.com

Environmental and Infrastructure Solutions

--
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NATIONAL MARINE FISHERIES SERVICE

ESSENTIAL FISH HABITAT ASSESSMENT

FOR

AU-ALEUTIAN II FIBER OPTIC CABLE INSTALLATION PROJECT

BERING SEA, ALASKA

Prepared for
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2550 Denali Street, Suite 1000
Anchorage, AK 99503

Prepared by
Weston Solutions, Inc.
101 W. Benson Blvd., Suite 312
Anchorage, AK 99503

December 2023

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ACRONYMS AND ABBREVIATIONS

ac	acre(s)
ADF&G	Alaska Department of Fish and Game
AU-A I	AU-Aleutian I Fiber Project
Project	AU-Aleutian II Fiber Project
BMH	beach man-hole
BMPs	best management practices
BSAI	Bering Sea and Aleutian Islands
CFR	Code of Federal Regulations
CLS	cable landing station
cm	centimeter(s)
cu ft.	cubic foot/feet
cu m	cubic meter(s)
DP	dynamic positioning
EBS	Eastern Bering Sea
EEZ	Exclusive Economic Zone
EFH	Essential Fish Habitat
EFHA	Essential Fish Habitat Assessment
ESA	Endangered Species Act of 1973
FMP	Fishery Management Plan
FOC	fiber optic cable
ft	foot/feet
ft^3	cubic feet
GCI	GCI Communications Corp.
GOA	Gulf of Alaska
HAPC	Habitat Areas of Particular Concern
in	inch(s)
kg	kilogram(s)
km	kilometer(s)
kW	Kilowatt
lbs	pounds
m	meter(s)
m^3	cubic meters
MHW	mean high water
mi	mile(s)
MLW	mean low water
MLLW	mean lower low water
MSA	Magnuson-Stevens Fishery Conservation and Management Act
nm	nautical mile(s)

NMFS	National Marine Fisheries Service
NPFMC	North Pacific Fishery Management Council
NTIA	National Telecommunications and Information Administration
OHW	ordinary high water
PDES	Pollutant Discharge Elimination System
Unicom, Inc.	Unicom
USACE	United States Army Corps of Engineers

1. INTRODUCTION

In 2021, with support from the U.S. Department of Agriculture Rural Development, Unicom, Inc. (Unicom), a wholly owned subsidiary of GCI Communications Corp. (GCI), installed a nearly 800-mile subsea fiber optic cable (FOC) to extend broadband service to six remote communities for the AU-Aleutians (AU-A I) fiber project.

Unicom, on behalf of the Native Village of Port Lions and with support from the National Telecommunications and Information Administration (NTIA) Tribal Broadband Connectivity Program, proposes to extend the AU-A project through Phase II and bring high-speed internet service to approximately 800 people in seven remote Alaska Native villages for the first time.

The AU-A II Fiber Project (Project) builds on the AU-A I project by connecting communities to its existing subsea fiber backbone. The AU-A I project is currently in the process of connecting Larsen Bay, Chignik Bay, Sand Point, King Cove, Akutan, and Unalaska. This Project proposes to connect the communities of Chignik Lagoon, Chignik Lake, Perryville, Cold Bay, False Pass, Ouzinkie, and Port Lions. The extent of the AU-A I and AU-A II Projects is displayed in Figure 1.

The Project would consist of approximately 176 kilometers (km; 109 miles [mi]) of submerged (laid on the seafloor) FOC. Portions of the cable within 298.8 meters (m; 980 feet [ft]) may be buried. Unicom anticipates initiating terrestrial activities in May 2024, initiating and completing marine activities in June 2024, and completing the Project in Fall 2025.

The Project requires a permit from the United States Army Corps of Engineers (USACE), Alaska District under Section 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act. NTIA would act as the lead federal agency for purposes of compliance with the National Environmental Policy Act and the Endangered Species Act of 1973 (ESA). Under the Magnuson-Stevens Fishery Conservation and Management Act (MSA), NTIA is required to consult with National Marine Fisheries Service (NMFS) regarding potential impacts on Essential Fish Habitat (EFH). The NTIA has designated Ms. Meghan Larson and Ms. Stacey Korsmo of Weston Solutions as the non-Federal representatives to conduct the EFH consultation.

An EFH Assessment (EFHA) is prepared to assist the consulting agencies with the consultation requirements of the MSA if EFH is present within or near the Project area. An EFHA was submitted to NMFS during EFH consultation for the AU-A I Project. Consultation for the AU-A I Project will be re-initiated to include the two new branch segments (to Ouzinkie and Port Lions). This EFHA was originally prepared by Unicom on behalf of the USACE. It is hereby updated on behalf of Unicom to include a description of the proposed Project and relevant new scientific information on potentially affected EFH occurring in the Project area.

The proposed Project would service the communities of Ouzinkie and Port Lions in addition to communities of Chignik Lagoon, Chignik Lake, Perryville, Cold Bay, and False Pass which were proposed under the AU-A I Project but not constructed (Figure 1). The previously-proposed branch segments were included in the EFH consultation for the AU-A I Project.

The proposed Project is located within an area designated as EFH under the MSA in four Fishery Management Plans (FMPs): the FMP for the Salmon Fisheries in the Exclusive Economic Zone (EEZ) off Alaska (NPFMC 2021), the FMP for Groundfish of the Bering Sea and Aleutian Islands (NPFMC 2020), the FMP for Groundfish of the Gulf of Alaska (GOA) (NPFMC 2020), and the FMP for the Scallop Fishery

off Alaska (NPFMC 2014). EFH is defined in the MSA as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." EFH is identified as the distribution of 95 percent of the species population, for a particular life stage, if life history data are available for the species, and includes all areas of suitable habitat where the life stages are found within the stated geographic areas. The FMPs identified and the National Marine Fisheries Service's (NMFS) EFH Web Mapping Tool (NOAA Fisheries 2023a) were used to determine EFH present within and adjacent to the Project area.

Of the species which are federally managed under these plans, a total of 47 occur in the Project area, including 19 species of rockfish, 3 species of sculpin, 5 species of salmon, 9 species of sole or flounder, 3 species of skate, octopus, squid Atka mackerel, pacific cod, Pacific ocean perch, sablefish, walleye pollock, and weathervane scallop. Table 1 presents species and relevant lifestages for which EFH has been identified within the Project area for each branch segment.

Because this Project has the potential to affect EFH in the Project area, this EFHA has been prepared for consultation purposes under CFR (Code of Federal Regulations) 600.920(h)(2) – Abbreviated Consultation Procedures. Abbreviated consultations should be used when the action does not qualify for a General Concurrence but does not have the potential to cause substantial adverse effects on EFH. Potential effects on EFH as a result of activities associated with the Project are expected to be no more than negligible and temporary.

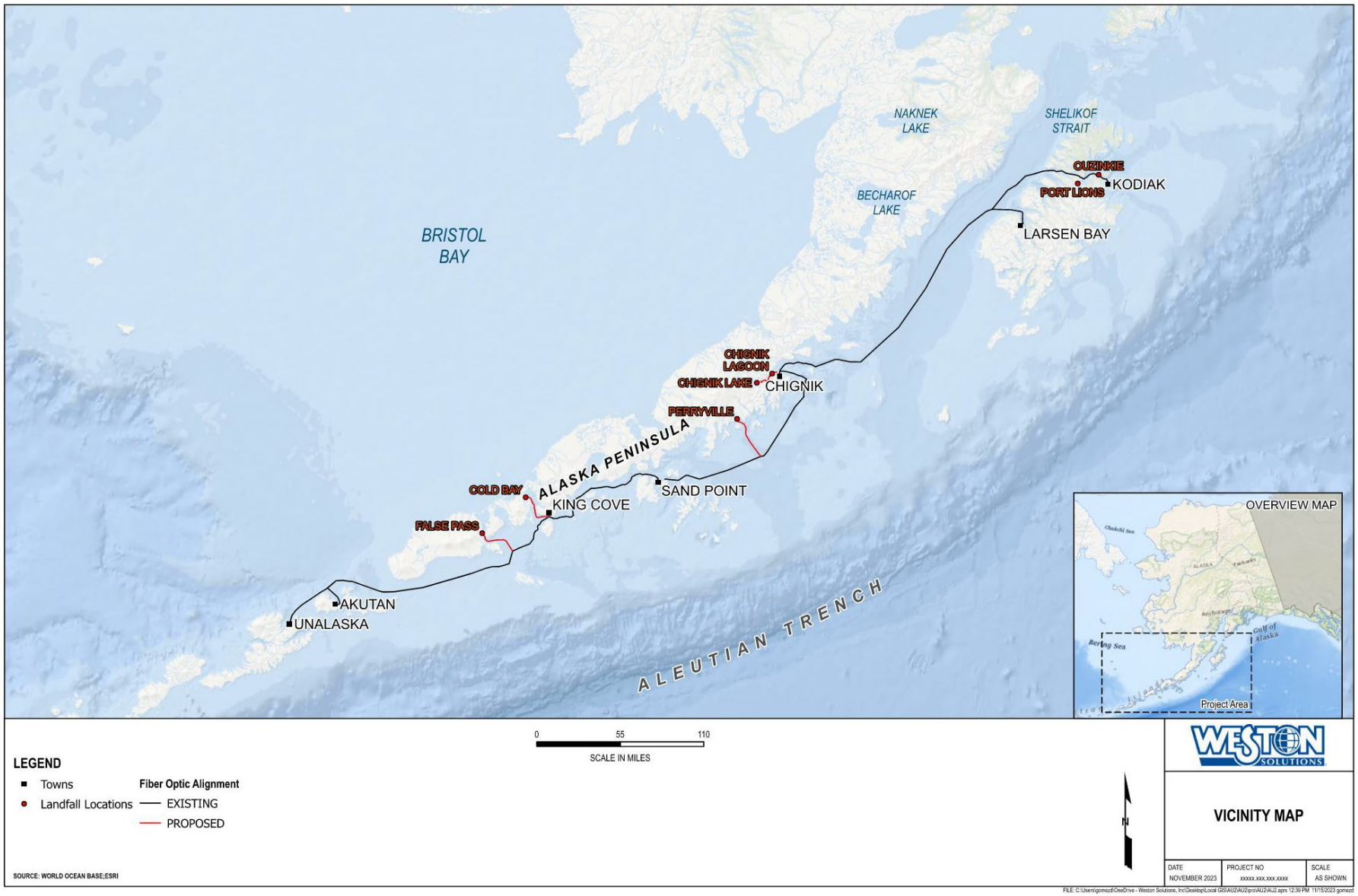


Figure 1. AU-Aleutian II Fiber Optic Cable Route with Existing and Proposed Landfall Locations

Table 1. Fisheries Management Plans (FMPs) and Managed Species Potentially Affected by the AU Aleutian-II Fiber Project[1,2,3,4]

Species	Location						
	Ouzinkie	Port Lions	Chignik Lagoon	Chignik Lake	Perryville	Cold Bay	False Pass
Rockfish Species[2]							
Black rockfish	A	A	A	-	A	A	-
Blackspotted rockfish	J	A, J	A, J	-	-	A,J	-
Dark rockfish	A	A	A	-	A	A	-
Dusky rockfish	A	A, J	A, J	-	A, J	A, J	-
Greenstriped rockfish	A	A	A	-	-	-	-
Harlequin rockfish	A, J	A, J	A, J	-	J	A	-
Longspine thornyhead rockfish	A	A	A	-	-	A	-
Northern rockfish	J	A, J	A, J	-	A, J	A, J	-
Pygmy rockfish	A	A	A	-	-	-	-
Quillback rockfish	A	A	A	-	A	A	-
Redbanded rockfish	A		A	-	A	A	-
Redstriped rockfish	A, J	J	A, J	-	-	A, J	-
Rosethorn rockfish	-	J	-	-	-	A	-
Rougheye rockfish	A	A	A	-	A	A	-
Sharpchin rockfish	A	A	A	-	A	A	-
Shortraker rockfish	A	A, J	A, J	-	J	A, J	-
Shortspine thornyhead rockfish	A	A	A	-	A	A	-
Silvergrey rockfish	J	J	J	-	J	J	-
Yelloweye rockfish	J	J	A, J	-	A	A, J	-
Sculpin Species[2]							
Bigmouth sculpin	A, J	J	A, J	-	A, J	A, J	-
Great sculpin	A, J	A, J	A, J	-	-	A, J	-
Yellow Irish lord	A, J	A, J	A, J	-	A, J	A, J	-
Salmon Species[3]							
Chinook salmon	A	IA	IA	-	A, IA	IA	A, IA
Chum salmon	A, IA, J	A, IA, J	A, IA, J	-	IA, J	A, IA, J	A, J
Coho salmon	A, J	A, J	A, J	-	J	A, J	A, J
Pink salmon	A, J	A, J	A, J	A	A, J	A, J	A
Sockeye salmon	A, J	A, J, L	IA, J	IA, J	IA, J	A, IA, J	A, IA, J
Sole and Flounder Species[2]							
Alaska plaice	A, L, E	A, L, E	A, L, E	-	A, L, E	A, L, E	-
Arrowtooth flounder	A, J	A, J	A, J	-	A, L, E	A, J	-
Dover sole	A, J, L, E	A	A	-	A, J, L	A, L	-
Flathead sole	A, J, E	A, J, L, E	A, J, L	-	A, L, E	A, J, L	-
Kamchatka flounder	A	A	A	-	A	A	-

Species	Location						
	Ouzinkie	Port Lions	Chignik Lagoon	Chignik Lake	Perryville	Cold Bay	False Pass
Northern rock sole	A, L	A, J, L	A, J, L	-	A, J, L	A, J, L	-
Rex sole	A, L, E	A	A	-	A, L	A, L, E	-
Southern rock sole	A, L	A, J, L	A, J, L	-	A, L	A, J, L	-
Yellowfin sole	A, J, E	A, J, E	A, J, E	-	-	A, J, E	-
Skate Species[2]							
Alaska skate	A, J	J	A, J	-	A, J	A, J	-
Aleutian skate	A	-	-	-	A	A	-
Bering skate	A, J	A	J	-	A, J	J	-
Others[2,4]							
Atka mackerel	A	A	A	-	A	A	-
Octopus	A	A	A	-	A	A	-
Pacific cod	A, J, L	A, J, L	A, J, L	-	A, L	A, J, L	-
Pacific ocean perch	A, L	-	A	-	A, L	A	-
Sablefish	A, J, L	A, J	A, J	-	J	A, J	-
Squid[5]	-	-	-	-	-	-	-
Walleye pollock	A, J, L	A, J, L	A, J, L, E	-	A, L, E	A, J, L, E	-
Weathervane scallop	A, J	A, J	-	-	-	-	-

[1]NMFS 2023
[2]NPFMC 2020
[3]NPFMC 2021
[4]NPFMC 2014
[5]Spatial data does not exist for this managed species.
A=adult; IA=immature adult; J=juvenile; L=larvae; E=egg

2. DESCRIPTION OF ACTIVITIES AND EXISTING ENVIRONMENT

The Project would extend broadband service to seven communities located from Kodiak to False Pass by placing approximately 176 km (109 mi.) of FOC on the ocean floor (Figure 1). The Project connects FOC from the existing subsea FOC backbone to each of the seven communities. The main cable would branch off to transmission sites located at Ouzinkie, Port Lions, Chignik Lake, Chignik Lagoon, Perryville, Cold Bay, and False Pass. The FOC would have a diameter up to 2.6 cm (1.02 in). In nearshore areas (within 298.8 m [980 ft.] of MLW), the FOC may be buried. In areas where burial is necessary, the burial depth would be no deeper than 0.9 m (3 ft.) and there would be no resulting side cast. Unicom anticipates initiating terrestrial activities in Spring 2024, initiating marine activities Summer 2024, and completing the Project by Fall 2025.

Figure 1 shows Project location, and Table 2 presents landing site coordinates.

Table 2. Landing Site Coordinates

Location	Latitude	Longitude
Ouzinkie	57.920577°	-152.501018°
Port Lions	57.863725°	-152.860244°
Chignik Lagoon	56.31084328°	-158.54006013°
Chignik Lake	56.26037124°	-158.70402045°
Perryville	55.91007222°	-159.14428056°
Cold Bay	55.19574691°	-162.69750980°
False Pass	54.85574800°	-163.40956004°

°=degrees

The Project would provide 2,500 megabits-per-second (Mbps) (approximately 2.5 gigabits per second) internet speeds and affordable, unlimited data plans to seven rural Alaska Native communities for the first time, supporting economic development and expansion of social services. The Project's seven isolated communities are neither connected by road nor an intertied electrical grid. Currently, the lack of broadband access limits economic development and efficiency of services delivered by health care providers, schools, and tribal entities.

The Project includes both aquatic and terrestrial components. The terrestrial components, which are located above mean high water (MHW), are not expected to affect fish or EFH (no freshwater impacts or crossings) and are not discussed further in this EFHA. All aquatic activity involving construction and the installation of the FOC will occur during ice-free periods in summer. No post-lay inspection and burial will be conducted. Once the FOC reaches land it will be routed directly to beach manholes (BMH).

2.1 METHODOLOGY

Each proposed landfall location will have a BMH to which the cable will connect from the sea. It will then be connected to a cable landing station (CLS) located further upland, where end users will be able to connect to a main line. All BMHs will occur above MHW (in marine areas) or OHW (ordinary high water, in freshwater areas). Some excavation for the trench connecting to the BMHs will occur in the intertidal area or below MHW/OHW, mostly on gravel and cobble beaches. Work below MHW or OHW may be necessary and could occur during either high or low tide; a portion of the work may be completed in-water.

Depending on the substrate and bathymetry of the approach to the landfall sites, intertidal or nearshore trenching may be necessary (Table 3). Trenching in smaller-grained substrates will use hand water jetting tools. The tools are similar to a fire hose that will spray on top of the cable to liquify the sediment below and allow the cable to sink through the slurry. Use of hand jetting tools will result in a temporary seafloor impact of approximately 0.3 m (1 ft) wide and 0.3 m (1 ft) deep.

Some trenching will also occur above MHW in the area adjacent to designated EFH using an excavator or backhoe. Best management practices (BMPs) from conditions of the USACE authorization will be implemented, including use of erosion and sediment control measures and revegetation of areas where vegetation is removed. Maps and photos depicting each of the seven landfall areas and the associated locations for proposed trenching and BMHs are provided in Figure 4 through Figure 17.

Table 3. AU Aleutian-II Fiber Project Dimensions and Seafloor Disturbance Footprint by Method

Project Element	Trenching Using Hand Jetting Tools (Intertidal Operations)				Subsea Lay Operations
	Estimated Width of Disturbance (m/ft)	Estimated Depth of Disturbance (m/ft)	Estimated Length of Disturbance (m/ft)	Estimated Volume of Disturbance (m^3/ft^3)	Cable Length (km/mi)
Ouzinkie	0.3/ 1.0	0.9/ 3.0	300/980	1,792/5,880	1.85/ 1.15
Port Lions	0.3/ 1.0	0.9/ 3.0	300/980	896/2,940	7.74/ 4.81
Chignik Lagoon	0.3/ 1.0	0.9/ 3.0	600/1960[a]	896/2,940	16.98/ 10.55
Chignik Lake	0.3/ 1.0	0.9/ 3.0	300/980	896/2,940	15.48/ 9.62 (4.8 km/ 3.0 mi in Chignik River)
Perryville	0.3/ 1.0	0.9/ 3.0	300/980	896/2,940	48.59/ 30.19
Cold Bay	0.3/ 1.0	0.9/ 3.0	300/980	896/2,940	42.13/ 26.18
False Pass	0.3/ 1.0	0.9/ 3.0	300/980	896/2,940	43.24/ 26.87
Project Total	-	-	2,390/7,840	7,169/23,520	176.01/ 109.37

[a]Two landings at Chignik Lagoon
M=meters; ft=feet; m^3=cubic meters; ft^3=cubic ft; km=kilometer; mi=miles

2.1.1 Intertidal Operations – Trench Installation

Intertidal FOC will be linked to a BMH, placed above MHW at a depth of no more than 1.2 m (4 ft) (excavation depth of up to 1.5 m [5 ft]). At each landfall location, the BMH will be setback from the adjacent waterbody with a conduit stub place above the MLW. Any work conducted below the high tide line will occur during low tide. From the BMH, the FOC will be routed to new CLS via three 5.1-centimeter (cm; 2-inch [in]) conduits buried 0.5 m (1.5 ft) below ground surface. Trenching for cable installation in intertidal areas at all locations, with the exception of work in the Chignik River, may include use of the following equipment: Rubber wheel backhoe, tracked excavator or backhoe, utility truck and trailer to deliver materials, chain trencher or cable plow (optional) hand tools such as shovels, rakes, pry bars, and wrenches, survey equipment, winch or turning sheave, splicing equipment, small genset, and splicing tent. Trenching would have a maximum width of 0.9 m (3 ft) and a maximum depth of 1.2 m (4 ft). Additionally, at each landfall location the following construction methods will apply:

- Any work below MHW will be performed during low tide.
- Heavy equipment will be placed on mats, with the exception of beaches with firm sediments, such as large cobbles or boulders (e.g. Ouzinkie, False Pass).
- No excess material that requires disposal is anticipated to be produced.
- Alterations of shorelines will be temporary, and trenches will be constructed and backfilled such that they do not act as a drain.

2.1.2 Riverine and Marine Operations

The following text describes operations that will occur in the marine environment, outside of intertidal areas. Over 99 percent of the FOC will be surface laid directly on the sea floor. In waters within approximately 91.4 m (300 ft) from MLW, the FOC will be buried by a diver using a hand-held water jet (maximum burial depth of 0.9 m [3 ft]).

Offshore (waters deeper than 15 m [49 ft]) cable-lay operations will be conducted from the main lay cable ship, *IT Integrity* (Figure 2). Details of the ship are provided in Appendix A. The ship is 115 m (377 ft) in length and 18 m (59 ft) in breadth, with berths for a crew of 76. The ship is propelled by two 2,200 Kilowatt

(kW) main engines. Dynamic positioning (DP) is maintained by two 750-kW gill thrusters, one aft and one forward. DP is used only as needed for safety – the frequency depends on weather and currents in the region. Average speed for surface laid cable is approximately 1.9 to 5.5 km/hour (1 to 3 knots).

Figure 2. Cable Laying Ship, *IT Integrity*

Main lay operations will involve placing the cable along the seafloor. Limited areas of burial via a diver-held water jet could occur in all locations within 300 m (980 ft) from MLW in the surf zone. Burial depth in these intertidal areas would not exceed 0.9 m (3 ft). For work in the Chignik River, FOC installation will not occur when water is not present in the channel and will be performed during periods of high water to the extent possible. In the nearshore marine and riverine environments, the following equipment may be used:

- Small utility boats (24.4-m and 12.2-m [80-ft and 40-ft] landing craft with shallow draft to run pull line from the *IT Integrity* to the beach (Figure 3). Each utility boat and the landing craft is equipped with an engine that is less than 3,000 horsepower,
- A dive boat, and
- Hand jetting tools.

Hand jetting is estimated to take approximately 1 day (12 hours) per location. For the Chignik River, the 24.4-m (80-ft) landing craft has a draft of 0.9 m (30 ft). A decision on whether the 24.4-m (80-ft) landing craft, *Free Reign* (Figure 3) can be used on the Chignik River will be made following a review of recent bathymetry data. If it is determined that the Free Reign's draft is too great, a smaller 12.2-m (40-ft) landing craft with a shallower draft will be used.

Figure 3. 80-foot Landing Craft Vessel, *Free Reign*

2.2 BRANCH SEGMENT LANDING DETAILS

A description of the type of substrate that will be encountered during trenching at each landing approach or beach is provided in Table 4. Aerial maps depicting each of the seven landfall areas and the associated locations for proposed trenching and BMHs are provided in Appendix B.

Table 4. AU Aleutian-II Fiber Project Landing Location Descriptions

Landing	Summary of Intertidal/ Beach Substrate Composition
Ouzinkie	riprap
Port Lions	cobbles and gravels
Chignik Lagoon	poorly sorted aggregate ranging in size from glacial flour to boulder
Chignik Lake	compacted aggregate ranging in size from silt to gravel
Perryville	black sand
Cold Bay	unconsolidated sandy muds; fine, medium sized sand with gravel
False Pass	cobbles and gravels

2.2.1 Ouzinkie Segment

The landing in Ouzinkie (Figure 4 and Figure 5) is on the side of the city dock that supports the Alaska Marine Ferry and consists of rock fill to facilitate the dock area. The approach has sufficient water depth to allow the *IT Integrity* to stand off adjacent to the ferry dock and conduct a direct landing of the cable. Marine traffic in the area includes barges with supplies and fuel as well as the Alaska Marine Ferry ships and small to medium sized fishing boats.

Intertidal trenching in the rock fill (linear distance between mean high water (MHW) and mean lower low water MLLW) is estimated to be approximately 20 m (66 ft).

2.2.2 Port Lions Segment

The landing for the Port Lions cable is inside Wakefield Bay at Boat Beach (Figure 6 and Figure 7). The bay is used for the Alaska Sate Ferry route and includes a small boat ramp at boat beach to launch small fishing boats. The bay and beach consist of mixed gravels and sands with numerous rock outcrops along the shoreline.

Intertidal trenching in boat beach (linear distance between MHW and MLLW) is estimated to be approximately 32 m (105 ft).

2.2.3 Chignik Lagoon Segment

The approach to the landing at Chignik Lagoon (Figure 8 and Figure 9) is comprised of poorly sorted aggregate ranging in size from glacial flour to boulder. Chignik Lagoon has shallow water, so vessel traffic is limited to small fishing vessels and local skiffs. Chignik Lagoon does not have a dock.

Intertidal trenching (linear distance between MHW and MLW) is estimated to be approximately 116.2 m (381.1 ft).

2.2.4 Chignik Lake Segment

Landfall at Chignik Lake (Figure 10 and Figure 11) is located on a small, informal boat launch at the end of the main access road. The beach consists mostly of compacted aggregate ranging in size from silt to gravel. There is a local salmon fishery but there are no docks, harbor, barge access, or boat haul-outs in Chignik Lake.

Intertidal trenching is approximately 4.5 m (14.8 ft). The landfall of the cable will use an open trench to expose the previously-buried conduit stub and to provide a safe path for the submarine cable from the conduit end to the MLW shoreline. The FOC will be laid in approximately 4.8 km (3 mi) of the Chignik River, AWC stream number 271-10-10310.

2.2.5 Perryville Segment

The landfall in Perryville (Figure 12 and Figure 13) is on the west side of the sand road above the MHW demarcation. Perryville has little to no marine infrastructure. There is no harbor or dock and the seabed fronting the community is too steep for anchoring. The approach is expected to be trench-able, as it consists mostly of fine black sand.

Intertidal trenching is approximately 70 m (229.8 ft). The landfall of the cable will use open trench to expose the previously buried conduit stub and to provide a safe path for the submarine cable from the conduit end to the MLW shoreline.

2.2.6 Cold Bay Segment

The landfall in Cold Bay (Figure 14 and Figure 15) is adjacent to the Landing Craft Pad. The approach is unconsolidated sandy muds with the beach being well sorted and comprised of fine to medium sized sand with gravel. Cold Bay has light vessel traffic and does not see commercial fishing activity.

Intertidal trenching is approximately 25 m (82.3 ft). The landfall of the cable will use open trench to expose the previously buried conduit stub and to provide a safe path for the submarine cable from the conduit end to the MLW shoreline.

2.2.7 False Pass Segment

Landfall at False Pass (Figure 16 and Figure 17) is located approximately 26 km (16 mi) from Bristol Bay in Bechevin Bay and Isanotski Strait. The landing is located in the middle of the village just south of a small, unnamed stream. GCI staff have observed salmon in the stream, though it is not in the AWC (Giefer and Graziano 2023). The stream appears to have characteristics appropriate for salmonid rearing (low gradient, sufficient flow), and thus is assumed to be Pacific salmon EFH. The stream mouth lies approximately 79.2 m (260 ft) northwest of the BMH.

To the south of the BMH (approximately 122 m [400 ft] southeast), is an abandoned cannery and pile supported dock. The community has a variety of other existing marine infrastructure including a harbor with breakwater, a jetty, ferry terminal and other large docks, etc. The beach at the landfall location is mainly gravel and cobble.

Intertidal trenching is approximately 8.8 m (28.9 ft). The landfall of the cable will use open trench to expose the previously buried conduit stub and to provide a safe path for the submarine cable from the conduit end to the MLW shoreline.

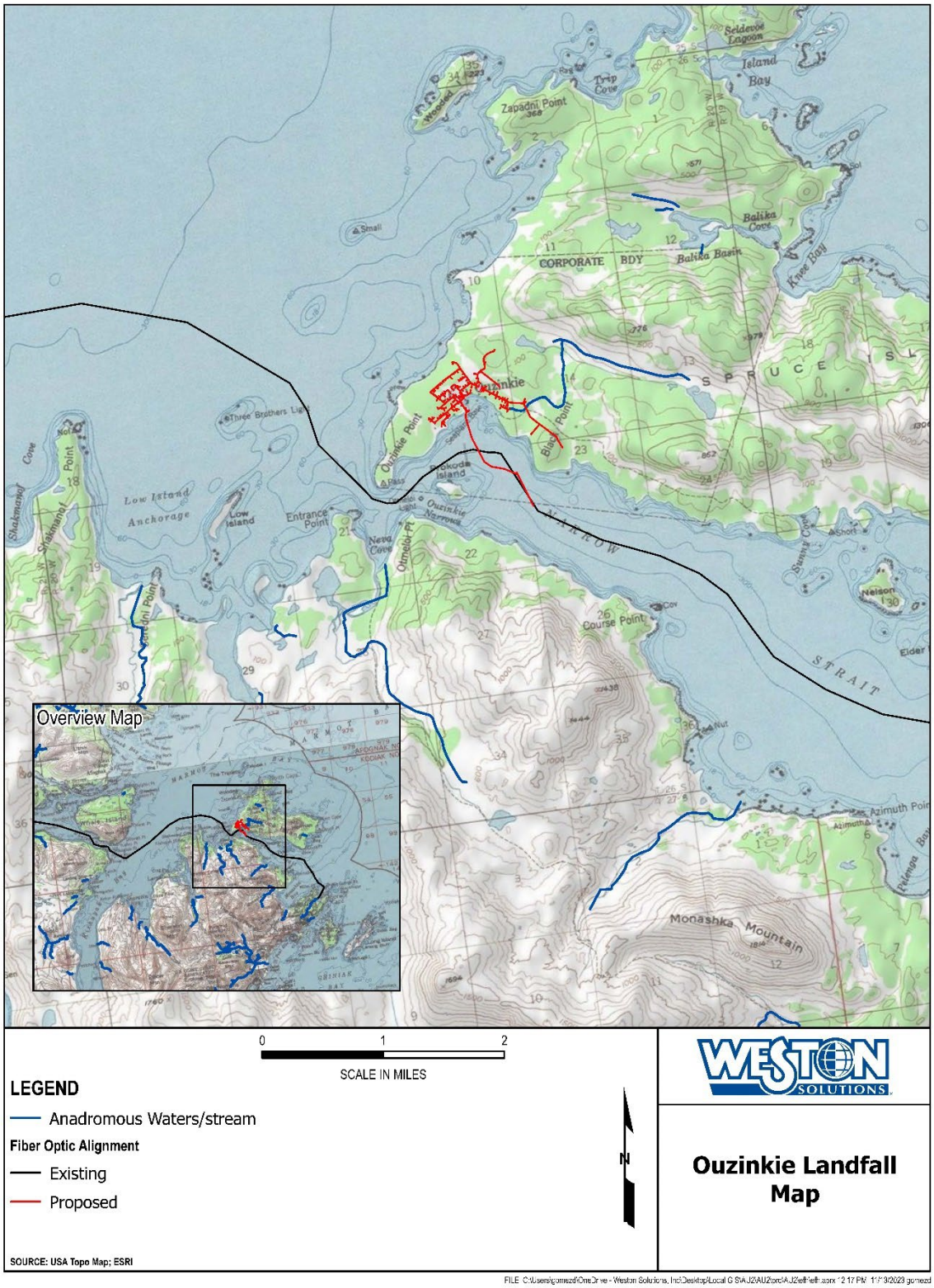


Figure 4. Ouzinkie Landfall Location

Figure 5. Ouzinkie Landing Site

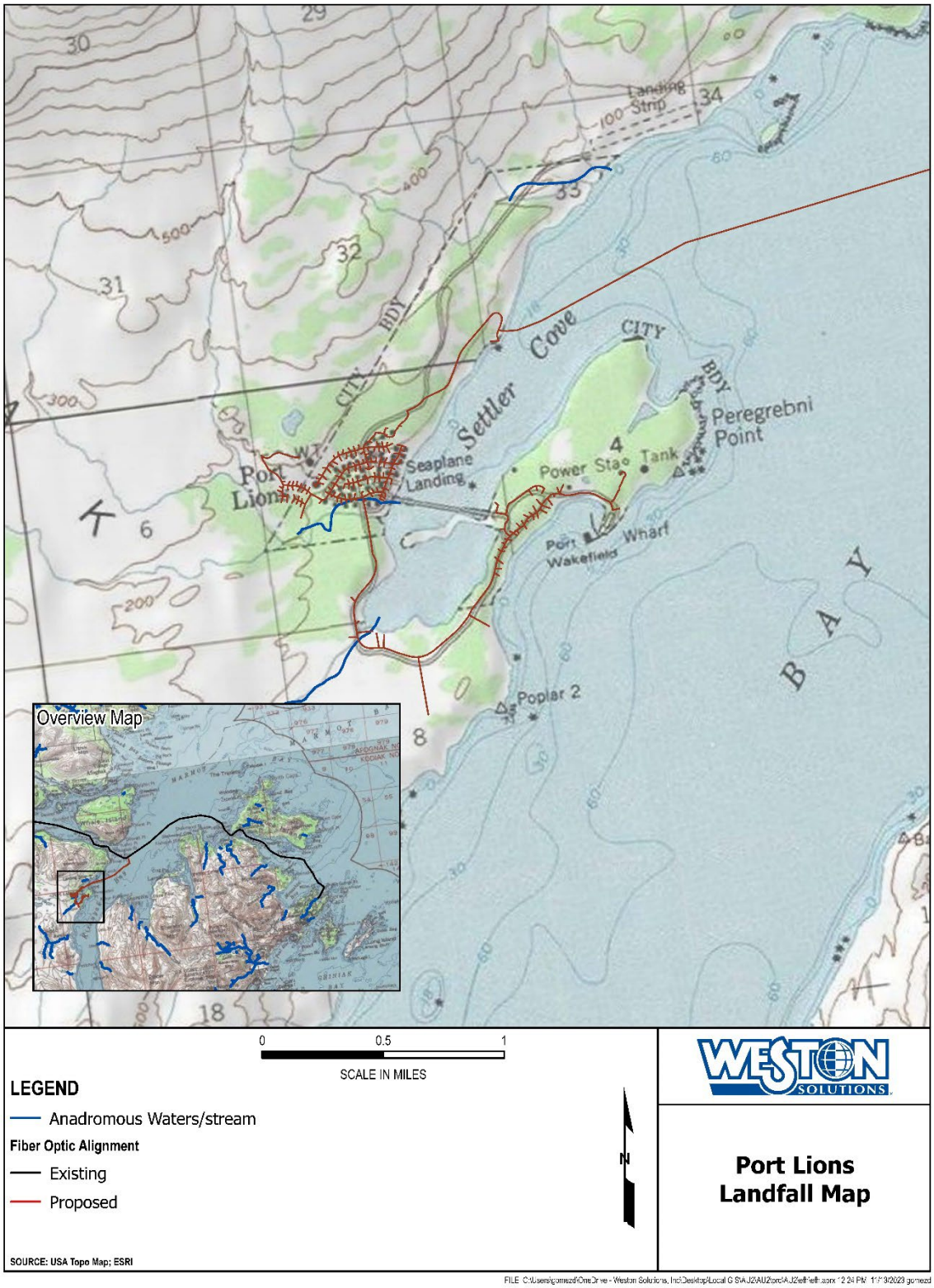


Figure 6. Port Lions Landfall Location

Figure 7. Port Lions Landing Site

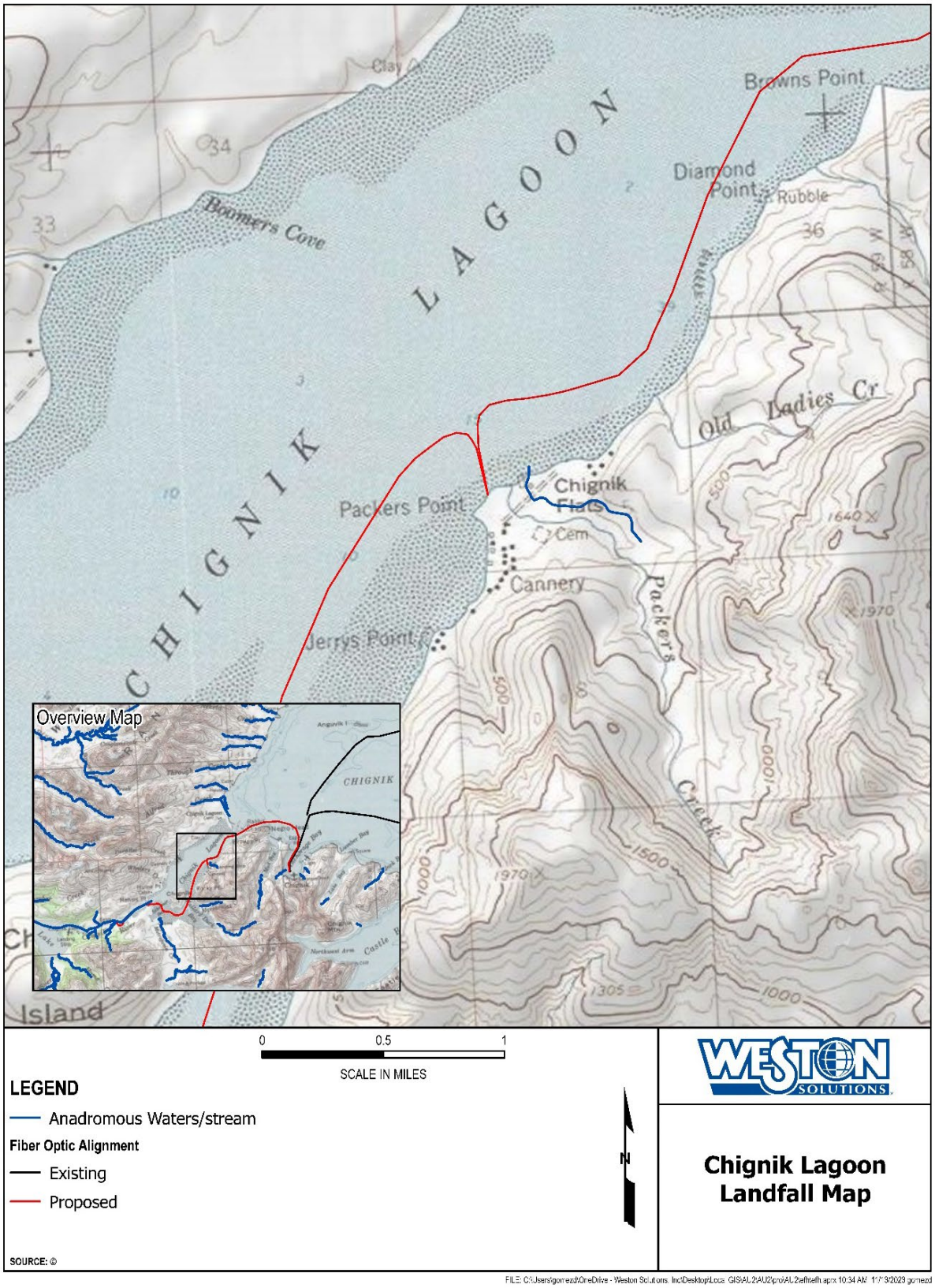


Figure 8. Chignik Lagoon Landfall Location

Figure 9. Chignik Lagoon Landing Site

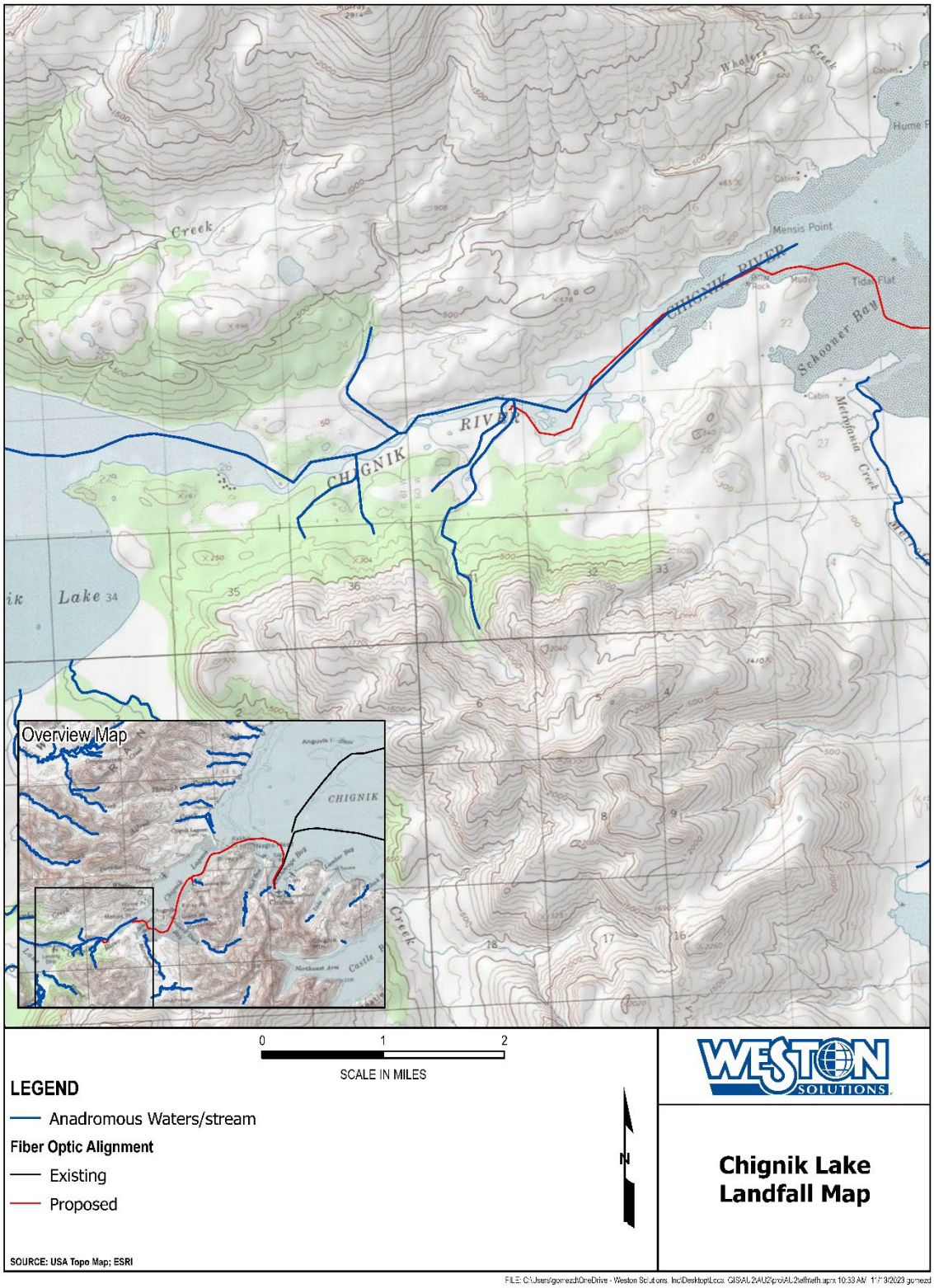


Figure 10. Chignik Lake Landfall Location

Figure 11. Chignik Lake Landing Site

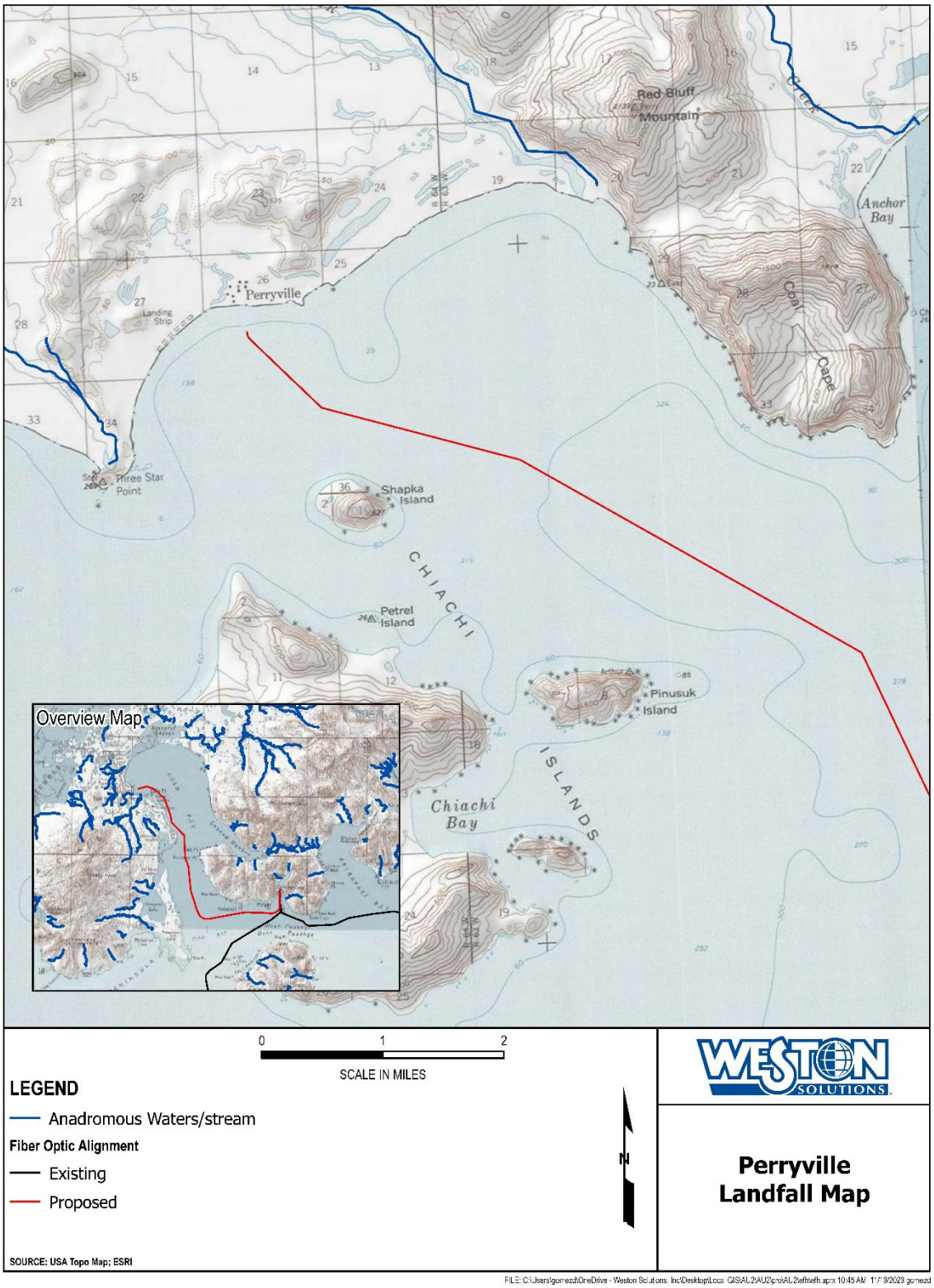


Figure 12. Perryville Landfall Location

Figure 13. Perryville Landing Site

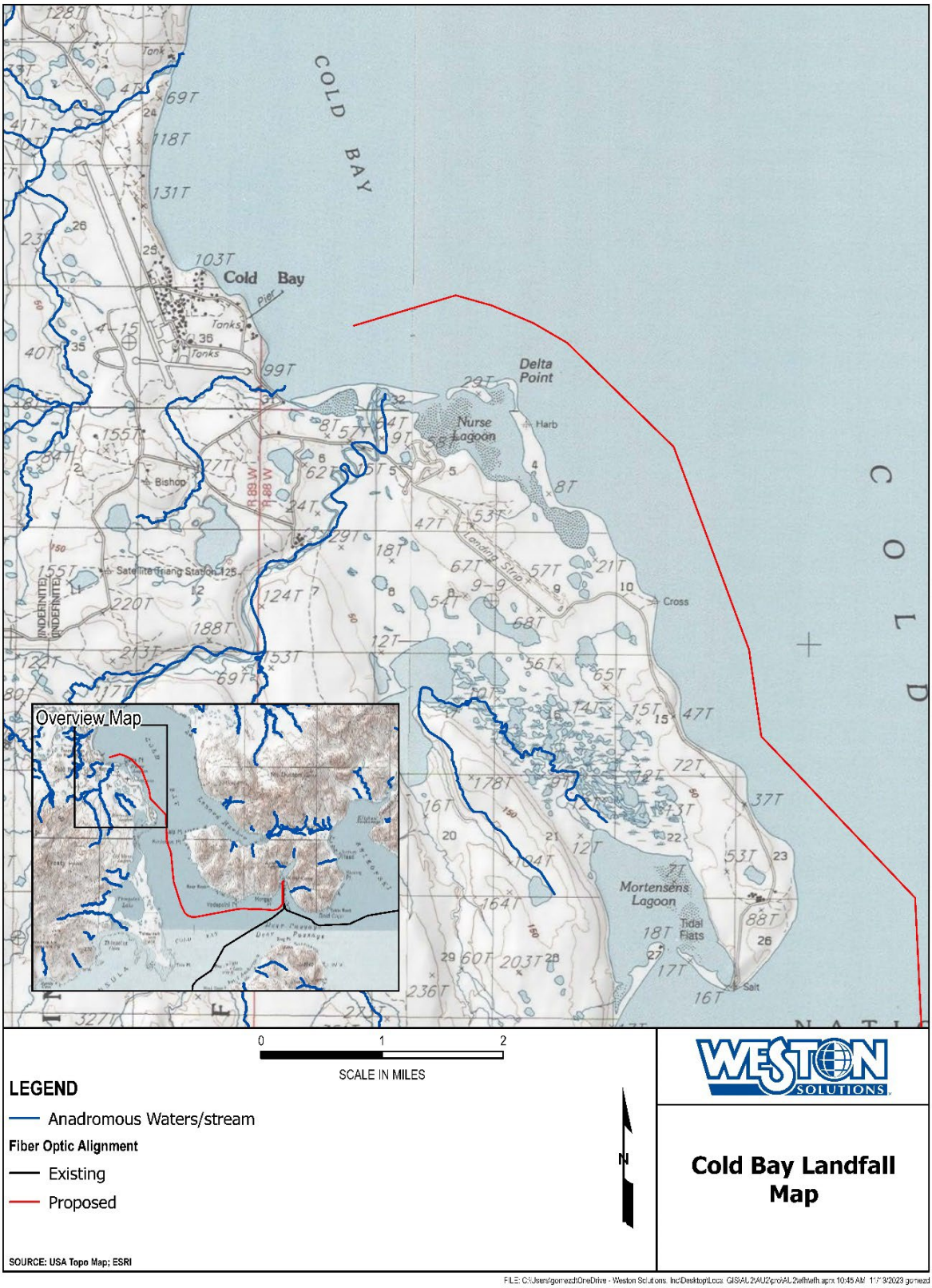


Figure 14. Cold Bay Landfall Location

Figure 15. Cold Bay Landing Site

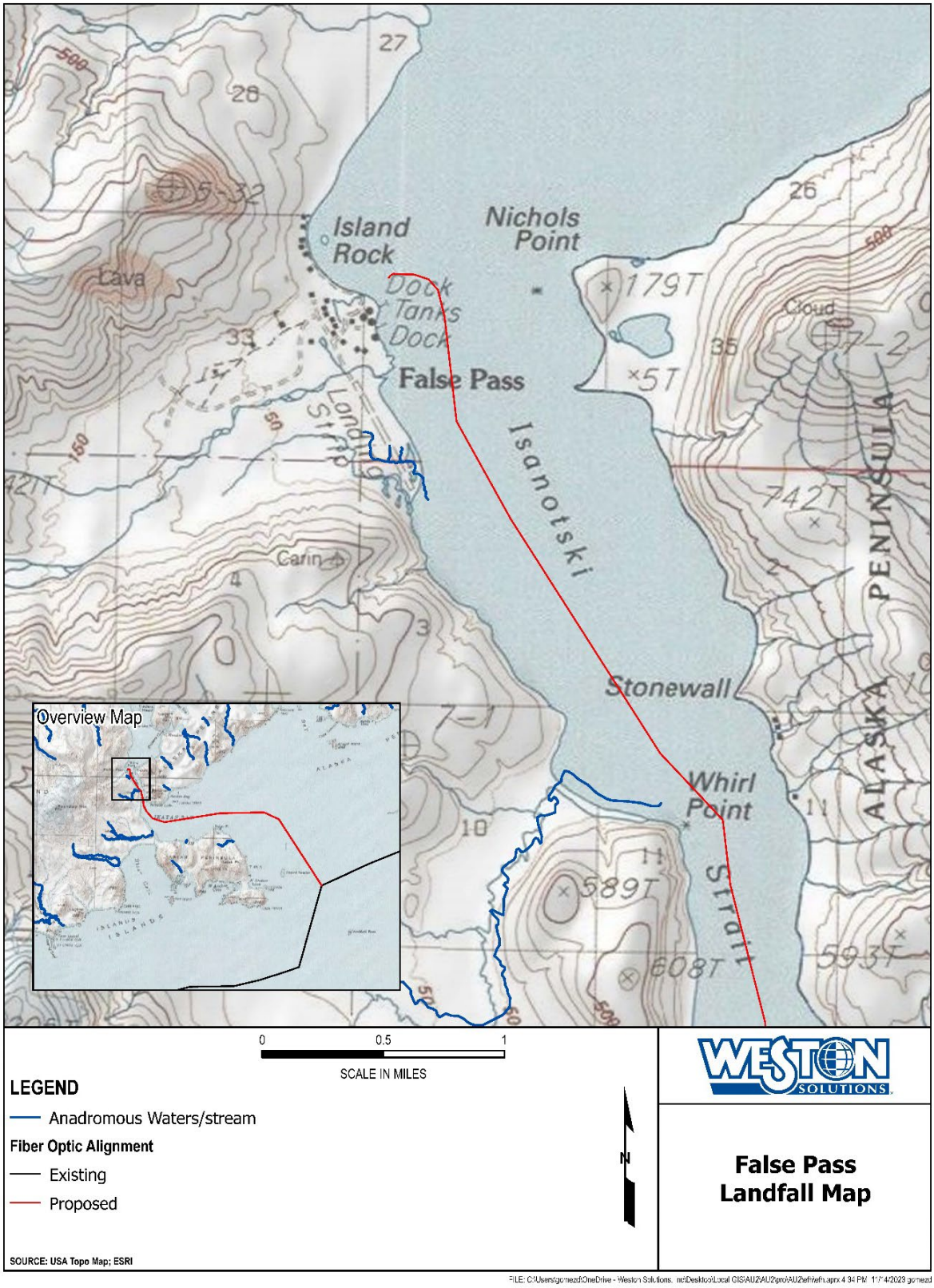


Figure 16. False Pass Landfall Location

Figure 17. False Pass Landing Site

2.3 PROJECT TIMELINE

The following anticipated construction schedule would be contingent upon receipt of permits and environmental authorizations:

- May 2024: Begin terrestrial FOC installation of BMHs in all communities.
- June 2024: Start and complete subsea FOC for Ouzinkie, Port Lions, Chignik Lagoon, Chignik Lake, Perryville, Cold Bay, and False Pass.
- Late Summer 2024: Begin terrestrial FOC installation for Ouzinkie and Port Lions.
- Fall 2024: Complete terrestrial FOC installation for Ouzinkie and Port Lions
- Summer 2025: Begin terrestrial FOC installation for Chignik Lagoon, Chignik Lake, Perryville, Cold Bay, and False Pass.
- Fall 2025: Complete terrestrial FOC installation in remaining communities.

Anticipated service dates for each community:

- Ouzinkie- Quarter 1, 2025
- Port Lions- Quarter 1, 2025
- Chignik Lagoon- Quarter 3, 2025
- Chignik Lake- Quarter 3, 2025
- Perryville-Quarter 3, 2025
- Cold Bay- Quarter 3, 2025
- False Pass- Quarter 3, 2025

3. DESCRIPTION OF ESSENTIAL FISH HABITAT BY SPECIES IN PROJECT AREA

The 1996 amendments to the MSA set forth a mandate for NMFS, regional Fishery Management Councils, and other Federal agencies to identify and protect EFH of economically important marine and estuarine fisheries. To achieve this goal, suitable fishery habitats need to be maintained. EFH was identified within the Project area in the Salmon and Groundfish FMPs (NPFMC 2021).

All freshwater documented to contain anadromous fish by ADF&G in the Anadromous Waters Catalogue (Giefer and Graziano 2023) are designated EFH. In addition to the Anadromous Waters Catalogue, life history and geographic information provided in the relevant FMPs and NMFS' EFH Mapping Tool (NMFS 2023) were used to determine the potential presence of EFH as defined for these species and their life stages within or adjacent to the Project area (Table 5).

Table 5. EFH Presence in the Project Area[1]

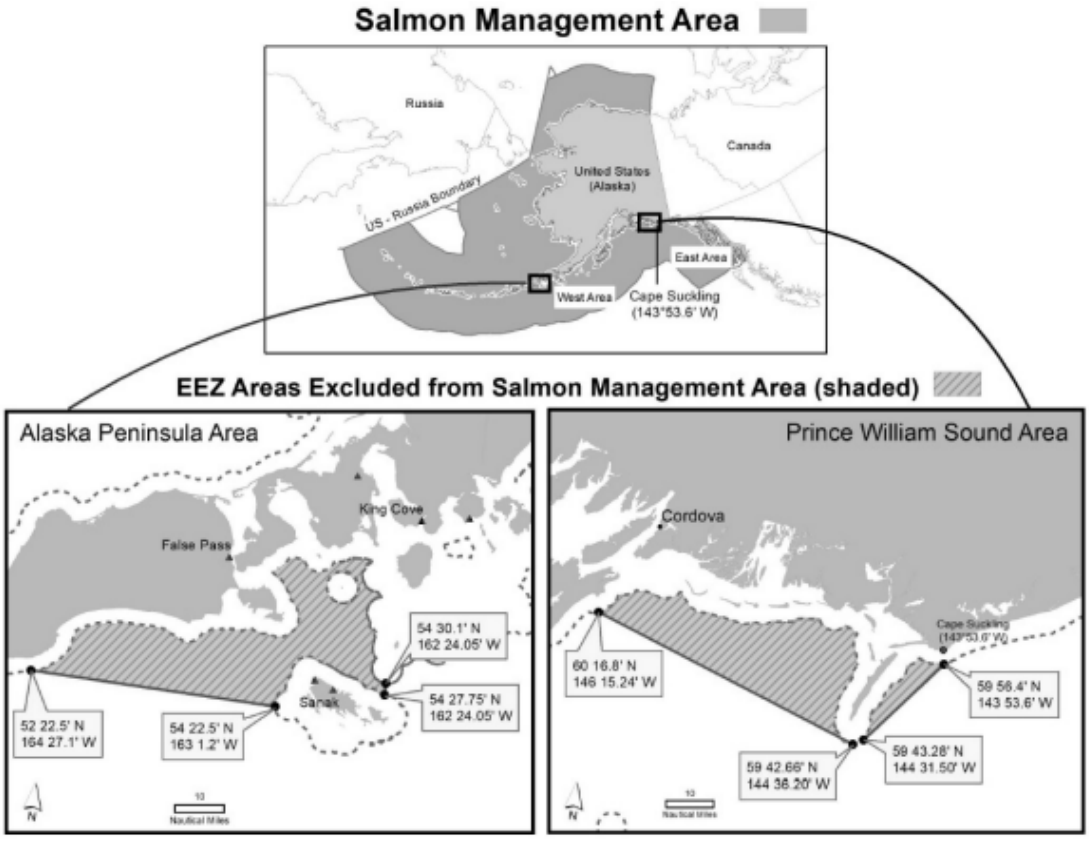
Species	*Common Name*	Designated EFH
Rockfish species[2]		
Black rockfish	*Sebastes melanops*	EFH widely distributed
Blackspotted rockfish	*Sebastes melanostictus*	EFH widely distributed
Dark rockfish	*Sebastes crameri*	EFH widely distributed
Dusky rockfish	*Sebastes ciliatus*	EFH widely distributed
Greenstriped rockfish	*Sebastes elongatus*	EFH widely distributed
Harlequin rockfish	*Sebastes variegatus*	EFH widely distributed
Longspine thornyhead rockfish	*Sebastulobus altivelas*	EFH widely distributed
Northern rockfish	*Sebastes polyspinis*	EFH widely distributed
Pacific ocean perch	*Sebastes alutus*	EFH widely distributed
Pygmy rockfish	*Sebastes wilsoni*	EFH widely distributed
Quillback rockfish	*Sebastes maliger*	EFH widely distributed
Redbanded rockfish	*Sebastes babcocki*	EFH widely distributed
Redstriped rockfish	*Sebastes proriger*	EFH widely distributed
Rosethorn rockfish	*Sebastes helvomaculatus*	EFH near Port Lions and Cold Bay
Rougheye rockfish	*Sebastes Aleutianus*	EFH widely distributed
Sharpchin rockfish	*Sebastes zacentrus*	EFH widely distributed
Shortraker rockfish	*Sebastes borealis*	EFH widely distributed
Shortspine thornyhead rockfish	*Sebastolobus alascanus*	EFH widely distributed
Silvergrey rockfish	*Sebastes brevispinis*	EFH widely distributed
Yelloweye rockfish	*Sebastes ruberrimus*	EFH widely distributed
Sculpin species[2]		
Bigmouth sculpin	*Hemitripterus bolini*	EFH widely distributed
Great sculpin	*Myoxocephalus polyacanthocephalus*	EFH widely distributed
Yellow Irish lord	*Hemilepidoyus spinosus*	EFH widely distributed
Salmon species[3]		
Chinook salmon	*Oncorhynchus tshawytscha*	EFH widely distributed
Chum salmon	*Oncorhynchus keta*	EFH widely distributed

Species	*Common Name*	Designated EFH
Coho salmon	*Oncorhynchus kisutch*	EFH widely distributed
Pink salmon	*Oncorhynchus gorbuscha*	EFH widely distributed
Sockeye salmon	*Oncorhynchus nerka*	EFH widely distributed
Flatfish species[2]		
Alaska plaice	*Pleuronectes quadrituberculatus*	EFH widely distributed
Arrowtooth flounder	*Atheresthes stomias*	EFH from False Pass to Unalaska
Kamchatka flounder	*Atheresthes evermanni*	EFH widely distributed
Dover sole	*Microstomus pacificus*	EFH from False Pass to Unalaska
Flathead sole	*Hippoglossoides elassodon*	EFH widely distributed
Northern rock sole	*Lepidopsetta polyxystra*	EFH widely distributed
Rex sole	*Glyptocephalus zachirus*	EFH from Port Heiden to Unalaska
Southern rock sole	*Lepidopsetta bilineata*	EFH widely distributed
Yellowfin sole	*Limanda aspera*	EFH widely distributed
Skate species[2]		
Alaska skate	*Bathyraja parmifera*	EFH widely distributed
Aleutian skate	*Bathyraja aleutica*	EFH widely distributed
Bering skate	*Beringraja binoculata*	EFH widely distributed
Others[2,4]		
Atka mackerel	*Pleurogrammus monopterygius*	EFH widely distributed
Octopus	*Octopus sp.*	EFH widely distributed
Pacific cod	*Gadus macrocephalus*	EFH widely distributed
Sablefish	*Anoplopoma fimbria*	EFH from False Pass to Unalaska
Squid	*Doryteuthis sp.*	EFH from False Pass to Unalaska
Walleye pollock	*Gadus chalcogrammus*	EFH widely distributed
Weathervane scallop	*Patinopecten caurinus*	EFH from False Pass to Unalaska

[1]NMFS 2023
[2]NPFMC 2020
[3]NPFMC 2021
[4]NPFMC 2014

3.1 SALMON FISHERY MANAGEMENT PLAN SPECIES

All five species of Pacific Salmon occur in the GOA (NPFMC 2021). The FMP prohibits commercial fishing for salmon in the West Area which includes the GOA, Cook Inlet EEZ subarea, Bering Sea, Chukchi Sea, and Beaufort Sea (Figure 18). It should be noted, there is one area near False Pass (shaded area) that is excluded from the management area.



Source: NPFMC 2021
*Shaded areas are excluded

Figure 18. FMP Salmon Management Area, Showing the East Area, the West Area, and the Two Areas Excluded from the Salmon Management Area

3.1.1 Pink Salmon (*Oncorhynchus gorbuscha*)

Pink salmon have the shortest lifespan (2 years) of the five Pacific salmon species found in Alaskan waters (ADF&G 2023a). The salmon fry migrate directly to estuarine and marine waters soon after hatching and spend little time in fresh water (ADF&G 2023a). Once in the ocean, pink salmon feed on plankton, other small fish, squid and occasionally aquatic insects (ADF&G 2023a). EFH for the marine juvenile and marine mature adult lifestages of pink salmon occur in or near the Project area along each of the six proposed FOC branch routes, with the exception of Chignik Lake, which only contains EFH for adult pink salmon.

Marine EFH for juvenile pink salmon is located in marine waters off the coast of Alaska from the mean higher tide line to the 370 km (200-nautical mile [nm]) limit of the U.S. EEZ, including the GOA, EBS, Chukchi Sea, and Arctic Ocean (NPFMC 2021). Juvenile pink salmon distribute within coastal waters along the entire shelf (0 to 200 m [0 to 656 ft]) from mid-summer until December; then migrate to pelagic waters (upper 50 m [164 ft]) of the slope (200 to 3,000 m [656 to 9,843 ft]) (NPFMC 2021). Marine EFH for immature and maturing adult pink salmon is located in marine waters off the coast of Alaska to depths of 200 m (656 ft) and range from the mean higher tide line to the 370-km (200-nm [nautical miles]) limit of the U.S. EEZ, including the GOA, EBS, Chukchi Sea, and Arctic Ocean. Mature adult pink salmon are present from fall through the mid-summer in pelagic waters (upper 50 m [164 ft]) of the slope (0 to 200 m [0 to 656 ft]) before returning to spawn in intertidal areas and coastal creeks and streams (NPFMC 2021).

3.1.2 Chum Salmon (*Oncorhynchus keta*)

Chum salmon range throughout Alaska (Alaska Department of Fish and Game [ADF&G] 2023b). Juvenile chum salmon spend several months near shore once they reach the sea before dispersing into the open ocean. The salmon grow rapidly on a diet of primarily copepods, tunicates, mollusks, and other fishes, and reach a size of 12 pounds (lbs; 5.4 kilograms [kg]) or more during their 3 to 4 years at sea (ADF&G 2023b). Juvenile, immature adult, and adult chum salmon EFH is located along the proposed FOC routes for Ouzinkie, Port Lions, Chignik Lagoon, and Cold Bay. EFH for adult and juvenile chum salmon is found along the proposed FOC route for False Pass.

Marine EFH for juvenile chum salmon is located in marine waters off the coast of Alaska to approximately 50 m (164 ft) in depth from the mean higher tide line to the 370-km (200-nm) limit of the EEZ, including the GOA, EBS, Chukchi Sea, and Arctic Ocean (NPFMC 2021). EFH for immature and maturing adult chum salmon is located in marine waters off the coast of Alaska to depths of 200 m (656 ft) and ranging from the mean higher tide line to the 370-km (200-nm) limit of the EEZ, including the GOA, EBS, Chukchi Sea, and Arctic Ocean (NPFMC 2021).

3.1.3 Sockeye Salmon (*Oncorhynchus nerka*)

Sockeye salmon spend 1 to 4 years in fresh water and 1 to 3 years in seawater (ADF&G 2023c). In drainage systems with lakes, sockeye juveniles spend 1 to 3 years in fresh water feeding on zooplankton and small crustaceans, whereas in systems without lakes the juveniles begin migrating to the ocean soon after hatching (ADF&G 2023c). EFH for Sockeye salmon, including adult, immature adult, and juvenile life stages occur in or near the Project areas of most of the branch FOC routes. Additionally, EFH for larval sockeye salmon occurs along the proposed Port Lions FOC route.

EFH for larval and juvenile sockeye salmon is located in those waters identified in ADF&G's Catalogue of Waters Important for the Spawning, Rearing, or Migration of Anadromous Fishes (Giefer and Graziano 2023) and contiguous rearing areas within the boundaries of OHW. Juvenile sockeye salmon require year-round rearing habitat. Fry generally migrate downstream to a lake or, in systems lacking a freshwater lake, to estuarine and riverine rearing areas for up to 2 years. Fry out migration occurs from approximately April to November and smolts generally migrate during the spring and summer (NPFMC 2021). Marine EFH for juvenile sockeye salmon located in marine waters off the coast of Alaska to depths of 50 m (164 ft) and range from the mean higher tide line to the 370-km (200-nm) limit of the U.S. EEZ, including the GOA, EBS, Chukchi Sea, and Arctic Ocean from mid-summer until December of their first year at sea (NPFMC 2021). EFH for immature and maturing adult sockeye salmon is located in marine waters off the coast of Alaska to depths of 200 m (656 ft) and ranges from the mean higher tide line to the 370-km (200-nm) limit of the U.S. EEZ, including the GOA, EBS, Chukchi Sea, and Arctic Ocean (NPFMC 2021).

3.1.4 Chinook Salmon (*Oncorhynchus tshawytscha*)

Chinook salmon hatch in fresh water and generally remain in main-channel river areas for approximately one year before migrating to the open ocean where they spend 1 to 5 years feeding (ADF&G 2023d). Juvenile Chinook salmon feed on a variety of fish, squid, and crustaceans while at sea (ADF&G 2023d). EFH for the adult and immature adult life stages of Chinook salmon occur in or near the Project area of most of the FOC routes (NPFMC 2021).

EFH for immature and maturing adult Chinook salmon is located in marine waters off the coast of Alaska, ranging from the mean higher tide line to the 370-km (200-nm) limit of the U.S. EEZ, including the GOA,

EBS, Chukchi Sea, and Arctic Ocean (NPFMC 2021). Marine mature Chinook salmon inhabit pelagic marine waters from January to September before migrating to freshwater systems (NPFMC 2021).

3.1.5 Coho Salmon (*Onchorhynchus kisutch*)

Coho salmon spend 1 to 2 years in freshwater and prefer nearshore feeding grounds. They typically travel less than 161 km (100 mi) from the mouth of the river that they inhabited as larvae. Eggs develop during the winter, hatch in spring and the embryos remain in the gravel living off their yolk sac until they emerge in May or June. EFH for Adult and juvenile coho salmon occurs in or near the Project area of all FOC branch routes, with the exception of Chignik Lake.

Marine EFH for juvenile coho salmon is the general distribution area for this life stage, located in marine waters off the coast of Alaska from the mean higher tide line to the 370-km (200-nm) limit of the U.S. EEZ, including the GOA, EBS, Chukchi Sea, and Arctic Ocean. Marine juvenile coho salmon inhabit these marine waters from June to September. EFH for adult Coho salmon is located in marine coastal waters of Alaska from the GOA and EBS to the Chukchi Sea (NPFMC 2021). Mature coho salmon remain in coastal marine waters for up to 18 months before returning to freshwater spawning grounds (ADF&G 2023e).

Freshwater EFH for adult coho salmon is the general distribution area for this life stage, located in freshwaters wherever there are spawning substrates consisting mainly of gravel containing less than 15 percent fine sediment (less than 2-millimeter diameter) from July to December.

The designated EFH for salmon species is shown in Figure 19.

3.2 GOA GROUNDFISH FISHERY MANAGEMENT SPECIES

The GOA has a variety of seabed types including gravelly sand, silty mud, sandy gravel and areas of hard rock (Hampton et al. 1986). Near Kodiak Island, the shelf habitat consists of flat relatively shallow banks cut by transverse troughs, whereas the shelf habitat near Amukta Pass consists of bedrock outcrops with coarsely fragmented sediment interspersed with sand bottoms (NPFMC 2020). The groundfish residing in these varied habitats are managed under the FMP for Groundfish of the GOA. Figure 20 depicts the management area of the FMP for Groundfish of the GOA. Descriptions of EFH for GOA groundfish and their various life stages that live in close proximity to the proposed FOC branch routes are provided below.

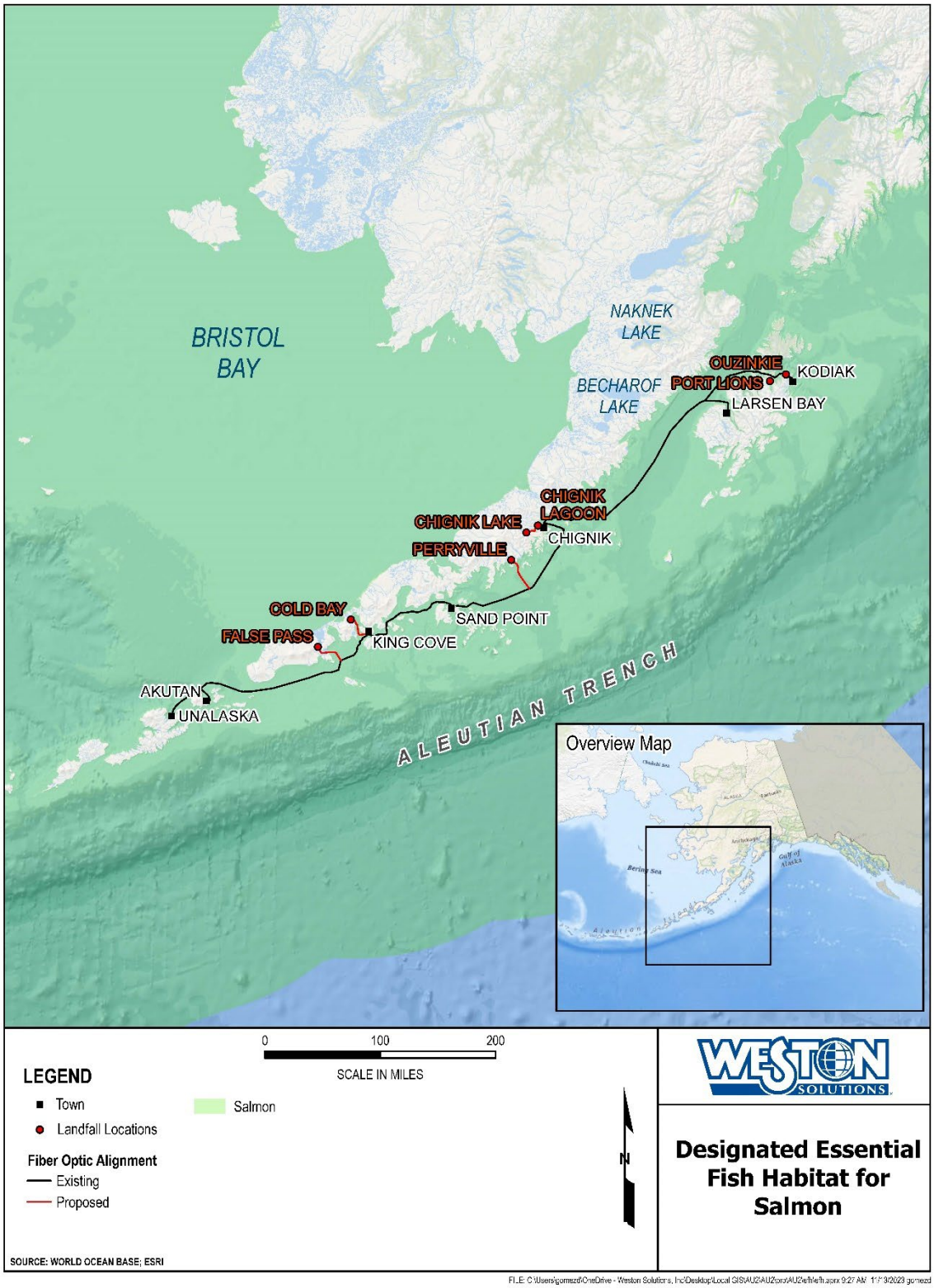
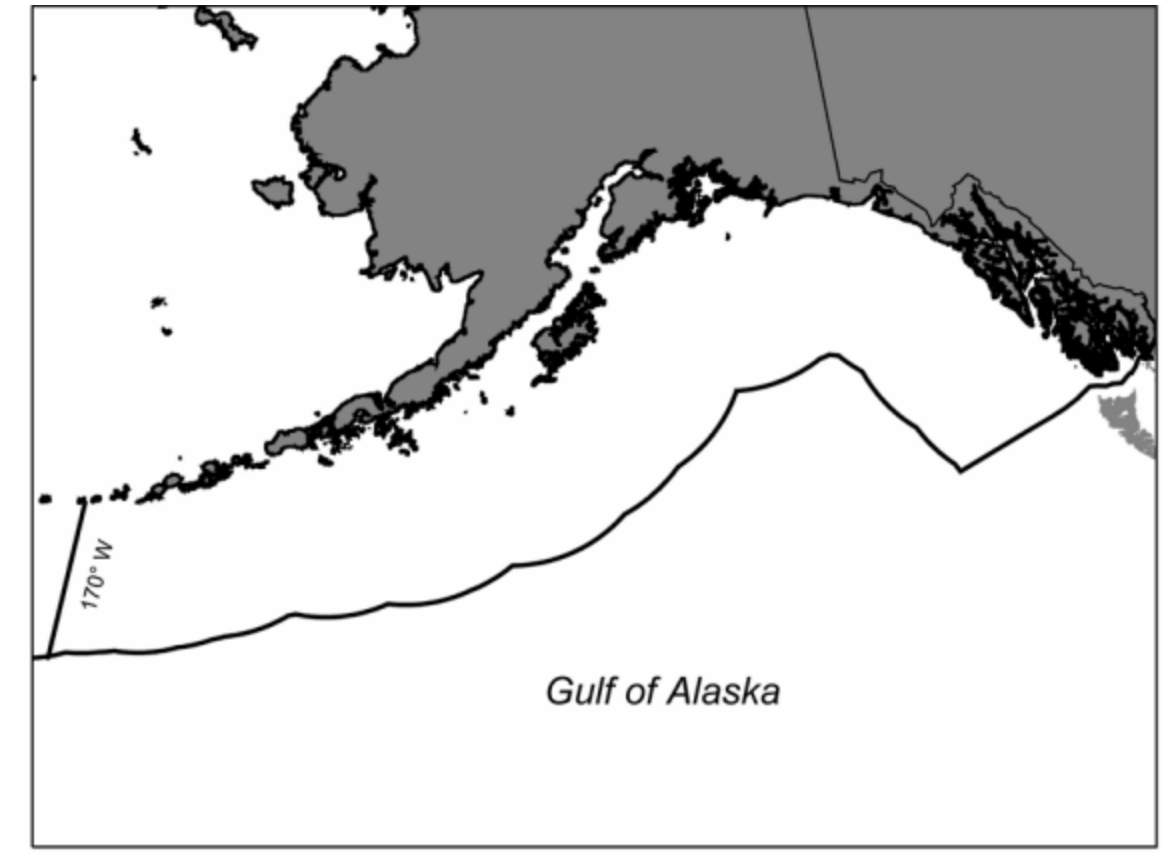


Figure 19. Designated Essential Fish Habitat for Alaskan Salmon Species



NPFMC 2020

Figure 20. Management Area for the Fishery Management Plan for Groundfish of the Gulf of Alaska

3.2.1 Rockfishes

Across all of the proposed FOC branch routes there are a total of 20 rockfish species with designated EFH in the GOA. The list of rockfish includes the following:

- Black rockfish
- Blackspotted rockfish
- Dark rockfish
- Dusky rockfish
- Greenstriped rockfish
- Harlequin rockfish
- Longspine thornyhead rockfish
- Northern rockfish
- Pacific ocean perch
- Pygmy rockfish
- Quillback rockfish
- Redbanded rockfish
- Redstriped rockfish
- Rosethorn rockfish
- Rougheye rockfish
- Sharpchin rockfish
- Shortraker rockfish
- Shortspine thornyhead rockfish
- Silvergrey rockfish
- Yelloweye rockfish

EFH is discussed in the GOA FMP for Groundfish for eight of the above listed rockfish species. The remaining rockfish species are described under the heading “other rockfish” in the descriptions below (NPFMC 2020).

3.2.1.1 Blackspotted (Sebastes melanostictus) and Rougheye Rockfish (S. aleutianus)

Blackspotted and Rougheye rockfish are found from Japan to California with the center of abundance appearing to be in Alaskan waters (Figure 21). They typically occur along the outer continental shelf and upper continental slope of the northeastern Pacific (NPFMC 2020a,b). EFH for both juveniles and adults occurs along proposed FOC branch routes, with the exception of Chignik Lake and False Pass. Chignik Lake and False Pass have no designated EFH for rockfish. Late juveniles of these species are generally found in the lower portion of the water column along the inner, middle outer shelf and upper slope, whereas adult blackspotted and rougheye rockfish are found in the lower water column along the outer shelf and upper slope regions (NPFMC 2020).

3.2.1.1 Dusky Rockfish (S. ciliates)

Dusky rockfish are distributed through the North Pacific, in the western Aleutian Islands and EBS, through the GOA, to southeast Alaska, including south to Johnstone Strait, British Columbia (Figure 22). Dusky rockfish occur in loosely organized groups just above rocky reefs and along shorelines, or they may rest singly upon rocky substrate (NPFMC 2020a,b). Both juvenile and adult dusky rockfish EFH occurs along most of the proposed FOC branch routes, with the exception of Chignik Lake and False Pass which have no designated EFH for rockfish. Late juvenile dusky rockfish EFH occurs in the middle and lower portions of the water column along the middle and outer shelves (100 to 200 m depth [328 to 656 ft]) in areas with substrates of cobble, rock and gravel. EFH for adult dusky rockfish is found in similar areas as juvenile EFH and also occurs along the upper slope (200 to 500 m depth [656 to 1640 ft]) throughout the GOA in areas with cobble, rock, and gravel.

3.2.1.1 Northern Rockfish (S. polyspinis)

Northern rockfish have a patchy distribution in the Aleutian Islands, and are also found in the Queen Charlotte Islands, British Columbia (Figure 23) (NPFMC 2021). EFH for both juvenile and adult northern rockfish occurs along the FOC routes to Port Lions, Chignik Lagoon, and Cold Bay, whereas EFH for juvenile northern rockfish occurs along the FOC route to Ouzinkie. EFH for late juveniles and adults is located in the middle and lower portions of the water column along the outer slope throughout the Aleutian Islands, where there are softer substrates of cobble and rock (NPFMC 2021).

3.2.1.1 Other Rockfish

A variety of rockfish species use the Aleutian Islands (Figure 24). Most species are generally found at depths of 10 to 1,200 m (32 to 3,937 ft). Many rockfish are not thought to exhibit large-scale movements as adults (NPFMC 2018). Rockfish EFH is described for late juveniles and adults. Insufficient data are available to describe EFH for other life stages. Late juvenile EFH is located in the lower portion of the water column along the middle (50 to 100 m [164 to 328 ft]) and outer shelf (100 to 200 m [328 to 656 ft]) throughout the GOA. The general distribution for adult rockfish EFH is located in the lower portion of the water column along the shelf (0 to 200 m [0 to 656 ft]) and upper slope (200 to 500 m [656 to 1,640 ft]) (NPFMC 2020). There is designated EFH for a variety of rockfish species (either juvenile or adult) along the proposed FOC routes to Ouzinkie, Port Lions, Chignik Lagoon, and Cold Bay.

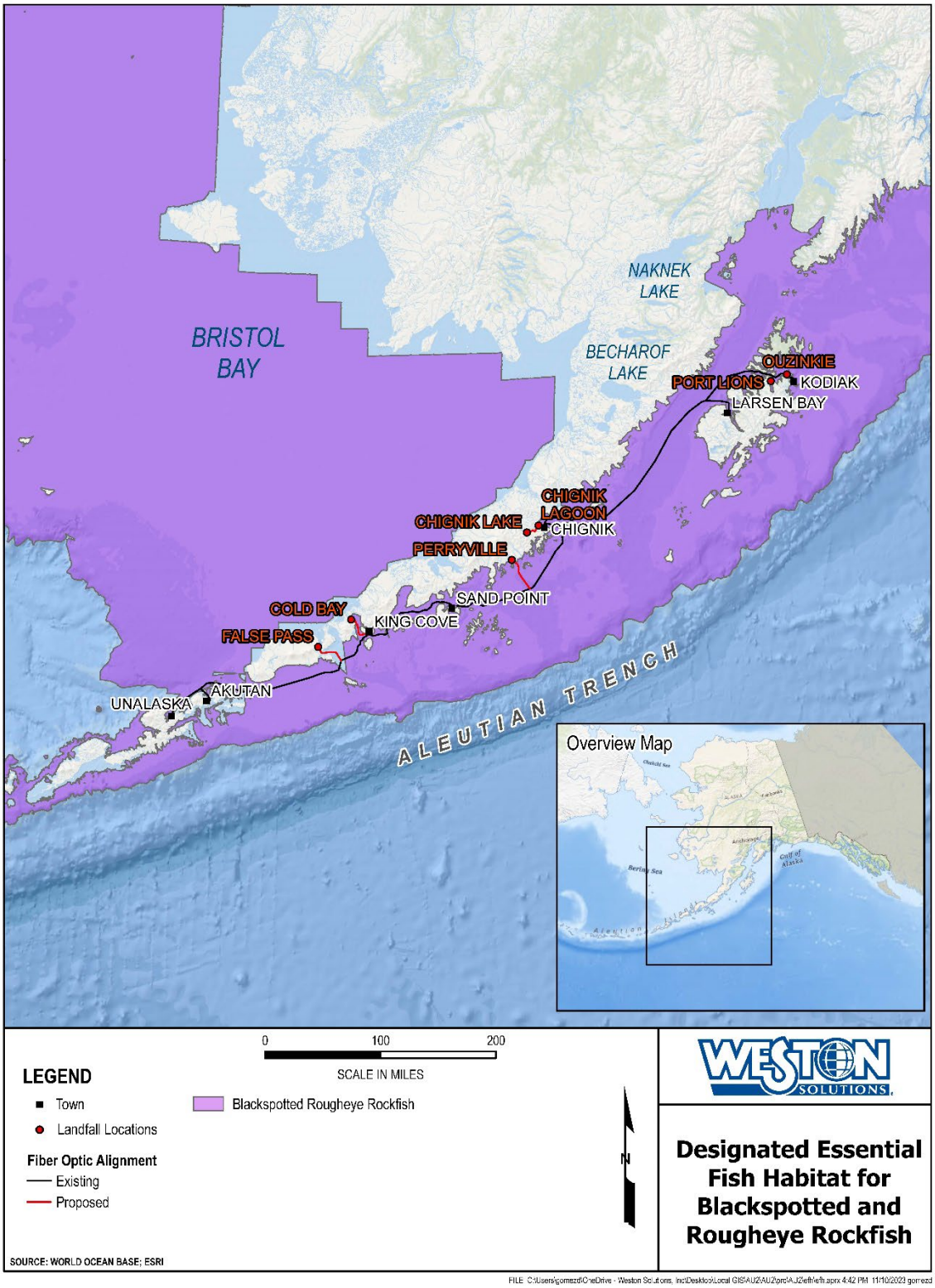


Figure 21. Designated Essential Fish Habitat for Blackspotted and Rougheye Rockfish

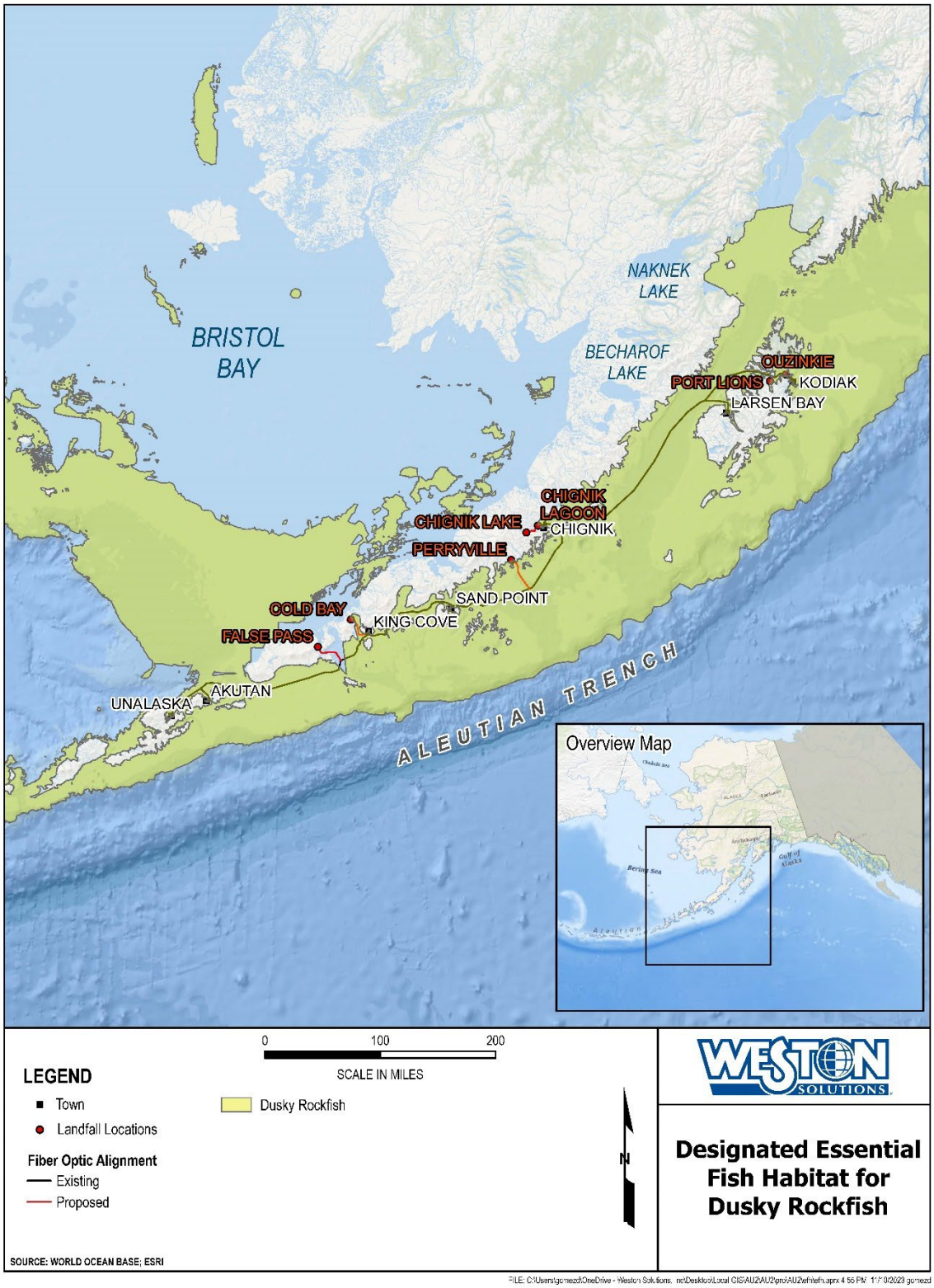


Figure 22. Designated Essential Fish Habitat for Dusky Rockfish

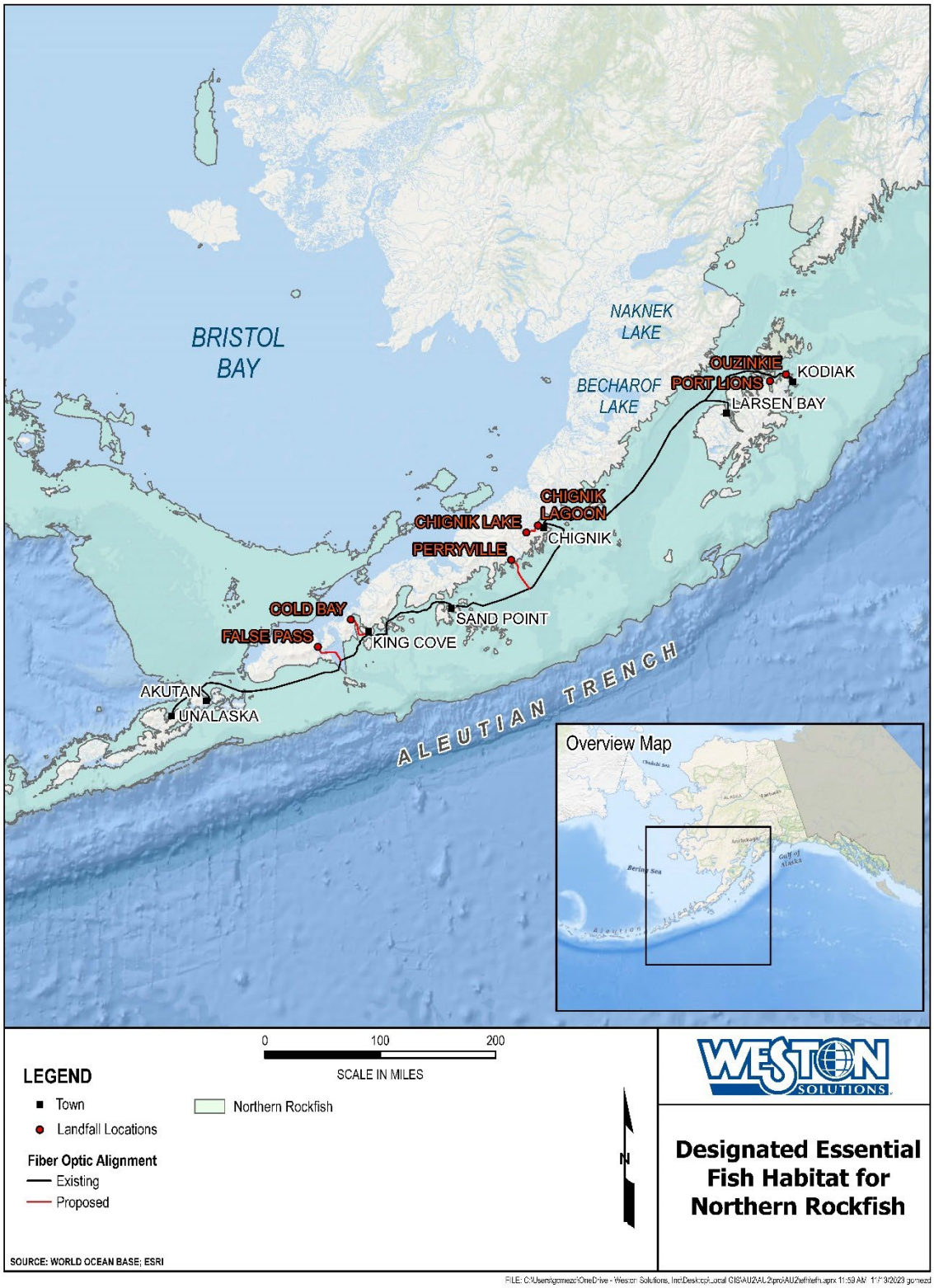


Figure 23. Designated Essential Fish Habitat for Northern Rockfish

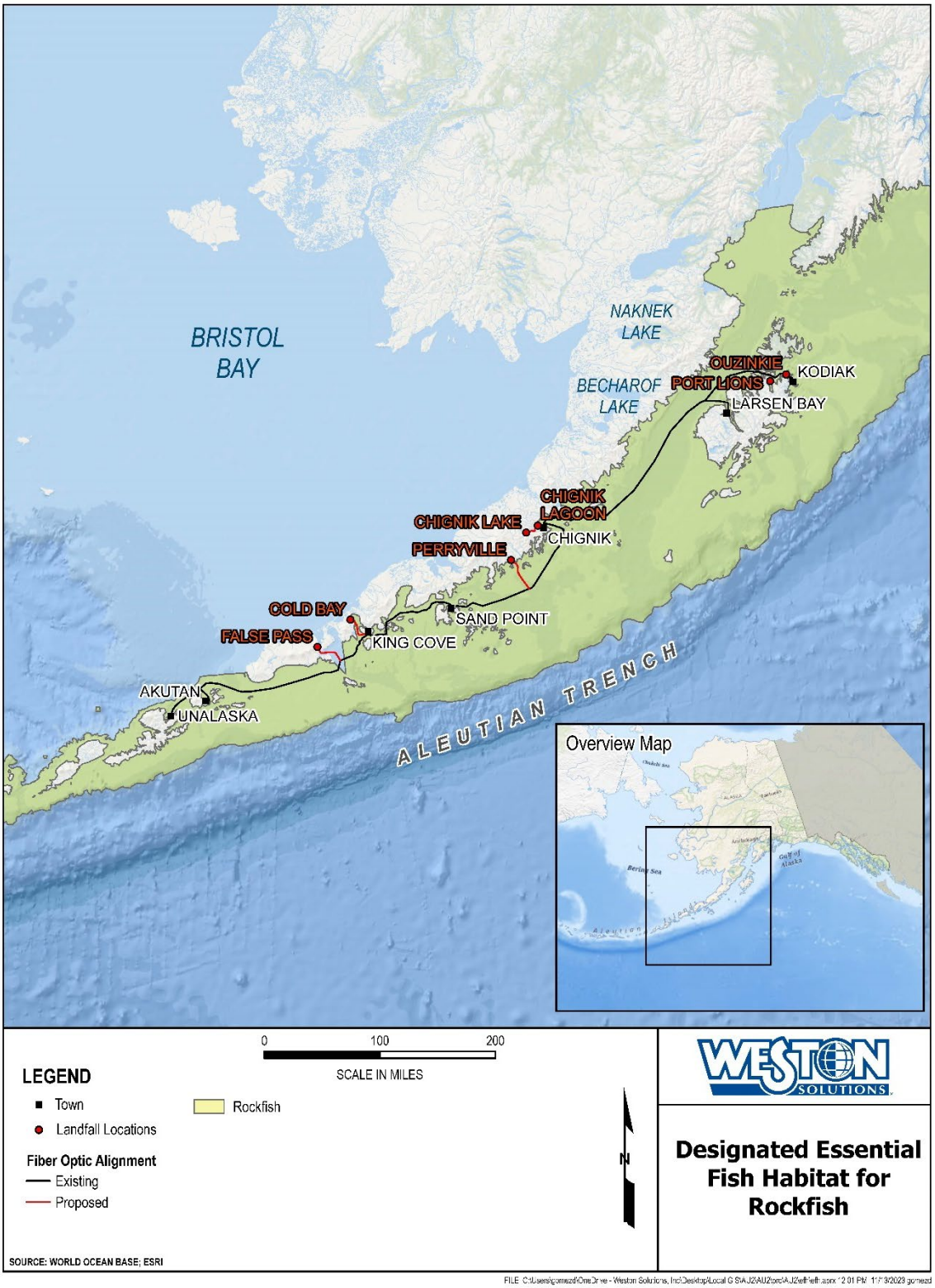


Figure 24. Designated Essential Fish Habitat for "Other" Rockfish Species

3.2.1.2 Pacific Ocean Perch (S. alutus)

Pacific ocean perch are the dominant red rockfish species in the North Pacific and inhabit the outer continental shelf and upper slope regions of the north Pacific Ocean and Bering Sea (Figure 25). Pacific ocean perch EFH occurs along the proposed FOC branch routes for Ouzinkie, Chignik Lagoon, and Cold Bay.

EFH for larval Pacific ocean perch is located in the middle to lower portion of the water column along the inner shelf (0 to 50 m [0 to 164 ft]), middle shelf (50 to 100 m [164 to 328 ft]), outer shelf (100 to 200 m [328 to 656 ft]), and upper slope (200 to 500 m [656 to 1,640 ft]) throughout the GOA. Additionally, Pacific ocean perch larvae have been found as far as 180 km (112 mi) offshore over depths in excess of 1,000 m (3,280 ft) (NPFMC 2020). EFH for adult Pacific ocean perch is located in the lower portion of the water column along the outer shelf (100 to 200 m [328 to 656 ft]) and upper slope (200 to 500 m [626 to 1,640 ft]) throughout the GOA wherever there are substrates consisting of cobble, gravel, mud, sandy mud, or muddy sand (NPFMC 2020).

3.2.1.3 Shortraker Rockfish (S. borealis)

Shortraker rockfish are found from Japan to Navarin Canyon in the Bering Sea, throughout the Aleutian Islands, and south to San Diego, California (Figure 26). They are generally found offshore at depths of 200 to 500 m (656 to 1,640 ft) (NPFMC 2020). EFH for juvenile and adult Shortraker rockfish is located in the lower portion of the water column along the outer shelf and upper slope regions throughout the Aleutian Islands, where substrates contain mud, sand, sandy mud, muddy sand, rock, cobble, and gravel. Adults prefer steep slopes with frequent boulders (NPFMC 2020). EFH for both juveniles and adults occurs along all proposed FOC branch routes, with the exception of Chignik Lake and False Pass. Chignik Lake and False Pass have no designated EFH for rockfish.

3.2.1.4 Shortspine Thornyhead Rockfish (Sabastolobus alascanus)

EFH for both late juvenile and adult thornyhead rockfish is located in the lower portion of the water column along the middle and outer shelf (50 to 200 m [164 to 656 ft]) and upper to lower slope (200 to 1,000 m [656 to 3,280 ft]) throughout the GOA wherever there are substrates of mud, sand, rock, sandy mud, muddy sand, cobble, and gravel (Figure 27) (NPFMC 2020). EFH for adult shortspine thornyhead rockfish occurs along all proposed FOC branch routes, with the exception of Chignik Lake and False Pass. Chignik Lake and False Pass have no designated EFH for rockfish.

3.2.1.5 Yelloweye Rockfish (S. ruberrimus)

Yelloweye rockfish are distributed in the GOA to northern Baja California, Mexico (Figure 28). They occur on rocky reefs and boulder fields, although the young can be found in shallower regions (NPFMC 2020). EFH for late juvenile yelloweye rockfish occurs along or near the proposed FOC routes to Ouzinkie, Port Lions, Chignik Lagoon, and Cold Bay, whereas designated EFH for adult yelloweye rockfish occurs on the FOC route to Chignik lagoon and Cold Bay. Late juvenile yelloweye rockfish EFH is located in the lower portion of the water column within bays and island passages and along the inner, middle, and outer shelf throughout the Aleutian Islands, where rocky substrates occur and in areas of vertical relief such as crevices, overhangs, vertical walls, coral, and larger sponges (NPFMC 2020).

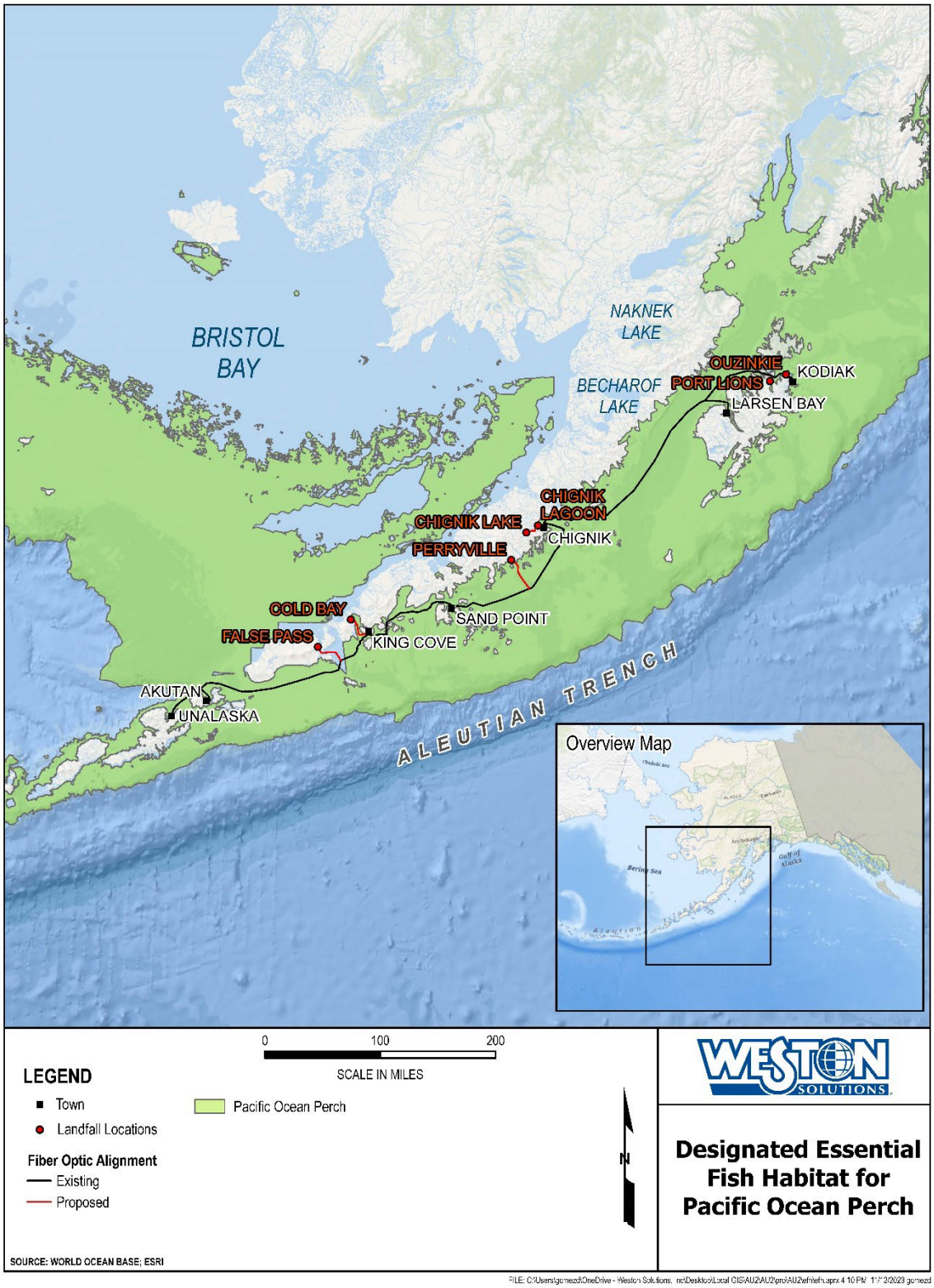


Figure 25. Designated Essential Fish Habitat for Pacific Ocean Perch

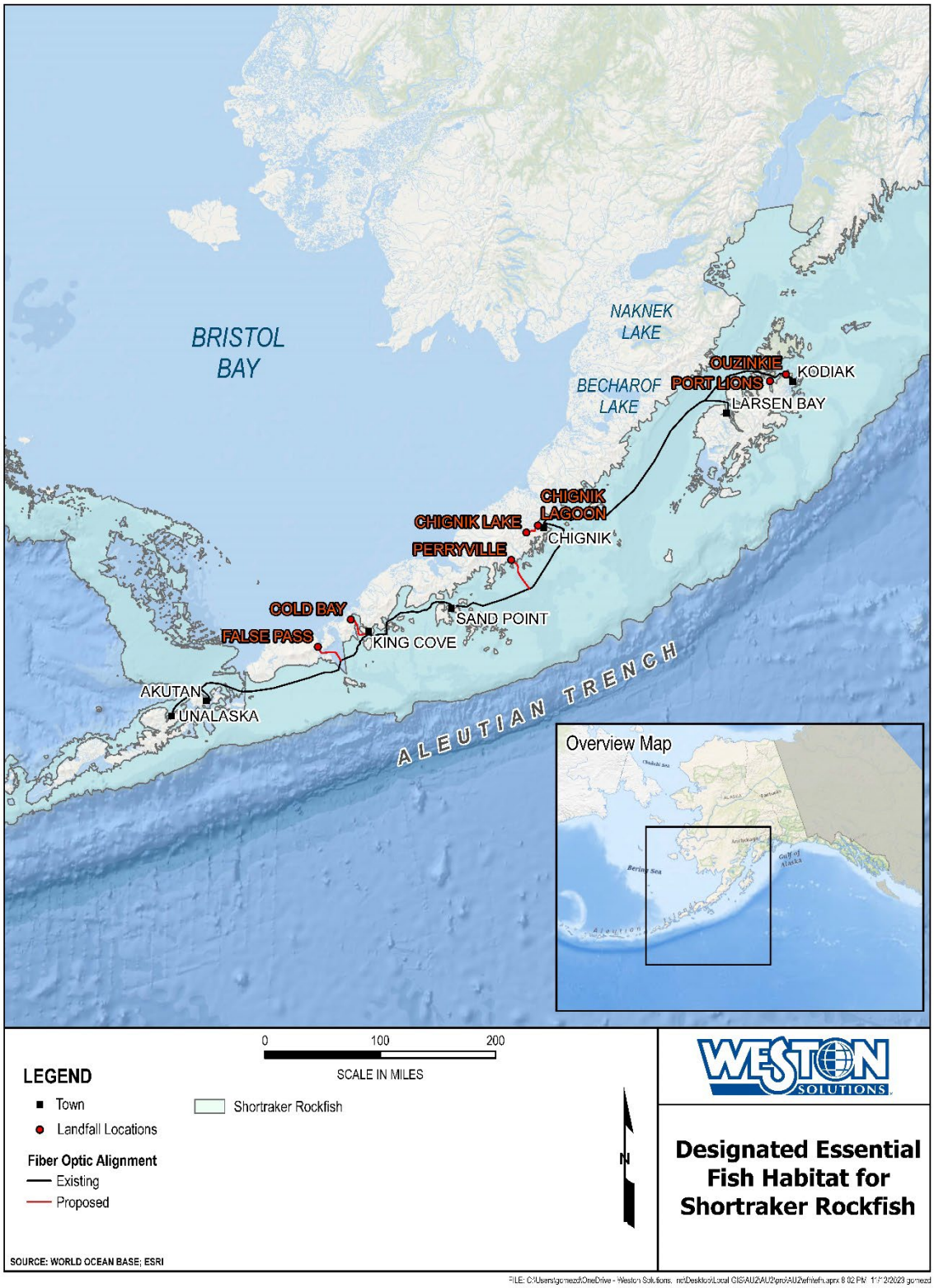


Figure 26. Designated Essential Fish Habitat for Shortraker Rockfish

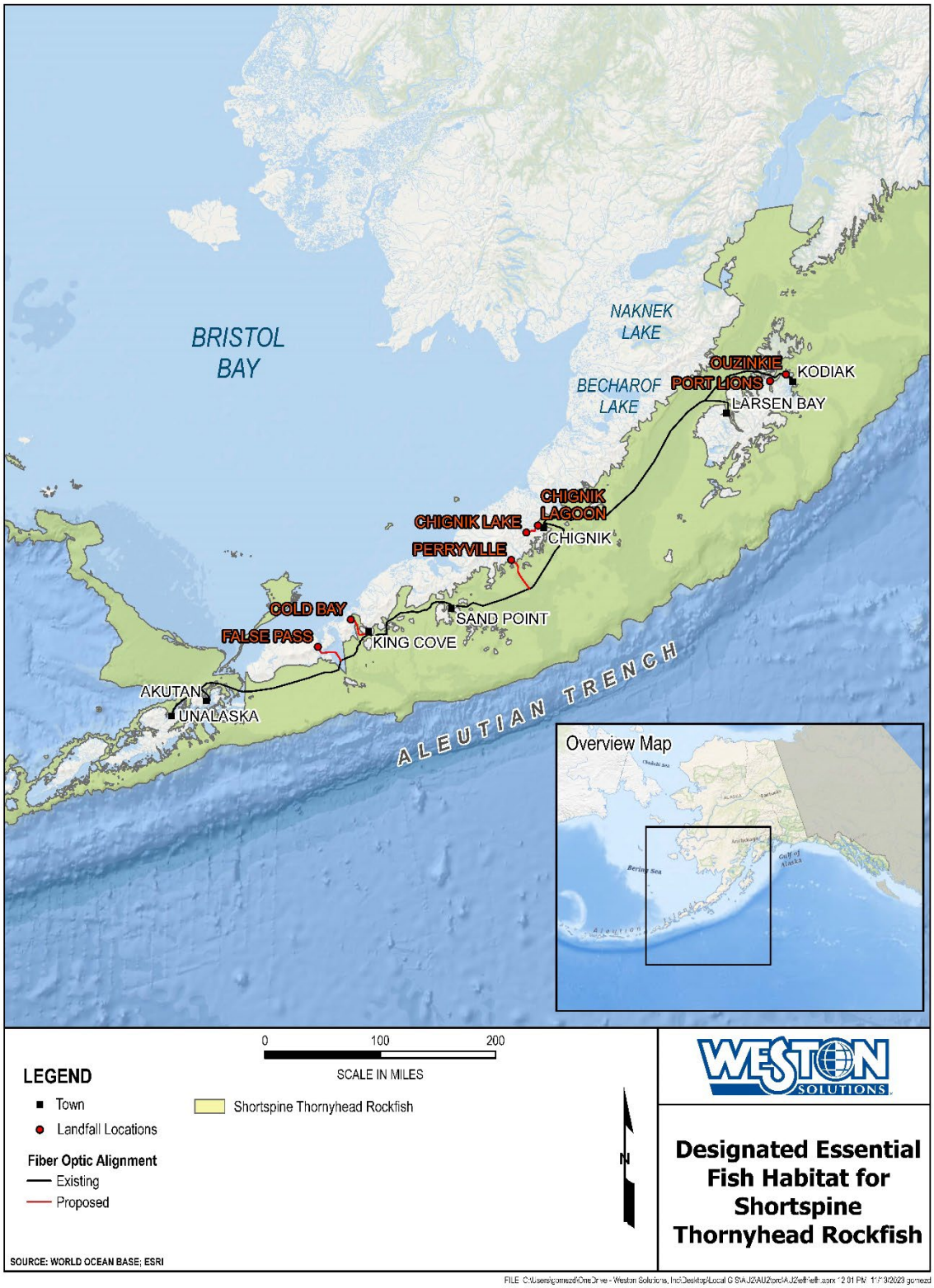


Figure 27. Designated Essential Fish Habitat for Shortspine Thornyhead Rockfish

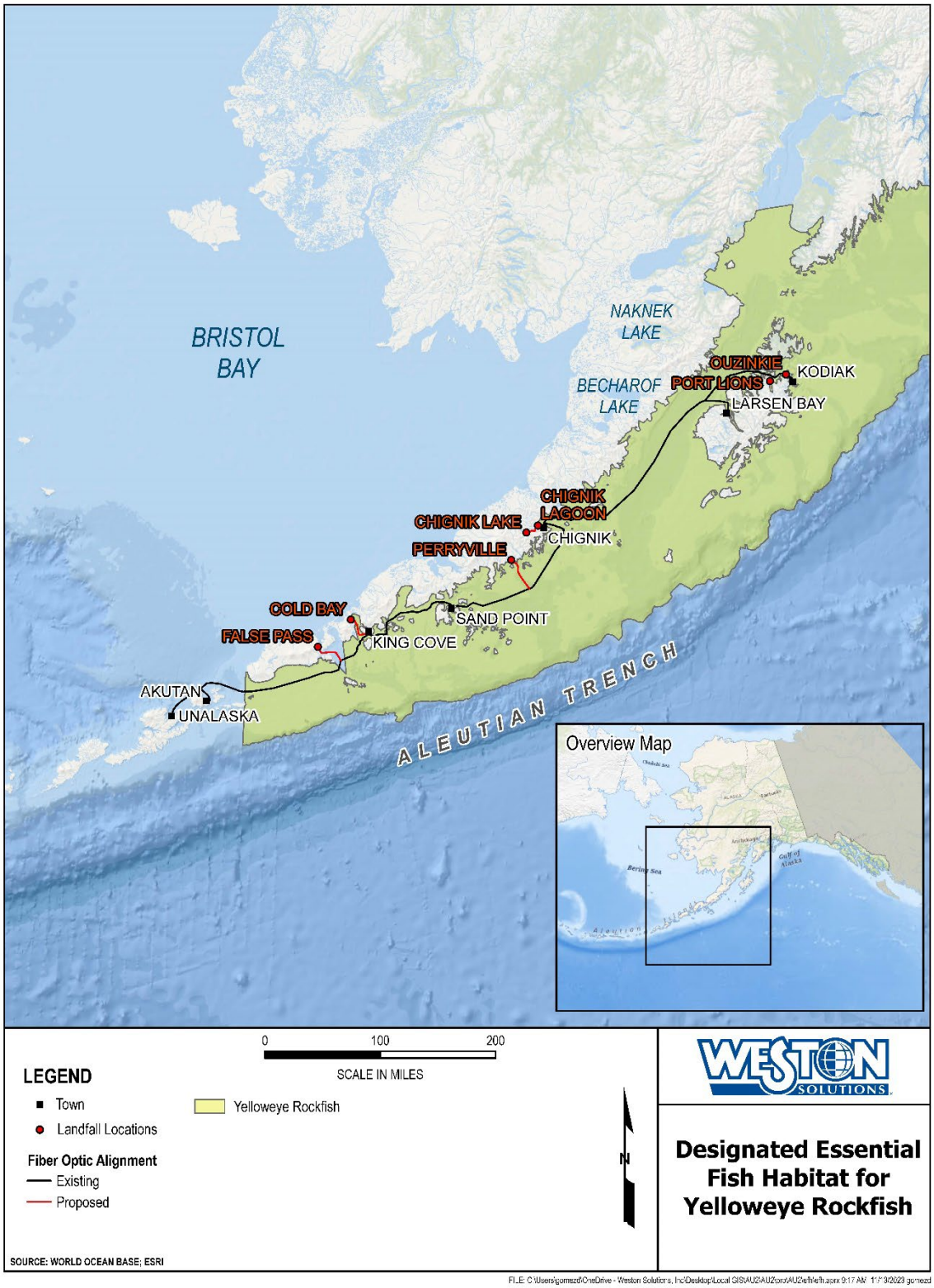


Figure 28. Designated Essential Fish Habitat for Yelloweye Rockfish

3.2.2 Sculpins

Across all of the proposed FOC branch routes there are three sculpin species with designated EFH in the GOA: bigmouth sculpin, great sculpin, and yellow Irish lord. EFH is discussed in the GOA FMP for Groundfish only for sculpin in general. Limited information indicates that in the GOA the larger sculpin species prey on shrimp and other benthic invertebrates as well as some juvenile walleye pollack. The main predators of sculpin include pinnipeds, Pacific halibut, sablefish, and other small demersal fish (NPFMC 2020).

3.2.2.1 Sculpin (various species)

Both adult and juvenile sculpin life stages of sculpins occur along the proposed FOC branch routes; however there currently is not sufficient information for a description of EFH for juvenile sculpins (Figure 29). EFH for adult sculpins is located in the lower portion of the water column along the inner (0 to 50 m [0 to 164 ft]), middle (50 to 100 m [164 to 328 ft]), outer shelf (100 to 200 m [328 to 656 ft]) and portions of the upper slope (200 to 500 m [656 to 1,640 ft]) throughout the GOA wherever there are substrates of rock, sand, mud, cobble, and sandy mud (NPFMC 2020).

3.2.3 Flatfishes

Along the proposed FOC branch routes, EFH has been designated for nine species of flatfish, including:

- Alaska plaice
- Arrowtooth flounder
- Kamchatka flounder
- Dover sole
- Flathead sole
- Northern rock sole
- Rex sole
- Southern rock sole
- Yellowfin sole

EFH is described in the GOA FMP for Groundfish for each of the above listed flatfish species. and is provided in the descriptions below.

3.2.3.1 Alaska Plaice (Pleuronectes quadrituberculatus)

Alaska plaice is a species of flatfish found primarily on the EBS continental shelf, with a summer distribution at depths less than 110 m (361 ft) (Figure 30). They are known to occur in aggregations and are often caught as bycatch in the yellowfin sole and northern rock sole fisheries. Recruitment of Alaska plaice has been stable since the late 1970s (NFPMC 2020). EFH has been designated for adult, larvae, and egg life stages within the GOA. EFH for Alaska plaice occurs along all proposed FOC branch routes, with the exception of Chignik Lake and False Pass.

EFH for Alaska plaice eggs and larvae is the general distribution area for this life stage, located in pelagic waters along the entire shelf (0 to 200 m [0 to 656 ft]) and upper slope (200 to 500 m [656 to 1,640 ft]) throughout the GOA (spring only for eggs). EFH for adult Alaska plaice is located in the lower portion of the water column along the inner (0 to 50 m [0 to 164 ft]), middle (50 to 100 m [164 to 328 ft]), and outer (100 to 200 m [328 to 656 ft]) shelf throughout the GOA wherever there are softer substrates consisting of sand and mud.

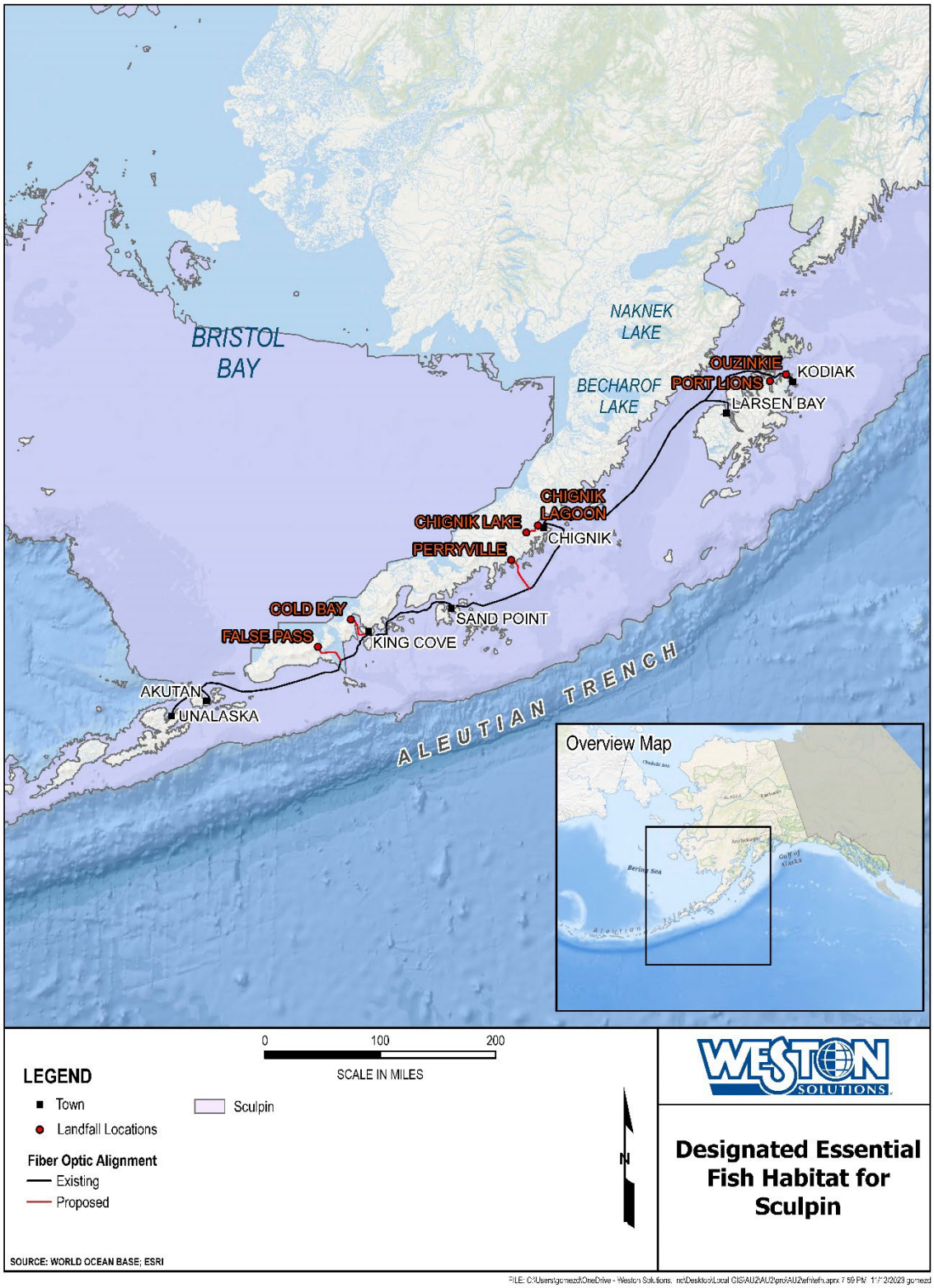


Figure 29. Designated Essential Fish Habitat for Sculpin Species

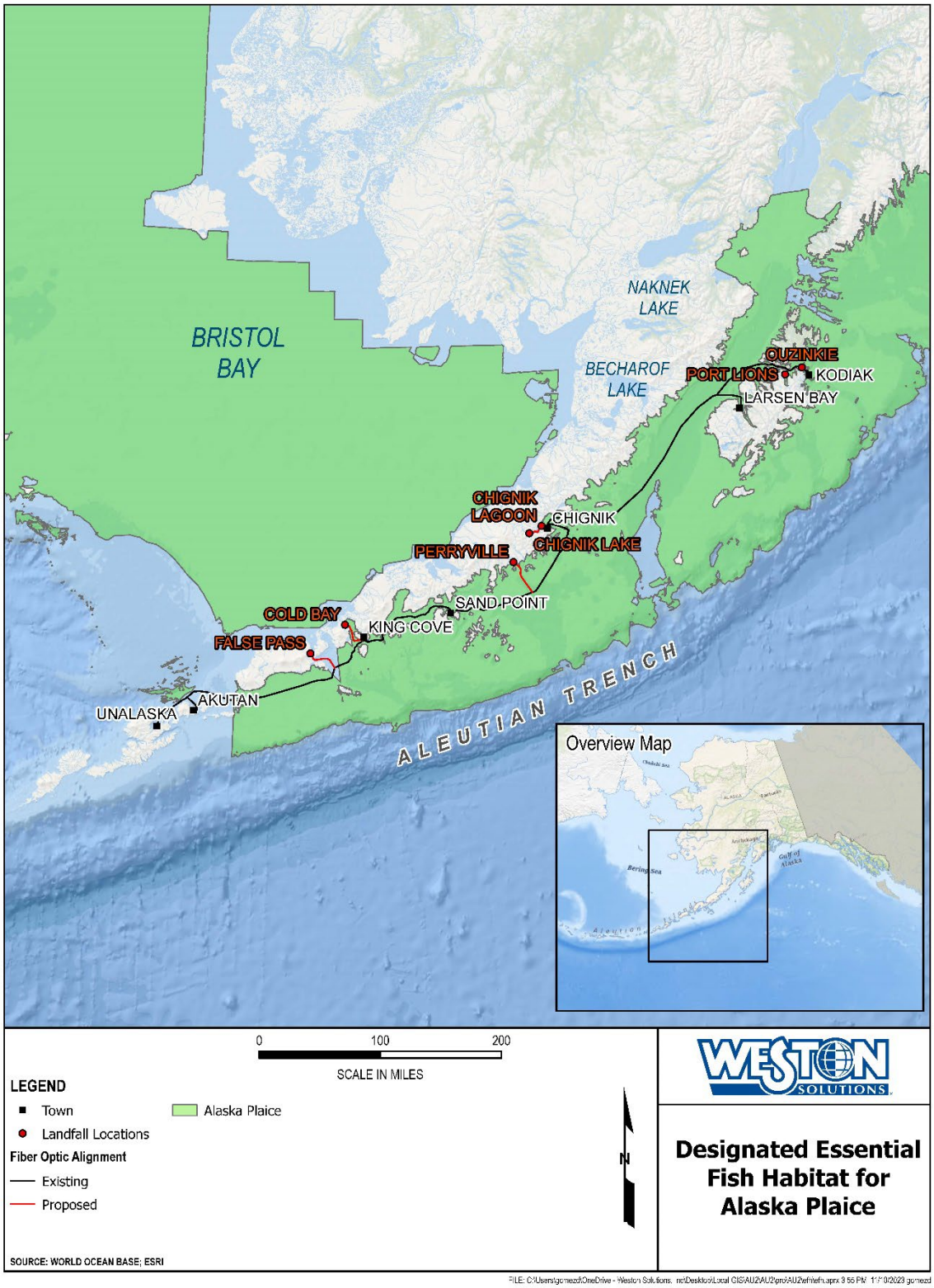


Figure 30. Designated Essential Fish Habitat for Alaska Plaice

3.2.3.2 Arrowtooth Flounder (Atheresthes stomias)

Arrowtooth flounder is a species of flatfish that is commonly distributed in the EBS and Aleutian Islands region (Figure 31). They are not a typically targeted species but do form in large aggregations and can be caught using bottom trawl gear. Due to their low commercial value, they are commonly discarded as bycatch. EFH for adult and juvenile arrowtooth flounder occurs along all proposed FOC branch routes, with the exception of Chignik Lake and False Pass.

EFH for juvenile and adult arrowtooth flounder is located in the lower portion of the water column along the inner (0 to 50 [0 to 164 ft]) and middle (50 to 100 m [164 to 328 ft]) shelf within the GOA wherever there are softer substrates consisting of gravel, sand, and mud. For adult fish, EFH also extends to the outer (100 to 200 m [328 to 656 ft]) shelf and upper slope (200 to 500 m [656 to 1,640 ft]) throughout the GOA wherever there are similar soft substrates (NPFMC 2020).

3.2.3.3 Dover Sole (Microstomus pacificus)

Dover sole is a flounder species that ranges from Baja California to the Bering Sea (Figure 32). It can be found at depths ranging from 10 to 1,200 m (33 to 3,937 ft). They have a complex life history that includes an extended pelagic larval phase of one year or more (NPFMC 2020).

EFH for juvenile and adult Dover sole is located in the lower portion of the water column along the middle (50 to 100 m [164 to 328 ft]) and outer (100 to 200 m [328 to 656 ft]) shelf, and upper (200 to 500 m [656 to 1,640 ft]) slope throughout the BSAI wherever there are substrates of sand and mud. Adult dover sole EFH also extends to intermediate (500 to 1,000 m [1,640 to 3,280 ft]) slope throughout the BSAI with similar substates (NPFMC 2020). No EFH description has been provided for eggs or larvae due to insufficient information. EFH exists for Dover sole along all of the proposed FOC branch routes, with the exception of Chignik Lake and False Pass.

3.2.3.4 Flathead Sole (Hippoglossoides elassodon)

Flathead sole are distributed throughout the North Pacific, in the Sea of Japan, the Sea of Okhotsk, and the Bering Sea along the western coast of America to Pt. Reyes, central California (Figure 33). They occur on soft bottoms, with the adults typically residing along the bottom at depths below 180 m (591 ft) (NPFMC 2020).

EFH for flathead sole larvae is located in pelagic waters along the entire shelf (0 to 200 m [0 to 656 ft]) and slope (200 to 3,000 m [656 to 9,843 ft]) throughout the BSAI, whereas EFH for late juvenile and adult flathead sole is located in the lower portion of the water column along the inner (0 to 50 m [0 to 164 ft]), middle (50 to 100 m [164 to 328 ft]), and outer (100 to 200 m [328 to 656 ft]) shelf throughout the BSAI wherever there are softer substrates consisting of sand and mud (NPFMC 2020). EFH exists for flathead sole along all of the proposed FOC branch routes, with the exception of Chignik Lake and False Pass.

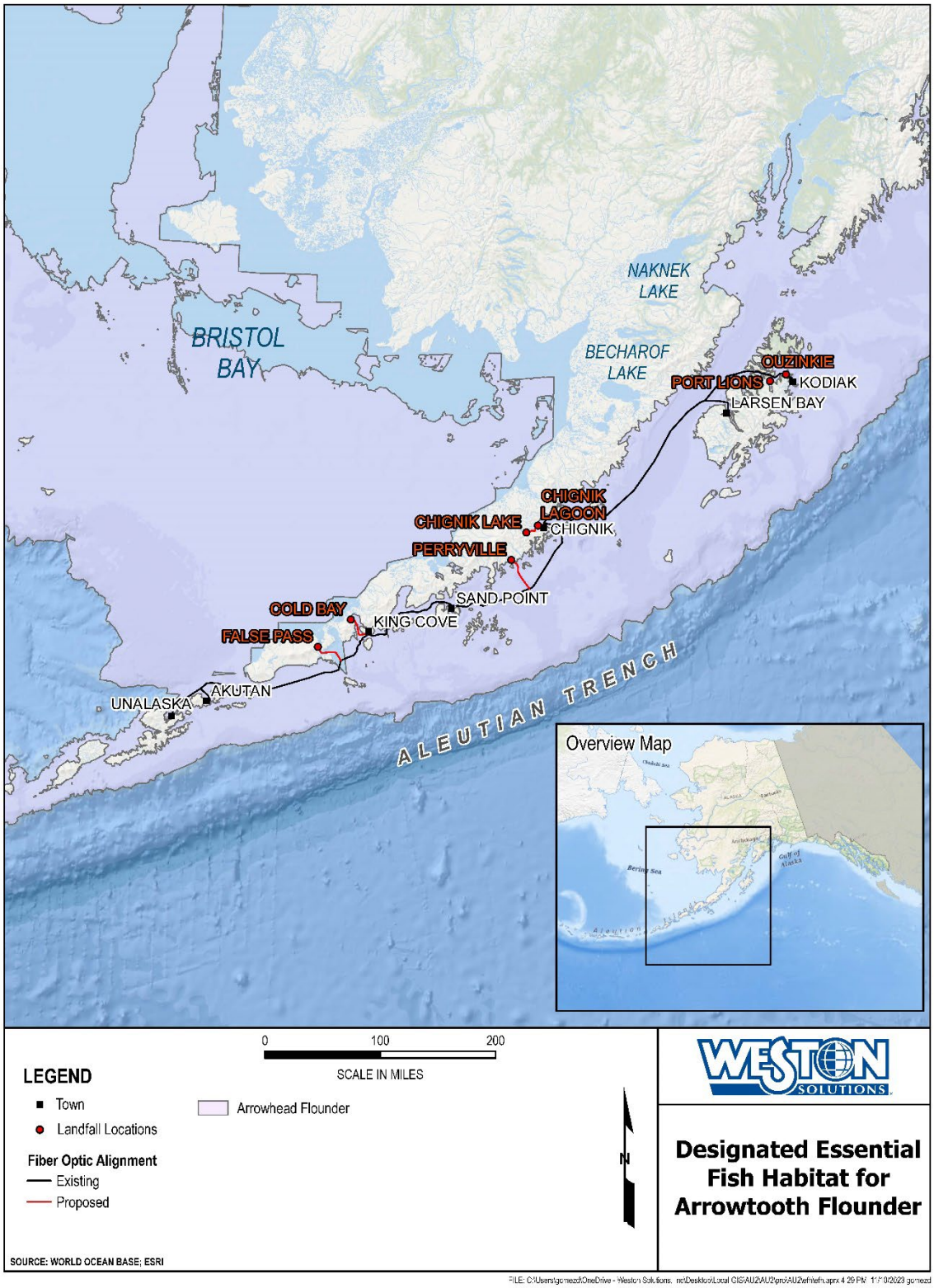


Figure 31. Designated Essential Fish Habitat for Arrowtooth Flounder

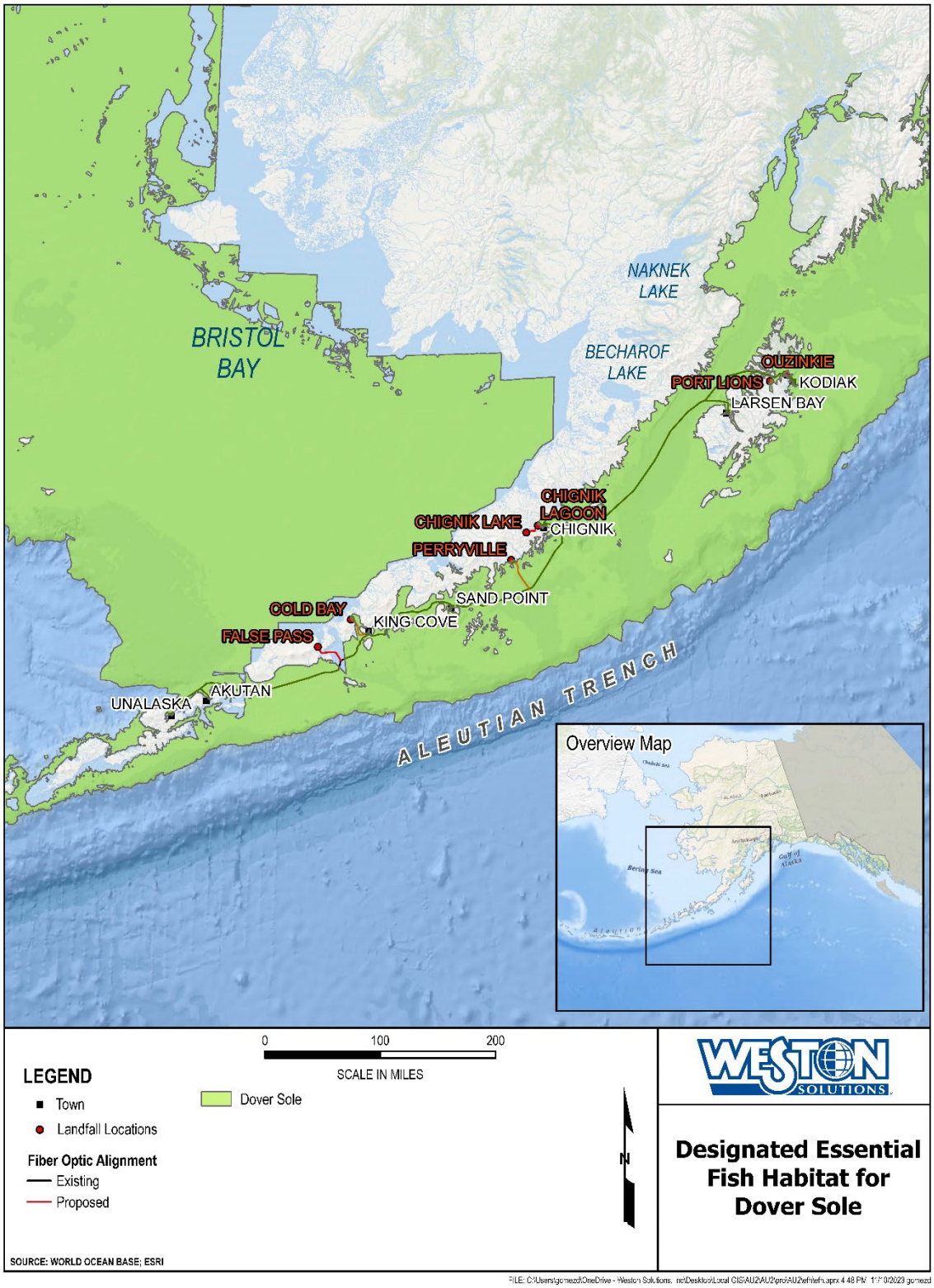


Figure 32. Designated Essential Fish Habitat for Dover Sole

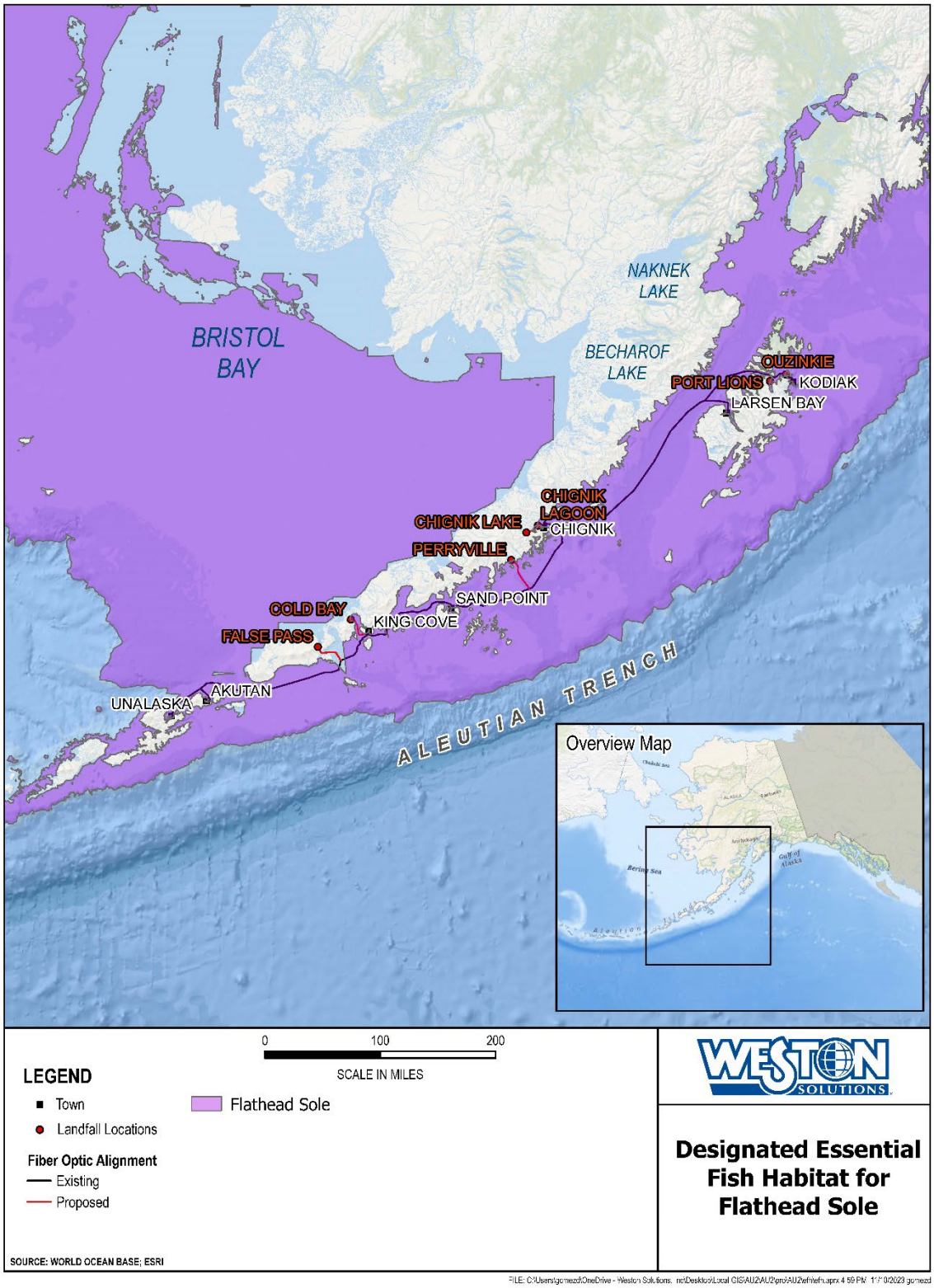


Figure 33. Designated Essential Fish Habitat for Flathead Sole

3.2.3.1 Kamchatka Flounder (Atheresthes evermanni)

Kamchatka flounder range from the Shelikof Strait and the Aleutian Islands, across the Bering Sea, to the Gulf of Anadyr, Kamchatka Peninsula and the seas of Okhotsk and Japan (Figure 34). It is generally found in depths of 20 to 1,200 m. (66 to 3,937 ft).

EFH described for Kamchatka flounder eggs and larvae is demersal habitat in the middle (50 to 100 m) [164 to 328 ft]) and outer (100 to 200 m) [328 to 656 ft]) shelf and upper slope (200 to 500 m). [656 to 1,640 ft]). For late juvenile and adult Kamchatka flounder, EFH is located in the lower portion of the water column along the middle (50 to 100 m), [164 to 328 ft]), and outer (100 to 200 m) [328 to 656 ft]) shelf and upper slope (200 to 500 m) [656 to 1,640 ft]) throughout the BSAI wherever there are softer substrates consisting of gravel, sand, and mud (NPFMC 2020).

3.2.3.2 Northern Rock Sole (Lepidopsetta polyxystra)

Northern Rock Sole is a flatfish species that is distributed from Puget Sound through the BSAI to the Kuril Islands (Figure 35). They are abundant off the Kamchatka Peninsula, British Columbia, central GOA, and in the EBS (NPFMC 2020).

EFH for larval northern rock sole is located in pelagic waters along the entire shelf (0 to 200 m [0 to 656 ft]) and upper slope (200 to 1,000 m [656 to 3,280 ft]) throughout the BSAI, whereas EFH for late juvenile and adult northern rock sole is located in the lower portion of the water column along the inner (0 to 50 m [0 to 164 ft]), middle (50 to 100 m [164 to 328 ft]), and outer (100 to 200 m [328 to 656 ft]) shelf throughout the BSAI wherever there are softer substrates consisting of sand, gravel, and cobble. Early juveniles remain separate from the adult population, remaining in shallow areas until they reach approximately 15 to 20 cm (5.9 to 7.9 in). Most early juveniles are likely habitat generalists on abundant physical habitat (NPFMC 2020). Across the Project areas, EFH exists for northern rock sole along all of the proposed FOC branch routes, with the exception of Chignik Lake and False Pass.

3.2.3.3 Rex Sole (Glyptocephalus zachirus)

Rex sole occur in the North Pacific, from the Kuril Islands off the coast of Japan to the Bering Sea coasts of Russia and Alaska and along the Pacific coast of the U.S to Cedros Island, northern Baja California, Mexico (Figure 36). Rex sole are a slow growing species found on sand or mud bottoms (NPFMC 2020) typically below 61 m (200 ft). and can live up to 24 years (Eschmeyer et al. 1983). They are fished commercially within the US (Eschmeyer and Herald 1983).

In the GOA, EFH for rex sole eggs is the epipelagic waters throughout the shelf and upper slope. EFH for late juvenile and adult rex sole is located in the lower portion of the water column along the inner (0 to 50 m [0 to 164 ft]), middle (50 to 100 m [164 to 328 ft]), and outer (100 to 200 m [328 to 656 ft]) shelf throughout the BSAI wherever there are substrates consisting of gravel, sand, and mud (NPFMC 2020). Across the Project areas, EFH exists for rex sole along all of the proposed FOC branch routes, with the exception of Chignik Lake and False Pass.

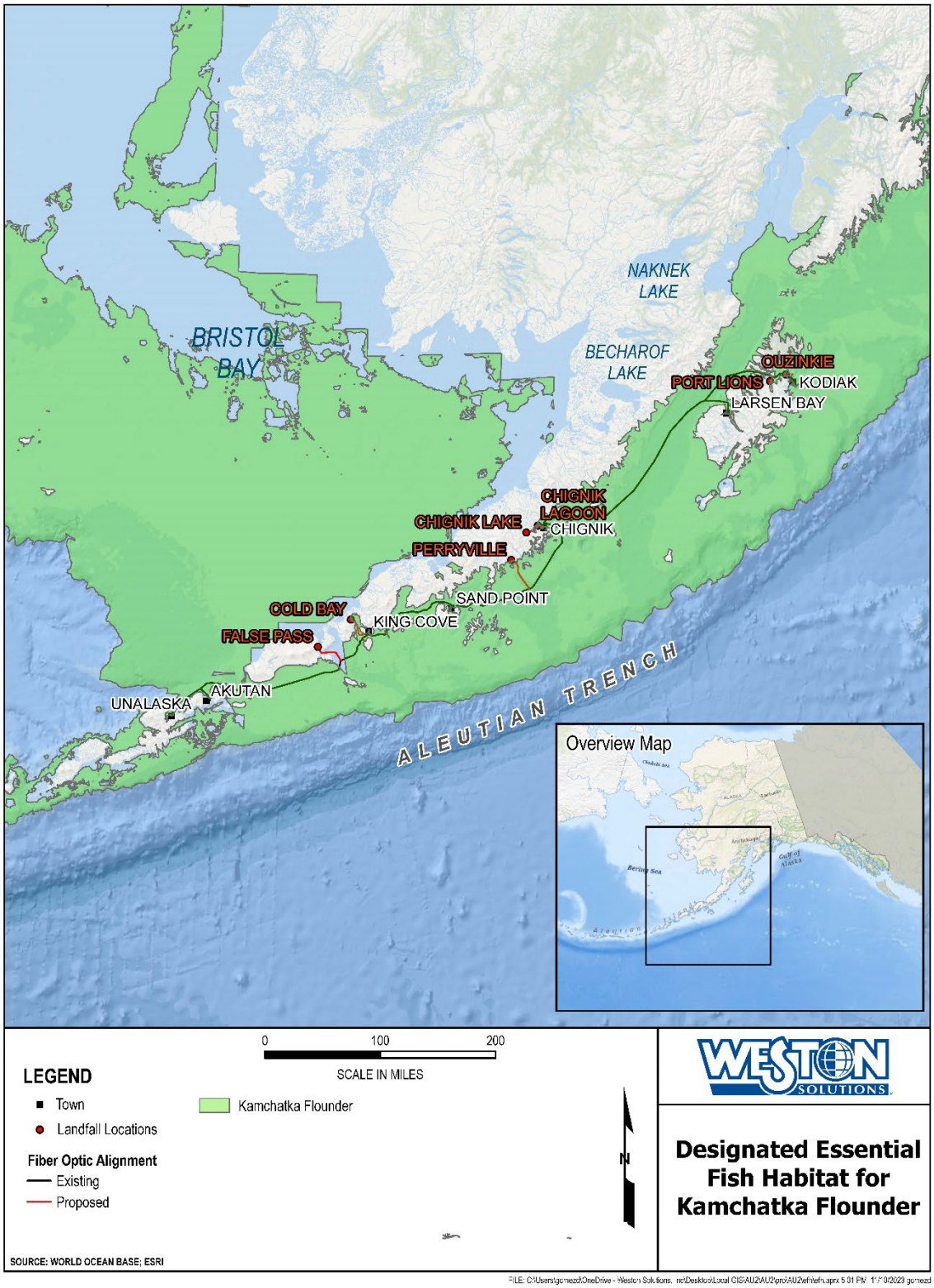


Figure 34. Designated Essential Fish Habitat for Kamchatka Flounder

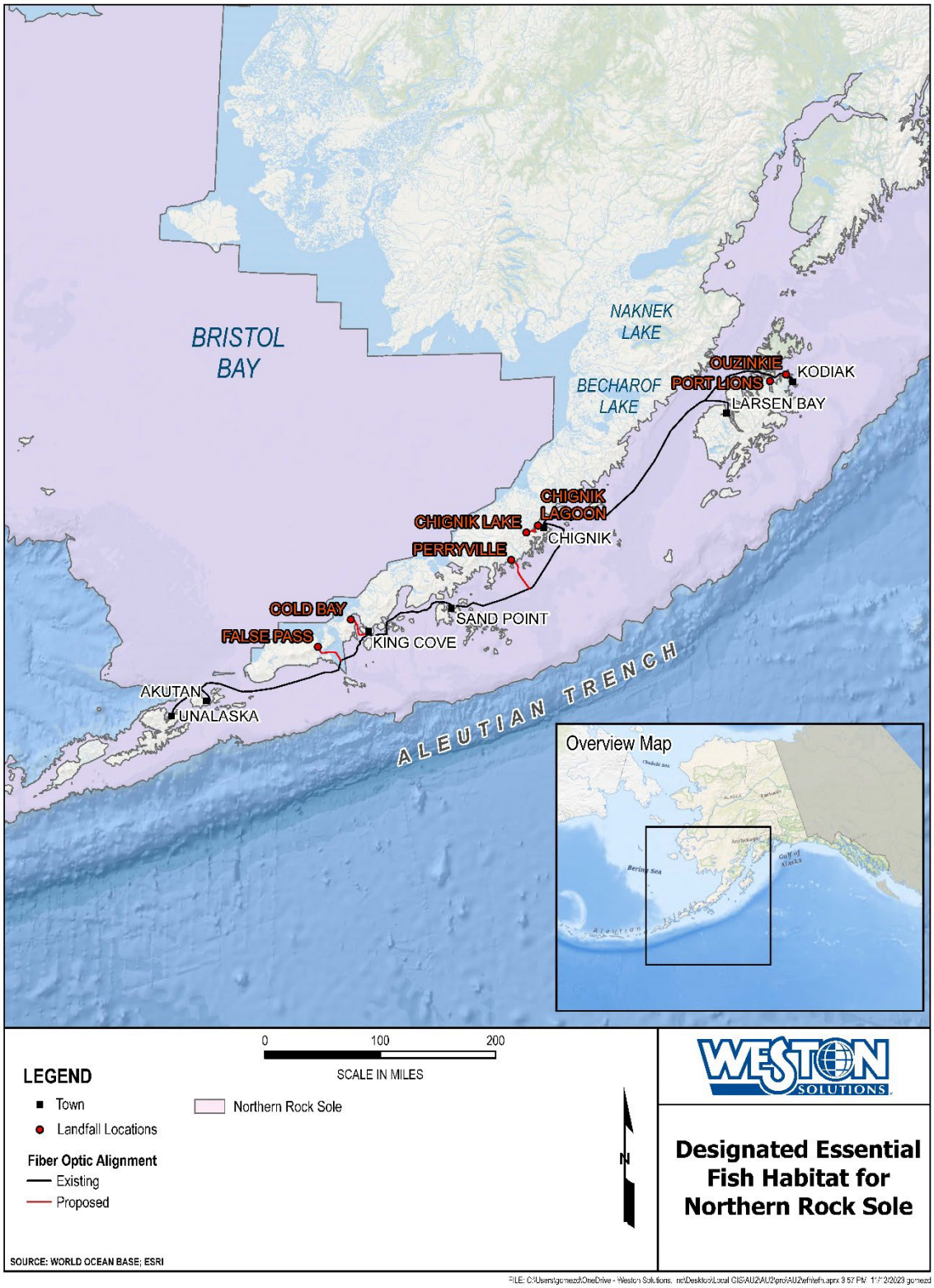


Figure 35. Designated Essential Fish Habitat for Northern Rock Sole

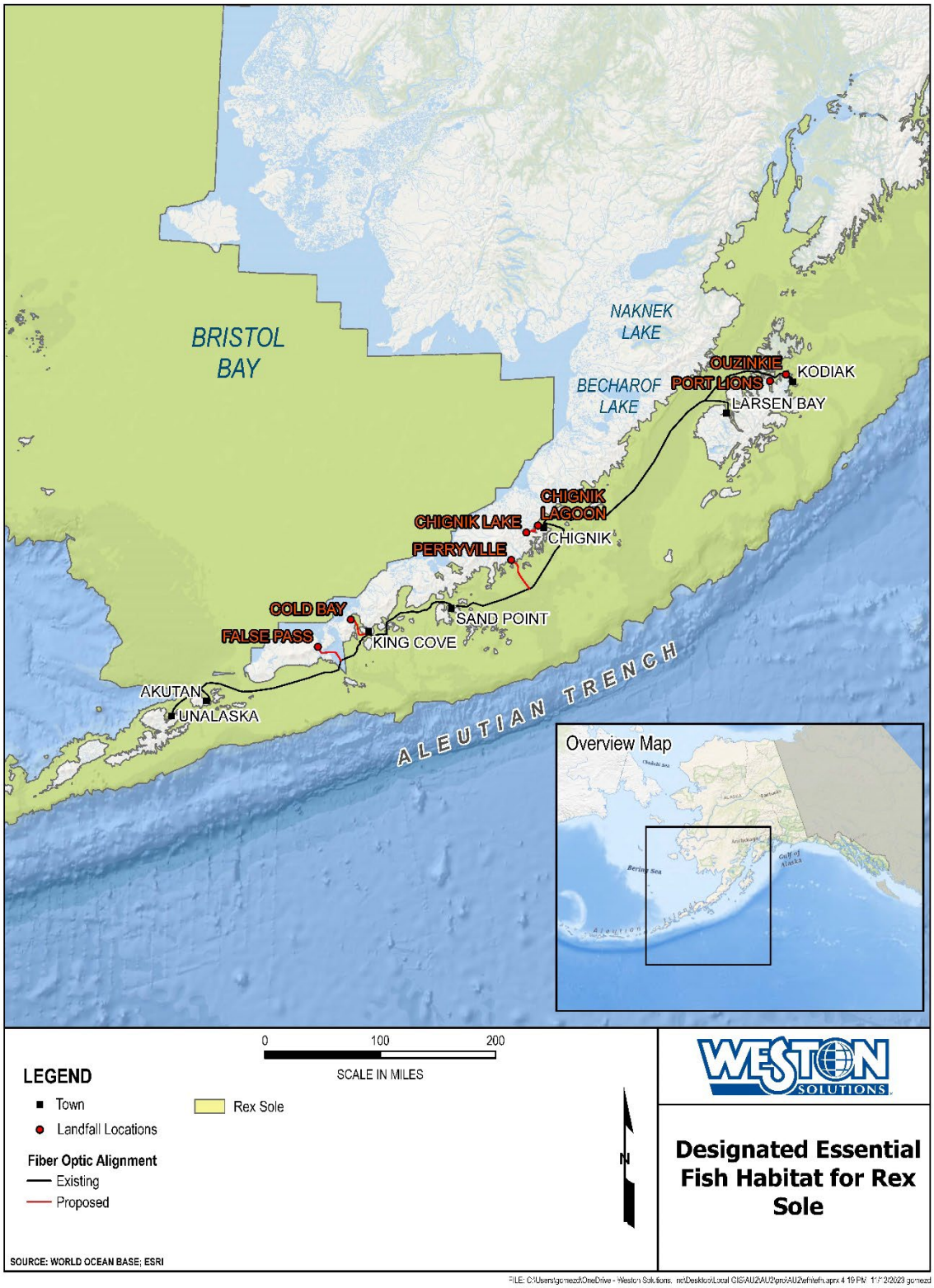


Figure 36. Designated Essential Fish Habitat for Rex Sole

3.2.3.1 Rock Sole (Lepidopsetta billineta)

Rock sole, also known as Southern rock sole or Pacific rock sole, are flatfish that can grow up to 0.6 m (2 ft) in length and live for more than 20 years. They are distributed from Puget Sound through the BSAI to the Kuril Islands and occur as far south as Baja California (Figure 37) (NOAA Fisheries 2023b).

EFH for Southern rock sole larvae is comprised of the pelagic waters along the entire shelf (0 to 200 m [0 to 656 ft]) and upper slope (200 to 1,000 m [656 to 3,280 ft]) throughout the BSAI, whereas EFH for early and late juveniles consists of the lower portion of the water column within nearshore bays and along the inner (0 to 50 m [0 to 164 ft]), middle (50 to 100 m [164 to 328 ft]), and outer (100 to 200 m [328 to 656 ft]) shelf throughout the BSAI wherever there are soft substrates consisting mainly of sand. For adult Southern rock sole, EFH is designated as the lower portion of the water column along the inner (0 to 50 m [0 to 164 ft]), middle (50 to 100 m [164 to 328 ft]), and outer (100 to 200 m [328 to 656 ft]) shelf throughout the BSAI wherever there are soft substrates consisting mainly of sand, gravel, and cobble (NMFMC 2020). Across the Project areas, EFH exists for Southern rock sole along all of the proposed FOC branch routes, with the exception of Chignik Lake and False Pass.

3.2.3.2 Yellowfin Sole (Limanda aspera)

Yellowfin sole are flatfish that can grow up to 0.5 m (1.5 ft) in length and live up to 39 years. They prefer soft sandy bottoms and are distributed in the North Pacific Ocean from British Columbia to the Chukchi Sea (Figure 38). In 2021 commercial landings of yellowfin sole totaled 235.4 million lbs (106.8 million kg) (NOAA Fisheries 2023b).

EFH is described for Yellowfin sole late juveniles and adults only. EFH for Yellowfin sole late juveniles and adults is located in the lower portion of the water column within nearshore bays and along the inner, middle, and outer shelf throughout the BSAI, where there are soft substrates consisting mainly of sand (NPFMC 2020).

3.2.4 Skate species

Three different species of skate are found in Project areas along the proposed FOC branch routes (Figure 39). Alaska skate and Bering skate are found along the proposed routes for Ouzinkie, Port Lions, Chignik Lagoon, Perryville, and Cold Bay, while Aleutian skate are found along the proposed routes for Ouzinkie and Cold Bay.

3.2.4.1 Alaska Skate (Bathyraja parmifera)

Alaska skate are cartilaginous fish that feed on invertebrates and smaller fish and can grow to over 1.2 m (4 ft) in length. They prefer soft bottoms composed of silt, sand, or mud and are distributed from the GOA to the BSAI and west to Japan. Alaska skate embryos grow for 3.7 years before emerging from their egg case (NPFMC 2013).

EFH for juvenile and adult Alaska skates is located in the lower portion of the water column on the shelf (0 to 200 m [0 to 656 ft]) and the upper slope (200 to 500 m [656 to 1,640 ft]) throughout the BSAI wherever there are substrates of mud, sand, gravel, and rock.

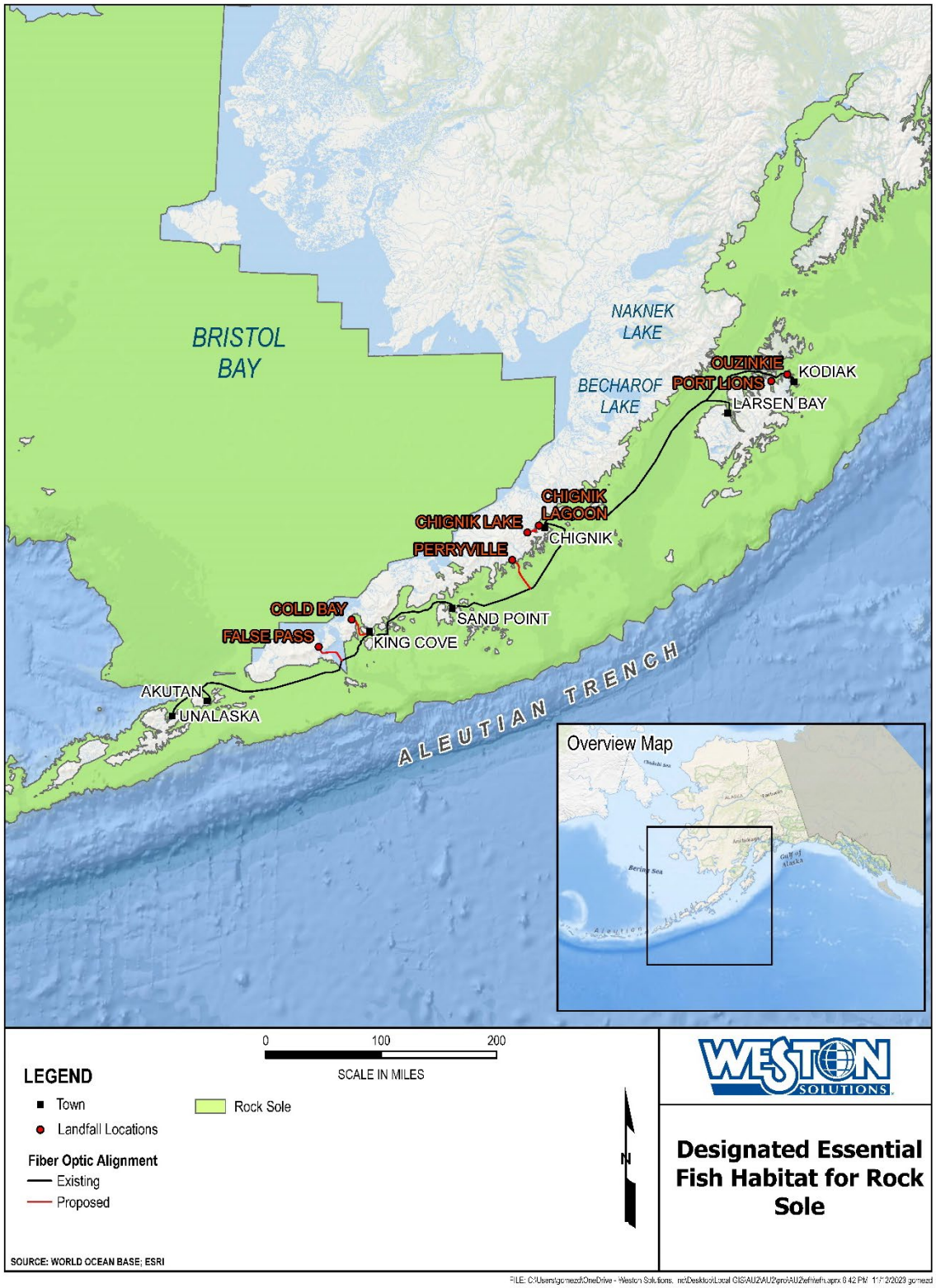


Figure 37. Designated Essential Fish Habitat for Rock Sole

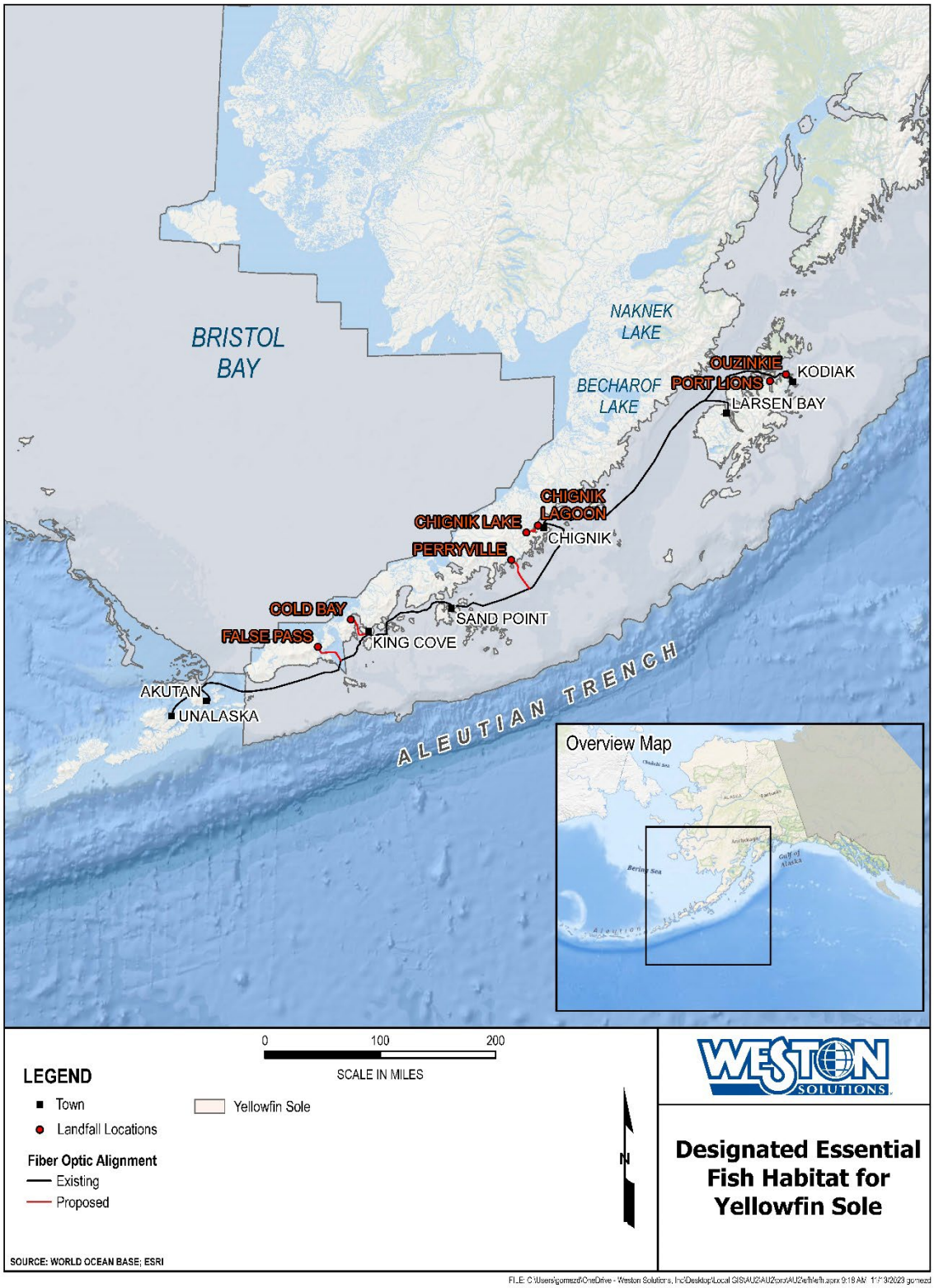


Figure 38. Designated Essential Fish Habitat for Yellowfin Sole

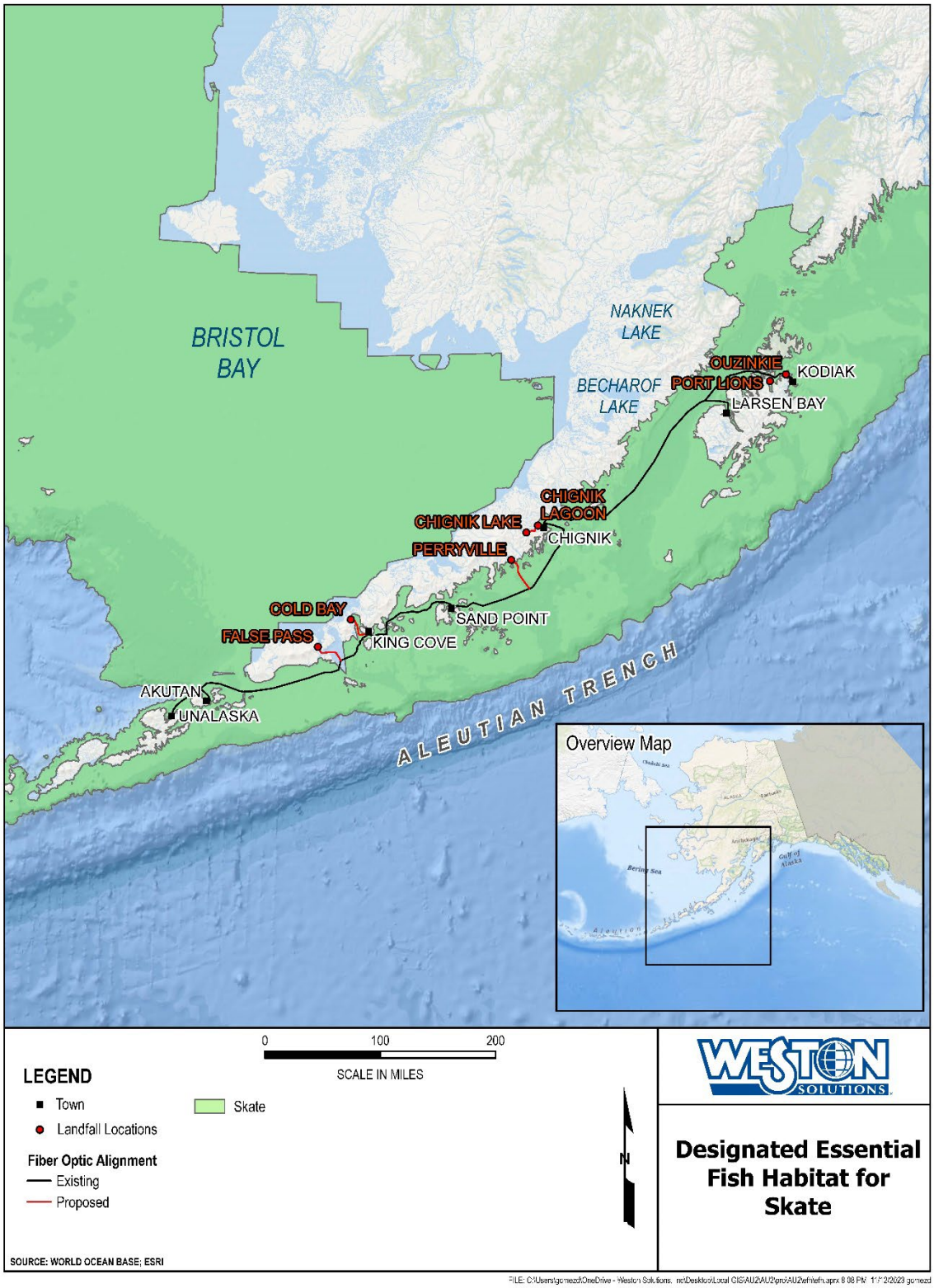


Figure 39. Designated Essential Fish Habitat for Skate Species

3.2.4.1 Aleutian Skate (Bathyraja aleutica)

The Aleutian skate is a species of skate that inhabits the North Pacific Ocean and EBS. Maximum densities occur in the EBS slope, in the waters off the central Aleutian Islands and from Kamchatka and the northern Kurils to Sakhalin Island.

EFH for juvenile and adult skates is located in the lower portion of the water column on the shelf (0 to 200 m [0 to 656 ft]) and the upper slope (200 to 500 m [656 to 1,640 ft]) throughout the BSAI wherever there are substrates of mud, sand, gravel, and rock (NPFMC 2020). Across the Project areas, EFH exists for Southern rock sole along the proposed FOC branch routes for Ouzinkie and Cold Bay.

3.2.4.1 Bering Skate (Beringraja binoculata)

The Bering skate is a species of skate that inhabits the Berring Sea and GOA. The Bering skate can reach a total length of at least 89 cm (35 in) and is primarily caught as bycatch in long line and trawl fisheries.

EFH for adult Bering skates is located in the lower portion of the water column on the shelf (0 to 200 m [0 to 656 ft]) and the upper slope (200 to 500 m [656 to 1,640 ft]) throughout the BSAI wherever there are substrates of mud, sand, gravel, and rock (NPFMC 2020).

3.2.5 Other Species

Species that fall under the groundfish management plan that are not species of salmon, rockfish, sculpin, flatfish, or skate include the following:

- Atka mackerel
- octopus
- Pacific cod
- Sablefish
- Squid
- Walleye pollock
- Weathervane scallop

3.2.5.1 Atka Mackerel (Pleurogrammus monopterygius)

Atka mackerel are commonly found in the Aleutian Islands; their range extends from the waters off Kamchatka to the EBS and the GOA (Figure 40). Research suggests that Atka mackerel populations are localized and do not travel long distances. Because Atka mackerel are key prey for Steller sea lions, they are not targeted in the EBS and directed fishing is prohibited in the event that spawning biomass is projected to be low (NPFMC 2020).

EFH for adult Atka mackerel is located in the entire water column, from sea surface to the sea floor, along the inner (0 to 50 m [0 to 164 ft]), middle (50 to 100 m [164 to 328 ft]), and outer shelf (100 to 200 m [328 to 656 ft]) throughout the GOA wherever there are substrates of gravel and rock and in vegetated areas of kelp (NPFMC 2020).

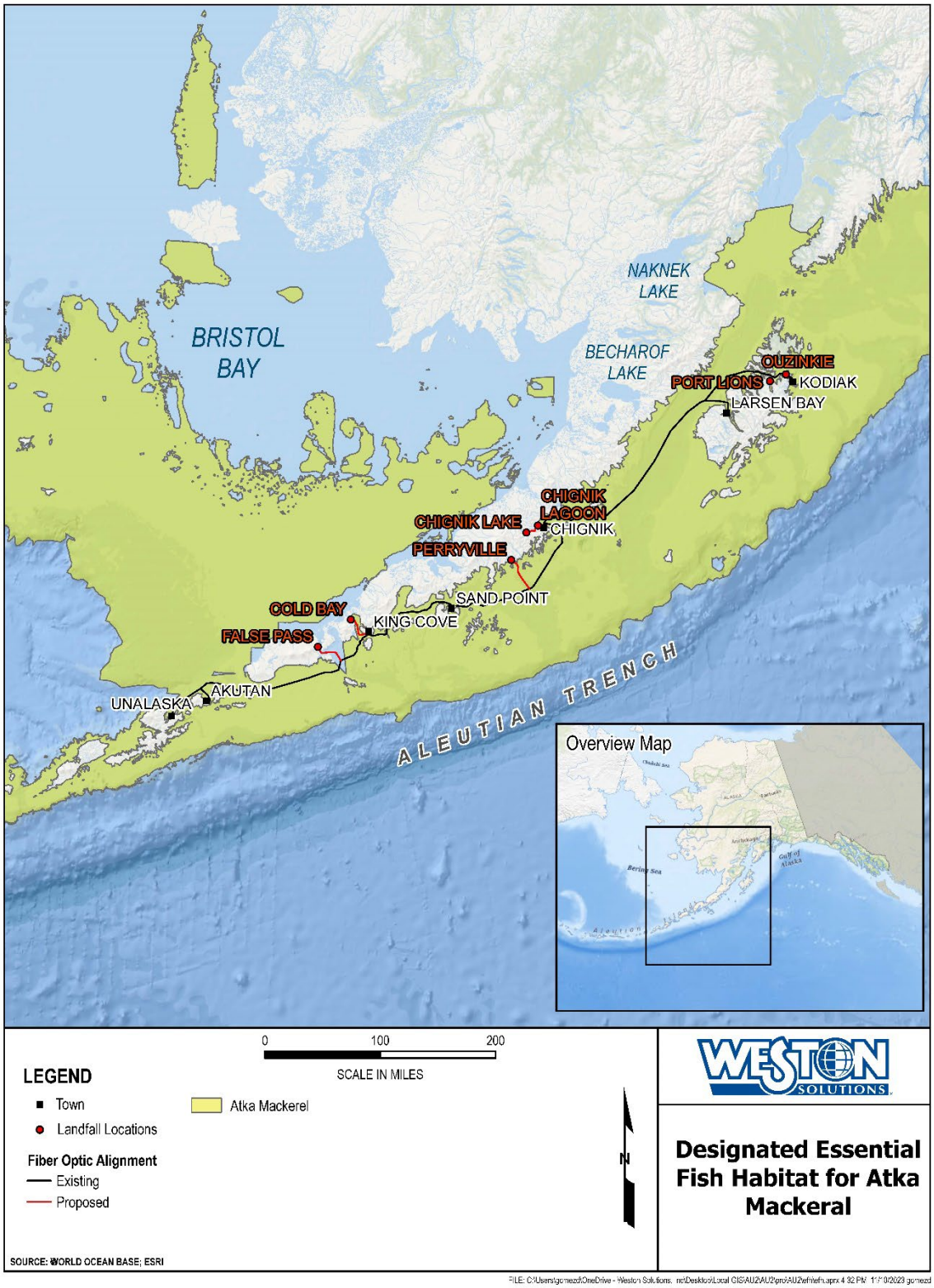


Figure 40. Designated Essential Fish Habitat for Atka Mackerel

3.2.5.2 Octopus

There are at least seven species of octopuses currently identified in the GOA. The most abundant species is the giant Pacific octopus (*Enteroctopus dofleini*), which occurs at depths less than 200 m (656 ft). Several species are primarily found in deeper waters along the shelf break and slope (NPFMC 2020).

EFH, which is only described for adult octopus, is located in demersal habitat throughout the intertidal, subtidal, shelf (0 to 200 m [0 to 656 ft]), and slope (200 to 2,000 m [656 to 6,562 ft]) (Figure 41) (NPFMC 2020).

3.2.5.3 Pacific cod (Gadus macrocephalus)

Pacific cod are distributed widely over the EBS and the Aleutian Island area, as well as from the eastern Beaufort Sea and eastward across the Canadian Arctic (Figure 42). Tagging studies have demonstrated significant migration both within and between the EBS, Aleutian Islands, and GOA. Pacific cod form schools and appear to be indiscriminate predators (NPFMC 2020).

EFH for larval Pacific cod is located in pelagic waters along the inner (0 to 50 m [0 to 164 ft]) and middle (50 to 100 m [164 to 328 ft]) shelf throughout the GOA, whereas EFH for juvenile and adult Pacific cod includes those same areas and extends to the outer (100 to 200 m [328 to 656 ft]) shelf throughout the GOA (NPFMC 2020).

3.2.5.1 Sablefish (Anoplopoma fimbria)

Sablefish range from the Bering Sea costs of Kamchatka, Russia, and Alaska southward to Hatsu Shima Island, southern Japan, and Cedros Island, Baja California, Mexico (Figure 43). Adult sablefish occur on mud bottoms from 305 to 2,740 m (1,000 to 8,990 ft) depth. Young-of-the-year juveniles are pelagic and found on the surface and near-shore waters. In general, sablefish remain in localized areas, but they have been documented to migrate over 3,219 km (2,000 mi) in the course of 6 or 7 years (NPFMC 2020).

EFH for larval sablefish is located in epipelagic waters along the middle shelf (50 to 100 m [164 to 328 ft]), outer shelf (100 to 200 m [328 to 656 ft]), and slope (200 to 3,000 m [656 to 9,843 ft]) throughout the GOA, whereas EFH for early juveniles is located in inshore waters, bays, passes, and on shallow shelf pelagic and demersal habitat (NPFMC 2020).

EFH for late juvenile sablefish is located in the lower portion of the water column, varied habitats, generally softer substrates, and deep shelf gullies along the slope (200 to 1,000 m [656 to 3,281 ft]) throughout the GOA. EFH for adult sablefish is located in deep shelf gullies along the slope (400 to 800 m [1,312 to 2,625 ft]) throughout the GOA (NPFMC 2020).

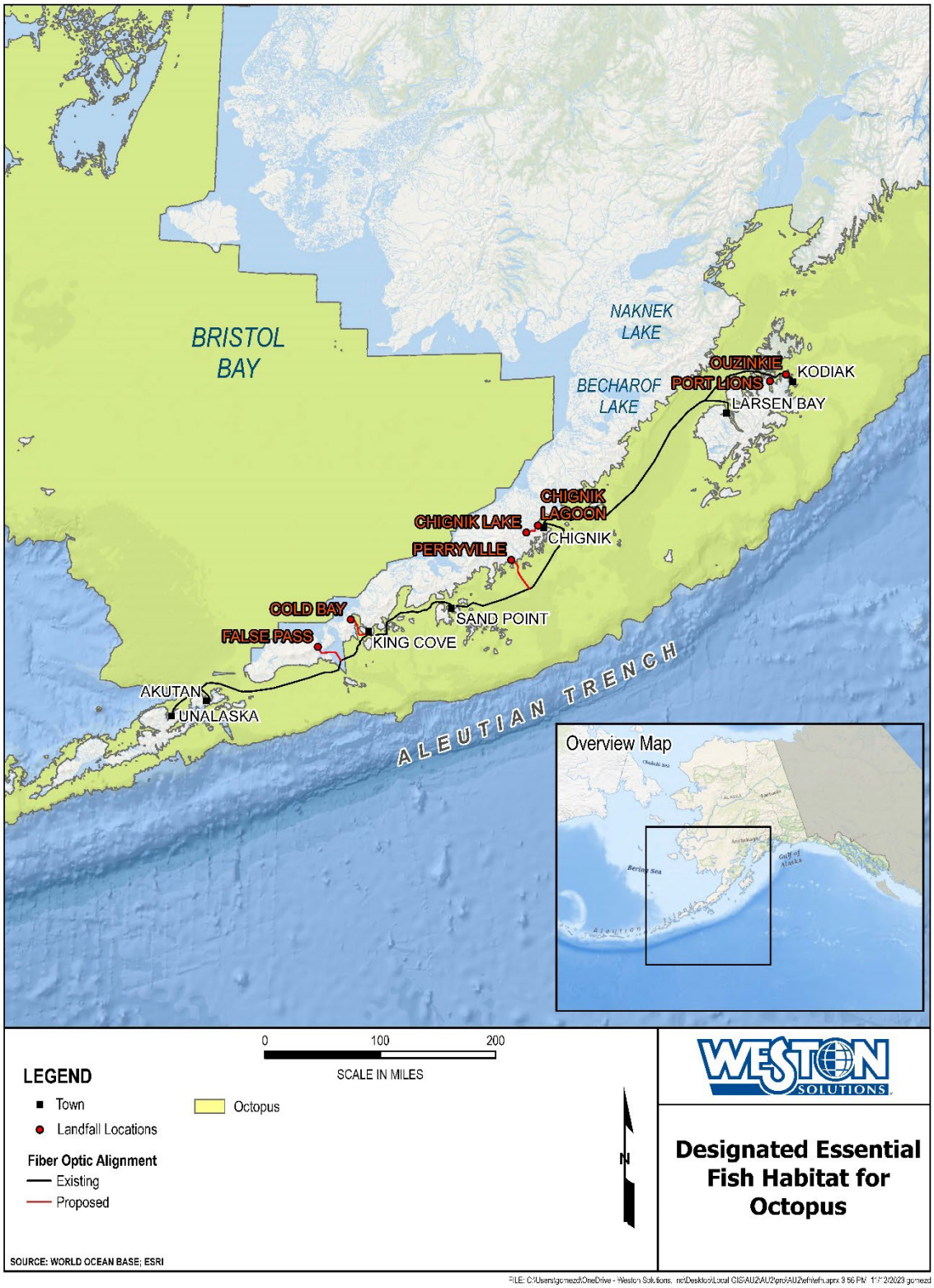


Figure 41. Designated Essential Fish Habitat for Octopus Species

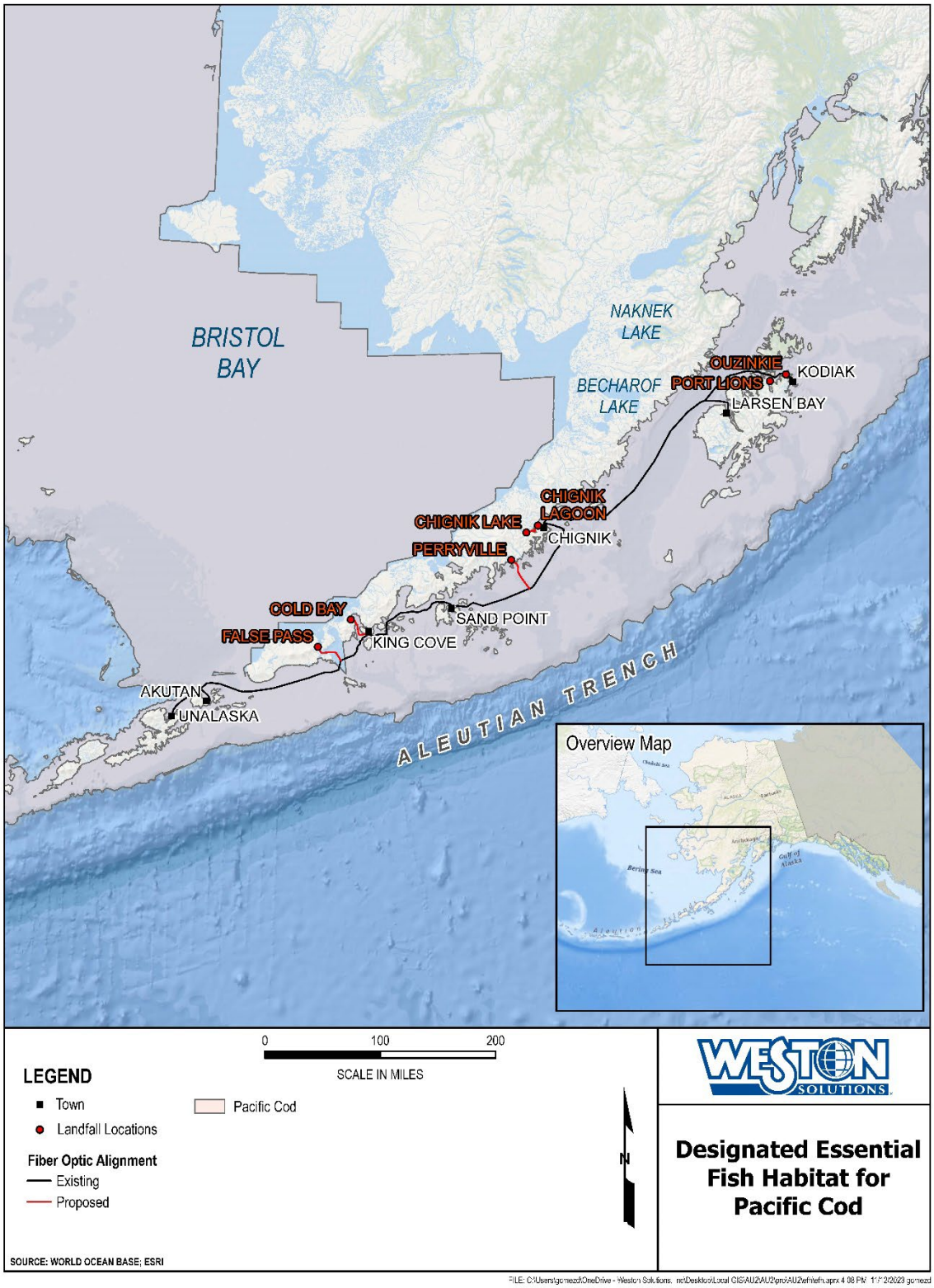


Figure 42. Designated Essential Fish Habitat for Pacific Cod

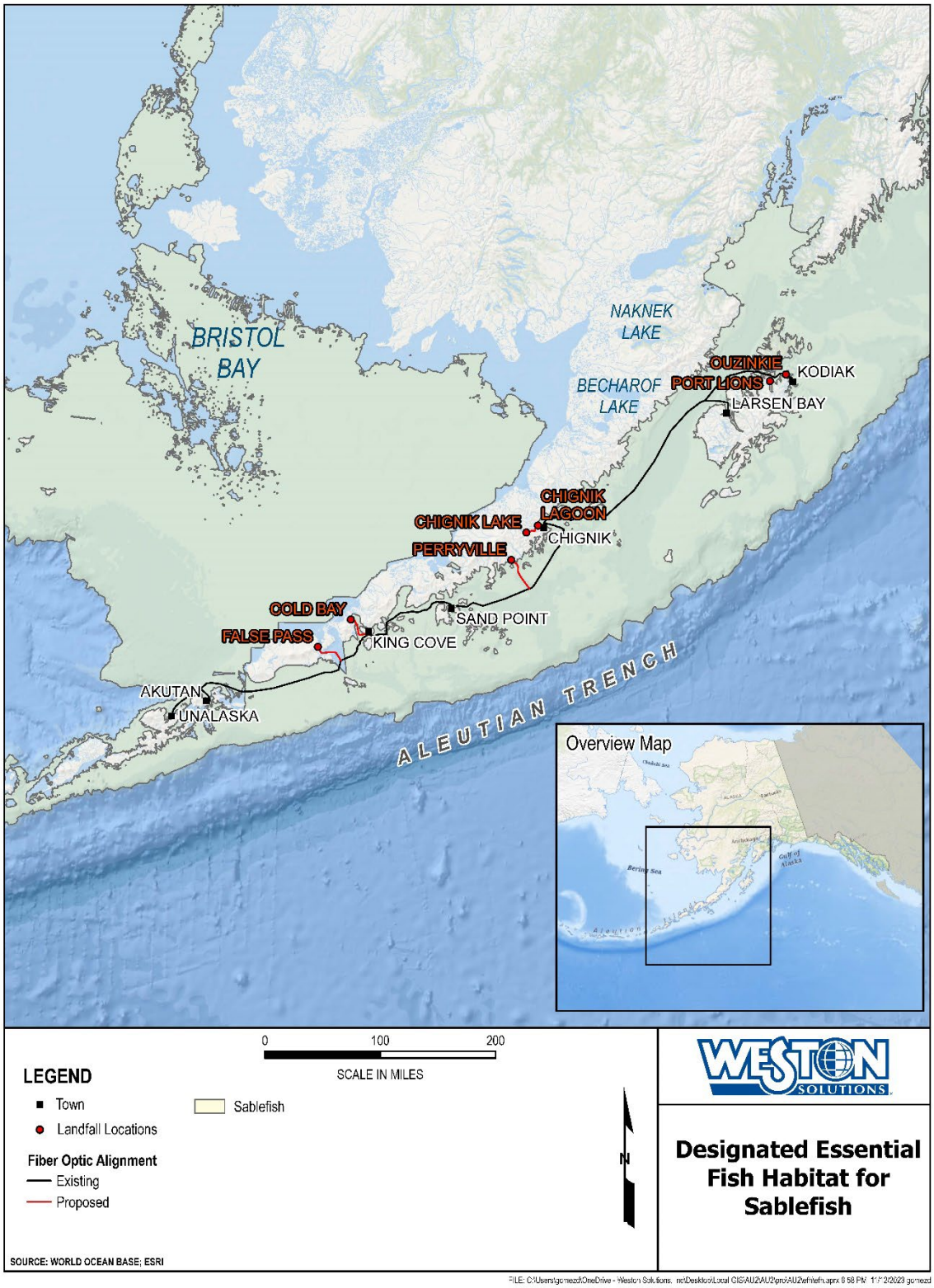


Figure 43. Designated Essential Fish Habitat for Sablefish

3.2.5.1 Squid (Doryteuthis sp.)

There are approximately 15 species of squid that reside in the BSAI region (Figure 44). These species use water depths from 10 m (33 ft) to greater than 1,500 m. (4,921 ft). All but one species are pelagic, and two species are commonly found in close proximity to the bottom. Most species are associated with the slope and basin; the highest species diversity along the Bering Sea slope region occurs between 200 and 1,500 m (656 and 4,921 ft) (Ormseth and Spital 2010).

EFH is described for late juvenile and adult squid only. Insufficient data are available to describe EFH for other life stages. EFH for late juvenile and adult squid is located in the entire water column, from the sea surface to the sea floor, along the inner, middle, and outer shelf and the entire slope throughout the BSAI (NPFMC 2020).

3.2.5.2 Walleye pollock (Gadus chalcogrammus)

Walleye pollock range in the North Pacific, from Kivalina, Alaska to the southern Sea of Japan and Carmel, California (Figure 45). Adults usually live close to the sea floor, but can also appear up near the surface, performing diurnal vertical migrations (NPFMC 2020).

EFH for walleye pollock eggs and larvae is located in epipelagic waters along the entire shelf (0 to 200 m [0 to 656 ft]), upper slope (200 to 500 m [656 to 1,640 ft]), and intermediate slope (500 to 1,000 m [1,640 to 3,281 ft]) throughout the GOA. EFH for juvenile walleye pollock is located in the lower and middle portion of the water column along the inner (0 to 50 m [0 to 164 ft]), middle (50 to 100 m [164 to 328 ft]), and outer (100 to 200 m [328 to 656 ft]) shelf throughout the GOA. Adult walleye pollock EFH is located in the lower and middle portion of the water column along the entire shelf (approximately 10 to 200 m [33 to 656 ft]) and slope (200 to 1,000 m [656 to 3,281 ft) throughout the GOA. Substrate preferences, if they exist, are unknown (NPFMC 2020).

3.2.5.3 Weathervane scallop (Patinopectin caurinus)

Weathervane scallops range from Point Reyes, California to the Pribilof Islands, Alaska (Figure 46). In Alaska, the highest densities of weathervane scallop are typically found along the eastern gulf coast from Cape Spencer to Cape St. Elias, around Kodiak Island, and in the Bering Sea (NPFMC 2014).

EFH is described for Weathervane scallop late juveniles and adults only, as there is insufficient data available to describe EFH for other life stages. EFH for late juvenile and adult weathervane scallop is located in the seafloor along the inner, middle, and outer shelf in concentrated areas of the GOA and BSAI, where substrates are clay, mud, sand, and gravel that are generally elongated in the direction of the current flow (NPFMC 2014).

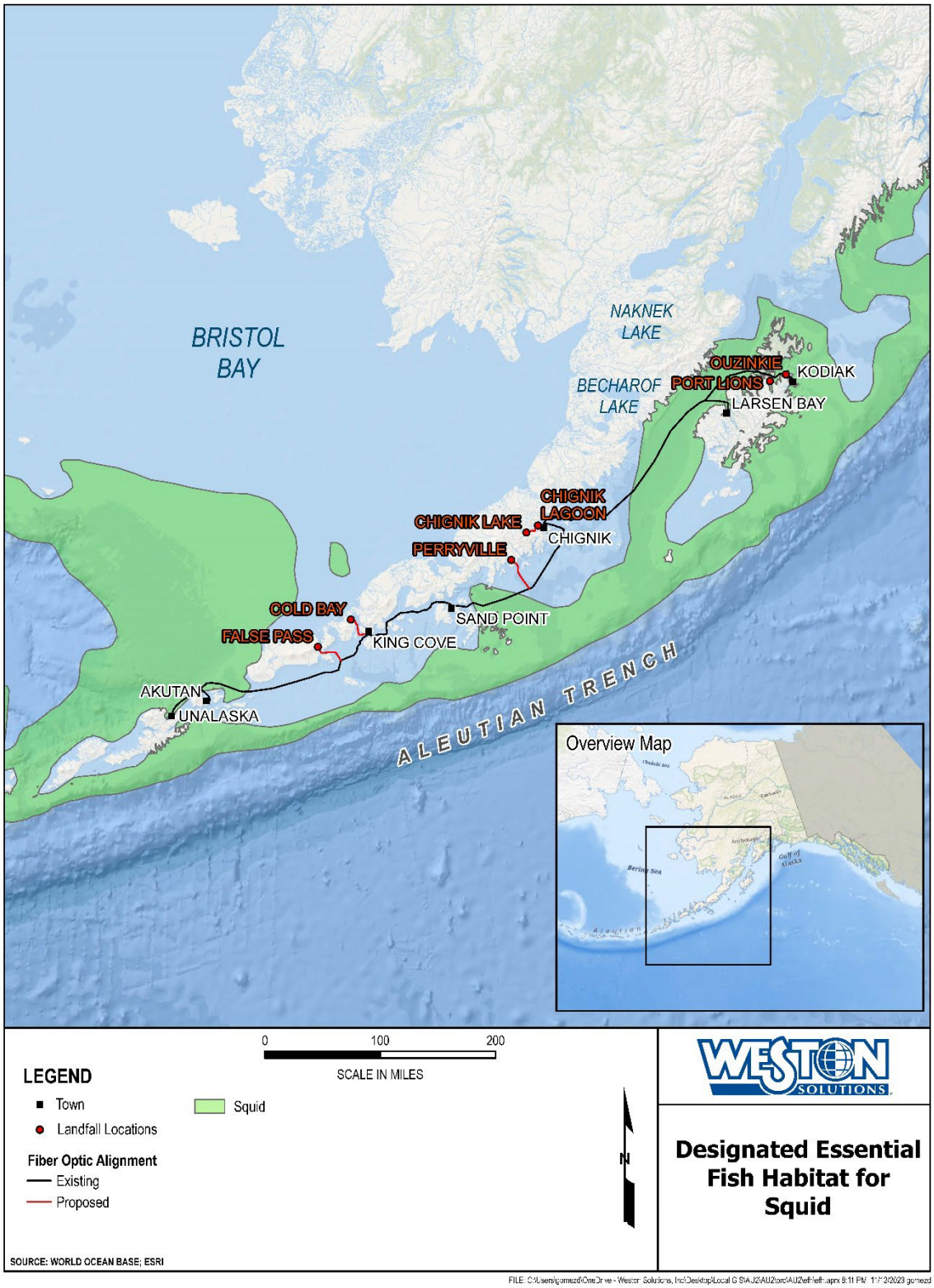


Figure 44. Designated Essential Fish Habitat for Squid Species

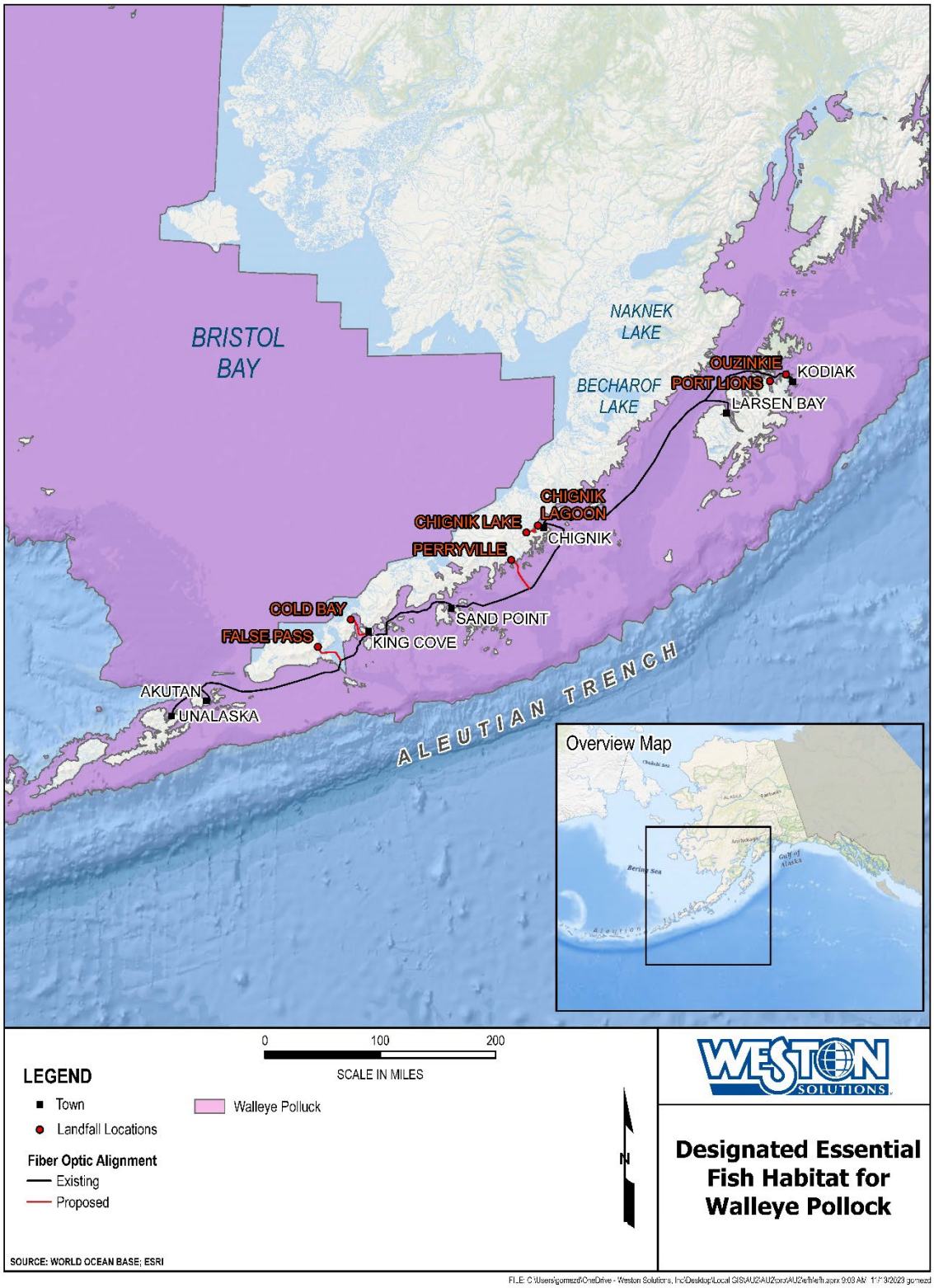


Figure 45. Designated Essential Fish Habitat for Walleye Pollock

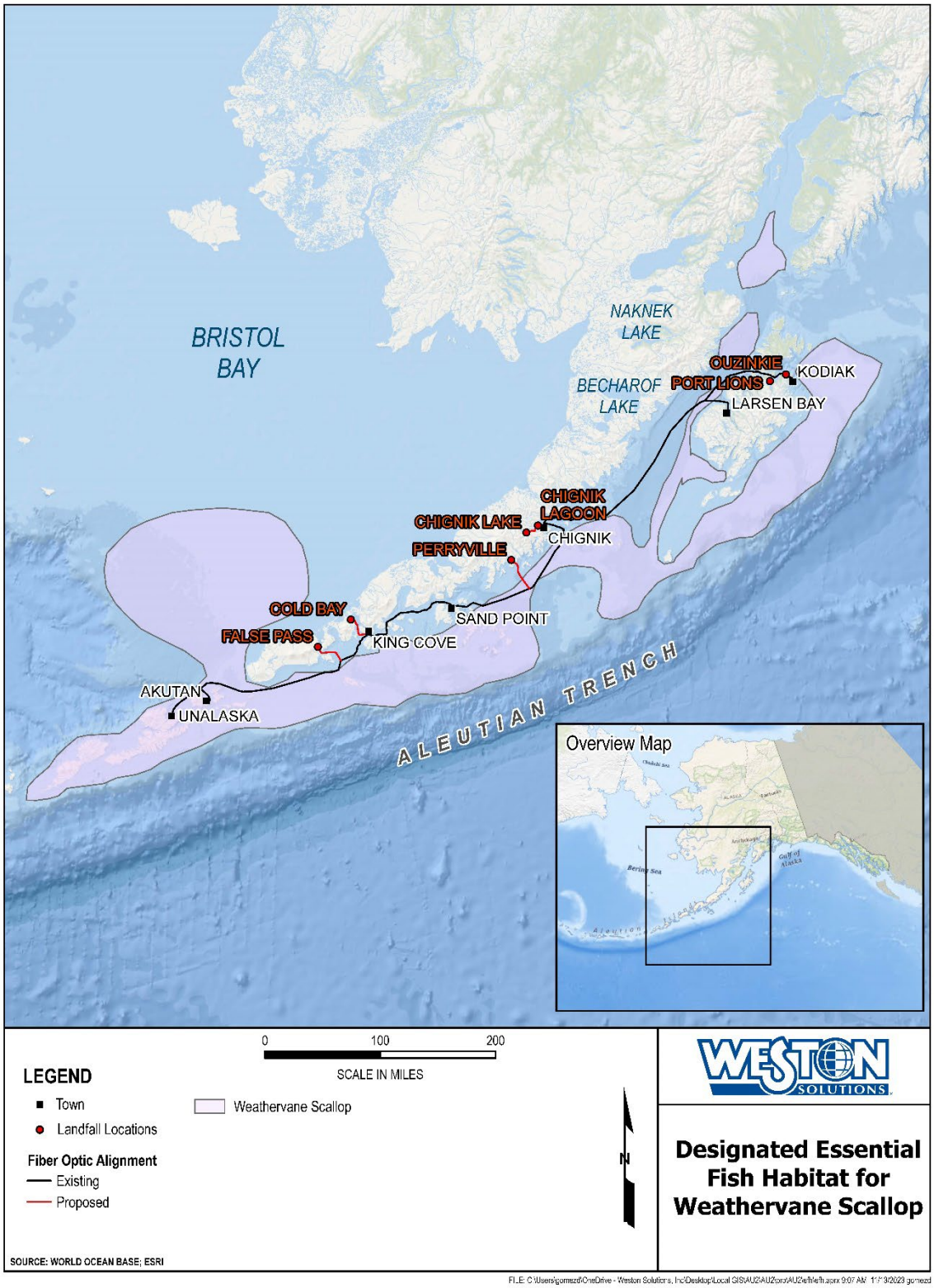


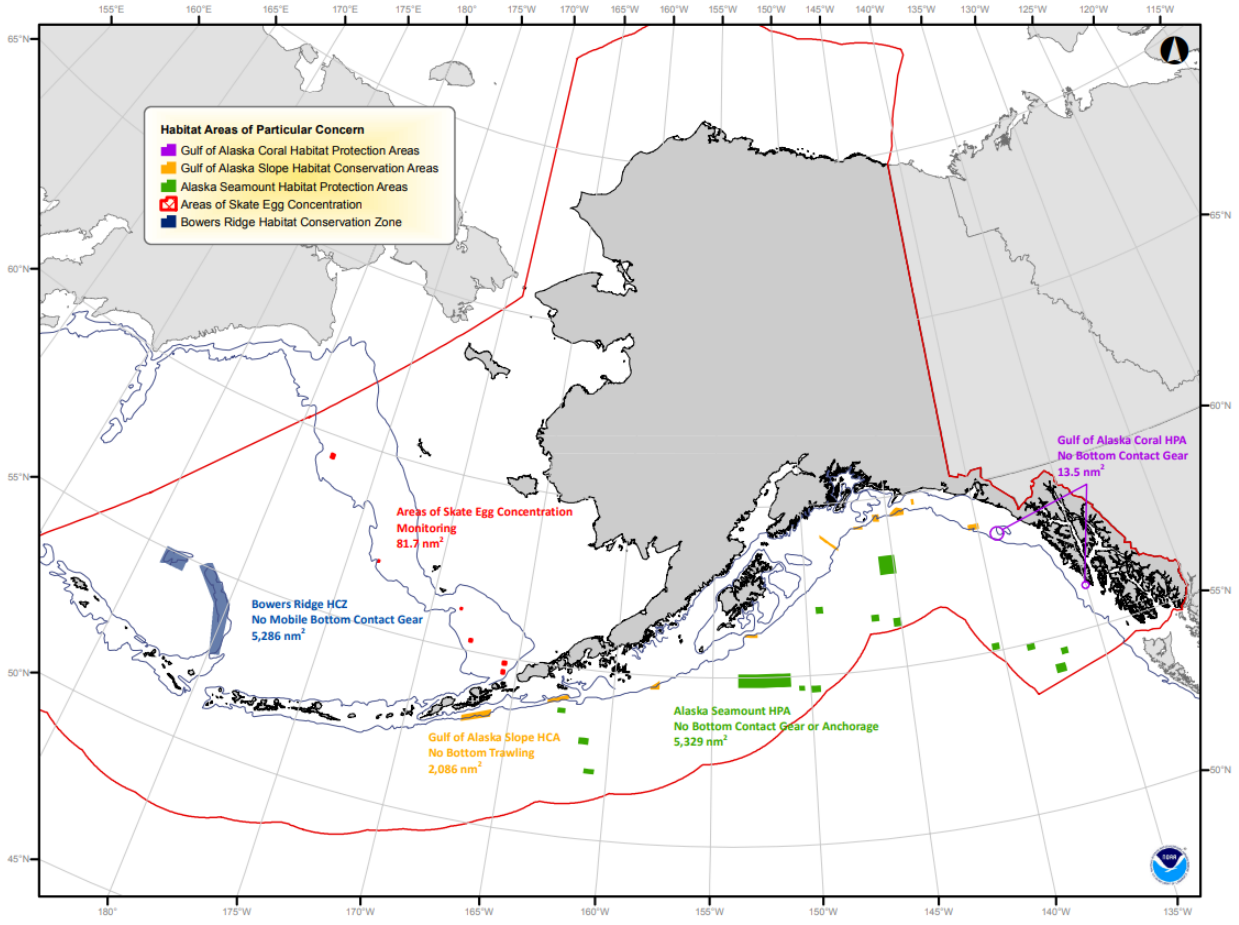
Figure 46. Designated Essential Fish Habitat for Weathervane Scallop

3.3 HABITAT AREAS OF PARTICULAR CONCERN

Habitat Areas of Particular Concern (HAPCs) are specific sites within EFH that are meant to provide greater focus to conservation and management efforts and may have additional protections from adverse effects. HAPCs are based on one or more of the following considerations:

1. The importance of the ecological function provided by the habitat;
2. The extent to which the habitat is sensitive to human-induced environmental degradation;
3. Whether, and to what extent, development activities are, or will be, stressing the habitat type; or
4. The rarity of the habitat type.

Figure 47 presents HAPCs present in Alaska.



Source: NOAA 2023c

Figure 47. Habitat Areas of Particular Concern in Alaska

No HAPCs occur within the Project area (NPFMC 2023b). The closest HAPC is the GOA Slope Habitat Conservation Area which lies over 70 km (43 mi) south of the False Pass branch segment.

4. POTENTIAL EFFECTS ON ESSENTIAL FISH HABITAT

Potential effects of the Project on EFH for the species listed in Table 5 are summarized in Table 6 and detailed in the sections below. All effects described in Table 6 will occur only during construction and are not expected to occur once the Project is operational.

Table 6. Potential Effects to Essential Fish Habitat from the AU-Aleutian II Project

Project Action	Potential Effects EFH	Type of Effect	Potential EFH Species Affected
Trenching	Alteration of habitat	Direct Temporary to short term	All species that inhabit nearshore and intertidal areas in Table 5
Trenching	Mortality (entrainment) of organisms in the excavation path	Direct Short term	All species that inhabit nearshore and intertidal areas in Table 5
Trenching	Turbidity	Indirect Temporary	All species that inhabit nearshore and intertidal areas in Table 5

4.1 DIRECT EFFECTS

4.1.1 Alteration of Habitat

Trenching will temporarily alter habitats by disturbing substrates. Effects will occur once during construction and will be short term; the proposed action will not permanently damage habitats. Trench spoils will be Backfilled. In areas with large boulders, boulders will be replaced. Trenching and plowing will be used in areas where physical conditions or human activities could affect the line (e.g. areas with oil exploration, trawling, anchoring, bottom contact fisheries, etc.) Approximately 7,840 acres (ac) of temporary disturbance from trenching over roughly 2.4 km (1.5 mi) (Table 3). Temporary alteration of habitat could affect EFH for all species that inhabit nearshore and intertidal areas in Table 5. Habitat would be expected to recover to pre-trenching conditions within 1 to 2 years. Recovery could be quicker if substrates are not colonized with algae or invertebrates.

4.1.2 Entrainment or Mortality

Entrainment or mortality of organisms in the trench path (0.3 m [1 ft] wide and 0.3 m [1 ft] deep) could occur. This will mainly occur for small species or juvenile fish that are benthic and use soft substrates, such as flounder, sole, turbot, some species of sculpin, skates, snow and tanner crab, some species of rockfish, squid, and scallops. Effects will occur once during construction, be short term, and occur to individual fish not populations. Trench spoils will be backfilled and will not be removed from the water, thus if organisms are entrained, but not injured, they will simply be displaced. The trenching footprint in which entrainment could occur will be approximately 0.17 ac over roughly 2.4 km (1.5 mi) (Table 3).

4.2 INDIRECT EFFECTS

4.2.1 Increased Turbidity

Trenching below MHW will cause a temporary increase in suspended sediment and turbidity in areas with mobile substrates. Trenching will occur during construction and will be limited to areas where physical conditions or human activities could affect the cable (e.g. areas with oil exploration, trawling, anchoring, bottom contact fisheries, etc.) This could cause temporary turbidity over the trenching route, which will be

approximately 0.17 ac over roughly 2.4 km (1.5 mi) (Table 3). Increased turbidity can decrease primary production and temporarily alter phytoplankton communities. However, because the duration and severity of turbidity are expected to be localized and temporary, large changes in productivity or fish function are not expected. Temporary increases in turbidity could affect EFH for any species in Table 5 inhabiting nearshore or intertidal areas.

Though trenching will occur above MHW in the area adjacent to designated EFH, BMPs from the Project's USACE Nationwide Permit will be implemented. These include use of erosion and sediment control measures and revegetation of areas where vegetation is removed. With these BMPs in place, no suspended sediment or turbidity is expected to runoff to down gradient habitats, and thus no effects to EFH are anticipated from work above MHW.

4.3 CUMULATIVE EFFECTS

Though the MSA does not define cumulative effects, the ESA defines them as future state, city/borough, or private activities that are reasonably certain to occur within the Project area (50 CFR 402.02). Future federal actions are excluded because they would have their own consultation process. Cumulative effects include synergistic effects in which two stressors collectively cause greater harm than the effects of the overall impacts of an individual stressor.

4.3.1 Coastal Development

Coastal zone development may result in the loss of habitat, increased vessel traffic, increased pollutants and increased noise (during both construction and operations). As the population in human communities in Bristol Bay continue to grow, an increase in amount of pollutants that enter the bay may occur. Sources of pollutants in developed areas include runoff from streets and discharge from wastewater treatment facilities. Gas, oil, and coastal zone development projects also contribute to pollutants that may enter Bristol Bay through discharge. Significant development is not expected to take place in Bristol Bay; therefore, it would be expected that pollutants will likely not increase in Bristol Bay. Further, the Environmental Protection Agency and the Alaska Department of Environmental Conservation will continue to regulate the amount of pollutants that enter Bristol Bay from point and non-point sources through Alaska Pollutant Discharge Elimination System (PDES) and National PDES permits. As a result, permitees will be required to renew their permits, verify they meet permit standards and potentially upgrade facilities. Additionally, the extreme tides and strong currents in Bristol Bay may contribute in reducing the amount of pollutants found in the region.

The proposed Project will result in a minor and temporary increase in turbidity and entrainment of small benthic species, as well as a temporary alteration of EFH. While the broadband service will improve communications for communities throughout the region, it is not expected to result in substantial coastal development.

4.3.2 Commercial Fishing

Fishing is the primary industry in Bristol Bay. As long as fish stocks are sustainable, subsistence, personal use, recreational, and commercial fishing will continue to occur. As a result, there will be continued anchoring or trawling on the seafloor and lost or abandoned fishing gear. NMFS and the ADF&G will continue to manage fish stocks and regulate fishing to maintain sustainable stocks.

4.3.3 Oil and Gas Exploration and Development

It is unknown if the North Aleutian Basin will be re-opened to oil and gas exploration in the future. Potential impacts from gas and oil development on EFH include increased noise from seismic activity, construction of platforms and well drilling, discharge of wastewater, habitat loss from the construction of oil and gas facilities; and increased risk of a potential oil spill. The risk of these impacts may increase as oil and gas development increases; however, new development will undergo consultation with NMFS prior to exploration and development.

4.3.4 Mining

The potential impacts from mineral exploration and development, such as the Pebble Mine, include changes to water quality and/or quantity, increased wastewater discharges, and loss of habitat. The risk of these impacts may increase; however, new developments will undergo consultation prior to start of work.

5. PROPOSED CONSERVATION MEASURES

Unicom proposes the following conservation measures, which are in alignment with Limpinsel et al. (2017).

1. Align crossings to avoid rock reefs and shoals to the extent possible.
2. Avoid construction of permanent access channels since they disrupt natural drainage patterns and destroy wetlands through excavation, filling, and bank erosion.
3. Backfill excavated wetlands with either the same or comparable material capable of supporting similar wetland vegetation. Original marsh elevations will be restored, to the extent practicable. Topsoil and organic surface material such as root mats will be stockpiled separately and returned to the surface of the restored site. Adequate material will be used so that following settling and compaction of the material, the proper pre-project elevation is attained. If excavated materials are insufficient to accomplish this, similar grain size material will be used to restore the trench to the required elevation. After backfilling, erosion protection measures will be implemented where needed.
4. Use existing rights-of-way whenever possible to lessen overall encroachment and disturbance of wetlands.
5. Access for equipment will be limited to the immediate project area. Tracked vehicles are preferred over wheeled vehicles. Consideration will be given to the use of mats and boards to minimize impacts.
6. Limit construction equipment to the minimum size necessary to complete the work. Shallow-draft equipment will be employed in shallow areas so as to minimize impacts and eliminate the necessity of temporary access channels.
7. The cable trench path will be opened for the shortest duration possible and backfilled as soon as work is complete.
8. When possible, conduct construction during the time of year that will have the least impact on sensitive habitats and species (as determined by NMFS and/or ADF&G).
9. Use horizontal directional drilling where cables or pipelines would cross anadromous fish streams, salt marsh, vegetated intertidal zones, or steep erodible bluff areas adjacent to the intertidal zone.

10. Bury pipelines and submerged cables where possible. Unburied pipelines or pipelines buried in areas where scouring or wave activity eventually exposes them run a much greater risk of damage leading to leaks or spills.
11. Remove inactive pipelines and submerged cables unless they are located in sensitive areas (e.g., marsh, reefs, seagrass). If pipelines are allowed to remain in place, ensure that they are properly pigged, purged, filled with seawater, and capped.
12. Use silt curtains or other barriers to reduce turbidity and sedimentation near the project site whenever possible.
13. Locate alignments along routes that will minimize damage to marine and estuarine habitat. Avoid laying cable over high-relief bottom habitat and across live bottom habitats such as corals and sponges.

6. CONCLUSION AND EFFECTS DETERMINATION

The Project may adversely affect EFH due to:

- Temporary habitat alteration in the trench path during construction,
- Temporary localized increase in turbidity in the trench path during construction, and
- Short term entrainment or mortality of individuals in the trench path during construction.

The limited EFH in the Project area will not be impacted to the point of causing adverse impacts on fish populations. Individuals of a variety of species are expected to move successfully into similar habitats, since the types of habitats that will be affected are not unique or rare. The potentially affected EFH is small in relation to available EFH in the immediate vicinity.

All effects would be temporary during construction and Unicom has proposed a number of conservation measures to avoid and minimize impacts to the extent possible.

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APPENDIX A

IT INTEGRITY SPECIFICATIONS

C.S. IT INTEGRITY

The IT Integrity is a UT755L - 5,450 BHP Platform supply / ROV support vessel recently acquired and fully retrofitted as a versatile and capable vessel for submarine cable repair, installation, marine route survey, ROV support and more.

SPECIFICATIONS

REGISTRATION

Year Built	2001
Builder	Soviknes Verft, Norway
Flag	Barbados
Classification	DNV 1A1, SF, EO, DK, DYNPOS - AUTR

DIMENSIONS

Length Overall	72 m
Breadth Moulded	16 m
NRT	936 T
Deadweight	3,200 T

SPEED – CONSUMPTION

Cruising Speed	12 kts – 14T/day
Economic Speed	10 kts – 10T/day
DP	Approx 4 to 5T/day

MACHINERY

Main Engines	2 x 2,725 BHP
Thrusters Bow	1 x 800 BHP
Thruster Azimuth	1 x 1,000 BHP
Thruster Azimuth	1 x 1,000 BHP
Rudders	2 x Rolls Royce High Lift
Propellers	2 x CPP
Capstans	2 x 8 T
Deck Crane	1 x 5T @ 10 m
Tugger Winch	2 x 10 T
Deck Load	1,500 T
Fuel Oil	916.8 m3
Potable Water	796.3 m3

ACCOMODATION

14 x 1 man + 12 x 2 man = 38 beds total

CRANES / LIFTING CAPACITIES

Stern A-frame	25 T
Fwd Deck Crane	5T@10m
	3T@16m

OTHERS

Moon pool	4.35 x 3.8 m
Survey tube	0.5 m clear hole

PROJECT PERMANENT EQUIPMENT

Survey Cursor in moonpool