2025

Chignik Subregional Watershed Plan

FINAL, MARCH 7, 2025

SUBMITTED ON BEHALF OF THE CHIGNIK BAY TRIBAL COUNCIL

Chignik Bay Tribe, project # ACWA-23-01. This project has been funded in part by a Department of Environmental Conservation Alaska Clean Water Actions (ACWA) grant with support from the U.S. EPA.

ACKNOWLEDGEMENTS

This plan was created by the Chignik Bay Tribal Council with input from Chignik subregional residents and partners. Thank you to everyone who contributed. A special thank you to:

- Chignik Subregion
  - Chignik Bay Tribal Council: Debbie Carlson, Jeanette Carlson
  - Chignik Intertribal Coalition: George Anderson
  - Chignik Lake Traditional Council: Denise Bereskin, Zita Andrews
  - Chignik Regional Aquaculture Association: Austin Shangin, Chuck McCallum
  - Chignik River Limited: Ron Lind
  - City of Chignik: Dannica Anderson
  - Native Village of Chignik Lagoon: Michelle Anderson, Oscar Mills, Sabrina Anderson
- Partners and Supporters
  - Artesian Knowledge: Marcus Geist
  - Bristol Bay Heritage Land Trust: Tim Troll
  - Flensburg Consulting: Sue Flensburg
  - Lake and Peninsula Borough: Danica Wilson, Jordan Keeler, Nathan Hill
  - University of Alaska Fairbanks, Alaska Coastal Cooperative: Chris Maio, Matthew Balazs
- 2023 and 2024 Chignik Regional Resiliency Symposium Participants

This project has been funded in part by a Department of Environmental Conservation (ADEC) Alaska Clean Water Actions (ACWA) grant with support from the U.S. Environmental Protection Agency (EPA). A special thank you to ADEC Environmental Program Specialist Mary Inovejas and ADEC Nonpoint Source Water Pollution Prevention and Restoration Section Manager Laura Eldred for their guidance and support throughout the development of this plan.

The Chignik subregional watershed are on the ancestral lands and waters of the Alutiiq peoples. We acknowledge the past, present, and future indigenous stewards of these places. This plan is a testament to the ongoing interest and desire to honor and protect these resources for many generations to come.

This project was facilitated by Agnew::Beck Consulting with assistance from Kai Consulting.

Resolution of Support: Chignik Bay Tribal Council

Chignik Bay Tribal Council
P.O. Box 50
Chignik Bay, Alaska 99564

RESOLUTION 2025-05

ADOPTING THE CHIGNIK SUBREGIONAL WATERSHED PLAN

WHEREAS, The Village of Chignik Bay is a federally recognized tribe and the Chignik Bay Tribal Council (herein the "Council") is its elected governing body; and

WHEREAS, The Council recognizes the importance of protecting the lands, waters, and natural resources that sustain our way of life; and

WHEREAS, salmon are central to the identity, subsistence, and economic well-being of the communities of the Chignik region, embodying generations of knowledge, self-reliance, and cultural continuity; and

WHEREAS, the health of salmon populations and their habitats is directly tied to the ability of residents to sustain traditional ways of life, pass down knowledge to future generations, and maintain a viable local economy; and

WHEREAS, changes in climate, habitat conditions, and fishery management have created uncertainty for salmon runs, reinforcing the urgent need for community-driven science, habitat protection, and watershed stewardship to ensure the long-term resilience of Chignik's fisheries and the people who depend on them; and

WHEREAS, healthy watersheds are essential for sustaining traditional and cultural practices, ensuring clean drinking water, and supporting the long-term well-being of our community and future generations; and

WHEREAS, the Chignik Bay Tribal Council conducted a project to develop a watershed plan for the Chignik subregion, which was funded by a DEC Alaska Clean Water Action (ACWA); and

WHEREAS, the Chignik Subregional Watershed Plan has been developed with input from surrounding communities and local organizations, reflecting shared priorities and strategies for watershed protection, restoration, and sustainable management; and

WHEREAS, the Chignik Bay Tribal Council appreciates in particular contributions by the Chignik Intertribal Coalition, the Lake & Peninsula Borough, and the Chignik Regional Aquaculture Association; and

WHEREAS, this protection based watershed plan provides a framework for regional collaboration, mitigation and/or restoration of watershed habitat, and potential funding opportunities to support local watershed protection efforts; and

WHEREAS, supporting this plan does not require any financial obligation but acknowledges the value of coordinated efforts to preserve the ecological and cultural integrity of the Chignik region.

NOW, THEREFORE, BE IT RESOLVED, that the Chignik Bay Tribal Council **formally adopts the Chignik Subregional Watershed Plan** as a guiding document for protecting and managing watershed resources in a way that aligns with local values and needs; and

BE IT FURTHER RESOLVED, that the Chignik Bay Tribal Council remains committed to working with regional partners, agencies, and communities to ensure the health and sustainability of our watershed for generations to come.

CERTIFICATION:
This resolution was duly considered and adopted at a meeting of the Chignik Bay Tribal Council in the Village of Chignik Bay, Alaska on this 25th day of April, 2025, at which a quorum of Council members were in attendance.

Roderick Carlson, President 4/25/25
Roderick Carlson, Tribal President Date

ATTEST:

4-25-25
Jeanette Carlson, Tribal Secretary Date

4-25-25
Debbie Carlson, Tribal Administrator Date

Resolution of Support: City of Chignik

City of Chignik
PO Box 110
Chignik, AK 99564

Phone (907) 749-2280
Fax (907) 749-2300

RESOLUTION 25-03

A RESOLUTION OF THE CITY OF CHIGNIK SUPPORTING THE CHIGNIK SUBREGION WATERSHED PLAN AND PRIORITIZING STORMWATER MANAGEMENT AND DRAINAGE MAPPING FOR THE COMMUNITY

WHEREAS, the City of Chignik recognizes the importance of protecting its natural resources, including clean water, healthy fisheries, and subsistence resources that sustain the community's way of life; and

WHEREAS, the Chignik Subregion Watershed Plan was developed with input from three communities —Chignik Bay, Chignik Lagoon, and Chignik Lake—to identify shared priorities for watershed protection and sustainable resource management; and

WHEREAS, the plan highlights Priority Strategy C: Completing a drainage map and stormwater management plan for Chignik Bay, which will help reduce runoff pollution, improve water quality, and support the long-term health of the region's aquatic habitats; and

WHEREAS, implementation of this strategy will also assist in identifying historic and undocumented waste sites, improving flood resilience, and supporting responsible development following the recent transfer of former industrial properties to the City of Chignik; and

WHEREAS, the City of Chignik acknowledges the importance of regional cooperation and will work alongside the Chignik Bay Tribal Council and other stakeholders to pursue funding, technical assistance, and long-term stormwater management solutions.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY OF CHIGNIK, ALASKA:

Section 1. The City of Chignik formally supports the Chignik Subregion Watershed Plan and its identified strategies to protect the region's water resources.

Section 2. The City of Chignik prioritizes stormwater management efforts and commits to working with local, state, and federal partners to develop a drainage map and stormwater

management plan, improve drainage infrastructure, and implement best management practices to ensure the resilience of the community and its natural resources.

Section 3. Effective date. This resolution shall be effective immediately after its adoption.

PASSED AND APPROVED by a quorum of the Chignik City Council on this 13th **Day of** March**, 2025**

Signed: _____
Robert Carpenter, Mayor

Attest: _____
Dannica Anderson, City Clerk/Treasurer

CITY OF CHIGNIK INCORPORATED 1983

Resolution of Support: Chignik Intertribal Coalition

CHIGNIK INTERTRIBAL COALITION
427 AIRPORT ROAD
CHIGNIK LAGOON, ALASKA 99565

Chignik Bay Tribal Council
c/o Debbie Carlson
P.O. Box 50
Chignik Bay, Alaska 99564

Re: *Letter of Support for the 2025 Chignik Subregional Watershed Protection Plan*

To Members of the Chignik Bay Tribal Council,

On behalf of the Chignik Intertribal Coalition (CIC), I am writing to express our strong support for the 2025 Chignik Subregional Watershed Protection Plan, particularly Priority Strategy B: *Improve stock assessment and monitoring of salmon populations*. The health of Our salmon populations is inextricably linked to the health of our watershed and our people. We recognize the importance of monitoring efforts to sustain the ecological, cultural, and economic well-being of our communities.

The Chignik Intertribal Coalition represents the five federally recognized Tribes in the Chignik area—Chignik Bay, Chignik Lagoon, Chignik Lake, Ivanof Bay, and Perryville. We were formed in response to the devastating failure of the 2018 sockeye salmon run, a crisis that underscored the urgent need for stronger management efforts to protect and restore our fisheries. Our mission is to advocate for policies and initiatives that preserve the economic and subsistence interests of our communities while upholding our deep cultural connection to salmon.

The CIC is committed to advancing the implementation of Priority Strategy B through our leadership in ongoing salmon escapement monitoring and research. These efforts not only align with EPA watershed planning goals but also reinforce our commitment to science-based management that safeguards both water quality and our way of life.

This strategy also builds from historic and ongoing research to enhance monitoring efficiency and strengthens partnerships between Tribes, state and federal agencies, and research organizations, ensuring that our collective knowledge informs effective decision-Making.

We urge the support and prioritization of this plan to sustain Chignik's fisheries and protect the watershed that has nourished our people for generations. The Chignik Intertribal Coalition looks forward to continuing our collaborative efforts to implement these critical Strategies.

We appreciate your commitment to the health and sustainability of the Chignik watershed.

Sincerely,

George Anderson 3/5/2025

George Anderson, President
Chignik Intertribal Coalition

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APPENDICES – AVAILABLE SEPARATELY

CHAPTER 1: INTRODUCTION

Project Overview

Through an Alaska Clean Water Actions grant from the Alaska Department of Environmental Conservation, the Chignik Bay Tribal Council (CBTC) prepared a subregional watershed protection plan for the Chignik subregion. Watershed protection plans are used to empower local management in protecting and promoting water resources. Preserving water quality is essential to help sustain the lands, waters, and resources that residents depend on, including the salmon that are a central part of the Chignik economy and subsistence traditions. This plan was informed by residents, scientists, and other stakeholders to summarize information about the watershed, identify potential water quality threats, and document data gaps.

A key component of this plan is the **action plan**, which serves as a roadmap for addressing water quality concerns and safeguarding the long-term health of the watershed. The action plan, guided by stakeholder principles, outlines priority strategies, projects, and other actions aimed at mitigating pollution, enhancing water management practices, and strengthening community stewardship. It identifies both immediate and long-term actions, aligning them with available resources, funding opportunities, and stakeholder roles. It also provides a framework for tracking progress, adapting strategies based on new data, and fostering collaboration among regional partners. This structured approach is the first step toward securing sustainable water management practices that benefit both the environment and the communities that depend on these water resources.

Project Objective & Goals

The main objectives of the subregional watershed plan are to:

A. Summarize information about the watershed in a clear, concise, and accessible format for residents and stakeholders to easily understand and use.

B. Identify and prioritize projects that enhance watershed health, ensuring both immediate benefits and long-term sustainability.

C. Empower local and regional communities to protect, restore, and promote the sustainable management of water resources in the subregion.

Planning Process

June-August 2023

- Launched project
- Identified stakeholders
- Attended Chignik Climate Resiliency Symposium

August-November 2023

- Defined data gaps
- Inventoried ecological knowledge
- Listed sources of known, historical and suspected water quality threats

December-June 2024

- Conducted outreach
- Attended June 2024 Chignik Climate Resilience Symposium

June 2024 - February 2025

- Prepared draft and final, including funding and implementation recommendations

Public Participation Approach

To help inform this plan and its process, the project team created a public involvement plan to outline the project team's approach for engaging with residents and stakeholders. The public involvement plan identified stakeholders, outreach activities, communication tools, an outreach schedule, and key questions to consider throughout the planning process. The full public involvement plan is included in Appendix B.

Key Stakeholders

Community leaders, Elders, environmental coordinators, and residents of the following communities	Community organizations
• Chignik Bay • Chignik Lagoon • Chignik Lake • Ivanof Bay • Perryville	• City of Chignik • Chignik Bay Tribal Council • Chignik Lake Traditional Council • Native Village of Chignik Lagoon • Chignik Intertribal Coalition (CIC) • Chignik Regional Aquaculture Association (CRAA) • Chignik Lagoon Native Corporation • Far West Native Corporation • Oceanside Native Corporation • Chignik River Limited • Bayside Corporation
Regional organizations	**Research and agency partners**
• Bristol Bay Area Health Corporation • Bristol Bay Heritage Land Trust • Bristol Bay Native Association • The Conservation Fund Alaska Office	• Alaska Sea Grant • Artesian Knowledge LLC • Knik Tribe (Paralytic Seafood Poisoning testing) • Lake and Peninsula Borough • University of Alaska Fairbanks Arctic Coastal Geoscience Lab and Alaska Coastal Cooperative (ACC) • University of Washington School of Aquatic and Fishery Science

Outreach Strategies

- **Chignik Regional Climate Resiliency Symposium (June 2023 and June 2024):** The project team attended both the 2023 and 2024 Symposiums to listen, share, and learn from participants at this annual gathering (see 2023 flyer in Figure 1). At each symposium, participants shared and discussed research findings, gathered community input on environmental priorities, and catalyzed information sharing between partners working on related topics in the subregion. Summaries from the 2023 and 2024 Symposiums can be found in Appendix C and Appendix D.

FIGURE 1. SYMPOSIUM 2023 FLYER

- **Small Group Conversations**: The project team attended gatherings where community members and partners were in attendance to gather input and share emerging findings. This included a session at the Bristol Bay Leadership Forum on December 7-8, 2023, and a meeting alongside the Alaska Forum on the Environment in February 2024.

- **Existing Community and Organizational Meetings:** The project team joined existing meetings of key partner organizations to share a project update and gather input on emerging watershed plan strategies. This included:
  - Chignik Intertribal Coalition meeting, Spring 2024
  - Chignik Regional Aquaculture Association, Spring 2024

- **Project Website:** A website for the plan (chignikwatershed.com) hosts links to relevant related plans, the project schedule, and shares draft plan materials (Figure 2).

- **Brief Project Report Outs.** In spring 2024, members of the project team shared project updates and reported on project progress at various regional meetings, including the Bristol Bay Area Health Corporation (BBAHC) annual spring meeting; Bristol Bay Heritage Land Trust (BBHLT) board meeting; Bristol Bay Native Association (BBNA) annual meeting, and with Conservation Fund Alaska Office staff.

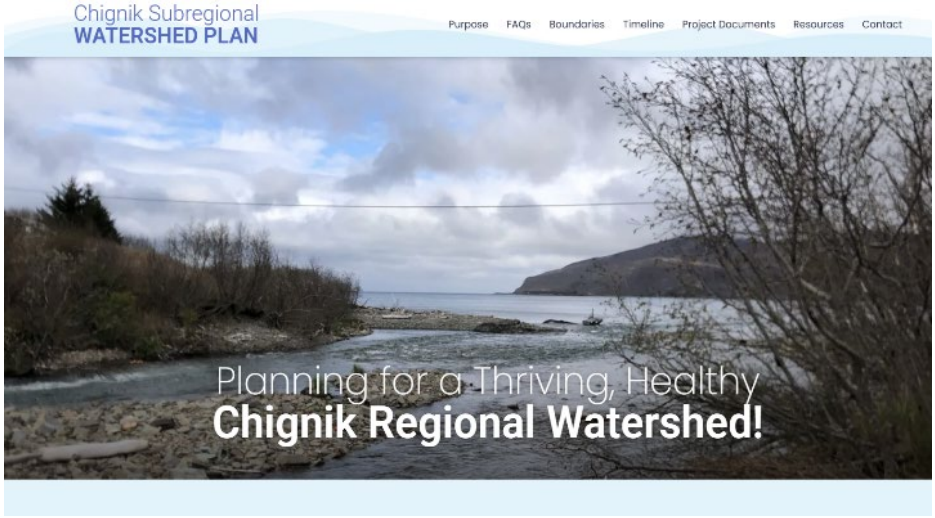


FIGURE 2. PROJECT WEBSITE

- **Interviews (Spring 2024)**: The project team conducted interviews with partner organizations and key stakeholders were conducted to identify issues, opportunities, and project ideas for inclusion in the watershed plan. These interviews helped the project team gain an understanding of how the watershed has changed over time and to identify historic pollutant sources that may not be accessible in public databases.

- **Outreach tools:** The project team also created a an "at-a-glance" project summary (Appendix E, screenshot in Figure 3), a project flyer (Appendix F), and presentations (Appendix G) to encourage resident and partner participation in the planning process.

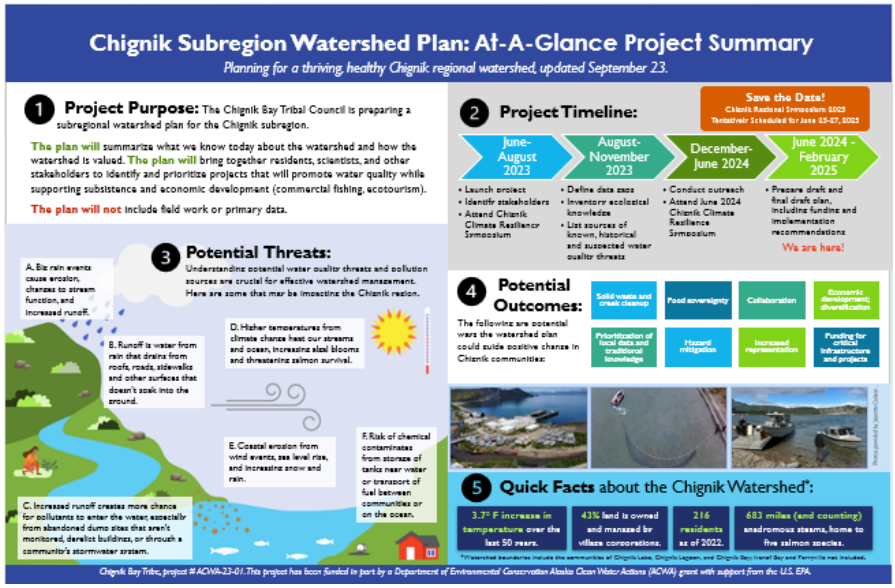


FIGURE 3. PROJECT "AT-A-GLANCE" SNAPSHOT

How to Use this Plan

The Chignik Subregional Watershed Plan is designed as a living document to guide local and regional efforts in protecting water resources while adapting to new information and evolving community needs. Local governments, tribal councils, community organizations, researchers, and other stakeholders can use this plan to:

- **Understand Watershed Conditions** – The plan provides a watershed characterization, key environmental concerns, and ongoing threats to water quality.

- **Implement Targeted Actions** – The action plan outlines priority projects, responsible entities, and timelines to ensure efficient and coordinated implementation.

- **Leverage Funding and Partnerships** – The plan strengthens eligibility for state and federal funding opportunities while fostering collaboration among agencies, non-profits, and local leaders.

- **Monitor Progress and Adapt** – The plan establishes a framework for tracking implementation, evaluating effectiveness, and refining strategies based on new data and stakeholder feedback.

Long-Term Ownership and Maintenance

The Chignik Bay Tribal Council and the Chignik Intertribal Coalition will collaborate with partners to track implementation on the Chignik Watershed Plan. This includes the following:

- The **Chignik Regional Resiliency Symposium** will be held annually to celebrate progress on actions, discuss barriers and solutions to implementation, and collaborate on outstanding actions. CBTC will ensure that subsequent Symposiums include time set aside to discuss watershed plan implementation. The following are some examples where Symposium-level collaboration can support watershed plan implementation:
    - Researchers conducting work in the area can share emerging findings, gather feedback to inform future data collection needs, and explore implications for communities in the watershed. Once more data is available, residents and partners will be able to refine and adapt the priorities to respond to findings.
    - Collaborating around contamination testing, such as lead testing on abandoned vessels.
    - Coordinating a shared backhaul to remove hazardous materials, old vehicles, and other waste from the community and watersheds.
    - Sharing lessons learned on effective alder mitigation strategies.

FIGURE 4. SYMPOSIUM 2024 PARTICIPANTS

- **Plan Website** – to be updated to ensure that plans, research, and activities underway in the region are accessible and easy to share and reference.
- Smaller teams will make progress on community-specific strategies. For example, Chignik Bay Tribal Council and the City of Chignik will work together on a stormwater management plan. Specific project leads are identified in the action plan tables.

CHAPTER 2: THE CHIGNIK WATERSHED

Description of Area

Watershed Area Boundaries

The Chignik Watershed study area is located within the Shelikof Straight Hydrologic Unit Code-8 (HUC8) watershed and encompasses three HUC10 watersheds – Black Lake, Chignik Bay, and Chignik River (Chignik Lake area). See a map of the subregion in Figure 5. The communities of Chignik Lagoon, Chignik, and Chignik Lake are within the study area. Communities within and nearby the study area, such as Ivanof Bay and Perryville, rely on these waters for subsistence and commercial fishing.

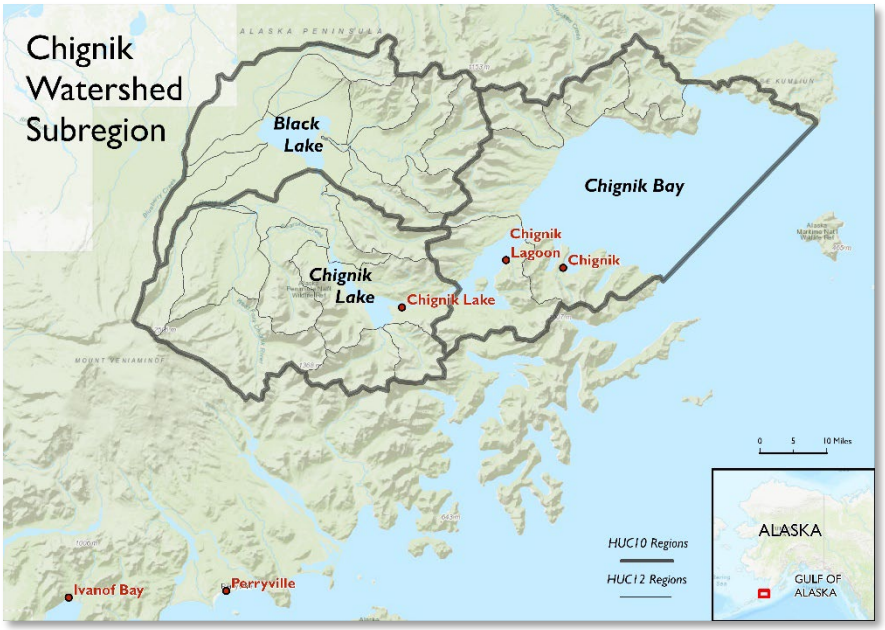


FIGURE 5. MAP OF WATERSHED BOUNDARIES

The U.S. Geological Survey (USGS) uses Hydrological Unit Codes (HUC) to classify watersheds into different levels, from the regional level down to much smaller subwatersheds.

In the Alaska region, (HUC2) there are:

- 8 subregions (identified by 4-digit codes, HUC4)
- 38 basins (6-digits, HUC6)
- 112 subbasins (8-digits, HUC8)
- 542 watersheds (10-digits, HUC10)
- Approx. 15,500 subwatersheds (12-digits, HUC12)

The number of subwatersheds in Alaska and their boundaries vary based on data updates and ongoing delineation processes.

Watershed Status

The project includes 23 HUC12 subwatersheds. None of the waters within the study area are listed under Alaska's 303(d) Category 5 Impaired Waters and therefore do not have an established Total Maximum Daily Load (TMDL).[1] Chignik Lagoon and Chignik Lake are prioritized as medium value, medium stress watersheds while Chignik Bay and Black Lake are categorized as medium value, low -stress watersheds in the Alaska Department of Environmental Conservation's Watershed Prioritization Map.[2] Two creeks in the Chignik Bay Watershed have been designated as Category 3 Assessed Waters (Not enough information).[3]

Watershed Area Population

The combined population in the Chignik subregion was 216 in 2022. The population is slowly declining, with an 11% drop in population over the past ten years (Figure 6).

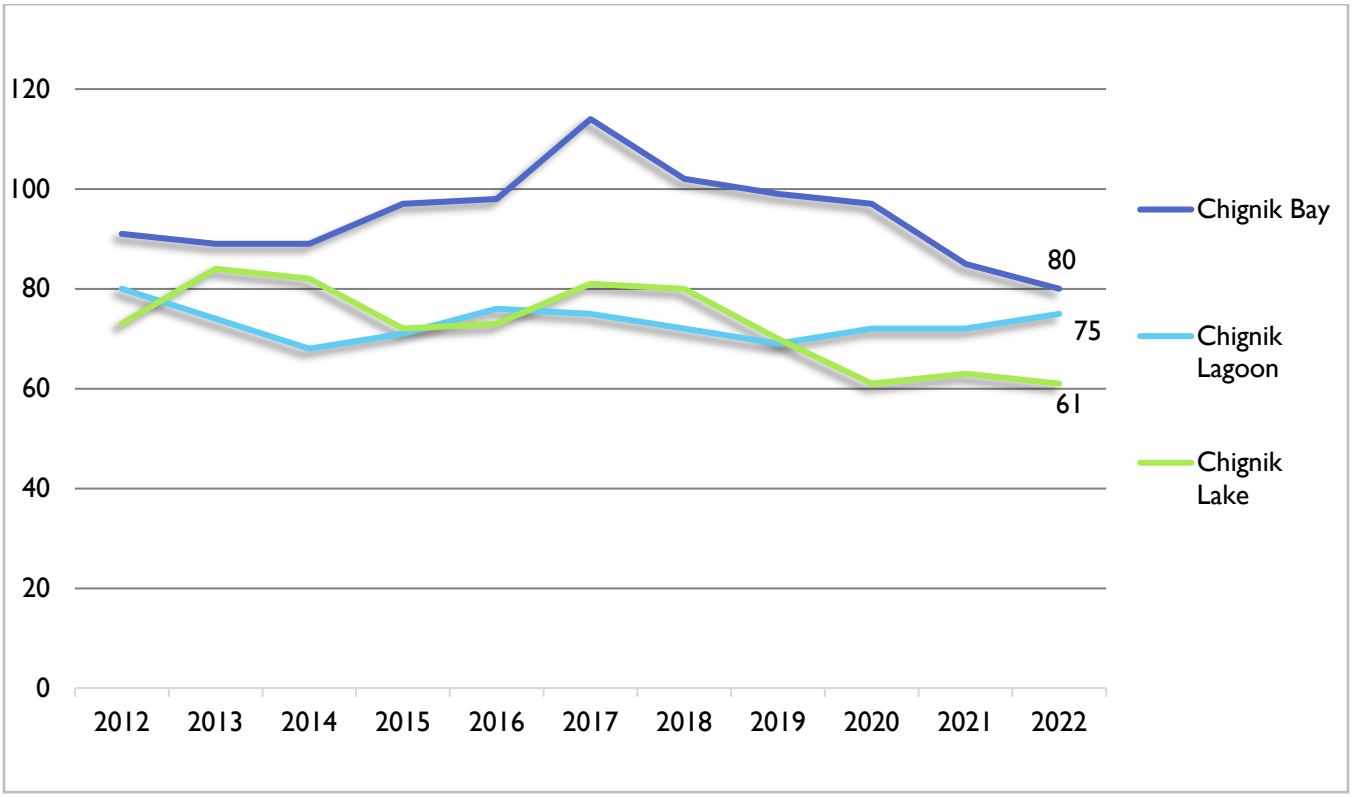


FIGURE 6. CHIGNIK SUBREGION POPULATION TRENDS, 2012-2022

Source: Alaska Department of Labor and Workforce Development, Research and Analysis

[1] Alaska DEC Integrated Water Quality Monitoring and Assessment Report Website, Updated 2024.
[2] Alaska's Watershed Prioritization Map, Chignik Region, 2023.

[3] Alaska DEC Final Integrated Report Assessed Waters Web Map, 2024.

Figure 7 depicts land management for the Chignik Watershed Subregion. Approximately 43% of area within the subregion is owned/managed by village corporations (Chignik River Ltd., Far West Inc., or Chignik Lagoon Native Corp.). Depicted in light green, the U.S. Fish and Wildlife Service (USFWS) land is part of the Alaska Peninsula National Wildlife Refuge.

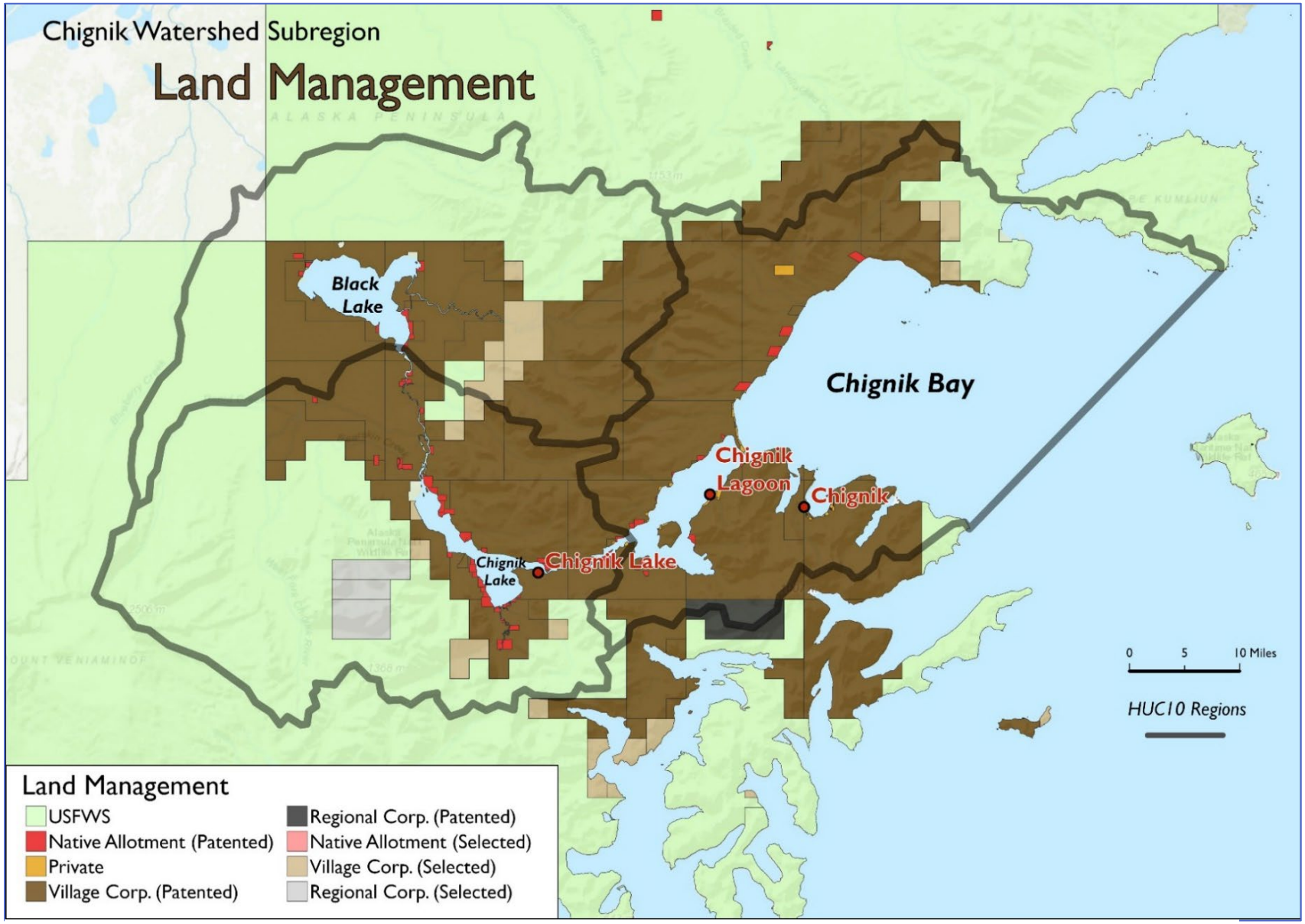


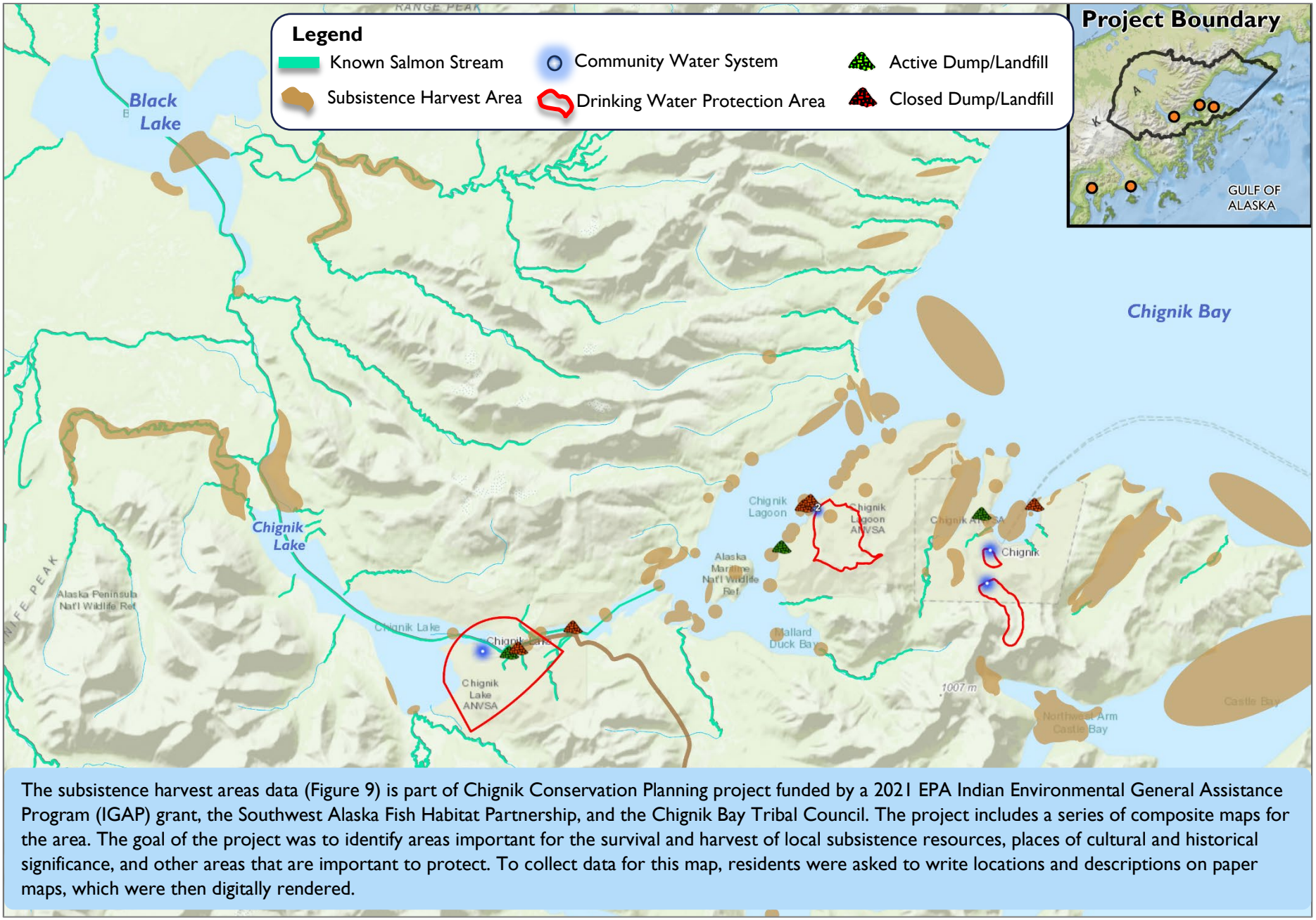
FIGURE 7. MAP OF LAND MANAGEMENT AREAS WITHIN THE CHIGNIK SUBREGION[1]

Figure 8 depicts the known anadromous streams within the subwatersheds – 683 miles and counting. The streams and riparian areas have been depicted as dynamic habitats, home to five different salmon species[4].

FIGURE 8. MAP OF ANADROMOUS STREAMS WITHIN THE CHIGNIK SUBREGION[5]

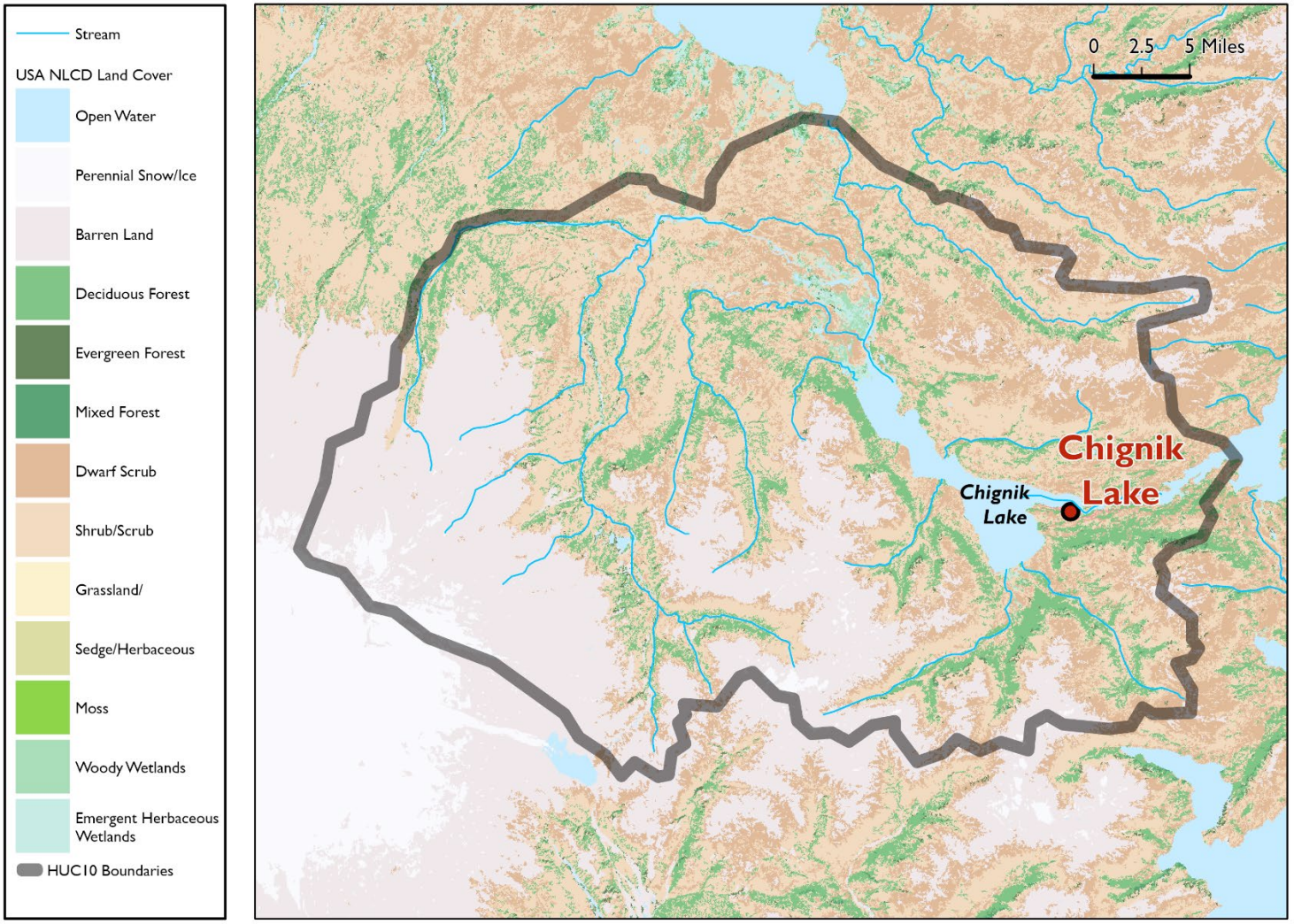
[4] Willis M., Balazs M., and Maio, C., *Very High-Resolution Mapping of Anadromous Streams and Salmon Habitat in the Chignik Watershed*, Presentation. 2023.

[5] Alaska Department of Fish & Game, Anadromous Waters Catalog, 2022



The subsistence harvest areas data (Figure 9) is part of Chignik Conservation Planning project funded by a 2021 EPA Indian Environmental General Assistance Program (IGAP) grant, the Southwest Alaska Fish Habitat Partnership, and the Chignik Bay Tribal Council. The project includes a series of composite maps for the area. The goal of the project was to identify areas important for the survival and harvest of local subsistence resources, places of cultural and historical significance, and other areas that are important to protect. To collect data for this map, residents were asked to write locations and descriptions on paper maps, which were then digitally rendered.

FIGURE 9. MAP OF SUBSISTENCE HARVEST AREAS WITHIN THE CHIGNIK SUBREGIONAL WATERSHED[6]



Figures 10, 11, and 12 show the land cover (vegetation type, land use, water, and bare soils) of each subwatershed (HUC10). Land cover plays a crucial role in determining how a watershed functions, from habitat protection to runoff, infiltration, sedimentation, and erosion control. Comparing how land cover shifts over time is also useful in monitoring and mitigating the effects of climate change.

This data was collected in 2016 as part of the National Land Cover Database. To create the dataset, high resolution imagery is used and colors assigned and modified using the 16-class Anderson Land Cover Classification System.

Since nearly all of the Chignik Subregion is undeveloped, the landcover found in this region is congruent with its biome as a taiga or boreal forest. Note how the forested areas generally follow riparian channels.

FIGURE 10. MAP OF LAND COVER WITHIN THE CHIGNIK LAKE HYDROLOGIC UNIT 10[7]

[7] Data from US Geological Survey, National Land Cover Dataset, 2016.

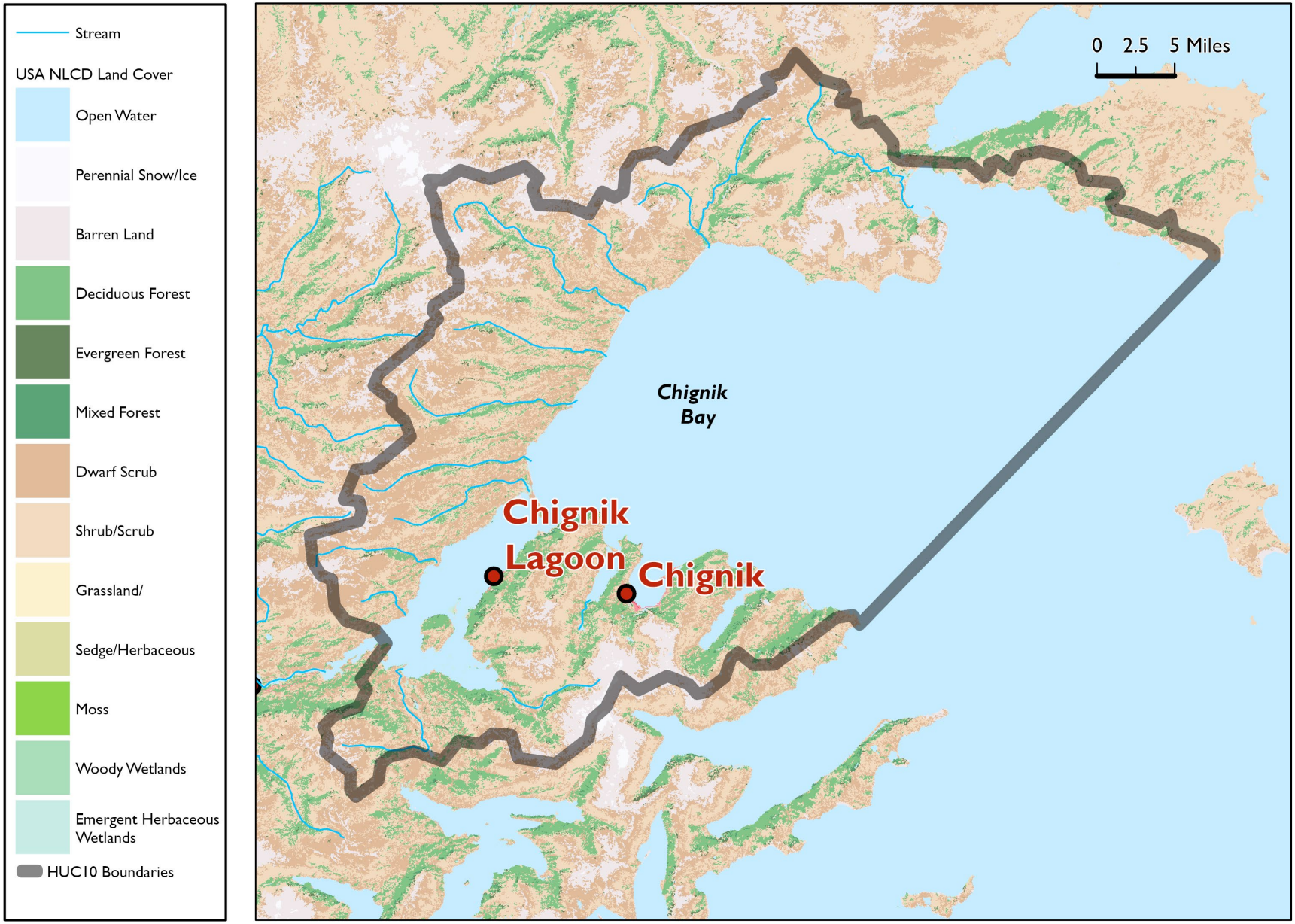


FIGURE 11. MAP OF LAND COVER WITHIN THE CHIGNIK LAGOON AND CHIGNIK BAY HYDROLOGIC UNIT 10[8]

[8] Data from US Geological Survey, National Land Cover Dataset, 2016.

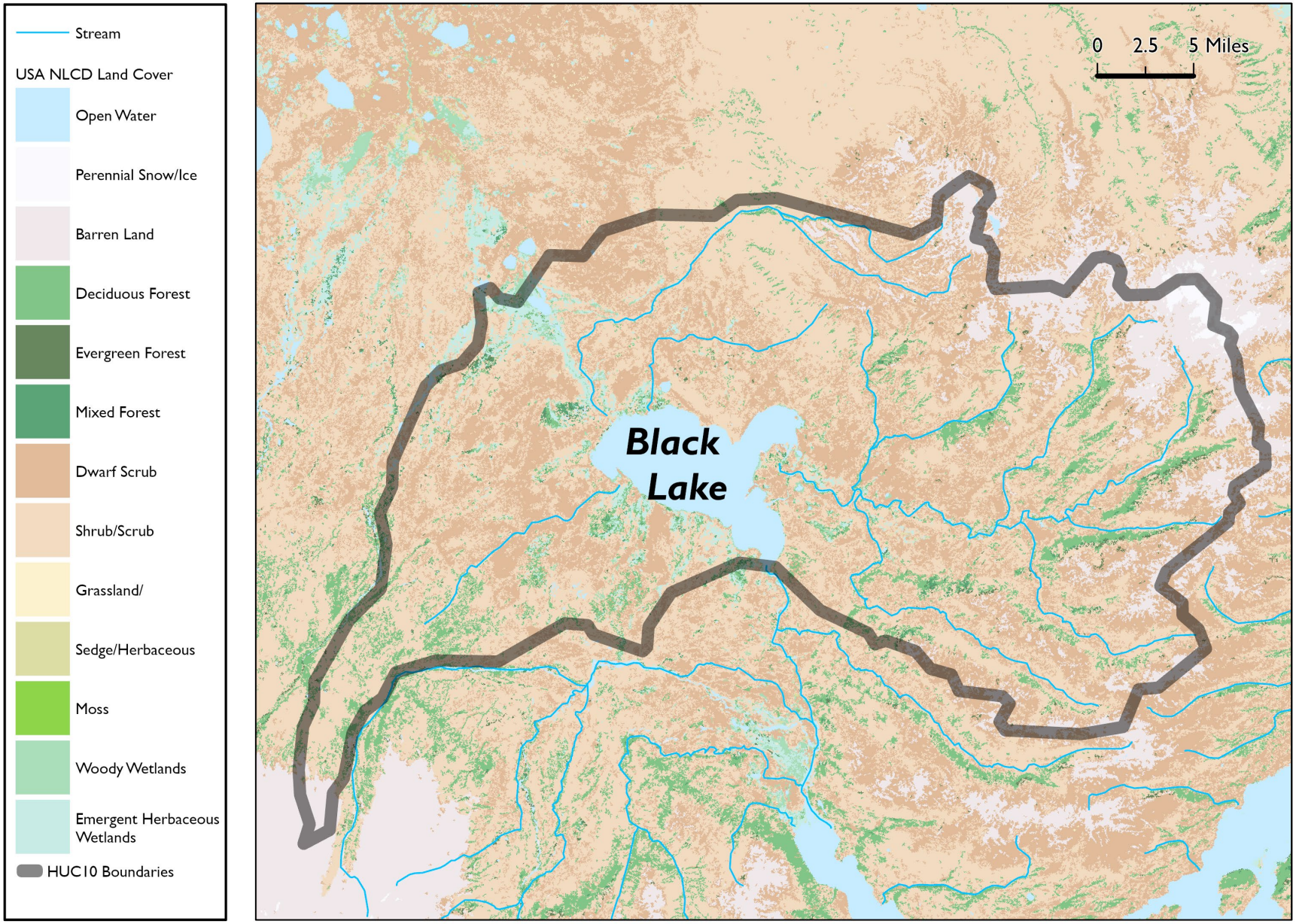


FIGURE 12. MAP OF LAND COVER WITHIN THE BLACK LAKE HYDROLOGIC UNIT 12[9]

[9] Data from US Geological Survey, National Land Cover Dataset, 2016.

CHAPTER 3: COMMUNITY ISSUES & CONCERNS

Potential Water Quality Threats

Understanding potential water quality threats and pollution sources are crucial for effective watershed management in the Chignik subregion. Identifying these factors is a critical first step towards developing a protection-based watershed plan that focuses on improving water quality and preventing future degradation of water sources and aquatic habitats.

The list of water quality threats in this document is incomplete and is based on data from narratives from local community groups and other plans related to the study area. Resources for the list include watershed characterizations and challenges presented during the 2023 Chignik Regional Climate Resiliency Symposium, historic reports documenting watershed impairment in the region, and federal and state resources, including the Alaska Department of Environmental Conservation Contaminated Sites Database.

Definitions of Point and Nonpoint Pollution Sources

Point source: *A stationary location or fixed facility from which pollutants are discharged; any single identifiable source of pollution, such as a pipe, ditch, ship, ore pit, or factory smokestack.*

Nonpoint source: *Diffuse pollution source; a source without a single point of origin or not introduced into a receiving stream from a specific outlet. The pollutants are generally carried off the land by stormwater. Common nonpoint sources are agriculture, forestry, urban areas, mining, construction, dams, channels, land disposal, saltwater intrusion, and city streets.*

Definitions from the U.S. Environmental Protection Agency, Handbook for Developing Watershed Plans to Restore and Protect Our Waters

1. **Climate Change Impacts**. Like most watersheds in the Alaska, the Chignik subregion watershed is susceptible to climate change-related impacts, including accelerated coastal and stream bank erosion and flooding from altered precipitation patterns, increasing water temperatures, changes in vegetation rise in sea levels, and intense storm events. These changes can lead to alterations in discharge/flow patterns, water chemistry, sedimentation, and increased risk of water contamination nonpoint source pollution, all of which can impair the long-term health and resilience of the watershed.
2. **Stormwater Runoff.** Stormwater is the flow of water from precipitation events over impervious surfaces, such as roads, parking lots, rooftops, instead of infiltrating into the ground. The runoff collects pollutants from various sources and carries them into nearby waterbodies or directly into the watershed as nonpoint source pollution.
3. **Bacterial Contamination & Nutrient Discharges.** Failing or improperly maintained septic systems, unmonitored dump sites, and unregulated sewage discharges from communities can introduce harmful bacteria and excessive nutrients into the watershed via runoff. Contamination of bacteria poses significant risks to the health of humans, aquatic life, wildlife, and the overall integrity of the ecosystem. Nutrients, such as nitrogen or phosphorus, can propagate algal blooms and deplete oxygen levels in water systems, jeopardizing the heath of residents and aquatic species.
4. **Chemical Contamination**. Improper disposal of hazardous substances can introduce chemicals, heavy metals, and petroleum products into the watershed as nonpoint source pollution. In the Chignik region, there are several abandoned buildings that may need to be condemned, which could be sources of chemical

contamination. Additionally, the landfill at Rocky Point and other old dumpsites have not been monitored for potential runoff or contamination. These contaminants, if not adequately managed, can have severe impacts on water quality, aquatic organisms, and the ecological balance of the Chignik subregion.

5. **Oil and Fuel Spills.** Due to maritime activities in the region, the potential for oil and fuel spills exists within the watershed. Some spills have been reported on or near Chignik Lake as approximately 40,000 gallons of bulk fuel is hauled from Chignik Bay to the landing pad of the Chignik River then transported from by a fuel truck to a tank farm in the village.[10,11] Other spills have been reported from vessel and facility fires, bilge accidents, and groundings.[12] These include the following contaminated sites, identified in the Alaska Department of Environmental Conservation Contaminated Sites Search (see Figure 13):

    i. **Chignik Bay (4):** Chignik Bay City Tank Farm, Chignik Bay School, Chignik Norquest Plant, Trident Seafoods

    ii. **Chignik Lagoon (3):** Chignik Lagoon PTI Communications Central Office, Columbia Ward Fisheries Facility, Wards Cove Packing Former Cannery

    iii. **Chignik Lake (4)**: Chignik Lake PTI Communications Switch Gear Station; Chignik Lake Tribal Council Old Tank Farm, Chignik Lake Fuel Transfer Tank Farm, Chignik Lake Alaska Native Tribal Health Consortium (ANTHC) Water Line Upgrade

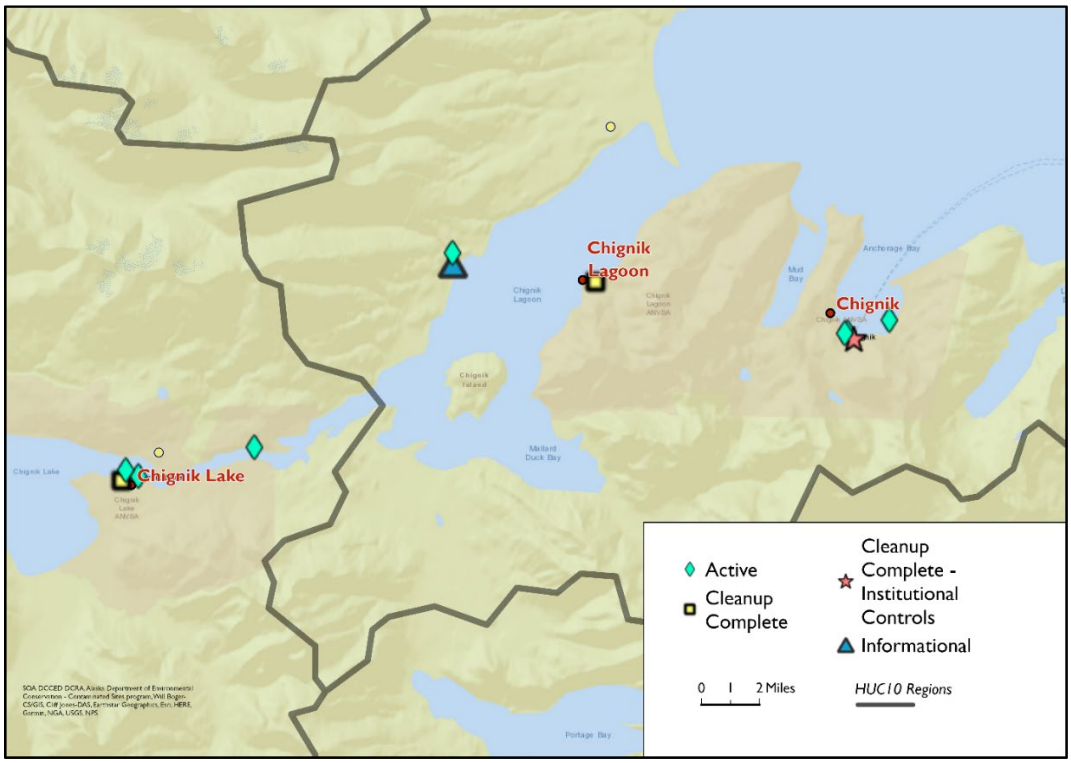


FIGURE 13. MAP OF CHIGNIK SUBREGION CONTAMINATED OR WASTE DISPOSAL SITES[13]

[10] Alaska DEC SPAR Online Services, PPR Spills Database (Chignik Lake CDP)

[11] Chignik Lake IGAP Proposal, 2011.

[12] Alaska DEC SPAR Online Services, PPR Spills Database

[13] Map provided by Marcus Geist using data from the Alaska Department of Environmental Conservation Contaminated Sites Program, 2023

Spills like this, as well as smaller incidental spills, can have detrimental effects on marine ecosystems, shoreline habitats, and numerous species that rely on the region's waters for survival.

6. **Erosion & Sedimentation.** Land disturbances from erosion and flooding lead to increased sediment runoff in the watershed, which exacerbates nonpoint source pollution from the above listed water quality threats. The community experiences flooding yearly, with the worst flooding often occurring during spring thaw. Additionally, the increase of sediment deposits can alter river flows, change water levels (reducing water depth important for spawning streams), disrupts the natural food chain by destroying habitat leading to declines in fish population, and can impact fish egg and larvae development.

7. **Mining Impacts.** The subregion is home to various mineral resources, with small mining exploration sites spread throughout the area, mostly on Bristol Bay Native Corporation lands. Mining exploration and mineral extraction/production activities could potentially impact the watershed via nonpoint source pollutants from mining operations, disturbances of water bodies, and other concerns.

Resources and Data Gaps

The project team reviewed and analyzed existing and previous plans related to the Chignik subregion to build a more comprehensive understanding of stakeholder perspectives on the needs and future direction of the community. Through our review, we identified an emerging list of data gaps. Our list of resources will grow and data gaps will shrink as more resources become available.

LIST OF BACKGROUND RESOURCES REVIEWED

The full plan review is available in Appendix H.

Document Name	Source	Project Area	Year
ADEC Contaminated Sites (Database)	ADEC	Chignik Bay, Chignik Lagoon, Chignik Lake	2023
ADEC Solid Waste Information Management Systems (SWIMS) (Database)	ADEC	Chignik Bay, Chignik Lagoon, Chignik Lake	2023
ADEC Spill Prevention and Response (SPAR) (Database)	ADEC	Chignik Bay, Chignik Lagoon, Chignik Lake	2023
ADEC Waste Erosion Assessment and Review WEAR Reports	ADEC	Chignik Bay, Chignik Lagoon, Chignik Lake	2014
ADEC Watershed Prioritization Map	ADEC	Statewide	2023
Alaska Baseline Erosion Assessment	US Army Corps of Engineers (USACE)	Chignik Bay, Chignik Lagoon, Chignik Lake	2009
Alaska Region Terrestrial Invasive Plant Management Strategy	USFWS	Chignik Lake	2022
Assessing the Vulnerability of Western Alaska Ecosystems and Subsistence Resources to Non-native Plant Invasion	Western Alaska Landscape Conservation Cooperative Project; Jennifer Robinette	Chignik Lake, Chignik Lagoon, Chignik Bay	2015
Bristol Bay Area Plan	State of Alaska	Regional	2005. 2013
Bristol Bay National Wetlands Inventory Fact Sheet	USFWS & Bristol Bay Native Corporation (BBNC)	Regional	

Document Name	Source	Project Area	Year
BBNA Brownfields Program Website	BBNA	Chignik Bay, Chignik Lake	2023
Chignik Bay As-Built for Waterline Distribution Improvements	ANTHC	Chignik Bay	2021
Chignik Bay Coastal Hazard Assessment	University of Alaska Fairbanks (UAF) Arctic Coastal Geoscience Lab	Chignik Bay	2023
Chignik Bay Inundation Maps	Alaska Department of Natural Resources (ADNR)	Chignik Lagoon & Bay	2016
Chignik Conservation Planning (Presentation)	Chignik Climate Resilience Symposium	Chignik Bay, Chignik Lagoon, Chignik Lake	2023
Chignik Intertribal Coalition Chignik Area Projects Summary	Chignik Intertribal Coalition	Regional	2024
Chignik Lagoon Community Plan	Chignik Lagoon Village Council	Chignik Lagoon	2016
Chignik Management Area Salmon Annual Management Report	Alaska Department of Fish & Game (ADF&G)	Chignik	2022
Chignik Regional Comprehensive Salmon Plan	ADF&G	Chignik	1992
Chignik Subregion Watershed Maps (Presentation)	Marcus Geist, Artesian Knowledge; Tim Troll, Bristol Bay Heritage Land Trust; Sue Flensburg; Community Members	Chignik Bay, Chignik Lake, Chignik Lagoon, Black Lake	2023
Climate Change and Health Effects in the Bristol Bay Region of Alaska (Presentation)	ANTHC, BBNA, & BBAHC	Regional	2014
Climate Resiliency Action Plan	Chignik Bay Tribal Council	Chignik Bay	2023
Community-Based Monitoring: Shoreline Change in Southwest Alaska	Christian J. E. (UAF Thesis)	Chignik	2023
Emergency Response Plan - Chignik Bay Tribal Council	BBNA	Chignik Bay	2023
Emergency Response Plan - Native Village of Chignik Lagoon	BBNA	Chignik Lagoon	2023
Envirofacts System (Database)	EPA	Chignik Bay Chignik Lagoon Chignik Lake	2023
Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps	FEMA	Chigniks	2023
Greenstar Community Assessments	Alaska Forum on the Environment	Chignik Bay Chignik Lagoon Chignik Bay	2020-2023
IGAP Proposal - Chignik Lake	Native Village of Chignik Lake	Chignik Lake	2011
Integrated Solid Waste Plan for the Community of Chignik Lagoon	Chignik Lagoon Village Council	Chignik Lagoon	2017
Lake and Peninsula Borough Comprehensive Plan Update	Lake & Peninsula Borough	Regional	2020
Lake and Peninsula Borough Renewable Energy & Infrastructure Initiatives	Lake & Peninsula Borough	Regional	2023
LiDAR Mapping	Lake & Peninsula Borough	Chignik Lake, Chignik Lagoon, Chignik Bay	2024
Multi-jurisdictional Hazard Mitigation Plan Update - Lake and Peninsula Borough	Lake & Peninsula Borough	Chignik Lake, Chignik Lagoon, Chignik Bay	2015

Document Name	Source	Project Area	Year
National Wetland Inventory – Chignik Subregional Area	U.S. Fish & Wildlife Service	Chignik Lake, Chignik Lagoon, Chignik Bay	2024
Paralytic Shellfish Toxin Results for Chignik Lagoon	Knik Tribe	Chignik Lagoon	2023
Perryville Community Plan	Native Village of Perryville	Perryville	2015
Preliminary Climate Risk Assessment	Chignik Intertribal Coalition	Chignik	2022
Sanitation Facilities Community Plan	ANTHC & City of Chignik Bay	Chignik Bay	2019
Small Community Emergency Response Plan (SCERP) - Chignik Bay	BBNA	Chignik Bay	2023
Small Community Emergency Response Plan (SCERP) - Chignik Lagoon	BBNA	Chignik Lagoon	2023
Superfund Sites (Database)	EPA	Chignik	2023
Tsunami Inundation Maps – Chignik and Chignik Lagoon	ADNR	Chignik Lagoon, Chignik Bay	2016
Tribal Hazard Mitigation Plan - Chignik Bay	BBNA	Chignik Lake	2019
Tribal Hazard Mitigation Plan - Chignik Lagoon	BBNA	Chignik Lagoon	2019
Tribal Hazard Mitigation Plan - Chignik Lake Village	BBNA	Chignik Lake	2019

Data Gaps

This data gaps list comes from recommended areas of further study from other studies in the area, and initial thoughts on data gaps based on conservations with stakeholders at the 2023 Chignik Regional Climate Resiliency Symposium.

1. **Water quality monitoring.** Lack of consistent water quality monitoring within the subwatersheds hinders accurate assessment of pollutant levels and potential impacts on aquatic systems. There is no data for the Chignik area on the Ambient Water Quality Monitoring System (AWQMS) or in the National Water Quality Monitoring Council's Water Quality Portal (NWQMC WQP). Of the approximately 45 streams in the study area, only two are listed in the ADEC's Water Quality Assessment Report and they are designated as Category 3 – Not enough information.
2. **Stream flow measurements.** Existing stream flow data is absent, making it challenging to evaluate water availability and the potential impact of varying flow rates on aquatic habitats and water supplies.
3. **Soil erosion rates.** Precise data on soil erosion is limited to coastal areas, as identified in the Chignik Bay Coastal Hazard Assessment. A comprehensive understanding of erosion-prone areas is lacking, which could lead to difficulties in implementing erosion control measures. Only one stream – Indian Creek in Chignik Bay – is currently being monitored for erosion and only within the last few years, via summer field work by UAF's Alaska Coastal Cooperative.

4. **Coastal erosion rates in Chignik Bay.** The Arctic Coastal Geoscience Laboratory at UAF recently completed a coastal hazard assessment that notes specific gaps in data for monitoring coastal erosion in this region and have field-based data from 2019 to the present day, but no historic baseline data. The following resources or tools are unavailable:
    - Tidal datum
    - Bathymetry
    - Lidar Digital Terrain Model
    - Wave buoys to help develop a storm events index
    - Stream gages to record stream elevation for flood modeling
    - Infrastructure height measurements to assist with flood and tsunami event planning
    - Frequency and severity of flooding to create hazard/exposure maps and recommend building elevation
    - Orthorectified historical aerial imagery
5. **Historic climate data.** Historical climate data provides critical insights into long-term weather patterns, trends, and variations in precipitation and wind. Past plans and reports frequently cite the lack of historic climate data as a common data gap within the area (Chignik Bay Coastal Hazard Assessment, 2023; Climate Resiliency Action Plan, 2023; Tribal Hazard Mitigation Plans, 2019). Without this data, it is challenging to accurately assess how the local climate has changed over time and anticipate future shifts, hindering effective mitigation of the impacts of climate change, such as altered hydrological patterns, increased storm intensity, or shifts in seasons.
6. **FEMA flood maps**. Flood plains are areas adjacent to rivers or streams that are prone to periodic flooding. Flood plains are determined by the Federal Emergency Management Agency through its Flood Insurance Rates Map program. FEMA has not completed any studies in the area to determine the flood hazards, which limits the ability to implement targeted flood mitigation measures, such as levees, riverbank restoration, or flood retention areas. The lack of flood plain mapping also prevents identification of suitable locations for building critical infrastructure development (e.g., wastewater treatment plants, road networks).
7. **Stormwater management**. None of the three communities appear to have stormwater management plans. Chignik Bay has a Sanitation Facilities Community Plan authored by the Alaska Native Tribal Health Consortium in 2019, but it does not include stormwater maintenance or management efforts. The absence of stormwater information creates data gaps in rainfall patterns, runoff volumes, and flow velocities. It also underscores the lack of water quality assessments in the study area, which is the main way to identify nonpoint source pollutants in the water system. Stormwater information would also include infrastructure inventories, such as retention ponds, culverts, or storm drains, which help manage and control runoff. Knowledge of the existing infrastructure is crucial for assessing changes in land use patterns, system capacity

and conditions, and potential sources of pollutants.

8. **Invasive and Non-invasive plant inventory & monitoring.** There is a lack of comprehensive data on the presence and spread of invasive and non-invasive species of plants, making it challenging to assess impacts on water quality and water flow rates (IGAP Proposal, 2011). One inventory was conducted in 2013 by the Western Alaska Landscape Conservation Cooperative, which noted invasive species risks near all three communities. The US Fish and Wildlife Service, which manages the Alaska Peninsula Wildlife Refuge, has not completed any invasive plant surveys in the study area (Alaska Region Terrestrial Invasive Plant Management Strategy, 2022).

Photo provided by Zita Andrews, taken by Stephen Price.

FIGURE 14. ALDER OVERGROWTH AT CHIGNIK LAKE

9. **Landfill, dump site, and tank farm assessments.** All three communities within the study area have active and inactive private or municipal landfills, dumpsites, and tank farms (SWIMS, 2023). The landfills each have Waste Erosion and Assessment Review (WEAR) reports and in 2024, Landfill Inspection reports were provided with inspection scores and related recommendations. However, there have been no detailed assessments completed of current landfills or the abandoned dumpsite at Chignik Lake (IGAP Proposal, 2011; Chignik Climate Resilience Symposium, 2023). Without more thorough assessments, there is a lack of information regarding the presence of contaminants that may be leaching from the sites into the watershed. It is also unknown where contaminants may be leaching from and the rate at which it may be occurring.

CHAPTER 4: ACTION PLAN

The **Action Plan** serves as the implementation roadmap for the Chignik Subregional Watershed Plan, outlining priority strategies and actions designed to safeguard water resources while addressing key environmental challenges. Each strategy is broken down into actionable steps, including responsible parties, timelines, estimated costs, and potential funding sources to ensure effective implementation.

The action plan is designed to be a **living document**, adaptable as new data, funding opportunities, and community priorities emerge. By following this structured approach, stakeholders can take measurable steps toward protecting the Chignik watershed for future generations.

Prioritization of Strategies

While all strategies identified in this plan support watershed health, **priority strategies** were selected based on their **alignment with existing community plans**, their **strong stakeholder support**, and their **ability to meet watershed plan criteria**. These priority strategies focus on immediate, high-impact interventions that address pressing water quality concerns and ecosystem restoration efforts. Beyond these top-tier priorities, the plan also includes **additional strategies** that support long-term watershed resilience.

Examples of the Guiding Principles in Action

- *The Chignik Intertribal Coalition maintains a Data Management Plan that establishes standards for accessing, sharing, distributing, and preserving data.*
- *The Bristol Bay Native Corporation will be hosting a culture camp in Chignik Bay in summer 2025, inviting young people to discover and learn about the traditions and natural resources.*

Guiding Principles

Guiding principles are the foundational values that shape our approach to protecting the Chignik watershed. These principles were developed based on input at the 2024 Chignik Regional Resiliency Symposium. They provide a framework for decision-making, ensuring that strategies and actions align with community values for watershed sustainability and resilience. These principles should be considered during implementation of all the strategies that follow.

A

Tell Our Story

Honor our history, evolution, and cultural values by prioritizing community voices, preserving traditional knowledge, and strengthening advocacy for watershed health.

B

Prioritize Youth Voices

Actively engage and empower young people in the watershed protection process to ensure their perspectives, ideas, and leadership shape the future.

C

Integrate Local Economies

Align watershed protection with sustainable economic opportunities by supporting workforce development and value-added industries.

D

Protect Data Sovereignty

Data collected within the watershed remains under local control, and may require agreements ensuring secure management, transparency, and cultural respect.

E

Foster Collaborative Governance

Adapt successful governance models to foster shared responsibility, broaden partnerships, and strengthen community connections to find regional solutions.

Priority Strategy A: Establish mitigation programs for alder overgrowth.

Benefits to the watershed:

Removing overgrown alders helps restore native plant species that play a critical role in stabilizing soil, reducing erosion, and filtering runoff before it reaches waterways, thus improving water quality. Native vegetation also supports diverse ecosystems that depend on healthy watersheds, including areas for traditional uses like berry picking and subsistence hunting. By reestablishing other native species, the strategy enhances both ecological balance and the watershed's natural ability to maintain clean, healthy water systems.

What are the actions to make progress on this priority?	Who?	Target timeframe	Estimated cost	Potential funding sources
1. Use new LiDAR, historic imagery, and remote sensing data to assess alder overgrowth areas and quantify change. Document changes in berry patches through local observations and remote sensing.	Lead: All Chignik Communities Potential Partners: ACC, Lake & Peninsula Borough	2025-2026	$0 LiDAR (already complete) Est. $10K-20K for Analysis	LiDAR provided by Lake & Peninsula Borough and Alaska Coastal Cooperative; Analysis through the ACC ACTION Project
2. Incorporate alder clearing along landfill access routes into IGAP funding requests to the EPA.	Lead: All Chignik Communities	2026-2027	TBD, costs based on acreage	Alaska Native Tribal Health Consortium Solid Waste and Resilience Program (Up to $75K)
3. Clear alders along roadways and trails where there is a public safety concern. Ensure the desired roads/trails to be cleared are recorded in the Tribe's inventory prior to removal to incorporate Bureau of Indian Affairs Tribal Transportation Program (BIA TTP) funds. ACC is mapping the trail network in Chignik Bay.	Lead: All Chignik Communities Potential Partners: BBNA Forestry, Far West	2026-2027	TBD	Bristol Bay Native Association (BBNA) Forestry Program, BIA TTP, ADEC Thriving Communities grant
4. Identify areas along streambanks in need of restoration and include plans to replace some alder with a variety of native plants that will capture and filter runoff pollution before it enters waterways and shade the stream to help moderate water temperature for aquatic life.	Lead: All Chignik Communities Potential Partners: BBNA Forestry	2026-2027	TBD	BBNA Forestry Program, Alaska Venture Fund
5. Develop longer-term work plan to address alder growth and regrowth throughout the subregion. Consider the riparian benefits of alders; ways to mitigate erosion caused by removal; identify long-term interventions such as controlled burning; and alder disposal (e.g., woody debris, incinerator, value-added products).	Lead: All Chignik communities Potential Partners: BBNA Forestry, Far West	2027-2029, ongoing	TBD	BBNA Forestry Program, Alaska Venture Fund, Others[14]
HUC10 Locations: Chignik Bay-Frontal Pacific Ocean – 1902070215; Chignik River – 1902070214; Alec River-Black Lake – 1902070213				

[14] See Alaska Department of Fish and Game Resources at: https://www.adfg.alaska.gov/index.cfm?adfg=streambankprotection.funding

Priority Strategy B: Improve stock assessment and monitoring of salmon populations.

Benefits to the watershed:

Healthy salmon populations depend on clean, well-oxygenated water, free of excess sediment and pollutants, aligning with EPA watershed planning goals to protect aquatic habitats. Salmon are essential to the Chigniks for subsistence, cultural, and economic reasons, but their numbers have been declining. By focusing on salmon monitoring, this strategy supports adaptive management efforts that safeguard water quality while preserving key species integral to both ecological balance and cultural heritage. This strategy is intended to build on historical research for Black Lake. Emerging technologies such as drones could be used to help implement some of the actions below.

What are the actions to make progress on this priority?	Who?	Target timeframe	Estimated cost	Potential funding sources
1. Continue to implement the multi-year salmon escapement enumeration and quality project using Artificial Intelligence for enumeration and species identification at the Chignik Weir.	Lead: Chignik Intertribal Coalition Potential Partners: Chignik Regional Aquaculture Association, ADF&G, USFWS	Ongoing annually through 2028	$65K-$175K per year per weir[15]	Tribal Wildlife Grants | U.S. Fish & Wildlife Service National Fish and Wildlife Foundation (NFWF) grant National Oceanic & Atmospheric Administration (NOAA) Pacific Coastal Salmon Recovery Fund
2. Use environmental DNA to test for presence and absence of salmon and presence of invasive species, like crayfish.	Lead: Chignik Intertribal Coalition Potential Partners: Alaska Coastal Cooperative (ACC)	2026-2027	$500 per freshwater site per day[16]	Partners for Fisheries Monitoring Program through the Department of the Interior (Requires Tribal Partner) NOAA Citizen Science for Improved Stock Assessments and Climate-Ready Fisheries Management

[15] Per KAI Consulting: Traditional weir projects with a field crew everyday cost about $135-175K in Southeast Alaska. Video weir monitoring can cost less, at $95K start-up (includes equipment) and $65-75K operating. Both styles projects depend on remoteness.

[16] Assumes high estimate of sampling, site setup, and lab testing. Does not include travel. Source: *Assessing the cost-efficiency of environmental DNA sampling,* Adam S. Smart, Andrew R. Weeks, Anthony R. van Rooyen, Alana Moore, Michael A. McCarthy, Reid Tingley, 2016.

3. Establish a Chinook (King Salmon) Avoidance Program.	Lead: Chignik Intertribal Coalition Potential Partners: Chignik Regional Aquaculture Association, Alaska Coastal Cooperative	2026-2027	TBD, Depends on program design	Tribal Wildlife Grants | U.S. Fish & Wildlife Service Bycatch Reduction Engineering Program (BREP)
4. Install research and data sensing buoys around the area. University of Washington is monitoring water temperatures in Black Lake and Chignik Lake; no monitoring has occurred yet in Chignik Lagoon or the Bay. Need to identify buoy locations.	Lead: Alaska Coastal Cooperative Potential Partners: University of Washington	2025-2029	TBD	Tribal Wildlife Grants | U.S. Fish & Wildlife Service Transformational Habitat Restoration and Coastal Resilience Grants (NOAA)
5. Add anadromous streams to Alaska Department of Fish & Game (ADF&G) Anadromous Waters Catalog (AWC); update fish distribution for identified streams and known species. (with BBHLT). LiDAR can hopefully help support this effort.	Lead: Chignik Intertribal Coalition, Chignik Regional Aquaculture Association), Alaska Coastal Cooperative Potential Partners: Alaska Coastal Cooperative	2025-2029	Approx. $60,000[17]	State of Alaska Southeast Sustainable Salmon Fund (SSSF) Pacific Coastal Salmon Recovery Fund (NOAA)
6. Compile and share data collection efforts to date (including traditional ecological knowledge); ensure data sovereignty objectives are considered in current and future data collection efforts.	Lead: Chignik Intertribal Coalition Potential Partners: Alaska Coastal Cooperative (ACC)	2025, Ongoing	TBD	Coastal Habitat Restoration and Resilience Grants for Tribes and Underserved Communities (NOAA)
HUC10 Locations: Chignik Bay-Frontal Pacific Ocean – 1902070215; Chignik River – 1902070214; Alec River-Black Lake – 1902070213				

[17] Based on costs for a similar project in Southeast Alaska, a partnership between a Tribe and the Nature Conservancy via a grant was through State of Alaska Southeast Sustainable Salmon Fund (SSSF). Expenses included contracted project management for crew training and a crew leader, as well as 2 local field technicians for 8 weeks of field work. Project management included AWC submission paperwork.

Priority Strategy C: Complete a drainage map and stormwater management plan for the community of Chignik Bay.

Benefits to the watershed:

Proper stormwater management reduces runoff carrying sediment, nutrients, and contaminants into streams, aligning with EPA watershed planning objectives to protect aquatic habitats. This strategy not only improves water quality but also helps safeguard the community's fisheries and subsistence resources, ensuring long-term ecological and cultural sustainability.

What are the actions to make progress on this priority?	Who?	Target timeframe	Estimated cost	Potential funding sources
1. Procure funding and develop partnerships with lead agencies and community stakeholders.	Lead: Chignik Bay Tribal Council Potential Partners: City of Chignik	2024-2025	$222,435 (applies to actions 1-4)	Alaska Department of Environmental Conservation (DEC) Alaska Clean Water Action (ACWA) grant (Applies to actions 1-4) U.S. Fish & Wildlife Service Tribal Wildlife Grants: here
2. Create a request for proposals (RFP), solicit bids, and select a qualified engineering firm.	Lead: Chignik Bay Tribal Council Potential Partners: City of Chignik	2025		Potential technical assistance through EPA's Technical Assistance to Brownfields program, administered in Alaska via the Center for Creative Land Recycling
3. Develop a drainage map for the community. Include site assessment mapping for old or current landfills in Chignik Bay that may not be captured by ADEC (e.g. the Alaska Packers Cannery area from 1976; the site where ANTHC stayed while doing a water project). The community has many old dumpsites and industrial areas that are not adequately documented. The need to understand areas with contamination and runoff concerns has become especially pressing now that the former Trident properties in Chignik Bay have recently been transferred to the City. Many of these areas are covered with water during high tides and storm events. ANTHC has also uncovered debris while digging for utilities.	Lead: Chignik Bay Tribal Council Potential Partners: City of Chignik	2025-2026		

4. Develop a draft stormwater management plan for the community, integrating community goals and the drainage map and site assessments.	Lead: Chignik Bay Tribal Council Potential Partners: City of Chignik	2027		
5. Use the stormwater management plan's best management practices (BMPs) to develop policies that will mitigate or protect watershed resources during development projects. BMPs may include green stormwater infrastructure to capture and treat runoff, reduce erosion, and mitigate flooding. Further actions may be added to include installation of green infrastructure.	Lead: Chignik Bay Tribal Council Potential Partners: City of Chignik	2027, ongoing	TBD based on stormwater management plan recommendations	U.S.D.A. Rural Development Solid Waste Management grants: here
HUC12 Location: Chignik Bay-Frontal Pacific Ocean - 190207021505				

Priority Strategy D: Clean Up contaminated sites in Chignik Lake.

Benefits to the watershed:

Cleaning up contaminated sites prevents pollutants from leaching into groundwater and surface waters. This strategy not only protects the community's drinking water and fisheries but also supports the long-term ecological integrity and cultural practices tied to the watershed.

What are the actions to make progress on this priority?	Who?	Target timeframe	Estimated cost	Potential funding sources
1. Develop partnerships with lead agencies and community stakeholders for site assessments. Create and implement a community outreach plan to communicate about the project, and mitigation efforts.	Lead: Chignik Lake Community Potential Partners: Alaska Community Action on Toxics	2025	$6,000[18]	Alaska Native Claims Settlement Act (ANCSA) Contaminated Lands Assistance Program (EPA) U.S. Fish & Wildlife Service Tribal Wildlife Grant Program
2. Complete site assessments of known contaminated sites and undocumented sites. Include (a) the abandoned dumpsite adjacent to critical fish habitat (lake/river), which is near the current landfill; (b) hazardous waste, alder overgrowth at the current dumpsite; (c) the old sewage site near the new school; and (d) other areas prone to flooding. The site assessments will identify potential cleanup options and cost estimations. Action includes creating a request for proposals (RFP), soliciting bids, and selecting a qualified engineering firm to complete site assessments. Engaging with landowners will take place before any activity such as alder clearing.	Lead: Chignik Lake Community Potential Partners: Alaska Community Action on Toxics	2026-2027	$200K[19]	U.S.D.A. Rural Development Solid Waste Management Grant Program Potential technical assistance through EPA's Technical Assistance to Brownfields program, administered in Alaska via the Center for Creative Land Recycling State of Alaska Revolving Loan Fund Program

[18] Assumes 40 hours of work to be performed at a rate of $40/hr plus fringe benefits.

[19] Assumes contractual site sampling a mapping work.

3. Procure other funding and perform cleanup and mitigation efforts, as determined by the site assessments.	Lead: Chignik Lake Community Potential Partners:	2027-2030, ongoing	TBD based on site assessment findings	Contaminated Alaska Native Claims Settlement Act (ANCSA) Lands Assistance Program (EPA) BBNA has done some preliminary assessments) Alaska Native Tribal Health Consortium Solid Waste and Resilience Program (Up to $75K)
4. Implement recommendations identified in the October 2024 Chignik Lake Landfill Inspection Report, including a) purchase a new burn unit, b) brush cutting around the landfill, c) acquire dedicated heavy equipment for managing the landfill; d) establish policies around disposal of animal carcasses and subsistence waste; e) establishing a collection area for future backhaul items; f) participate in regular solid waste trainings; and g) review and update the landfill operations plan and site map at least yearly.	Lead: Chignik Lake Community Partners: Alaska ADEC, Solid Waste Program	Ongoing	Varies	View ADEC's solid waste funders list for potential solid waste project funding opportunities: click here
HUC12 Location: Chignik Lake-Chignik River - 190207021409				

Priority Strategy E: Initiate water quality monitoring in locations around Chignik Lagoon to identify areas of concern and prioritize next steps.

Benefits to the watershed:

The infrastructure in Chignik Lagoon – fuel storage, power systems, water, sewer – is aging and showing signs of disrepair. In particular, the community has concerns about leaking sewage and contamination around the landfill. Much of Chignik Lagoon's infrastructure is located right next to the lagoon beach. The community would like to conduct water quality testing at sites around the community, including creeks and in the lagoon itself. This baseline data will help the Tribe and community partners understand which areas have water quality concerns that need to be addressed immediately, and to track changes over time to ensure pollutants are not leaching into waterways in the future.

What are the actions to make progress on this priority?	Who?	Target timeframe	Estimated cost	Potential funding sources
1. Identify priority sites, conduct baseline water quality testing, and train IGAP coordinators on taking samples, potentially via the free technical assistance provided by Zender Environmental Group. Identify the measurable water quality goals, including the appropriate water quality standards and designated uses. Include development of a Quality Assurance Project Plan (QAPP) to define methods, parameters, equipment, goals, and data requirements.[20]	Lead: Chignik Lagoon Village Council Potential Partners: Zender Environmental Group; ADEC Water Quality Program	2025	Technical assistance is free to Tribes	U.S. Department of Agriculture Rural Development funds the technical assistance; ADEC ACWA grants
2. Incorporate water quality sampling into the work plan for future IGAP funding requests to the Environmental Protection Agency (EPA) so Tribal staff can collect and process water quality samples on a regular basis.	Lead: Chignik Lagoon Village Council Potential Partners: Zender Environmental Group, Bristol Bay Native Association; ADEC Water Quality Program	2025	TBD	EPA IGAP funds
3. Use water quality data to identify areas of concern and help prioritize capital improvements. Identify the causes and sources or groups of similar sources that need to be controlled to achieve the water quality standards. If possible, estimate pollutant loads entering the waterways and determine the pollutant load reductions needed to meet the water quality goals.	Lead: Chignik Lagoon Village Council Potential Partners: Zender Environmental Group, Alaska Native Tribal Health Consortium	ongoing	Varies	DEC ACWA grants

[20] ADEC resources on quality assurance and QAPP templates can be found at: https://dec.alaska.gov/water/water-quality/quality-assurance/

4. If sample results show exceeding pollutant loads, develop measurable milestones to determine if progress is being made towards attaining state water quality standards.	Lead: Chignik Lagoon Village Council Potential Partners: Zender Environmental Group, Alaska Native Tribal Health Consortium	ongoing	Varies
HUC12 Location: Chignik Bay-Frontal Pacific Ocean - 190207021504			

Other Strategies by Lead Organization

The following is a list of other strategies identified by stakeholders through the course of the project. Strategies may be re-prioritized, revised, removed, or added as necessary during annual reviews of the plan.

Alaska Coastal Cooperative

Emerging Priority Strategies	Assessment	Prevention	Mitigation	Evaluation	Time to Complete?	URGENT?	Black Lake	Chignik Lake	Lagoon + Bay	Partners ?
A. In Chignik Bay, monitor the erosion occurring at the bank of Indian Creek Bridge using the water level gauge installed in 2022.	X			X					X	
B. Establish baseline data for water temperature of priority anadromous streams and rearing grounds.	X			X			X	X	X	
C. To improve predictions regarding erosion flood events in Chignik Bay streams and shorelines, install water level gauges, collect nearshore single or multibeam bathymetry, and collect ground control and check points.	X								X	
D. Use bathymetric data to determine shellfish areas.	X								X	

Other Potential Strategies

E. Document dynamic movement of fish.	X						X	X	X	
F. Identify traditional uses within the watershed to help prioritize areas and/or prevent or mitigate harm from threats to the watershed.	X	X	X				X	X	X	

Lake and Peninsula Borough

Emerging Priority Strategies	Assessment	Prevention	Mitigation	Evaluation	Time to Complete?	URGENT?	Black Lake	Chignik Lake	Lagoon + Bay	Partners ?
G. Upgrade water distribution system in Chignik Bay.		X							X	
H. Upgrade water intake infrastructure in Chignik Lagoon and repair water service lines.			X						X	Chignik Lagoon Village Council

Chignik Intertribal Coalition

Emerging Priority Strategies	Assessment	Prevention	Mitigation	Evaluation	Time to Complete?	URGENT?	Black Lake	Chignik Lake	Lagoon + Bay	Partners ?
I. Develop and implement tissue sampling program to monitor heavy metals in salmonids and other key subsistence or commercial species.	X			X			X	X	X	
J. Identify spawning and nursing grounds for Kings.	X						X	X		

Chignik Bay

Chignik Bay Tribal Council

Emerging Priority Strategies	Assessment	Prevention	Mitigation	Evaluation	Time to Complete?	URGENT?	Black Lake	Chignik Lake	Lagoon + Bay	Partners ?
K. Address coastal bank erosion threatening the clinic in Chignik Bay.		X	X			X			X	City of Chignik; Borough
L. In Chignik Bay, transport and install the new incinerator at the landfill for fire mitigation, landfill life extension, and to reduce leachate.		X							X	City of Chignik; Borough

City of Chignik

Emerging Priority Strategies	Assessment	Prevention	Mitigation	Evaluation	Time to Complete?	URGENT?	Black Lake	Chignik Lake	Lagoon + Bay	Partners ?
M. Reduce contaminates from road dust by resurfacing roads, enforcing slower speed limits, and/or purchasing a water truck.		X	X			X			X	City of Chignik; Borough
N. Complete community sanitation infrastructure projects in Chignik Bay to repair station #5 controls, complete the access trail to the reservoir, and other related improvements.		X	X						X	City of Chignik; Borough
O. In Chignik Bay, address landfill leachate.	X	X	X						X	

Other Potential Strategies

P. Designate holding area for heavy equipment.		X						X	X	

Q. Conduct water quality monitoring, including cruise ship effluent in the bay and monitoring at the boat harbor.				X					X	

Chignik Lagoon / Chignik Lagoon Village Council

Emerging Priority Strategies	Assessment	Prevention	Mitigation	Evaluation	Time to Complete?	URGENT?	Black Lake	Chignik Lake	Lagoon + Bay	Partners ?
R. Repair septic systems in Chignik Lagoon.	X	X	X						X	Borough

Other Potential Strategies

S. Improve road access to the active landfill site.		X							X	Borough
T. In Chignik Lagoon, repair road and pathways on fuel distribution routes.		X							X	Borough
U. Address/remove abandoned barge in Chignik Lagoon. Could do lead testing? ADEC has plans to visit Ugashik to do lead testing of their abandoned vessel.										

Chignik Lake / Chignik Lake Village Council

Emerging Priority Strategies	Assessment	Prevention	Mitigation	Evaluation	Time to Complete?	URGENT?	Black Lake	Chignik Lake	Lagoon + Bay	Partners ?
V. Upgrade the water tower and build a new pump house to supply more pressure to fire hydrants.		X						X		Borough
W. In Chignik Lake, maintain & improve oil collection program.		X						X		

Other Potential Strategies

X. Replace water plant.		X	X					X		Borough
Y. Update and improve drainage features as needed in the community.		X	X					X		
Z. Continue to work with Alaska Rural Utility Collaborative (ARUC) to develop a sustainable and safe water system.		X						X		

All Communities (No Lead Assigned)

Emerging Priority Strategies	Assessment	Prevention	Mitigation	Evaluation	Time to Complete?	URGENT?	Black Lake	Chignik Lake	Lagoon + Bay	Partners ?
AA. Implement a program to prevent bears from getting into dumpsters and trash bins.		X						X	X	
BB. Inventory location and ownership of derelict buildings and vessels, old equipment storage, fuel storage, and old cannery sites where contamination may be more likely to occur or is occurring. Demo abandoned buildings and investigate brownfield repurposing.	X	X	X					X	X	
CC. Establish baseline water quality data collection system.	X			X				X	X	
DD. Work with landowners to demolish and clean up abandoned homes in the flood zone.		X	X					X	X	
EE. Plant new vegetation and invest in reinforcement projects that prevent and mitigate stream and shore erosion.		X	X					X	X	
FF. Implement various improvements to solid waste management: Separate burnable and non-burnable wastes, eliminate open burning whenever possible, ensure all dumpsters have lids and that dump areas are fenced; using spill guards to prevent oil leak contamination, maintain landfill signs, encourage backhauling, and continue to implement the IGAP recycling program.		X	X					X	X	*(Tribal Entity Needed)*
GG. Establish, monitor, improve existing commercial fishing waste disposal system (e.g., for byproducts like fish carcasses).		X	X					X	X	
HH. Create a residential fuel tank inspection and repair program.		X						X	X	
II. Mitigate flooding, especially at contaminated sites.			X					X	X	
JJ. Establish shellfish testing program for bivalves at risk for saxitoxin contamination, which can lead to paralytical shellfish poisoning.	X			X					X	*(Tribal Entity Needed)*
KK. Participate in BBNA's Brownfield's Program for contaminated sites with potential for redevelopment. Sites that may be eligible are (Chignik Bay) #1 School Road, Southern Chignik's Tank Farm, Trident Seafoods, (Chignik Lake) Tank Farm, Fuel Transfer Area, and the Water Line Upgrade Area; (Chignik Lagoon) Old cannery across from village and CLNC lands site and old landing craft area near main village site.			X					X	X	*(Tribal Entity Needed)*

Other Potential Strategies

LL. Development, outreach, education, and implementation of spill response program.		X						X	X	
MM. Establish development setbacks from riparian areas.		X						X	X	
NN. Develop water quality monitoring plan to determine if there are impacts from current landfill operations.	X			X				X	X	
OO. Acquire conservation easements to protect uplands and riparian areas from development.		X					X	X	X	
PP. Set up system to divert water to priority salmon streams in times of drought.			X				X	X	X	
QQ. Establish stormwater protection standards for new developments or maintenance of existing infrastructure.		X						X	X	
RR. Map trails in the area and distinguish between motorized (ATV) and non-motorized use; improve enforcement of motorized use in areas designated non-motorized.	X	X	X					X	X	

Suggested Strategies Not Included

Below are suggested strategies that were not included because they either do not directly address a watershed-specific threat or they were identified by a source outside of the subregion.

- Create a parks and recreation department and build boardwalks and viewing decks.
- Create an Inupiaq Language Commission.
- Collect data on instream habitat and functions to determine if any instream restoration efforts are warranted.
- Acquire firefighting equipment and create a volunteer fire fighting program in Chignik Bay.