

---

**PORT GRAHAM/NANWALEK  
WETLAND CONSERVATION PLAN**

*Port Graham, Alaska  
Nanwalek, Alaska*

*Developed by:  
The Port Graham/Nanwalek Watershed Council (PGNWC)*

**Sponsored by:**  
**Port Graham Village Council**  
**Nanwalek IRA Council**

**Assisted by:**  
**Chugachmiut**  
**US Environmental Protection Agency**  
**US Department of Agriculture**  
**Natural Resources Conservation Service**

**September 2001**

---

**PORT GRAHAM/NANWALEK  
WETLAND CONSERVATION PLAN**

*Port Graham, Alaska  
Nanwalek, Alaska*

*Developed by:  
The Port Graham/Nanwalek Watershed Council (PGNWC)*

**Sponsored by:**  
**Port Graham Village Council**  
**Nanwalek IRA Council**

**Assisted by:**  
**Chugachmiut**

**US Environmental Protection Agency**  
**US Department of Agriculture**  
**Natural Resources Conservation Service**

**September 2001**

**Wetland Conservation Plan**  
**Port Graham/Nanwalek Watersheds**  
**Port Graham, Alaska and Nanwalek, Alaska**

**ABSTRACT:**

Funding from the USEPA Wetland Program was made available to Chugachmiut to explore an area of interest to the tribes; wetlands protection. Various economic development and tourism projects were being proposed throughout the Chugach Region and posed potential threats for highly valued wetland areas. The federally recognized tribes of Port Graham and Nanwalek, with approval and support of all tribes in the region came together in 1997 to begin a planning process for local wetland management and education. With assistance from their regional non-profit organization, Chugachmiut and the USDA Natural Resources Conservation Service and USEPA, a nine-step planning process, typically used by NRCS, in their planning with private landowners was begun. Resulting from this process was an extensive community education program, including the development of a brochure, a video and airport display kiosks for each community, and this, a wetland conservation plan. Include in the plan is an inventory of resources, an account of dependent species on local wetlands, identification of stakeholders, a legal review of applicable laws and regulations affecting wetlands, the planning process and an outline for the development of a comprehensive management plan.

**FOR ADDITIONAL INFORMATION, CONTACT:**

Violet Yeaton or Tom Evans, Co Chairpersons  
Port Graham/Nanwalek Watershed Council  
Box 5510/Box 8065  
Port Graham/Nanwalek, Alaska 99603-8998/6665  
(907)-284-2227/(907)-281-2221

Chugachmiut  
4201 Tudor Centre Drive, Suite 210  
Anchorage, Alaska 99508  
(907)-562-4155

USDA, Natural Resources Conservation Service  
800 West Evergreen, Suite 100  
Palmer, AK 99645  
(907) 761-7761

## **Acknowledgments**

This plan was written with contributions from many stakeholders on the Port Graham/Nanwalek Watershed Council and community members. Technical assistance was provided by the US Environmental Protection Agency, the USDA Natural Resources Conservation Service, and Chugachmiut staff. The PGNWC wishes to thank the following people for helping author this plan.

### **Contributors to date**

Elenore McMullen, Port Graham  
Tom Evans, Nanwalek  
Violet Yeaton, Port Graham  
Ephim Anahonak, Port Graham  
Carol Kvasnikoff, Nanwalek  
Donna Malchoff, Port Graham  
Nancy Yeaton, Nanwalek  
Walter Meganack, Jr., Port Graham  
Brandon Moonin, Port Graham  
Paul Jackson, Chugachmiut  
Christine Celentano, Chugachmiut  
Gene Long, Chugachmiut  
Dan LaPlant, USDA NRCS  
Mark Kinney, USDA NRCS  
Mara Kimmel, Esquire

### **Editing and Reviewing**

Christine Celentano  
Bill Sobers  
Violet Yeaton  
Edgar Otis  
Ephim Anahonak

## Table of Contents

Summary.....	2
Purpose Statement.....	4
The Planning Process .....	4
Watershed Management Committee.....	6
What The Plan Will Be Used For .....	8
Description Of The Planning Area and Its Resources.....	9
Project Setting .....	9
Geology .....	9
Hydrography.....	10
Soils .....	12
Climate .....	14
Plant Communities .....	14
Water Quality .....	16
Wetlands.....	17
Land Ownership .....	18
Wildlife and Fish Resources .....	19
Cultural and Archeological Resources.....	19
History .....	19
Community Descriptions.....	22
Socioeconomic Conditions.....	24
Employment and Income: .....	24
Cultural Activities.....	27
Land Uses Activities.....	29
Overview Of Regulations .....	33
Stakeholder Scoping Issues (concerns, problems, opportunities) .....	41
Natural Resource and Other Development Activities:.....	41
Impacts: .....	42
Regulation and Property Rights: .....	42
Education: .....	43
Management: .....	43
Formulation Of Alternatives.....	44
Public Participation .....	49
Recommended Plan .....	51
Plan Implementation.....	53
APPENDIX A [Plan of Work].....	54
APPENDIX B [Wildlife Species].....	61
APPENDIX C [Biological Monitoring].....	68
APPENDIX D [Tribal Wetlands Survey].....	70
APPENDIX E [PGNWC Video].....	81
APPENDIX F [PGNWC Geographic Information Systems].....	82

### **A note from the Port Graham/Nanwalek Watershed Council:**

This document outlines a plan for and by the people of Port Graham and Nanwalek, Alaska to maintain the high quality of the water, fisheries, wildlife, and plants within our watersheds through proper management of wetland resources. As sponsors of this plan, we recognize that wetlands are critically important elements of a watershed: as the link between land and water resources, wetlands directly and indirectly influence the health and productivity of all other natural resources. We also recognize that wetland protection programs are most effective when coordinated with other resource and environmental management activities, such as surface and ground-water protection programs, flood control activities, solid waste and hazardous materials management, water supply management, protection of fish and wildlife, recreation development, and control of storm waters. The quality of wetlands and other water resources is directly linked to the quality of the environment surrounding them; conversely, the quality of fish, wildlife, and plant communities is directly affected by the quality of wetlands and other water resources within the watershed. This plan is recognized as one of the first Tribal initiatives of its kind in Alaska. Port Graham and Nanwalek will use it as a foundation for future land use planning. It is our hope that other villages within the Chugach region and other parts of Alaska will use it as a model for their own land use and resource planning efforts.

## **Summary**

With their historically narrow focus on single goals or a small set of goals, resource and environmental protection programs have succeeded in identifying and controlling, to some degree, the larger point sources of pollution. To address the broader problems originating from general land use changes, however, requires an approach that directly addresses the interconnections between the water, land and air environment surrounding the wetland resources being managed. General land use changes such as these, which result in more diffuse non-point sources of pollution, are now taking place in many parts of rural Alaska. In order to manage problems for any given aquatic resource, a watershed-based approach to water and wetlands protection must consider the whole ecological system, and include comprehensively other resource management programs that address surrounding land, air, and water.

The watersheds and sub-watersheds of the project area contain healthy resources: clean water, mature Sitka Spruce forests, productive resident and anadromous fisheries, and a wide variety of waterfowl and marine species. The residents of the communities within these watersheds have lived in harmony with these resources for many generations, but population growth, community expansion, and increasing commercial timber harvesting may endanger and degrade these valuable natural resources. This plan therefore is intended to be preventative in nature, by addressing decisively the natural resource problems that are currently unfolding, and by taking action to prevent problems from arising in the future.

This plan is *not* intended to create new or expanded wetland regulation that might result in outside control of our communities' lands and resources. Current wetland and related rules and regulations are generally accepted as sufficient. Rather, the primary purpose of this plan is to help landowners, local residents, and land managers to make wise land and resource management decisions that are compatible with existing laws and regulations also compatible with traditional, cultural practices.

Additionally, this plan may be utilized to leverage assistance and/or funding from other projects and programs such as the Cook Inlet Keeper, the National Estuary Program, the National Water Quality Assessment in the Cook Inlet Basin, other EPA grant programs, and other public or private funding sources.

### **FUNDING OF THE PROJECT**

The planning process and the activities of the Port Graham/Nanwalek Watershed Council are funded by a Wetlands Conservation Management Planning grant from the EPA through section 104(b)(3) of the Clean Water Act. The Chugachmiut Environmental Health Program staff wrote the project proposals, applied for and received the assistance grants. The Natural Resource Conservation Service (NRCS), an agency of the US Department of Agriculture (USDA) provided its services at no charge to the project.

### **HOW THE PROJECT AREA WAS SELECTED**

To determine where grant funds could best be put to use in designing a wetland management plan, Chugachmiut conducted a region-wide survey. "Chugachmiut" means "people of the Chugach," and the organization serves the communities of Tatitlek, Eyak in Cordova, Chenega, Port Graham, Nanwalek, Valdez Native Tribe, and the Qutekcak Tribe in Seward. Chugachmiut convened a series of meetings among the Chugach Regional Resources Commission (CRRC), Natural Resources Conservation Service (NRCS), and the tribal councils and corporations. Discussion at these meetings revealed that, because of planned and proposed logging and other resource activities, the Port Graham and Nanwalek watersheds stood in greatest need of a wetland plan. In addition, these two communities expressed the greatest degree of interest in the planning concept. As a result, members of the Chugachmiut Environmental Protection Consortium (CEPC) voted unanimously at their October 1995 meeting to utilize the grant funds for planning purposes for these two watersheds.

## **Purpose Statement**

Wetlands are a resource essential to the quality of life enjoyed by the residents of Port Graham and Nanwalek. The health of the wetlands and of the lakes, rivers, streams, and estuaries is vital to the fish, wildlife, and plants that our subsistence lifestyle and traditions have depended upon for generations. This document, a management plan for the wetland resources of these two villages, utilizes a watershed-based planning approach in order to balance the traditional cultural values of the past and present with the development of a sound natural resource-based economy for the future.

The planning process intends to develop a wetland management plan and guidelines for wetland protection by gathering input from all stakeholders. The plan will include components that promote education of the public to increase awareness and understanding of the value of wetland resources and watershed management; consider cultural and economic priorities; delineate, characterize, and prioritize wetlands; and establish a basis for current and future natural resource and land use planning. The Port Graham/Nanwalek Watershed Council was the first Alaska Native group to undertake this type of planning. When complete, this plan can serve as a model and template for other village councils and corporations to use in managing and protecting their wetland resources.

## **The Planning Process**

Planning Group  
The basic planning group established to carry out this process was the Port Graham/Nanwalek Watershed Council (PGNWC). The PGNWC represents a broad base of sponsors and stakeholders with mutual interests in the watersheds and wetlands of the area, including tribal councils, regional and village Native corporations, and community members.

### Planning Procedure

In the development of its management plan, the PGNWC used the nine basic steps that the Natural Resources Conservation Service (NRCS) typically utilizes to write wetlands and/or watershed management plans. These steps are as follows:

1. Identify the problems (what concerns you have for your lands, your community).
2. Determine the objectives (what you want to achieve what vision you have for your watershed, your community).
3. Inventory the resources (learn what soils, wetlands, habitats you have; determine what effects your current activities have on the environment; determine people's needs for food, shelter, health, safety, jobs).
4. Analyze the resource data (analyze the data to understand the conflicts between resources and the opportunities for better resource use). At this point, after learning more about your watershed, you might want to re-visit the problems you identified and the objectives you set.

5. Formulate alternatives (actions that can be taken to solve problems or to take advantage of opportunities).
6. Evaluate alternatives (determine the effects of these actions; make sure they have the desired results and meet your objectives, that they don't result in conflicts, and that they are sustainable over the long term; again, create "win-win" solutions).
7. Decide on a course of action (select which actions you want to implement, by whom, and when; whether others are going to be involved; and whether they support your decisions).
8. Implement decisions.
9. Evaluate the results of implementation (monitor to see if you are getting the desired results, if not, determine why, and decide if a different approach is necessary).

The first two steps are the most important. Identifying the problems and determining the objectives for the two communities set the stage for the rest of the planning process.

The PGNWC struggled with their progress toward a wetland conservation plan, approaching the halfway mark into a nine step planning process. There was a series of moving back and forth between the steps and revisiting objectives under each. An observation that became most apparent by members is that no planning process, however meticulously guided moves through "nine steps" smoothly. The final plan was the result of an enormous amount of volunteer commitment, both emotionally and intellectually, perseverance and boundless dedication of tribal members toward an ultimate goal of preservation of a traditional lifestyle for generations to come.

#### Watershed and Wetland Relationships

A watershed is an area in which all water drains to a common outlet. From the mouth of a river it includes all land upstream that drains or slopes toward that river and its tributaries. The watershed can include the estuary and bay that the river empties into as well. All the land and tributaries that drain into the Port Graham River, its estuary, and Port Graham Bay constitute the Port Graham Watershed, while all the land and tributaries that drain into the English Bay River and its estuary make up the English Bay Watershed.

Within both these watersheds are a number of large and important wetlands. Most water, as it moves through a watershed, spends time in a wetland. Because wetlands are an indicator of the overall health of a watershed, this plan emphasizes wetlands as a uniquely important feature of the watershed.

#### Planning Policies

To create a management plan that is successful it must not only solve problems that already exist but also prevent problems from occurring in the first place. Without the inclusion of all stakeholders in a watershed, those people that are left out of the process can easily derail the plan.

This management plan is not only about solving problems, but also about identifying opportunities to prevent problems—its main thrust is *preventative* rather than *mitigative*. The planning that is being undertaken here is intended to improve the quality of our lives and the lives of our children and their children through education and outreach. It is

intended to insure that our future generations will have available the resources and opportunities they will need to survive and prosper.

In solving ecological problems, watershed planning looks carefully and holistically at interrelationships among all resources—environmental, social, cultural, and economic—to minimize conflicts among them. For example, because the availability of jobs within a community usually depends upon what natural resources are available (forests, fish and wildlife, minerals), the community will suffer if these resources are depleted, destroyed, or poorly managed. Or—to use another example—a timber harvest that looks only at maximizing the board feet of timber cut might require the building of a logging road, which could in turn result in a fill slope failure that delivers sediment into spawning streams and thereby reduces the number of salmon available for subsistence or commercial harvest. Careful planning whose goal is to identify “win-win” solutions, or at least solutions where no one is worse off, can avoid these kinds of negative results (for example, by siting the road on stable soils, using special road construction techniques, or by employing different methods to remove timber).

Moreover, this planning process is *inclusive*: it is a local community-driven and community-based process; it is not directed by a government agency. Members of the PGNWC and the communities have determined what is important, set the priorities, and made the decisions, while the agencies have provided support and guidance. It represents a process in which tribes, state and federal agencies, and various public and private programs can work together cooperatively for the benefit of all. Wetlands planning from a watershed approach is about involving all parties that have a stake in resources in the planning process, so that problems may be addressed in a cooperative atmosphere of mutual trust.

## **Watershed Management Committee**

### Sponsoring Organizations

Port Graham Village Council

Nanwalek IRA Council

### Invited Stakeholders

Port Graham Corporation

English Bay Corporation

Chugach Alaska

Seldovia Native Association

Cook Inlet Region Inc.

Native Allotment Owners

Bureau of Indian Affairs

Subsistence Users

Commercial Fishermen

Port Graham Hatchery

Nanwalek Hatchery Project  
Alaska Dept. of Fish and Game  
Kenai Peninsula Borough

Participants

Tom Evans, Co-chair  
Nick Tanape  
Nancy Yeaton  
Carol Kvasnikoff  
Elenore McMullen, Co-chair  
Riley Meganack

Fran Norman  
Violet Yeaton  
Ephim Anahonak  
Edgar Otis  
Robert McMullen  
Phillip Anahonak  
Victor Carlough  
Melvin Malchoff  
Bob Huntsman  
Adrienne Moonin  
Forest Kvasnikoff  
Fred Elsvaas  
Lillian Elsvaas  
Pat Norman  
Paul McCollum  
Brandon Moonin  
Chugachmiut  
Chugach Regional Resources Commission  
Chugach Alaska Corporation  
Alaska Realty Consortium  
Environmental Protection Agency  
Natural Resource Conservation Service (USDA)  
Kenai Borough Borough

Representing

Nanwalek IRA Council Staff  
Nanwalek Natural Resources, AmeriCorps  
Nanwalek Natural Resources  
Nanwalek Sockeye Project  
Port Graham Village Council  
Port Graham Village Council  
Commercial/Subsistence Representative  
Port Graham Village Council Staff  
Port Graham Village Council Staff  
Port Graham Village Council Staff  
Citizen Representative  
Student Representative  
Student Representative  
Seldovia Native Tribe  
Seldovia Native Tribe  
Port Graham Corporation  
Port Graham Hatchery  
Port Graham VISTA Volunteer

## **What the Plan Will Be Used For**

The primary purpose of this plan is to provide guidance and policy for the management of wetlands in the Port Graham and Nanwalek watersheds. The plan will be used as a working document together with related projects to address specifically identified priorities of its sponsors and stakeholders. Therefore, the plan may be used:

- ◇ As a guide for future planning and policy decisions and for evaluating current management plans' validity and value. The plan provides a common ground upon which the village councils and corporations may stand as they work cooperatively on watershed resource and environmental management issues.
- ◇ As guidance to develop a set of tribal codes and ordinances that may equal, exceed, or enhance state, federal and borough codes and ordinances. Where local concerns over resource protection are not covered adequately by state and federal regulations, tribes may wish to assure such protection by development of their own *regulatory guidelines*.
- ◇ To facilitate the acquisition of permits (i.e. 404 permits), to address issues of regulatory compliance, and to provide guidelines for submitting comments to federal and state agencies on permitting or other processes (for example, environmental impact statements or NPDES permits).
- ◇ To assist in the development of co-management agreements with agencies, councils and corporations, organizations, and businesses.
- ◇ To provide the documentation and foundation from which to promote wetlands, watershed, and general resource and environmental education.

# Description of the Planning Area and Its Resources

## Project Setting

The planning area is located on the Lower Kenai Peninsula approximately 25 miles southwest of Homer, Alaska (see map). The project areas consists of the watersheds and sub-watersheds that empty into Port Graham Bay, two small watersheds to the north of Port Graham Bay which drain directly into Cook Inlet, and the English Bay River Watershed which drains into

English Bay Lagoon. The two communities, Port Graham and Nanwalek, are both Alutiiq villages with populations of 175 and 200 respectively. people, respectively. Village corporations own lands within the watersheds, individual through the Native Allotment program, and village councils. The regional for-profit Native Corporation, Chugach Alaska Corporation, owns subsurface rights. Townsite land parcels are 327 and 119 acres each. Native allotment lands include 36 allotments near Port Graham Bay and 18 allotments near Nanwalek. The entire planning area, both watersheds combined, is approximately 100,000 acres.

The planning area represents a typical pristine marine coastal ecosystem of South-central Alaska. Both watersheds include a large number of wetlands that provide high-quality spawning and rearing habitat for silver, king, pink, sockeye, and chum salmon as well as for Dolly Varden. Other wildlife species of importance include moose, bear, goat, porcupine, rabbit, ptarmigan, grouse, and waterfowl. Trappers previously hunted Land otter, mink, and weasel. Marine mammals such as Orca and seals and are important resources to the two villages' subsistence based economies. Plant communities are Sitka Spruce, riparian, mixed shrub and alpine.

Both villages are experiencing growth in transportation systems, housing, and commercial resource harvests of timber and fish. Both have also expressed an interest in the potential development of tourism.

## Geology<sup>1</sup>

The terrain of the planning area is a result of intense glaciating during late advances of the Pleistocene epoch. The watershed has valley walls with exposed bedrock, thin moraine deposits on hills and in valleys, and a very irregular coastline.

The surficial geology and geomorphology of the lower end of the Kenai Mountains has not been studied as thoroughly as other more populated watersheds of the Kenai Peninsula. Therefore, a detailed geologic review of the area is not available.

This lower end of the Kenai Peninsula, along with the rest of the Cook Inlet region, is located on the edge of the North American Plate and is converging with the Pacific Plate. The movement of the Pacific Plate beneath south-central Alaska has resulted in Alaska's frequent and sometimes devastating earthquakes, explosive eruptions of Cook Inlet volcanoes, and both uplifting and subsidence of the Kenai Mountains.

The bedrock geology of the watershed consists of two different tracts of rock that originated far from each other and was later faulted together. These groups are separated by the Boarder Ranges fault that bisects the watershed along a north/south axis (from Seldovia to Dogfish Bay). To the west of the fault are mildly folded sedimentary and volcanic rocks, the oldest of which are referred to as the Port Graham Formation (Triassic). This 1500+ meter thick formation crops out along the shores of Port Graham Bay and in the adjacent highlands, and consists of carbonaceous silty limestone plus less abundant rock types including chert, mudstone, siltstone, sandstone, and volcanic rocks. The Talkeetna Formation (Jurassic), which overlays the Port Graham Formation to the west near Cook Inlet, consists of at least 5270 meters of volcanic rocks, volcanoclastic sedimentary rocks (conglomerate, sandstone, mudstone), and minor coal and limestone.

To the east of the Boarder Ranges fault lies an area of extremely complex geology that is divided up into six rock units. Within the watershed planning area the McHugh Complex is the most dominant of these; it consists of sedimentary and volcanic rocks scraped off the deep-sea floor. The main rock types are argillite, graywacke, chert, and pillow basalt, plus minor limestone, gabbro, and ultramafic rocks. A broad but poorly defined tract of probably Jurassic-age graywacke underlies much of the high country in the Port Graham drainages.

Ultramafic rocks (probably Mesozoic) occur in fault-bounded blocks at Snow Prospect, along the Seldovia-Port Graham divide. Mainly dunite, pyroxenite, and serpentite, these rocks warrant special mention because of their stark effects on vegetation. They are nearly devoid of the so-called incompatible elements, including potassium, and therefore not much will grow on soils derived from their breakdown.

The surficial geology of the watersheds shows abundant evidence of glacial erosion from a series of Pleistocene glaciations. The mountains are heavily carved by cirques, although none is currently occupied by glaciers. The cirques drain into broad valleys that have U-shaped profiles and are typically filled with Quaternary sediments, including glacial, fluvial, alluvial fan, and lacustrine deposits. The U-shaped valleys reach all the way to the coast. Port Graham's valley is drowned by seawater and hence is a true fjord.

Our two watersheds lie within 100 km of three active volcanoes: Douglas, Augustine, and Iliamna. Explosive eruptions are common at these and other volcanoes of the Aleutian-Alaska Range magmatic arc, and occasionally ash has been laid down as a blanket across the area. There is probably one major ash fall about every 500 years; about 5 cm of ash accumulates per 1000 years. Because wind, water, and other agents redistribute thin ash blankets, the resulting distribution of ash has become very patchy.

### **Hydrography**

The watershed project area consists of the Port Graham River and English Bay River drainages. These parallel drainages lie on the northwest slopes of the Kenai Mountains at the lower end of the Kenai Peninsula.

The headwaters of the Port Graham River originate at about 800 feet above sea level and empty into Port Graham Bay approximately 11 miles to the northwest. Three perennial tributaries contribute to the base flow, originating from palustrine scrub/shrub-emergent

wetland and seeping throughout the 160,000-acre watershed. Across the divide to the south, the English Bay River originates from palustrine scrub/shrub-emergent wetlands at about 200 feet above sea level and empties into English Bay lagoon near Nanwalek about 10 miles to the northwest. There are five lakes along the valley bottom, which the river passes through.

## **Soils**

The Natural Resources Conservation Service mapped soils of the watersheds during the early 1990s. The following seven soil map units are described within the draft soil survey report.

### **Soils on Flood Plains, Spits, Stream Terraces, and Alluvial Fans:**

These soils are found on approximately 4 percent of the Lower Kenai Peninsula Soil Survey Area.

**Petrof-Portdick:** These soils are nearly level on flood plains and low stream terraces. Petrof soils are very deep, moderately well to somewhat poorly drained, loamy in texture, and formed in stratified alluvium. Portdick soils are very deep, moderately well to somewhat poorly drained, loamy over sandy textured, and formed in stratified alluvium.

These soils have a mixed forest of Sitka spruce and cottonwood with an understory of riparian willow. Moose use this habitat throughout the year; black bear use it as cover for feeding and reproduction; hawk and Bald Eagle use it for nest sites; and a variety of other small mammals such as beaver, river otter, and mink live here as well.

**Jakolof-Typic Cryaquents-Ismailof-Taluwik:** These soils are nearly level to moderately sloping on flood plains, spits, stream terraces, and alluvial fans. Jakolof soils are very deep, moderately well drained, loamy over sandy textured, and formed in a mantle of volcanic ash over alluvium, with a mixed forest of Sitka spruce and cottonwood. Typic Cryaquents soils are very deep, poorly drained, loamy over sandy textured, and formed in stratified alluvium, with stands of willow and grass. Ismailof soils are very deep, moderately well drained, sandy textured, and formed in marine deposits. They have a forest of Sitka spruce bordered by stands of beach wild rye. Taluwik soils are very deep, well and moderately well drained, loamy over sandy textured, and formed in volcanic ash over alluvium, with stands of grass and forbs. This unit is utilized by black bear for foraging, by bald eagle for nesting, and by mountain goat as a spring range for those sites that are close to other mountain goat habitats. Other species present include snowshoe hare, porcupine, and spruce grouse. Waterfowl and a variety of furbearers inhabit the wetland sites.

### **Soils on Moraines, Bedrock Benches, and Mountain Sideslopes:**

These soils are found on approximately 28 percent of the Lower Kenai Peninsula Soil Survey area.

#### **Kasitsna-Nuka:**

These soils are nearly level to hilly on moraines. Kasitsna soils are very deep, well drained, loamy textured, and formed in a mantle of volcanic ash over glacial till or colluvium, with stands of Sitka spruce. Nuka soils are very deep, very poorly drained, peaty, and formed in layers of organic material over glacial till. They have stands of low

shrubs and moss. Black bear use is common in these sites during summer and fall; snowshoe hare and mountain goat spring range on these sites at higher elevations.

**Kasitsna-Seldovia:**

These soils are rolling to very steep on moraines and mountainside slopes. Kasitsna and Seldovia soils are very deep, well drained, loamy textured, and formed in a mantle of volcanic ash over glacial till or colluvium. They have stands of Sitka spruce. Black bear, spruce grouse, and snowshoe hare utilize these habitats. Wintering moose make use of these sites at lower elevations, and higher elevations are used by mountain goats during spring.

**Kasitsna-Tutka:**

These soils are rolling to very steep on moraines, bedrock benches, and mountain sideslopes. Kasitsna soils are very deep, well drained, loamy textured, and formed in a mantle of volcanic ash over glacial till or colluvium. Tutka soils are shallow and very shallow, well drained, loamy textured, and formed in a mantle of volcanic ash and glacial till over bedrock. These soils have a forest of Sitka spruce. Snowshoe hare, porcupine, spruce grouse, Northern goshawk, and black bear use these habitats. Marbled murrelet nesting may occur within these habitats.

**Soils on Cool Uplands and Mountains:**

This group is found on approximately 46 percent of the Lower Kenai Peninsula Soil Survey area.

**Nanwalek-Kasitsna, cool-Tutka:**

These soils are moderately steep to very steep on uplands and mountain sideslopes. Nanwalek soils are very deep, well drained, loamy textured, and formed in a mantle of volcanic ash over reworked glacial till and colluvium. They have stands of alder and grass. Kasitsna, cool soils are very deep, well drained, loamy textured, and formed in a mantle of volcanic ash over glacial till or colluvium. They have stands of stunted Sitka spruce. Tutka soils are shallow and very shallow, well drained, loamy textured, and formed in a mantle of volcanic ash and glacial till over bedrock. These soils have a forest of stunted Sitka spruce. These habitats are used by moose for summer range and by black bear throughout the summer for feeding and reproduction. Ptarmigan, snowshoe hare, and mountain goats also utilize these sites, along with a variety of passerines.

**Soils on Cold Mountains:**

These soils are found on approximately 22 percent of the Lower Kenai Soil Survey area.

**Cryorthents-Cryods-Rock Outcrop:**

These soils and miscellaneous area are gently sloping to very steep on mountain summits, cirques, and talus slopes. Cryorthents soils are shallow to moderately deep, well drained, loamy and sandy textured, and formed in glacial till, colluvium, and residuum. Cryods soils are moderately deep and deep, well drained, loamy textured, and formed in glacial

till, colluvium, and residuum. These soils have alpine tundra vegetation. Black bear utilize these habitats during the early summer months, along with ptarmigan and mountain goats.

### Climate

This summary was developed using data from the climate station in Tutka Bay Lagoon, Alaska, which is located to the immediate northeast of the planning area.

The Lower Kenai Peninsula Area is influenced mainly by maritime climatic factors. Summers are cool, and winters are long and moderately cold. Early in the summer, the weather is generally sunny and fairly dry, but late in summer and in fall, cloudy, rainy weather is dominant.

The waters surrounding the Area have a moderating effect on the climate, and the Alaska Range to the north protects it from the severe arctic cold fronts prevalent in interior Alaska. The Kenai Mountains block the flow of moisture from the south, creating a rain shadow effect to the immediate north of the planning area. While there are no climate data available from the watersheds, cloudy and rainy days appear to be more frequent. Data from the nearby Bradley Lake hydroelectric project indicate that precipitation may exceed 100 inches per year at higher elevations.

In winter, the average temperature is 26 degrees F and the average daily minimum temperature is 22 degrees. The lowest temperature on record, which occurred at Tutka Cook Inlet on January 29, 1989, is -18 degrees. In summer, the average temperature is 53 degrees and the average daily maximum temperature is 63 degrees. The highest temperature on record, which occurred at Tutka Bay Lagoon on July 29, 1987, is 79 degrees. Areas of higher elevation may have significantly lower temperatures. Generally, temperatures drop 3.5 degrees F. for each 1000-foot increase in elevation.

The total annual precipitation of the area is about 64.66 inches. Of this, about 23.35 inches, or 36 percent, usually falls in April through September. The growing season for most plants falls within this period. The heaviest 1-day rainfall during the period of record was 10.31 inches at Tutka Bay Lagoon on October 10, 1986. Thunderstorms occur on less than one day each year, and most occur in July. The average seasonal snowfall is 71.4 inches, and the heaviest 1-day snowfall on record was 14 inches.. The greatest snow depth at any one time during the period of record was 72 inches. On an average, 20 days per year have at least 1 inch of snow on the ground.

The average relative humidity in mid-afternoon is about 70 percent. Humidity is higher at night, and the average at dawn is about 78 percent. The sun shines 44 percent of the time in summer and 38 percent in winter. The prevailing wind is from the northeast. Average windspeed is highest, 8 miles per hour, in January.

Limited climatic data for the Seldovia Village vicinity suggests that the annual precipitation there is about 45 inches.

### Plant Communities

The Port Graham River and the English Bay River watersheds are dominated by plant communities of forest, tall alder shrub, Halophytic Grass Wet Meadows, Halophytic Sedge Wet Meadows, Sedge Moss Bog Meadows, tundra, bog meadows, and intertidal

vegetation. The forest cover type is found from sea level to mountain slopes, up to elevations of 1100 feet; the upper elevations can vary depending on slope, aspect, and other conditions. The forest cover is found on a variety of soils from poorly drained to well drained. Intermixed with the forest cover type are communities of tall Sitka alder, bogs, and grasslands. Above tree line, the vegetation consists of a mosaic of Sitka alder, grasslands, alpine scrub and herbs.

The relatively long growing season, high annual precipitation, and mild temperatures of this area support a large variety of coastal forest, scrub, wetland and alpine communities.

The following is a brief description the most common plant communities within the watersheds:

### Forest

Sitka Spruce (*naparpiag*) dominates the overstory. Mature spruce range in height from 60 to 120 feet and 12 to 32 inches in diameter at breast height. Mature dominant trees are more than 200 years old. Sitka Alder usually dominate a tall shrub layer 10 to 20 feet high and can be found throughout the forest type. A low shrub layer 2 to 6 feet in height is dominated by devil's club (*cukilanarpak*), salmonberry (*alagnaq*), blueberry (*atsaq*), highbush cranberry (*qalakuaq*), and rusty menziesia. Lady fern, oak fern, lace flower, rose, and various species of moss dominate the forest floor. Yellow skunk cabbage (*tuqunaq*) is found in wet, poorly drained depressions. Sitka spruce forest occurs at low elevations and along coastal lines. Sometimes the mature forest is found on steep mountain slopes. Generally the forest community occurs below 1000 feet in elevation. Cottonwood (*ciquaq*) occurs infrequently along waterways.

### Tall Alder Shrub

These communities have an open canopy of tall shrubs, primarily Sitka alder. Trees species occur occasionally and provide less than 10 percent of the cover. Associated low shrub species are blueberry, salmonberry, and devil's club. Sedges and fescue dominate the herb layer. Tall alder communities are found intermixed with the forest communities and above tree line.

### Halophytic Grass Wet Meadows

These are communities dominated or co-dominated by salt-tolerant forbs and grasses on beaches. Woody plants, mosses, and lichens are absent here but are found at the seaward edges of coastal marshes subject to regular tidal influences.

### Halophytic Sedge Wet Meadows

These communities form the main coastal marshes. Tidal inundations are less frequent, ranging from several times per month to once per summer. Stands of coarse sedge are found at the seaward edges of coastal areas and border grass wet meadows communities. Farther inland the communities form a broad ecotone with freshwater wetlands.

### Sedge Moss Bog Meadows

Mosses dominate these communities. Sedges, other herbs, scattered low shrubs, and lichens grow out of a matrix of sphagnum moss. Low shrubs and lichens are not dominant. Stunted Sitka spruce is found as scattered individuals and small thickets.

### Alpine Scrub

Dwarf scrub is found on mountain slopes and ridges in the alpine zone. Scrub cover ranges from open to closed, and scrub height is generally less than about 6 inches. Shrub composition varies widely depending on soil and site characteristics: black crowberry, mountain heath, bog blueberry, arctic willow, and luetkea dominate most stands. Sedges are the most common herbs. Ground surface cover varies widely and consists of patches of moss and lichen, litter, and rock fragments. Dwarf scrub is found on mountain slopes in the alpine zone above 1400 feet elevation.

### Bluejoint Reedgrass-Forb Meadow

Herbaceous communities dominated by bluejoint reedgrass and a wide variety of forbs are found in forest openings below elevations of about 400 feet. Principal forbs include common fireweed, goldenrod, boreal yarrow, and northern geranium.

### Pondlily

The aquatic community is dominated by pondlilies, although a variety of other aquatic plants may be present. Pondlilies (*qaltuutesnaq*) are common in ponds, shallow lakes, and bog pools scattered throughout the forest. Water depths range from 10 to 30 feet. The substrate is usually a well-decomposed organic-rich muck.

### Eelgrass

Communities dominated by eelgrass normally occur as pure stands of this species. Eelgrass communities occur in subtidal and lower intertidal zones in protected bays, inlets, and lagoons with clear water along the coast. The substrate is usually marine silts and clays, but sometimes cobbles.

### Marine Algae

Marine algae communities are dominated by various species, including *Fucus*, *Laminaria*, *Gigartina*, *Porphyra*, and *Ulva*. Plants other than algae are not present. Marine algae communities are widespread on subtidal and intertidal rocky shores.

### Water Quality

Most of the land area within these watersheds is undeveloped; there are few trails, roads, or buildings. Anthropogenic disturbances occur only in the vicinity of the villages of Port Graham and Nanwalek. The streams, lakes, and wetlands of the project area are clear water systems with water quality characteristic of pristine watersheds. The streams support native populations of anadromous and resident fish species. Several threats to these conditions have been identified, such as road building, planned timber harvest, and community development; however, there is no documented degradation of water quality

conditions at the present time. The historical use trail between the two villages has recently come into consideration of its potential impacts on both villages water quality.

#### Ground water supplies and the community

Presently there is no use of ground water in Port Graham or Nanwalek. Dames and Moore in Nanwalek conducted a study in 1997 and 1998 to determine if there was ground water available to the community. The study indicated that there was no available ground water. Both communities sit on bedrock and it is assumed that the situation for ground water is the same in Port Graham.

#### Community surface water supplies:

Port Graham has a substantial size reservoir and dam to supply water to the village. A new water treatment plant and storage tank is planned. Construction of these should begin in fall 2001. This will greatly improve the water quality and quantity for the community.

Nanwalek has a much smaller dam and reservoir than Port Graham. A new dam has been designed for the community and was constructed during summer 2001. A water treatment plant and storage tank has been constructed. This has greatly increased the water quality and quantity for the community.

#### Wetlands

Using descriptions consistent with Cowardin (1979), the Port Graham and English Bay watersheds contain marine, estuarine, riverine, palustrine, and lacustrine wetland systems. Marine wetlands, which are exposed to the waves and currents of the open ocean, have been mapped along much of the coastal areas of Port Graham Bay and along Cook Inlet shores both to the North and South of the bay entrance. These wetlands are, for the most part, intertidal beaches and bars with regular or irregular tidal influence. A unique Marine intertidal flat exists just southeast of the village of Port Graham. Some smaller units of intertidal rocky shore and aquatic bed marine wetlands have been identified near the mouth of Port Graham Bay south of the entrance.

*Estuarine* wetlands that are semi-enclosed by land but have open, though partially obstructed, access to the open ocean, exist at the head of Port Graham Bay, at Selenie Lagoon, and at the mouth of the English Bay River. Oceanic tides, precipitation, and freshwater runoff affect the water chemistry of these estuaries and lagoons. Both subtidal and intertidal estuarine systems are present as mud flats and submerged vascular plant aquatic beds. Two small areas of estuarine intertidal emergent narrow-leafed persistent wetland have been identified southeast of the Port Graham airport and at the head of Port Graham Bay. Common plants present at these sites include American dunegrass, sedges, wild celery, Alaskan orache, and goose tongue.

*Riverine* systems in the project area are nearly all-perennial and include the English Bay River, Port Graham River, and Port Graham River tributaries. Riparian black cottonwood forest communities are common along the lower floodplains associated with these streams. Other plants include Sitka, Barclay, and Diamondleaf willows and bluejoint reedgrass.

*Palustrine* wetlands are the most common category of wetlands within the project area. Although concentrated along the valley bottoms and toe slopes at elevations of less than 300 feet, scattered open water palustrine systems have been identified in high-elevation saddles, depressions, and slopes. Dwarf shrub-low herbaceous plant communities within these "muskegs" and "meadows" consist primarily of stunted Sitka spruce, black crowberry, roundleaf sundew, horsetail, sedges, cottonsedges, bluejoint reedgrass, and sphagnum. The typical palustrine wetland on these landscapes has thick peat and mucky peat soils on slopes of 5% or greater. Water storage and down-gradient release of water from these wetlands is probably the most significant source for maintaining a perennial stream flow in the Port Graham and English Bay Rivers.

Five *lacustrine* systems are present in the lower reaches of the English Bay River. These lakes are permanent deep-water habitats (limnetic) with open water. The average depth of Second Lake is 38.5 feet, and Third Lake is 48.2 feet deep.

### Land Ownership

Native villages, village corporations, regional corporations, and individuals own Land within the defined watersheds. Three Native village corporations formed under the Alaska Native Claims Settlement Act (ANCSA) of 1971 own land in the planning area: the Port Graham Corporation, the English Bay Corporation and the Seldovia Native Association.

Nanwalek Village Council has a 119-acre federal town site, and Port Graham Village Council has a 327-acre federal town site. Within the respective village town sites, individuals own lots. The two villages, except for airport, school, and church sites own all remaining land within their respective town sites. Airports are owned by the State of Alaska. The Kenai Peninsula Borough owns a 3.54-acre school site in Nanwalek and a 1.5-acre school site in Port Graham. In Port Graham the Port Graham Corporation owns the Cannery.

Most of the individual Native ownership sites are Native allotments. Within the planning area, there are 59 Native allotments totaling 7,926 acres (the maximum size of a Native allotment is 160 acres). Native allotments are lands given to individual Natives with restrictions on the title, which is held by the federal government. Non-Native ownership within the planning area is confined primarily to a 20-acre parcel known as AeeCee point.

With the exception of Native allotments, townsites, and non-Native ownership, the Chugach Alaska Corporation, the ANCSA regional for-profit corporation, owns subsurface resources.

**Coal Mine:** Coal Mine, so notable named because of the mining of coal by the Russians in the mid 1800's, is located at the mouth of Port Graham Bay. This area and its associated history, have a direct connection with, and were responsible for the present day village of Port Graham. A very important and significant part of our cultural history is associated with the coal mine area. The coal mine area was where our people struggled with the extremely rough transition when our ancestors were exposed to the Russian occupations that change our lives forever. Accordingly, in 1849 Peter Doroshin, a graduate of the

Imperial Mining School at St. Petersburg, was commissioned to study the mineral potential of the colony. He located coal deposits at Port Graham on the Cook Inlet but was prevented from good prospecting in Southeast because Alaska Commercial Company control of the then-unknown gold-bearing belt.

The Russian-American Company opened the coal mine at Port Graham in an attempt at a new business venture. The company built a small town on the site and after a year's work exported 88 tons of coal to California. By 1857 the mine produced enough coal to support the "colony". Surplus coal was taken to San Francisco but it was ultimately sold at a loss. The export venture failed because the coal could not compete with that obtainable from Canada, Australia, England and Chile. Thought the mine did supply Russian ships for some years, the company threw in the towel in 1865. Metal lead shackles have been found in the area, which indicates that forced labor was used by Russian mining industry. Commercial markets for the coal never developed and the mine closed by 1861.

### Wildlife and Fish Resources

Ron Stennick from the Alaska Department of Fish and Game put together a summary of the fish and wildlife resources available to Port Graham and Nanwalek. The report highlights the important fish and wildlife species and their uses as subsistence resources.

### Cultural and Archeological Resources

Data on Cultural and Archeological Resources for the Chugach Region has been collected and stored at Chugach Alaska Corporation. This data includes resources for Port Graham and Nanwalek. The data is maintained and protected by Chugach Alaska Corporation. Specifics about this data will not be listed here. If someone from the region would like to view this data contact Chugach Alaska Corporation.

### History

#### Nanwalek

Of the two neighboring villages, Nanwalek is the older. Its site holds one of the oldest villages in the North Pacific. It was also used as a summer fishing camp by prehistoric coastal peoples from villages along the southern coast of the Kenai Peninsula and Prince William Sound.

Nanwalek has a rich history. Its recorded history can be dated back to 1741, when Russian explorers noted Native occupation of the site. In 1781, a fur trader from Siberia named Gregory Shelikov first established the American Northeastern Fur Company here, because the location was a strategic point for observing the ships of competitive fur traders. He named the fort "Alexandrovsk." This site became the first Russian settlement on the mainland of Alaska, and for nearly a hundred years it provided an outpost for the Russians to observe the sea-going movements of rival fur traders. The Russians maintained the fort until 1867, when the United States along with the entire area of Alaska purchased it.

When the Russians departed, they shipped all of the local company records, including those from all the other Russian outposts in Alaska, to Saint Petersburg, Russia. Unfortunately, all these records were later dumped into a river, and much of the early written history of Alexandrovsk was washed away with them. The interests of the

American Northeastern Fur Company were taken over by the Alaska Commercial Company (ACC), whose operations continued there until 1900, when it reorganized.

After the Russians abandoned Alexandrovsk, the Native population stayed on. The eruption of Mount St. Augustine volcano in 1883 sent residents of at least seven other native villages in the region fleeing to the relatively high ground here.

In the 1860s, John Moonin and his wife, Helen, moved to Alexandrovsk and devoted their lives to the people of that community as volunteer missionaries. When the Russian Orthodox Church they built in 1870 burned down in 1890, the ACC agreed to sell its old trading post to the community for \$500 in cash. The community had no money to pay for the building, so ACC accepted two sea otter pelts donated by the late Riley Meganack as payment. The church was constructed in 1890 and still stands today. Joining a part of the local store and local dance hall formed the gable roof of a second church build in 1930. The bell, which stands in front of the churches, was rescued from the Portlock Church in 1950, when the village was abandoned. Now listed on the National Register of Historic Places, the older church is in such a dilapidated and unsafe condition that it is not usable. Both Nanwalek and Port Graham remain active seats of the Russian Orthodox faith.

In 1909, Alexandrovsk was renamed "English Bay" when it was misidentified by a USGS survey and mapping party. The body of water bearing this name is actually found at Port Graham, but the erroneous name stuck to the village until recently. Today, the Alutiq Native name of "Nanwalek" is the officially recognized moniker. The name "Nanwalek" originally meant, "place by a lake." After the 1964 Alaskan earthquake, the coastal lands dropped eight feet, and the tidal waters entered the lake, creating a lagoon. So the meaning of the name was changed to "place by a lagoon." To anyone who has visited this tiny community, bravely perched between sea, mountain, and lagoon, it is a much more fitting name.

### Port Graham

Port Graham was probably a seasonal hunting and food gathering site when it was first recorded in 1786 by Capt. Portlock of the Cook party. Portlock found unoccupied huts there and also noted a large coal vein at the mouth of the harbor. Within ten years, the Russians had mined some of this coal for fuel to heat iron for the construction of a ship at Resurrection Bay. For about a decade in the mid-1800s the Russians operated the mine at Port Graham, which employed over 100 people at its peak. The mine remained idle until just after the turn of the century, when a Seldovian named Whorf rediscovered it and operated it briefly.

The Aleut name for Port Graham is "Paluwik," which means, "where people are sad." It was named this because the Native residents who settled it in 1897 often became homesick or lonesome for the villages they came from. Port Graham's first school was opened in 1930 at the log house of Jesse Carlough, and it was moved to a pool hall the following year. The Johnson O'Malley School was built in 1933. In 1935, the Bureau of Indian Affairs (BIA) constructed a new school; adding a classroom in 1937. Since 1965, the Kenai Peninsula Borough has administered schools.

In 1970, the Homer Electric Association (HEA) constructed electric lines through a contract with the Port Graham Village Council. On December 23, 1971, HEA turned power on for the first time, and also for the first time, Christmas lights shone in Port Graham. In 1972, the U.S. Public Health Service (PHS) designed and constructed the community's water and sewer systems; these were upgraded in 1979-1980. In 1988, the PHS built a new village dam and a new water treatment plant, and replaced a portion of the water line between them.

With its deep, protected harbor, Port Graham has enjoyed its role as an Alaska Commercial Company posts and fox farming and fish processing center.

## **Community Descriptions**

Today, both Port Graham and Nanwalek are primarily Native villages which keep alive a rich culture and language, and whose residents divide their economy between commercial fishing and a traditional subsistence lifestyle.

### **Nanwalek**

Nanwalek is located near the southwestern tip of the Kenai Peninsula on Lower Cook Inlet. The village is situated at the base of a narrow spit of land at the head of Nanwalek. The village airstrip is located along this spit. A large tidewater lagoon behind the spit forms the English Bay Lagoon. The village is about 29 miles from Homer by air or boat, and four miles by trail from Port Graham.

In 1986, Nanwalek achieved recognition for being the site of the oldest Russian settlement on the mainland. Nanwalek people are called Sugpiag, which means "real people" in the Sugcestun dialect. The strongest elements of the culture are the language, subsistence lifestyle, cultural traditions, and self-government. Many of their beliefs center on subsistence activities and respect for each other and their environment. The people have strong cultural ties with the land and water.

### **Port Graham**

Port Graham is located on the Kenai Peninsula approximately 24 miles southwest of Homer, 15 miles from Seldovia, and 4 miles from Nanwalek. Its population has fluctuated over the years from 47 in 1920 to 175 in 1996.

Since 1965, the Kenai Peninsula Borough has administered Port Graham schooling. Among other projects, students recycle pop cans to raise funds for student activities.

Church services are held in the old community hall, which was given to the Russian Orthodox Church in 1977. Before then, residents attended services in Nanwalek. A church called Church of the First Born is also located in Port Graham.

Port Graham has one ambulance for after-hour emergencies. Emergency transportation is available out of the village through the Coast Guard in Kodiak, which takes four hours to arrive in Port Graham. The Fire Department, run by volunteer fire fighters, has a fire truck with a tank; EMTs and ETTs are available as needed.

Port Graham roadways are maintained by the local government, which employs one road maintenance worker. The village owns and uses a road grader, and roads are sanded as necessary. A gravel airstrip is state-owned and maintained. The state employs one maintenance operator, who uses a state-owned road grader.

Stores and privately owned businesses include the Port Graham General Store, the Variety Store, Wallace's Video, McMullen Enterprises Sawmill Operation, TIPI Bed and Breakfast, Fedora's Bed and Breakfast, and the Port Graham Corporation

## **RECREATION**

### **Nanwalek/Port Graham Watershed**

Residents of Nanwalek can take advantage of a whole host of different recreational activities.

- Subsistence-oriented sports: hunting/fishing, and food gathering.
- ATC four-wheeled touring on trails and roads and off trails and roads, along with cross-country touring
- Snow machining in back country
- Camping and hiking
- Boating around lakes, streams, and bays
- Picnicking and swimming
- Berry picking
- Volleyball
- Basketball
- Arts and crafts
- Mountain biking

Although some of these activities can be classified as subsistence, they also qualify as recreational because residents use these times to visit one another. Because of increased traffic and increased availability of access to these areas, residents need to be warned constantly of the danger of riding ATV four-wheelers in ecologically sensitive areas of the watershed.

Residents also need to be considerate of the sensitive salmon spawning areas when they are boating in lakes and streams. Fishing and hunting are carried on very differently than they were in the older ways; new equipment (gillnets, rods and reels) and different harvesting periods have replaced old methods and seasons for harvesting fish and game.

## **TRANSPORTATION**

Local transportation is available by boat, airplane, cars/trucks, and all-terrain vehicle (ATV).

- Transportation is available between the communities of Homer, Seldovia, Nanwalek, and Port Graham. Transportation will soon be open to Windy Bay. All times listed below assume travel originating from Port Graham in decent weather. All times are ESTIMATES.
- Boat
  - Between Port Graham and Nanwalek. The number of passengers plays a role. But with only a few people and a good skiff and outboard, it can take 10-20 minutes if weather permits. If you are using a fishing boat it can take up to 25 minutes, with an extra 10-15 minutes to get people off with a skiff.
  - Homer. If using a good skiff or speedboat it can take 45 minutes to an hour, but if going by fishing boat it can take up to three hours.

- Seldovia. It can take about 25 minutes by skiff or about one and a half-hours by fishing boat.

Windy Bay. By skiff it can take about one and a half hours, and by boat around three hours

- **Airplane**

- Port Graham, Nanwalek, Homer, and Seldovia. Homer Air and Smokey Bay Air pick-up passengers and deliver mail in each community. Travel time between the communities is about 10 minutes, and the price runs around \$35 round trip. To Homer, travel time is about 25 minutes; to Seldovia, about 15 minutes.

Windy Bay. About a ten-minute flight, which usually has to be chartered by either airplane for about \$100 more or less.

- **ATV**

- Between Port Graham and Nanwalek. Depending on how fast you want to get there and whether you have a passenger, it can take 20 minutes to an hour. The trail can get pretty rough, and you risk getting your ATV stuck if you don't know where to go. ATV is often the best way to go if you need to drive within the communities. Trucks and cars cannot be used to travel between communities because of the trail size. The trail crosses native allotment land, village council land, village corporation land, and village water sources.

- Windy Bay. Depending on what vehicle you use it can take up to two and a half-hours.

### **Socioeconomic Conditions**

#### *Employment and Income:*

Nanwalek and Port Graham are communities that have traditionally depended on subsistence hunting, fishing, and gathering. As we evolve into communities revolving around a monetary system, the demand for jobs is higher. There is a conflict between the time spent on subsistence activities and time spent working to pay for monthly bills. There is a growing reliance on the village stores to provide what isn't gathered as abundantly as it once was. Many residents, however, still subsist, hunt, fish, and gather.

Employment in Port Graham and Nanwalek fluctuates seasonally and yearly. The amount of work available depends on needs associated with projects in each community such as construction, logging, and fishing. Some positions with the village councils and corporations are more permanent. Some of the potential employers are listed below:

Port Graham Village Council

Port Graham Corporation

Nanwalek IRA Council

English Bay Corporation  
Kenai Peninsula Borough School District  
North Pacific Rim Housing Authority  
Chugachmiut  
Chugach Regional Resource Commission  
Homer Mental Health  
Smokey Bay Air and Homer Air  
U.S. Fish and Wildlife Service  
Alaska Fish and Game  
United States Postal Service

**Nanwalek Salmon Enhancement Project**

In 1985, escapement of the English Bay River system sockeye salmon was at a low of 5,000 adults. The historical high exceeded 40,000 adult sockeye returning to the English Bay lakes. At this time, the Alaska Department of Fish and Game had closed the fishing season, recognizing that the sockeye salmon run needed to return to levels that could support subsistence and commercial fishing again.

To meet this need, the Nanwalek Salmon Enhancement Project was developed. Its goals are to produce one million fry, which will be reared in English Bay lakes and later released into them to produce a returning run of 200,000 to 400,000 adult sockeye salmon. With these returns, the village should ensure that subsistence and commercial fishing needs are met; additionally, marketing the fish and their products should create significant economical development opportunities.

Project operation consists of pen rearing in twelve net pens in the Second Lake of the English Bay system. The egg-take phase takes place in Second Lake in the fall, when 1.35 million eggs are taken from spawning sockeye. The eggs are then transported to the Port Graham Hatchery to hatch. In June of the following year, the hatchlings are transported back to Second Lake to be reared in the twelve net pens. The pre-smolts are usually released in early winter. (Last year, a few were kept over winter to try to increase the over winter survival rates.) During the outmigrating season of the smolts, a weir is set up in the lower river to count the smolts and record data from them before they go out to sea. Just above the smolt weir, an adult weir is set up during the return of the adult sockeye salmon for counting and data retrieval.

Project operations began in 1990 with the direct release of fry into the English Bay Lake system. In 1991, with only a few people working, about 100,000 fry were released into a net pen in Second Lake. In 1996, approximately 20 people were employed on a part-time basis, with one person employed throughout the year.

The return of 1996 was estimated at over 34,000 adult sockeye salmon; for 1997, a return of approximately 44,000 is expected. The first year of cost recovery for the project was 1996. Cost recovery is one way for the project to support itself as grant funding disappears. In the future, as the runs increase, the project is working towards marketing the surplus fish and establishing a hatchery as an economic development

activity for the village. Keeping in mind how critical this natural resource is for Port Graham and Nanwalek, we are also mindful of the need to sustain and protect the larger environment on which it depends, and of the importance of using all natural resources sensibly so that we can count on their renewal.

### **Port Graham Hatchery**

The Port Graham Hatchery Program was developed in 1990 when the Port Graham Village Council worked together with the Community Economic Development Corporation (CEDC) to provide construction and operating funds for a hatchery. CEDC is a State chartered corporation whose mission is to assist communities in rural Alaska in developing their economies. The hatchery's aim was to rebuild local pink salmon runs and provide economic development opportunities for village residents. The hatchery program initially used a scientific/ educational permit and then applied for a private non-profit hatchery permit on July 3, 1991. The hatchery was located in an old cannery building. A new rearing building was added for a Coho salmon program, which now serves as the hatchery warehouse and Council apartments. The hatchery currently produces Port Graham River Pink Salmon and English Bay River Sockeye Salmon, both of which are principal sources of subsistence food and commercial fishing income for Port Graham and the nearby Native Village of Nanwalek.

Port Graham River Pink salmon escapements have ranged from 2,000 to 50,000. They averaged 15,100 from 1960 to 1989. The commercial pink salmon catches have ranged from lows of 1,000 in 1971 and 1972 and 1,600 in 1961 to highs of 124,700 in 1979 and 45,900 in 1981. The chart below summarizes the annual commercial salmon catches since 1959. Please note that during the years of 1990 through 1996 no commercial fishing occurred. This is because the Port Graham River Pink Salmon and the English Bay River Sockeye salmon runs were so low during those years that no commercial openings occurred. No one knows for sure what happened but this was clearly the impetus for the Port Graham Hatchery project.

The new hatchery has a capacity of 110 million pink salmon eggs, 5 million sockeye eggs and 2 million Coho eggs. The current permit is for 110 million pink salmon eggs and 1.35 million sockeye salmon eggs. The hatchery has a contract with the nearby Native village of Nanwalek to incubate sockeye salmon eggs for its Nanwalek Salmon Enhancement Project. The combined production is expected to produce about 3 million adult pink salmon annually with an expected 100,000 to 200,000 adult sockeye salmon returning to Nanwalek annually.

The Port Graham Hatchery Board guides the Port Graham Hatchery Program with oversight and administration from the Port Graham Village Council. This board is comprised of Council members, elders, and commercial and subsistence fishers. Their responsibility is to oversee the broad scope of the project, ensuring that the project staff is carrying out their duties in concert with the wishes of the Community. Their input in various key aspects of the project is vital to the success of the project, in that community members can only maintain ownership through direct involvement.

Airport Displays including information about the efforts of the Port Graham/Nanwalek Watershed Council have been erected in Port Graham and will be erected in Nanwalek as well.

### **Cultural Heritage**

Unfortunately, we have become far too aware of what is going on outside of our unique community by watching too much satellite television. Nanwalek has 18 satellite dishes.

#### **Nanwalek**

At the Nanwalek community center, Monday and Wednesday are women's volleyball nights with loud music blaring and a lot of screaming, dancing, and laughter. Tuesday and Thursday are men's basketball nights with about the same atmosphere as the women's volleyball nights. Friday is coed night, and Saturday is for family nights.

An arts and crafts night is held at the Entertainment building, along with rentals of videos. The Indian Child Welfare Act (ICWA) hosts a Kids Club and workshops at the community hall. The counselor who works for the South Kachemak Inc. Alcohol Program (SKIAP) conducts beading classes.

As a Russian Orthodox village, Nanwalek has many holidays to celebrate that bring village residents together. The community holds dinners in honor of people celebrating Names Days (in the Russian Orthodox religion, we are given a saint's name at christening). Russian Christmas is the biggest celebration: we decorate our homes, and artistic cooks bake and make goodies for the people who Slaawirluni (go starring with Christmas star caroling). This event goes on for three nights. For the following two weeks the people gather at the community hall to watch Maskalataq (masking) and Nuta'aq (New Year). Masking has been a tradition for many years, even prior to the arrival of the Russians. This is a very festive time of year. The next big holiday is Easter; there is a strictly observed Lent, churchgoing, and finally celebrating Easter--and eating whatever you want.

#### **Port Graham**

The strongest element of our culture is the language, traditional lifestyles, and self-government. Our traditional way of life requires exceptional skills and knowledge of the resources and environment. Our hunters were highly respected, and the people's dependence on the land and resources created a close spiritual affinity with the land and water.

Despite the impact from English, Russian and American influences beginning in the 1700's many traditions and the Sugcestun language are still preserved. Before the Russians came a masking ceremony was held during the winter in recognition of hunting activities. People disguised themselves with masks made of wood or seal skin and danced to drums and songs. After 12 days when the dance concluded, everyone would hide his or her masks and costumes until the next year. This event continues today and is called "masking" or "Maskalataqing".

Most celebrations today relate to important events in the Russian Orthodox Church, the religion of most Port Graham residents. Christmas is celebrated on January 7, following the Julian calendar. Starring, masking and the Russian New Year follow it. Starring

involves a group of people caroling while they carry a star door to door. Other important events in the church are the Russian Orthodox feast and lent. Name days are also widely celebrated events.

Long ago there were stories for everything. When a story was told, the teller could not be interrupted until the story was finished, otherwise the story would not live long. Listeners would then be told to speak to a certain elder who would verify what was told. In this way, rules and morals were taught to young children and people who needed guidance or instruction.

Port Graham practiced its own form of government, which is responsive to the needs of our people. The people developed their own rules for inheritance, hunting areas, domestic relations, and conduct of our residents. Traditional leadership called for the appointment of one chief, who served until he died, and a second chief. The last traditional chief was Father Nicholas Moonin. Port Graham continued this traditional custom until 1961, when the community recognized a traditional government and elected a council president.

## **Land Uses Activities**

### **Forest Management**

Forest management activities are designed to produce an economic return for the communities and to place the forest in a managed condition. A management program can range from doing nothing to intensive activities, but landowners' goals and objectives must direct all program activities. Managed forests should continue to provide economical, subsistence, recreational, and spiritual needs.

Within the watershed area forest management will occur through a variety of activities, including timber harvesting, thinning, and tree planting. Timber harvesting is now taking place on land under all types of ownership and is expected to continue over the next five to seven years. All the forested acres in the planning area will receive some level of forest management planning.

### **Mining**

Mining in the planning area currently takes the form of rock and gravel extraction. Most gravel pits have been small, although several larger sources for rock are available. Rock is used for road construction, barge loading, facility construction, and fill. Mining is expected to continue into the future as both villages experience growth and expansion of their road systems and home sites. Except for Native allotments and village townsites, the subsurface is owned and controlled by the Chugach Alaska regional corporation. The potential exists for development of a rock source as a major economic undertaking.

### **Roads & Airports**

**Roads & Airports:** With the community growing, many facilities were built. At the request of the Traditional Village Council, a school opened in 1930, and the post office was established in 1938. After statehood, an airstrip was constructed, and the Village Council reorganized. During the seventies and early eighties, new housing, sewer and water, electricity, local roads and fire protection were installed. The existing airstrip does not meet FAA regulations because of its location, which is in the middle of the town. It is also in violation because it's distance from the existing landfill, which is less than 5000 feet from the airstrip. The Port Graham Village Council has researched relocated the airstrip and have relinquished that effort because of the lack of available sites. The Port Graham Corporation built a 13 miles road that connected Port Graham to Windy Bay, where a prior logging operation happened in the early 70's and 80's. This road connects to about 90 miles of existing roads in the Windy Bay and Rocky Bay area, which belongs to the Port Graham Corporation. There is also an old over grown foot trail between Port Graham and Nanwalek that was used as access between the two communities. The exact construction date of this trail is unknown. In the early 1980's and ATV trail was constructed with hopes of a road between the two communities. The ATV trail is controversial because it crosses over Private Native allotments. Over the years the ATV's have destroyed wetlands on these Native allotments just trying to travel to and from each village.

### Commercial Sites

**Port Graham Corporation:** A total of 190 shareholders are enrolled to form Port Graham Corporation. Besides investments in stocks and bonds, the corporation owns extensive property, contracts for timber harvesting, and employs four full time and three part-time positions. Full time positions include a salaried president, secretary/bookkeeper, store manager, and store clerk. Part-time positions include a store clerk, custodians, and landfill maintenance person.

The Port Graham Corporation purchased the fish processing plant from Whitney Fildago Seafood's Inc. in 1984. Currently, the cannery is leased to Port Graham Seafood's, owned by Jay Lind. The cannery property, which is located on 9 acres of uplands and 6 acres of tidelands, includes a fish house, brand new cannery built in 1999, freezing plant, frozen storage, a fish handling and ice room, two bunkhouses, mess hall, shop, storage building, paint locker.

**Port Graham General Store** - subsidiary of Port Graham Corporation.

**Rocky River Lodge** - Owned by Port Graham Corporation. Leased to Alaska Sports Fishing Tours.

**Variety Store** - Privately owned.

**Tie Pie Bed and Breakfast** - Privately owned.

**Fedora's Bed and Breakfast** - Privately owned.

**McMullen Enterprises** - Privately owned.

### Traditional Resources

In Port Graham and Nanwalek the traditional lifestyle we live is seasonal, but no matter what season it is, the land always provides us with abundant resources.

In the early spring, most foods are gathered during the minus tides. These include chitons (Bidarkis), large red chitons (lady slippers), clams, cockles, octopus, seaweed, mussels, snails, Chinese caps, dungeness, as well as eggs found in crevices of rocks. Sea gull eggs, considered a delicacy by some, are gathered from cliffs and rocky places where sea gulls nest. This also includes hunting for bears in the spring when they first come out of their dens. King salmon are usually caught this time of year during subsistence fishing times up until early to mid July when they usually close us down.

In mid-summer the bays and creeks are filled with men, women, and children in skiffs gathering their winter supply of fish--sockeye salmon, chum salmon, Coho salmon, pink salmon, Dolly Varden, trout, Steelhead, gray cod, black cod, and halibut. After the fish are caught they are prepared either for smoking, drying, canning or salting, and/or for an evening meal. King salmon are usually fished all year around because people in the villages are known to troll for the kings.

For fruits and medicinal uses, most traditional gathering goes on in late July, when the bushes are heavily laden with the ripe berries of all kinds. Salmonberries, blueberries, moss berries, trailing raspberries, nagoonberries, wild strawberries, watermelon berries, highbush cranberries, wild onion, nettles, goose tongues, wild celery (gungqaak),

fiddleheads, currants, yarrow, Bethlehem star, devil's club (bark root and berries), licorice fern (tuquyuilinuq – dead less leaf), mountain ash (berries and branches), and fireweed.

In the fall, when the leaves begin to turn yellow and fall to the ground, everyone is busy smoking, drying and canning the last batches of their salmon, while skiffs are swarming in the bay to catch the last of the run of silvers as the commercial fishermen are heading home. Most of the foods gathered in the fall are silvers and late berries; before the cold kills off the ripest of the salmon berries, blueberries, and cranberries, most people are busy trying to fill their pails.

After all the dried fish is stored away, most of the skiffs come out of the water. Children go back to school, and the villages seem to slow down for a day.

The busiest food gathering during the fall and winter months now focuses on the kelp-covered shores. During minus tide, community members grab their flashlights to go searching along the beaches in the darkness for octopus, chitons (urritaq, bidarkis), and lady slippers (large red chitons). During this time of year people in the village put nets out for Yellow Bellies, and also go fishing for flounders.

Fall is the best time of the year to get seal and sea lion for meat and otters for their fur. This time of the year people also fish for bullhead, black bass, gray kelp, black cod, eel, halibut, flounder, and greenlings. Larger animals and birds are hunted at this time of year because experienced hunters know that there is a difference in the taste of their meat after they have quit feeding on fish and berries. We hunt ptarmigan, grouse, snipes, and many kinds of ducks: mergansers, goldeneyes, and mallards, saw bills, butterballs, canvasbacks, and blue bills. Until the snow flies, fish, goats, bear, moose, hares, porcupine, and mushrooms are all harvested.

## Subsistence

By Walter Meganack Jr.

These are the subsistence resources that are used in our area: kings, chums, humpies, silvers, halibut, gray cod, greenling, flounder, herring, tom cod, black bass, Irish lords (there are still some people who eat them), eels, shellfish, and clams (five different kinds, but no razor clams).

From the Upper Cook Inlet we get crabs (dungeness crabs and king crabs), shrimp, mussels, snails, chitons, sea urchins, Chinese hats, octopus, seaweed, and goose tongues. We also hunt and use seal, sea lion, sea otter, black bear, goat, moose, groundhog, porcupine, grouse, ptarmigan, and ten different ducks.

Some of these resources need special attention because they are getting hard to find or, in some cases, are not available any longer.

### Nanwalek Local Fish/Wildlife/Subsistence

Our fish and wildlife resources are the key components of our subsistence lifestyle in the village, supplying over 95% of the households with food for the winter. Subsisting, gathering, and hunting of our resources has been the way of our ancestors, which still validates our need to gather to this day. This has enhanced the community economically and enabled us to continue our cultural traditions.

**Fish:** Sockeye, pink salmon, and halibut are abundantly harvested. Spring and summer harvesting focuses on seaweed, fish eggs in crevices of rocks, seagull eggs, halibut, black and gray cod, sockeye, chum, coho, king, and pink salmon, Dolly Varden, trout, and steelhead. Some sockeye, coho, steelhead, halibut, black cod, and gray cod are harvested in the fall and winter.

**Shellfish:** Chitons (*bidarkies*), large red chitons (lady slippers), mussels, clams, Chinese caps, and octopus are harvested all year long.

**Birds:** The bald eagle population has increased in the Nanwalek area, with many of their nests visible. Ducks of many kinds are hunted for winter supplies—mergansers, goldeneyes, mallards, saw bills, butterballs, and black ducks. Spring allows seabirds for additional food. Grouse are hunted throughout these areas.

**Mammals:** Harbor seals are hunted near the Homer area towards Port Chatham, and fortunately at Dogfish Bay also. Seals, moose, mountain goat, black bear, porcupines, and goat are hunted in the early fall.

**Medicinal plants and berries:** These include yarrow, Bethlehem star, devil's club bark and root, licorice fern, mountain ash, rose petals and hips, cranberry, salmonberry, blueberry, moss berry, trailing raspberry, nagoonberry, watermelon berry, fiddleheads, wild celery, goose tongues, and wild onions.

**LAWS AND REGULATIONS RELEVANT TO THE  
PORT GRAHAM/NANWALEK  
WETLANDS CONSERVATION PLAN**

In an effort to determine the need for regulatory approaches to wetland and related resource management issues it is important for landowners, land managers and the PG/NWSC to be knowledgeable of existing state and federal regulations. This section contains a brief description of the following laws. The contents of these descriptions were provided by the responsible agencies.

Coastal Zone Management Plan/Alaska Coastal Management Practices Act  
National Environmental Policy Act (NEPA)  
The Clean Water Act  
The Resource Conservation and Recovery Act  
The Endangered Species Act  
The State Forest Practices Act  
The State of Alaska, Fish and Game Codes  
The State of Alaska Air and Water Quality Statutes

Not all lands within the watersheds are subject to all the above laws, e.g. trust lands are not subject to state regulations. It is the responsibility of the landowner or land managers to communicate with the responsible agency to determine if the planned activity is subject any or all of these regulations.

**I. Coastal Zone Management Plan/Alaska Coastal Management Practices Act.**

**A. Background and Application to the Area**

The U.S. Congress passed the Coastal Zone Management Act (CZMA) in 1972 to protect the resources of the nation's coastal zone. The Act applies to coastal waters and adjacent shorelands, and its provisions extend to inland areas to the extent necessary to control the impact of development activities on coastal waters.<sup>2</sup>

As a coastal state, Alaska has implemented its own version of the CZMA. The Alaska Coastal Management Program (ACMP)<sup>3</sup> bases its authority on the federal act, and it must therefore meet the requirements set forth in the CZMA. The ACMP regulates development within the coastal zone by establishing permitting procedures for coastal zone development.

The Port Graham/Nanwalek wetlands management area is located within the Kenai Peninsula Borough. The Borough has coastal zone management authority as a coastal district.<sup>4</sup> In 1992, the Borough identified Port Graham and Nanwalek as an "Area which Merits Special Attention" (AMSA). Through the AMSA process, the

---

<sup>2</sup> 16 U.S.C.A. § 1453(1).

<sup>3</sup> AS 46.35.300 et seq.

<sup>4</sup> AS 46.40.030.

policies of the Borough plan were specifically adapted to reflect the needs of the two communities.

Because the Wetlands Management Planning Area falls within the AMSA, activities on state and borough lands are required to conform to AMSA policies. Also, because Native corporation lands are private lands, they too are subject to the AMSA and the ACMP.

For Native allotments, the situation is less clear (Each community within the watershed will research this issue to make it more clear). The federal government takes the position that certified allotment lands are subject to the Coastal Zone Management Act and are therefore covered by AMSA and ACMP.<sup>5</sup> The state, on the other hand, does not consider timber harvesting activities on Native allotment lands to be within the jurisdiction of coastal zone management.<sup>6</sup>

#### B. Permits Required

The ACMP requires that before any state or federal permit can be granted to a development activity, the proposed activity must undergo a "consistency determination." This determination is coordinated through the State of Alaska's Department of Governmental Coordination. The purpose of the consistency determination is to assure that the proposed activity conforms to the environmental protections required by the CZMA and the ACMP.<sup>7</sup> Once the activity has been determined to be consistent, the applicant can pursue the other applicable state and federal permits required for the activity.

---

<sup>5</sup> Sol. Ops., March 30, 1995 & Feb. 9, 1994.

<sup>6</sup> Op. Atty. Gen. Oct. 12, 1995

<sup>7</sup> 16 U.S.C. § 1456, AS 46.40.096(e), AS 46.40.100(b)(1). The activities that are within the ACMP's jurisdiction are listed in state regulations found at 6 AAC 80.050 - 80.120. The activities include coastal development, recreation, siting energy, transportation and utility facilities, fish and seafood processing activities, timber harvesting and mining activities, and subsistence (the regulations provide a dominant use status for subsistence).

The ACMP incorporates Alaska's Forest Resources and Practices Act and the laws and regulations involving the Alaska Department of Environmental Conservation (DEC) for air, land and water quality. 6 AAC 80.140. This means that any activities determined to be subject to the ACMP must also comply with the Forest Practices Act and DEC regulations. (See discussion of Forest Practices Act and DEC regulations infra).

## **II. National Environmental Policy Act**

### **A. Background and Application to the Area**

In 1970, Congress passed the National Environmental Policy Act (NEPA) to assure that all actions taken by federal agencies conform to environmentally sound standards.<sup>8</sup> NEPA has two main elements: it obliges every federal agency to consider every significant aspect of the environmental impact of a proposed action, and it ensures that every federal agency will inform the public that it has considered environmental concerns in its decision-making processes.

NEPA applies to *any* federal action. If any proposed development in the wetlands planning area involves federal activity, it must comply with NEPA. This is true regardless of land ownership status. Even something as minimal as federal funding, permitting, or approval can constitute federal action and trigger NEPA's requirements; however, an "Environmental Impact Statement" is required only for major federal action.

### **B. Permits/Processes Required**

The federal agency proposing the action must determine the extent of the impact on the environment before it begins the activity. The first step is for the agency to conduct an environmental assessment (EA). If the impact is determined to be minimal, a finding of no significant impact<sup>9</sup> (FONSI) is issued by the lead agency and the activity can proceed. If the proposed federal action is considered to be both "major" and having a "significant affect on the quality of the human environment," the lead agency must initiate the lengthy and involved Environmental Impact Statement (EIS) process. The EIS procedure involves four general steps:

- 1) Determination of the purpose and need for the proposed action.
- 2) Review and evaluate all possible alternative actions.
- 3) Determine both direct and indirect environmental effects of the action.
- 4) Identify the environmental consequences.

The Bureau of Indian Affairs has developed a manual for NEPA compliance for federal projects on tribal lands.<sup>10</sup> This manual should be consulted prior to beginning the NEPA process.

VIOLET WILL LOOK FOR THE BIA DOCUMENT TO KEEP WITH THE MANAGEMENT PLAN

---

<sup>8</sup> 42 U.S.C. § 4321 *et seq.*; 40 C.F.R. parts 1500-1508.

<sup>9</sup> A FONSI means that the proposed activity will not have a significant effect on the human environment. 40 C.F.R. § 1508.13. The human environment includes the natural and physical environment and the relationship of people with that environment. It does not include economic or social effects. 40 C.F.R. § 1508.14.

<sup>10</sup> 30 BIAM Supplement 1, NEPA Handbook (1993). General EIS procedural requirements are found at 40 C.F.R. part 1502.

### **III. The Clean Water Act.**

#### **A. Background and Application to the Area**

The Federal Water Pollution Control Act (also known as the Clean Water Act) was enacted to prevent pollution of this country's waterways. The Act is administered through the federal Environmental Protection Agency.

The Clean Water Act applies to all lands, regardless of ownership status. If an activity subject to the Clean Water Act pollutes a navigable waterway, the violator may be subject to criminal and civil penalties under the Act.<sup>11</sup>

#### **B. Permits Required**

The Clean Water Act protects navigable waterways primarily by requiring a project applicant to obtain a permit from the Army Corps of Engineers. This is known as a "404 permit."<sup>12</sup> Obtaining a 404 permit can be a lengthy and time-consuming process. Any proposed activity in the planning area that affects a navigable waterway must comply with the Act's permitting process unless it is specifically exempted.

Army Corps of Engineers permits ("404 permits") are not needed for certain activities.<sup>13</sup> For example, silvicultural activities and normal timber harvesting activities do not require a permit as long as they are part of an ongoing established operation. Road building is also excluded from the permit requirement if the road conforms to certain regulatory requirements.<sup>14</sup> Before beginning to plan for other types of activities, the applicant should check the regulations to see if a 404 permit is required.<sup>15</sup>

If a 404 permit is required, the activity may be eligible for a nationwide permit (NWP).<sup>16</sup> The NWP process streamlines the permit application and makes it a much quicker and easier permit to obtain.

### **IV. The Resource Conservation and Recovery Act**

#### **A. Background and Application to the Area**

Congress enacted the Resource Conservation and Recovery Act (RCRA) in order to combat pollution from environmentally unsound solid waste disposal practices.<sup>17</sup> Specifically, the RCRA regulates the disposal of hazardous waste to ensure protection of human health and the environment.

---

<sup>11</sup> 33 U.S.C. § 1319.

<sup>12</sup> 33 U.S.C. § 1344.

<sup>13</sup> 33 C.F.R. part 323.4.

<sup>14</sup> 33 C.F.R. parts 323.4(a), (b), (c). Roads must be only for timber operations and conform to best management practices as established in 40 C.F.R. part 233.22(i) to be exempt from permitting requirements.

<sup>15</sup> 33 C.F.R. part 323.4.

<sup>16</sup> Activities eligible for NWPs are listed at Appendix A to 33 C.F.R. § 330.

<sup>17</sup> 42 U.S.C.A. § 6901 *et seq.*

## B. Permits Required

Hazardous waste disposal permits under RCRA are administered through the State of Alaska Department of Environmental Conservation (DEC).<sup>18</sup> Hazardous waste is waste that may, if improperly dealt with, cause an increase in serious illness or pose a substantial hazard to human health or to the environment.<sup>19</sup>

DEC permits are needed when treating, transporting, storing, or disposing of hazardous waste.<sup>20</sup> Generating hazardous waste without also treating, transporting, storing, or disposing of it does not require a permit.<sup>21</sup>

In order to be subject to regulation, the waste must be both "solid waste" and "hazardous."<sup>22</sup> A "solid" waste is any waste that has been disposed of, regardless of whether it is in liquid, gaseous, or solid form.<sup>23</sup> After determining that the waste is solid and not subject to any exemption,<sup>24</sup> the next step is to determine whether the solid waste is hazardous. Federal regulations list which wastes are considered hazardous<sup>25</sup> and which wastes are exempted from that definition.<sup>26</sup> If the waste is both solid and hazardous, a DEC hazardous waste permit is required.

## V. The Endangered Species Act.

### A. Background and Application to the Area

In an effort to prevent the extinction of various species of fish and wildlife, Congress enacted the Endangered Species Act in 1973.<sup>27</sup> Section 4 of the Act directed the Secretary of Interior to list endangered and threatened species and to designate habitat critical to the survival of those species.<sup>28</sup> Once a species has been listed under Section 4, a federal agency is prohibited from authorizing, funding, or carrying out any activity that is likely to jeopardize the continued existence of the species or adversely affect its habitat.<sup>29</sup>

### B. Permits Required

Prior to beginning construction on any federally authorized or funded project, the federal agency in charge of the project must ask the Secretary of Interior whether

---

<sup>18</sup> AS 46.03.302.

<sup>19</sup> 18 AAC 60.910(28).

<sup>20</sup> AS 46.03.302.

<sup>21</sup> AS 46.03.302(b).

<sup>22</sup> 18 AAC 62.010.

<sup>23</sup> 40 C.F.R. § 261.2.

<sup>24</sup> 40 C.F.R. § 261.4(a).

<sup>25</sup> 40 C.F.R. §§ 261.30 - 261.33.

<sup>26</sup> 40 C.F.R. § 261.4(b). Household wastes, for example, are exempted from the definition of hazardous waste.

<sup>27</sup> 16 U.S.C. § 1531 *et seq.*

<sup>28</sup> 16 U.S.C. § 1533.

<sup>29</sup> 16 U.S.C. § 1536(a)(2).

any species listed or proposed for listing under Section 4 may be present in the project area. If the Secretary advises that endangered or threatened species may be present, the agency must conduct a biological assessment in order to identify such species.<sup>30</sup>

## **VI. The Alaska State Forest Practices Act**

### **A. Background and Application to the Area**

The Alaska Forest Resources and Practices Act (FPA) was enacted to ensure that Alaska's forest lands will be managed in accordance with principles of multiple use and sustained yield.<sup>31</sup> The FPA applies to state, municipal, and private forest lands.<sup>32</sup> Whether the FPA applies to Native allotments within the coastal zone area is unclear at this time (Each community within the watershed will research this issue to make it clear).

### **B. Permits/Processes Required**

The FPA requires potential timber operators to file a "Notification of Operation" with the Alaska Department of Natural Resources' Division of Forestry. The DNR then forwards the Notification to the DEC and the Alaska Department of Fish and Game (ADF&G) for their review. The Notification must include a detailed plan of operation, including how the harvest will conform to requirements for reforestation, buffer zones, and slope stability standards. Road construction undertaken in conjunction with timber activities is reviewed as part of the Notification.

## **VII. The Fish and Game Code**

### **A. Background and Application to the Area**

The state's fish and game code includes two sections providing for the protection of anadromous (spawning) streams relevant to this Wetlands plan: the Anadromous Fish Act protects waterways identified as critical spawning habitat, and Alaska's Fishways Act enables the Commissioner of ADF&G to require a person who has obstructed a stream to construct a fishway or other device to facilitate the passage of downstream migratory fish.<sup>33</sup>

The Port Graham/Nanwalek Wetlands Management plan area contains several streams that have been identified as anadromous.<sup>34</sup> The state maintains that Title 16 applies to all spawning streams, and therefore that any activities on Native

---

<sup>30</sup> 16 USC § 1536(c).

<sup>31</sup> AS 41.17.060(c)(1).

<sup>32</sup> As private lands, Native corporation lands are subject to the FPA. Whether allotment lands are subject to the Act as well is less clear. The Alaska Coastal Management Act has incorporated the FPA in its entirety. If it is ultimately determined that the ACMA applies to allotment lands, then the State's FPA will also apply. Until that time, the applicability of the FPA to allotment lands remains an open question.

<sup>33</sup> AS 16.05.840.

<sup>34</sup> See Catalog of Waters Important for Spawning, Rearing or Migration of Anadromous Fishes, Alaska Dept. of Fish and Game (1994).

allotments and corporation lands that may affect these streams are under Title 16 jurisdiction.<sup>35</sup>

---

<sup>35</sup> The federal and state government are currently struggling over the issue of which sovereign government has authority over navigable waterways. State of Alaska v. Babbitt, 72 F.3d 698 (9th Cir. 1995). This conflict may or may not have an impact on the future management of anadromous streams.

## **B. Permits Required**

Title 16 regulates activities in anadromous streams through a permitting process.<sup>36</sup> A permit is required when any person or governmental agency plans an activity that will change the natural flow of a catalogued waterway. The permit applicant must submit plans and specifications to the ADF&G and receive a Title 16 permit approval prior to beginning the activity. The permitting process is the same for both the Anadromous Fish Act and the Fishways Act.

Logging activities that require a Title 16 permit include building culverts, bridges, and stream fords; gravel removal; yarding logs; removal of logs; and blowdown.

## **VIII. The State's Air and Water Quality Statutes**

### **A. Background and Application to the Area**

Alaska's environmental conservation statutes are designed to control air, water, and land pollution.<sup>37</sup> The Department of Environmental Conservation (DEC) is responsible for administering programs and policies designed to achieve these goals. DEC's air and water quality regulations are applicable to all state and private lands and may be applicable to Native allotment lands as well.<sup>38</sup>

### **B. Permits Required**

After a Clean Water Act Section 404 permit is issued by the Army Corps of Engineers, the DEC must review that permit to assess how the permit complies with state water quality standards. This permit is known as a "401 Certification" or a "Certification of Reasonable Assurance." This certification is mandatory for all activities that require an Army Corps of Engineers permit.

In addition to the 401 Certification, DEC's air and water quality regulations require other permits that vary depending on the type of project proposed. DEC permits are necessary for activities involving waste disposal, hazardous waste activities (see RCRA section), activities impacting air quality, and pesticide application activities.

<sup>1</sup>AS 46.03.010.

<sup>1</sup>DEC's regulations would apply to native allotments only if they are considered to be subject to the ACMP as discussed above.

---

<sup>36</sup> AS 16.05.870.

<sup>37</sup>

<sup>38</sup>

## **Stakeholder Scoping Issues** (concerns, problems, opportunities)

The scoping process essentially defined what this Wetlands Management plan will address. During this process it became readily apparent that concerns for wetlands were often inseparable from concerns for other watershed resources. Through a series of detailed discussions and brainstorming sessions, stakeholders have identified issues, concerns, problems, and opportunities of natural resource and other development activities within the sub-watersheds.

The stakeholders' team identified both potential development activities and their potential impacts, both positive and negative. Once an activity and its likely impacts were identified, management strategies and alternatives were developed. The following summarizes the extensive list of issues, concerns, problems, and opportunities that emerged from the scoping process. Every item identified by the stakeholders as a concern, problem, or opportunity could be classified using one or more of the following categories:

- 1) Development activity, natural resource or otherwise
- 2) An impact resulting from a development activity
- 3) Employment/economic issue related to the impact of an activity
- 4) A management concern related to an impact and/or development activity
- 5) Concern about regulation or loss of property rights
- 6) A need for education to understand development activities, impacts, regulations, and management strategies as they pertain to wetlands and watershed resources

### **Natural Resource and Other Development Activities**

The following were identified as current or proposed development activities of interest and concern:

- Logging in the Port Graham/Nanwalek watersheds by village corporations
- Logging by allotment owners in both watersheds
- Proposed airport expansion in Port Graham. Possible new airport between Port Graham and Nanwalek
- New home sites in Port Graham/Nanwalek
- Cannery expansion in Port Graham
- Tourism
- Potential Land Sales

## **Impacts**

The following potential impacts have been identified as associated with current or proposed activities:

1. Washing of roads and flooding
2. Stream alterations due to roads and bridges
3. Degradation of riverine, slope, and estuarine wetlands that support salmon spawning and rearing, waterfowl, and other habitat. Concerns that logging areas will cause:
  - a) non-point source pollution from erosion and siltation because of inadequate buffer strips, especially if allotment owners are not required to have buffer strips where they log
  - b) Degradation of moose and bear habitat
  - c) Degradation of drinking water supply in Port Graham from the log staging area
4. Increased access to resources, creating:
  - a) increased or unmanaged take of salmon, moose, bear, goat, waterfowl, berries, and traditional use plants
  - b) Unauthorized off-road ATV-traffic and trespass
  - c) Violation of easement rights
  - d) Illegal dumping of hazmats, used oil and batteries, solid waste.
  - e) Non-Native use.
5. Increased population growth
6. Job/employment opportunities. Development of a cash economy is important to both communities. Stakeholders are concerned about how to balance the need for jobs while managing wetland and other watershed resources in a sustainable manner.

## **Regulation and Property Rights**

Some stakeholders have expressed fears that the Wetlands Management plan will increase regulation and cause loss of property rights. A number of state and federal regulations currently exist that stakeholders are subject to but may not be aware of. The Wetlands Management plan will clarify these already existing federal and state regulations (pages 31-37) and their significance to encourage better management and planning and avoidance of non-compliance situations. Details of Tribal codes and ordinances will be explained in the Wetlands Management plan if they are developed.

- NEPA.
- The Clean Water Act and 404 permits
- The Resource Conservation Recovery Act
- Title 16 permits
- The Endangered Species Act
- Forest Practices Act
- Coastal Zone Management Act
- Tribal codes and ordinances(pending)

## **Education**

Education will play a major role in helping stakeholders understand the functions and values of wetlands, the watershed approach to planning, and the need for and use of a wetlands management plan. The Watershed Council has indicated the need for educating stakeholders and residents in the Port Graham/Nanwalke watersheds on existing state and federal regulations.

Of special concern is that allotment owners are not legally required to have buffer strips along streams when they cut the timber on their land. The Watershed Council believes that educating allotment owners on the importance of buffer strips for the sake of protecting salmon and other habitat will create a situation of self-regulation, eliminating the need for deliberate enforcement of a tribal code requiring buffer strips.

The Watershed Council has identified the need for the following education methods and/or strategies:

- ◇ Brochure with photos and text explaining wetlands, the watershed concept, the makeup of the Watershed and Council, the plan they are developing, and why. (See Appendix E)
- ◇ A newsletter published at least twice a year with articles and other information on wetlands, the Watershed Council, and the planning process. (See Appendix E)
- ◇ A brief video providing visually the information described above.
- ◇ Community forums and field days on wetlands and the planning process, including events for school-age children.
- ◇ Displays at the Port Graham and Nanwalek airstrip waiting areas.(See Appendix E)

## **Management**

In the scoping process stakeholders identified the following management issues. Actual management strategies and alternatives are discussed in the plan. The Wetlands Management plan is to consider:

- Managing forest harvest and other development activities on village, corporation, and allotment lands so as to maintain water quality for drinking, fish and wildlife habitat.
- Developing monitoring and assessment tools such as Rapid Bioassessment for water quality and HGM, coordination with other monitoring programs such as Cook Inlet Keeper, etc.
- Development of tribal water quality standards
- Development of a GIS (See Appendix F)
- Integration of wetlands management with other management practices and strategies, such as the Forest Stewardship Plan, solid waste, waste water, hazmats, and other related environmental management strategies.
- Identifying cultural and traditional resources that may need specialized management plans, such as: berries, medicinal and culinary plants, and materials for crafts and art.
- Developing a tribal Environmental Assessment process similar to that required by NEPA.

- Develop funding opportunities for the implementation of projects

**Formulation of Wetland Conservation Alternatives**

Watershed Council members created the alternatives presented here within a series of three meetings. The alternatives were developed with an appreciation for the different levels of conservation management that could be undertaken by the community. Some of the alternatives were feasible in the minds of members others were not. Ultimately, it would be up to the community and Tribal Councils to decide which level of conservation management would be undertaken by the Watershed Council.

## **Port Graham/Nanwalek Watershed Planning**

**Alternative Development Process**

**Alternative A: Take no action in the protection and management of the Port Graham/ Nanwalek watershed:** The current level of management and economic development will continue to occur without public participation. Growth and development proceeds as opportunities present themselves and as landowners see fit. Resource problems (pollutants, gully erosion, etc.) will be addressed by landowners or land managers as they are encountered. Site specific water quality monitoring or similar activities will be carried out as needed to address identified problems. Regulatory authority will remain with government agencies.

**Alternative B: Develop a PGNWC education and information program:** Develop a PGNWC information and education program to promote healthy watershed (i.e. information on wetlands, water quality and quantity, timber resources, wildlife Populations, fishery populations, archeological/cultural resources). The Watershed Council will refer requests for technical assistance to appropriate agencies.

**Possible action items:**

- distribute existing reports, brochures, videos, etc.
- meet annually to discuss environmental, social, and economic changes within the watershed
- provide education upon request

**Alternative C: Develop a PGNWC staff to provide technical assistance:** Under this alternative, the PGNWC seeks funding from existing tribal, local, state, federal, and private sources to maintain a staff of technical resource specialists (forester, wetland scientist, fisheries biologist, other). The staff will provide technical assistance and watershed education to landowners, managers, and other interested parties in the watershed.

**The duties of the PGNWC staff will include:**

- Assistance with planning and implementation of best management practices to the allotment owners, corporations, and other interested entities.
- Gathering and providing existing resource information,
- Researching and distribution of available reports, brochures, videos, etc...

- Monitoring and assessing community and ecological changes
- Refer unique requests for technical assistance to appropriate agencies
- The technical staff will provide the PGNWC with monthly progress reports

**Additionally, the PGNWC technical staff may provide contracted assistance to Native Corporations and other private entities.**

**Alternative D- Provide information, education and technical assistance:** This alternative is a voluntary approach to resource management utilizing a local PGNWC coordinator supported by private, state, and federal programs and resources. The coordinator will facilitate collaboration of activities related to watershed planning and management. This alternative supports the philosophy that landowners will make wise resource management decisions if they are provided with accurate information as to the effects of their actions, and are provided adequate technical assistance to implement best management practices. Wetland management recommendations will be based upon local values (cultural, traditional, and spiritual) and western science principles.

Below are examples of activities that the coordinator would accomplish under the direction of the PGNWC to address the issues, concerns, problems and opportunities that were identified by tribal members during PGNWC meetings.

**Objective 1: Assemble existing resource information and make it available to everyone in the watersheds to allow the Watershed Council the opportunity to provide timely and meaningful assistance.**

***Possible action items:***

- publish soil survey and make original copies of photo/ maps available
- obtain current aerial photography from NRCS and make available
- make available the water quality baseline measurements and report written by UAA ENRI
- request schedule of planned timber harvest activities within the watershed
- establish a Geographical Information System (establish a system to make existing information like land use, land ownership, wetland maps, stream map available)
- train GIS users

**Objective 2: Collect additional resource data and make it available to everyone in the watersheds.**

***Possible action items:***

- collect snow accumulation (water forecasting) in the drinking water sub-watersheds
- collect water quality (rapid bioassessment, chemical, and physical) data at determined sites
- provide a detailed wetland maps

- complete a survey of resource values
- provide the findings of the log staging area hydrology study

**Objective 3: Develop, test, and adopt tools or methods to study, manage, and protect resources within the watershed.**

*Possible action items:*

- identify community wetland values through a community survey
- complete wetland functional assessments (HGM) at determined reference sites
- develop and implement citizen-based water quality monitoring program at selected sites on a yearly basis
- develop a list of best management practices (BMPs)

**Objective 4: Develop an information and education program.**

*Possible action items:*

- draft and distribute brochures and newsletters
- develop and deliver PGNWC video
- design and construct airport displays
- gather, organize, and make a watershed information library available to Port Graham/ Nanwalek residents
- construct 3-D watershed maps
- sponsor school projects (for students as well as new residents):
- help fund a publication on local etiquette and traditions of the villages (by elders) that includes the responsibilities of the private landowner, how to respect the resources, how to handle fish, how to treat wetlands, etc.

**Objective 5: Provide technical and financial assistance for watershed/ resource projects and education.**

*Possible action items:*

- develop conservation plans for allotment owners
- provide explanations of existing state and federal laws
- identify opportunities for landowners to participate in cost/share programs
- sponsor watershed restoration demonstrations
- coordinate with other entities to bring technical assistance to Port Graham and Nanwalek

**Alternative E: Develop tribal codes and ordinances:**

Under this alternative, the PGNWC supports existing tribal codes and ordinances and the development of a court and enforcement system. The PGNWC will provide recommendations to tribal councils for the development of new codes and ordinances as they relate to watershed planning and management activities. The goal is to take over regulatory control from federal, state, and borough government.

***Possible action items:***

- find examples of codes and ordinances from other tribes
- determine existing laws and regulations related to watershed protection
- explore opportunities for co-management and co-regulation of watershed resources
- hire an attorney
- develop specific ordinances to address local watershed protection needs
- assist the tribal councils in developing a judicial system
- assist the tribal councils in developing an enforcement and penalty system

**Categories for evaluation of alternatives**

**Wetlands**

**Water quality**

**Water quantity**

**Timber resources**

**Wildlife Populations**

**Fishery Populations**

**Archeological/Cultural resources**

**Subsistence environment**

**Social environment**

**Spiritual environment**

**Economics**

**Self Governance**

**Ecological environment**

The Watershed Council identified their preferred Alternative following extensive review and comment by the communities. The Watershed Council evaluated each alternative. A survey was also delivered to community members to gauge the level of support for each alternative. The survey was developed and delivered by Watershed Council members.

## **Public Participation**

From the beginning, the development of the Port Graham/Narwalek Wetlands Management Plan has been a public process or a true watershed approach. All interested stakeholders, including some identified after the process was initiated, were invited to participate. Stakeholders represented the broad and diverse interests within the watersheds. Open public meetings were held for allotment owners and other community residents in order to explain wetlands and what the management plan was designed to do, as well as to answer their questions. Articles on the Watershed Council and the wetlands plan were incorporated into regional newsletters. The final plan was made available to the public for review and comment.

The following is a list of activities undertaken by the PG/NWSC to encourage community participation:

- Newsletter(s)
- Brochure
- Video
- Airport Displays
- Allotment owners workshop
- Wetland tour

**Nanwalek and Port Graham  
Watershed Council Survey  
"Where do we go from here?"**

1.) Do you know about the Nanwalek and Port Graham Watershed Project? Yes \_\_\_\_\_  
No \_\_\_\_\_

2.) Have you seen the video, pamphlet or any other information about the Project?  
Yes \_\_\_\_\_ No \_\_\_\_\_

3.) What activities and land uses do you feel the Wetlands are effected?  
\_\_\_\_\_  
\_\_\_\_\_

4.) Are Wetlands important to you? Yes \_\_\_\_\_ No \_\_\_\_\_ How?  
\_\_\_\_\_  
\_\_\_\_\_

5.) What should be the function of the Watershed Council?  
\_\_\_\_\_  
\_\_\_\_\_

6.) Should the Watershed Council use local & traditional knowledge to determine a value  
in assessing wetlands?

Yes \_\_\_\_\_ No \_\_\_\_\_

7.) How should the communities use the finished document?

\_\_\_\_\_ Guide for future planning and management within our watershed.

\_\_\_\_\_ Regulation document, meaning development of tribal codes & ordinances.

\_\_\_\_\_ Learning tool to promote education in all that involves planning within the  
watershed.

8.) Which wetlands, you believe, should be protected?  
None \_\_\_\_\_ Preselected \_\_\_\_\_ Most \_\_\_\_\_ All \_\_\_\_\_

Name \_\_\_\_\_ (optional)

**Recommended Conservation Plan**

Based on the community survey results and Watershed Council members input Alternative D was selected to bring forward to the Tribal Councils of Port Graham and Nanwalek for their approval by resolution.

**Alternative D- Provide information, education and technical assistance:** This alternative is a voluntary approach to resource management utilizing a local PGNWC coordinator supported by private, state, and federal programs and resources. The coordinator will facilitate collaboration of activities related to watershed planning and management. This alternative supports the philosophy that landowners will make wise resource management decisions if they are provided with accurate information as to the effects of their actions, and are provided adequate technical assistance to implement best management practices. Wetland management recommendations will be based upon local values (cultural, traditional, and spiritual) and western science principles.

Below are examples of activities that the coordinator would accomplish under the direction of the PGNWC to address the issues, concerns, problems and opportunities that were identified by tribal members during PGNWC meetings.

**Objective 1: Assemble existing resource information and make it available to everyone in the watersheds to allow the Watershed Council the opportunity to provide timely and meaningful assistance.**

***Possible action items:***

- publish soil survey and make original copies of photo/maps available
- obtain current aerial photography from NRCS and make available
- make available the water quality baseline measurements and report written by UAA ENRI
- request schedule of planned timber harvest activities within the watershed
- establish a Geographical Information System (establish a system to make existing information like land use, land ownership, wetland maps, stream map available)
- train GIS users

**Objective 2: Collect additional resource data and make it available to everyone in the watersheds.**

***Possible action items:***

- collect snow accumulation (water forecasting) in the drinking water sub-watersheds
- collect water quality (rapid bioassessment, chemical, and physical) data at determined sites
- provide a detailed wetland maps
- complete a survey of resource values
- provide the findings of the log staging area hydrology study

**Objective 3: Develop, test, and adopt tools or methods to study, manage, and protect resources within the watershed.**

***Possible action items:***

- identify community wetland values through a community survey
- complete wetland functional assessments (HGM) at determined reference sites
- develop and implement citizen-based water quality monitoring program at selected sites on a yearly basis
- develop a list of best management practices (BMPs)

**Objective 4: Develop an information and education program.**

***Possible action items:***

- draft and distribute brochures and newsletters
- develop and deliver PGNWC video
- design and construct airport displays
- gather, organize, and make a watershed information library available to Port Graham/ Nanwalek residents
- construct 3-D watershed maps
- sponsor school projects (for students as well as new residents):
- Help fund a publication on local etiquette and traditions of the villages (by elders) that includes the responsibilities of the private landowner, how to respect the resources, how to handle fish, how to treat wetlands, etc.

**Objective 5: Provide technical and financial assistance for watershed/ resource projects and education.**

***Possible action items:***

- develop conservation plans for allotment owners
- provide explanations of existing state and federal laws
- identify opportunities for landowners to participate in cost/share programs
- sponsor watershed restoration demonstrations
- coordinate with other entities to bring technical assistance to Port Graham and Nanwalek

## **Approved Plan**

The approved plan is yet to be delivered by the Tribal Councils. A thorough review of this document will lead to approval by Tribal Resolution. Any recommended changes will be made.

## **Plan Implementation**

A plan of work was developed to move through the planning stages for work by Watershed Council members and technical assistance providers. A plan of work will be followed in order to complete all objectives under Wetland Conservation Plan Alternative D. The Plan of Work has basically two sections. Section One- is that list of actions to be taken to carry out the planning process; and Section Two is the list of actions needed to implement the Plan. Section One items are complete, less the Tribal Council resolutions in support of the selected conservation plan alternative, see Appendix A. See Appendices A-F to review work within Alternative D in progress and completed.

**APPENDIX A**

**PGNWC Planning and Implementation Plan of Work**

## APPENDIX A

### PGNWC Planning and Implementation Plan of Work

<b>Action required for the development of the Port Graham/Nanwalek Watershed Council (PGNWC) Wetland Conservation Plan</b>	<b>WHO</b>	<b>WHAT</b>	<b>WHERE</b>	<u>HOW</u>
<b>1. Identify and Record Problems</b>	PGNWC, Paul Jackson			
Logging	PGNWC			
Road Construction	PGNWC			
Off Road Vehicles	PGNWC			
Waste Disposal	PGNWC			
<b>2. Determine and Record Objectives</b>	PGNWC, Paul Jackson			
Draft Purpose Statement				
Establish WS Area				
Determine Participants	PGNWC			
Determine Level of Participation	PGNWC			
<b>3. Inventory and Record Resources</b>	PGNWC, Paul Jackson			
Geology				
Soils				
Hydrology				
Plant Communities				
Water Quality				
Wetlands				
Land Ownership				
Land uses				
Wildlife/Fishery Resources				
Subsistence				
<b>4. Analyze Resource Data</b>	PGNWC			
Review GIS Database	PGNWC, Paul, Dan			
Research and Record Alutiq Names to Fish, Wildlife, and Plants	Donna Malchoff, Nancy Yeaton			

ACTION	WHO	WHAT	WHERE
<b>5. Formulate Alternatives</b>	Christine, Dan, Phil, Mark K., Mark W., Robin, PGNWC		
Alternative A			
Alternative B			
Alternative C			
Alternative D			
Alternative E			
<b>6. Evaluate Alternatives</b>			
Estimate /measure potential benefits	PGNWC		
Estimate /measure potential costs			
<b>7. Decide on Course of Action</b>	PGNWC		
Share alternatives with each community			
Public comment on each Alternative			
Decide on Alternative			
<i>Draft Wetlands Management Plan</i>			
<b>8. Implement Decisions</b>			
That's where the action items come in...	PGNWC Tribal Councils		
<b>9. Evaluate Decisions</b>	PGNWC		

<b>Action Items for Public Education</b>	<b>WHO</b>	<b>WHAT</b>	<b>WHERE</b>	
<b>Public Education</b>	Christine Celentano, PGNWC	Create and share with communities of Port Graham and Nanwalek	PG and Nan	Deliver to co Door, Mail
1. Airport Displays	PGNWC, Christine Celentano, Tom Evans			
2. Video	PGNWC, Christine, Tom, Elenore, Walter, Nancy, Paul, Dan			
3. Brochure	PGNWC, Paul, Christine			
4. Watershed Model	PGNWC, Nancy			
<b><u>Action Items for Management Tools</u></b>	<b>WHO</b>	<b>WHAT</b>	<b>WHERE</b>	
1. Development of PGNWC GIS	PGNWC, Paul, Christine, Dave-Interrain Pacific			
GIS Data Collection	Interrain Pacific			
GIS Mapping	Interrain Pacific			
GIS Technical Writing	Interrain Pacific			
<b>2. HGM Development &amp; Use</b>				
Local HGM Training Curriculum	Christine, Robin, NRCS-Dan, EPA-Phil, Jim Powell-DEC			
Local HGM Training	Christine, Robin			
Wetlands Maps	Christine, Robin			
Wetlands Surveys	Gene, Robert, Nancy			

<b>3. Rapid Bioassessment Monitoring</b>				
Rapid Bioassessment Baseline Measures	Robin, ENRI, Tom Evans, Johnny Moonin Melvin Malchoff			
Rapid Bioassessment Protocols/QAPP	Robin, ENRI			
Rapid Bioassessment Training #1	Robin, ENRI			
Rapid Bioassessment refresher training	Robin, trained water watchers			
Water quality monitoring	Robin, trained water watchers			
<b>*Informational &amp; Logistical Assistance</b>				
(Resources to Complete "How" portion)				
Port Graham/Nanwalek Traditional Knowledge				
Port Graham/Nanwalek Community Members				
Chugachmiut Environmental Health				
Environmental Protection Agency				
Natural Resource Conservation Service				
Interrain Pacific Inc.				
UAA-Environment & Natural Resource Institute				

**APPENDIX B**  
**Wildlife Species common to the Lower Kenai Peninsula**

## APPENDIX B

### Wildlife Species common to the Lower Kenai Peninsula

Alutiiq names were provided by students in the bilingual program at the Port Graham School and by Feowna Sawden. Some species do not have a direct Alutiiq translation.

#### MAMMALS

<u>Common</u>	<u>Genus/Species</u>	<u>Family</u>	<u>Alutiiq</u>
Little Brown Bat	<i>Myotis lucifugus</i>	Vespertilionidae	Qallaciquaq
Masked Shrew	<i>Sorex cinereus</i>	Soricidae	Quplenqaq
Dusky Shrew	<i>Sorex obscurus</i>	Soricidae	"
Water Shrew	<i>Sorex palustris</i>	Scricidae	"
Pigmy Shrew	<i>Sorex hoyi</i>	Scricidae	"
Tundra Shrew	<i>Sorex tundrensis</i>	Scricidae	"
Snowshoe Hare (Varing Hare)	<i>Lepus americanus</i>	Leporidae	Ukayiq
Hoary Marmot	<i>Marmota caligata</i>	Sciuridae	Quarriq
Red Squirrel	<i>Tamiasciurus hudsonicus</i>	Sciuridae	El'kiaq
Northern Flying Squirrel	<i>Glaucomys sabrinus</i>	Sciuridae	El'kiaq
Arctic Ground Squirrel	<i>Spermophilus parryii</i>	Sciuridae	El'kiaq
Beaver	<i>Castor canadensis</i>	Castoridae	
Northern Red-backed Vole	<i>Clethrionomys rutilus</i>	Cricetidae	
Meadow Vole	<i>Microtus pennsylvanicus</i>	Cricetidae	
Singing Vole	<i>Microtus miurus</i>	Cricetidae	
Muskrat	<i>Ondatra zibethicus</i>	Cricetidae	
Meadow Jumping Mouse	<i>Zapus hudsonius</i>	Zapodidae	Qupilengaq
Porcupine	<i>Erethizon dorsatum</i>	Erethizontidae	Qangateraaq
Coyote	<i>Canis latrans</i>	Canidae	Kayutaq
Gray Wolf	<i>Canis lupus</i>	Canidae	Kaganaq
Red Fox	<i>Vulpes vulpes</i>	Canidae	
Black Bear	<i>Ursus americanus</i>	Ursidae	Tan'erliq
Marten	<i>Martes americana</i>	Mustelidae	Qaugciquaq
Ermine	<i>Mustela erminea</i>	Mustelidae	Amitatuk
Least Weasel	<i>Mustela nivalis (rixosa)</i>	Mustelidae	"
Mink	<i>Mustela vison</i>	Mustelidae	El'kuayaq
Wolverine	<i>Gulo gulo</i>	Mustelidae	Alas'aamaaq
River Otter	<i>Lutra canadensis</i>	Mustelidae	Kep'arqaq
Sea Otter	<i>Enhydra lutris</i>	Mustelidae	Ikam'aq
Lynx	<i>Felis lynx</i>	Felidae	Etertuliq
Northern Sea Lion (Stellar)	<i>Eumetopias jubatus</i>	Otariidae	Wiinaq
Harbor Seal	<i>Phoca vitulina</i>	Phocidae	Qiagyaq
Moose	<i>Alces alces</i>	Cervidae	Teglliq

**Mountain Goat**

**Oreamnos americanus**

***Bovidae***

**Pehnaiq**

Yellow-billed loon	<i>Gavia adamsii</i>	Gaviidae (Loons)	Tuullek
Common loon	<i>Gavia immer</i>	Gaviidae (Loons)	" "
Red-throated loon	<i>Gavia stellata</i>	Gaviidae (Loons)	" "
Pacific Loon	<i>Gavia pacifica</i>	Gaviidae (Loons)	" "
Horned grebe	<i>Podiceps auritus</i>	Podicipedidae (grebes)	
Red-necked grebe	<i>Podiceps grisegena</i>	Podicipedidae (grebes)	
Northern pintail	<i>Anas acuta</i>	Anatidae (swans, geese, ducks)	
American wigeon	<i>Anas americana</i>	Anatidae (swans, geese, ducks)	
Green-winged teal	<i>Anas carolinensis (crecca)</i>	Anatidae (swans, geese, ducks)	
Northern shoveler	<i>Anas clypeata</i>	Anatidae (swans, geese, ducks)	
Mallard	<i>Anas platyrhynchos</i>	Anatidae (swans, geese, ducks)	Nillqitak
Gadwall	<i>Anas strepera</i>	Anatidae (swans, geese, ducks)	
Greater white-fronte goose	<i>Anser albifrons</i>	Anatidae (swans, geese, ducks)	Temngiaq
Greater scaup	<i>Aythya marila</i>	Anatidae (swans, geese, ducks)	
Bufflehead	<i>Bucephala albeola</i>	Anatidae (swans, geese, ducks)	
Common goldeneye	<i>Bucephala clangula</i>	Anatidae (swans, geese, ducks)	Qapugnaq
Barrow's goldeneye	<i>Bucephala islandica</i>	Anatidae (swans, geese, ducks)	Qapugnaq
Oldsquaw	<i>Clangula hyemalis</i>	Anatidae (swans, geese, ducks)	
Harlequin duck	<i>Histrionicus histrionicus</i>	Anatidae (swans, geese, ducks)	
Common merganser	<i>Mergus merganser</i>	Anatidae (swans, geese, ducks)	
Red-breasted merganser	<i>Mergus serrator</i>	Anatidae (swans, geese, ducks)	
Canada goose	<i>Branta canadensis</i>	Anatidae (swans, geese, ducks)	Temngiaq
Black brant	<i>Branta nigricans (bernicla)</i>	Anatidae (swans, geese, ducks)	
Snow goose	<i>Chen caerulescens</i>	Anatidae (swans, geese, ducks)	Temngiaq
Emperior goose	<i>Chena canagica</i>	Anatidae (swans, geese, ducks)	Temngiaq
Tundra swan	<i>Olor (Cygnus) columbianus</i>	Anatidae (swans, geese, ducks)	Qugyug

White-winged scoter	<i>Melanitta deglandi</i>	geese, ducks) Anatidae (swans, geese, ducks)	
Surf scoter	<i>Melanitta perspicillata</i>	Anatidae (swans, geese, ducks)	
Black scoter	<i>Oidemia nigra</i>	Anatidae (swans, geese, ducks)	
Steller's eider	<i>Polysticta stelleri</i>	Anatidae (swans, geese, ducks)	
Common eider	<i>Somateria mollissima</i>	Anatidae (swans, geese, ducks)	
King eider	<i>Somateria spectabilis</i>	Anatidae (swans, geese, ducks)	
Double-crested cormorant	<i>Phalacrocorax auritus</i>	Phalacrocoracidae (cormorants)	
Pelagic cormorant	<i>Phalacrocorax pelagicus</i>	Phalacrocoracidae (cormorants)	
Brendt's cormorant	<i>Phalacrocorax penicillatus</i>	Phalacrocoracidae (cormorants)	
Red-faced cormorant	<i>Phalacrocorax urile</i>	Phalacrocoracidae (cormorants)	
Rufous hummingbird	<i>Selasphorus rufus</i>	Trochilidae	Megtarpak
Crested auklet	<i>Aethia cristatella</i>	Alcidae	
Kittletz's murrelet	<i>Brachyramphus brevirostris</i>	Alcidae	
Marbled murrelet	<i>Brachyramphus marmoratus</i>	Alcidae	
Pigeon guillemot	<i>Cephus columba</i>	Alcidae	
Rhinoceros auklet	<i>Cerorhinca monocereata</i>	Alcidae	
Parakeet auklet	<i>Cyclorhynchus psittacula</i>	Alcidae	
Tufted puffin	<i>Fratercula cirrhata</i>	Alcidae	Ngaqngaap
Horned puffin	<i>Fratercula corniculata</i>	Alcidae	Ngaqngaap
Cassin's auklet	<i>Ptychoramphus aleuticus</i>	Alcidae	
Ancient murrelet	<i>Synthliboramphus antiquus</i>	Alcidae	
Common murre	<i>Uria aalge</i>	Alcidae	Alpaq
Thick-billed murre	<i>Uria lomvia</i>	Alcidae	Alpaq
Semi-palmated plover	<i>Charadrius semipalmatus</i>	Charadriidae	
Black-bellied plover	<i>Pluvialis squatarola</i>	Charadriidae	
American	bl. <i>Haematopus bachmani</i>	Haematopodidae	
Oystercatcher			
Herring gull	<i>Larus argentatus</i>	Laridae	Naruyaq
Mew gull	<i>Larus canus</i>	Laridae	" "
Glaucous-winged gull	<i>Larus glaucescens</i>	Laridae	" "
Glaucous gull	<i>Larus hyperboreus</i>	Laridae	" "
Bonaparte's gull	<i>Larus philadelphia</i>	Laridae	" "
Thayer's gull	<i>Larus thayeri</i>	Laridae	" "
Black-legged kittiwake	<i>Rissa tridactyla</i>	Laridae	
Long-tailed jaeger	<i>Stercorarius longicaudus</i>	Laridae	
Parasitic jaeger	<i>Stercorarius parasiticus</i>	Laridae	

Pomarine jaeger	<i>Stercorarius pomarinus</i>	Laridae	
Aleutian tern	<i>Sterna aleutica</i>	Laridae	
Arctic tern	<i>Sterna paradisaea</i>	Laridae	
Sabine's gull	<i>Xema sabini</i>	Laridae	Naruyaq
Spotted sandpiper	<i>Actitis macularia</i>	Scolopacidae	Kulikekiiq
Surfbird	<i>Aphriza virgata</i>	Scolopacidae	
Ruddy turnstone	<i>Arenaria interpres</i>	Scolopacidae	
Black turnstone	<i>Arenaria melanocephala</i>	Scolopacidae	
Sanderling	<i>Calidris alba</i>	Scolopacidae	
Dunlin	<i>Calidris alpina</i>	Scolopacidae	
Baird's sandpiper	<i>Calidris bairdii</i>	Scolopacidae	Kulikekiiq
Western sandpiper	<i>Calidris mauri</i>	Scolopacidae	" "
Pectoral sandpiper	<i>Calidris melanotos</i>	Scolopacidae	" "
Least sandpiper	<i>Calidris minutilla</i>	Scolopacidae	" "
Rock sandpiper	<i>Calidris ptilocnemis</i>	Scolopacidae	" "
Semi-palmated sandpiper	<i>Calidris pusilla</i>	Scolopacidae	" "
Common snipe	<i>Gallinago gallinago</i>	Scolopacidae	
Wandering tattler	<i>Heteroscelus incanus</i>	Scolopacidae	
Short-billed dowitcher	<i>Limnodromus griseus</i>	Scolopacidae	
Long-billed dowitcher	<i>Limnodromus scolopaceus</i>	Scolopacidae	
Whimbrel	<i>Numenius phaeopus</i>	Scolopacidae	
Bristle-thighed curlew	<i>Numenius tahitiensis</i>	Scolopacidae	
Red phalarope	<i>Phalaropus fulicaria</i>	Scolopacidae	
Red-necked phalarope	<i>Phalaropus lobatus</i>	Scolopacidae	
Lesser yellowlegs	<i>Tringa flavipes</i>	Scolopacidae	
Greater yellowlegs	<i>Tringa melanoleuca</i>	Scolopacidae	
Solitary sandpiper	<i>Tringa solitaria</i>	Scolopacidae	
Belted kingfisher	<i>Ceryle alcyon</i>	Alcedinidae	Kulikekiiq
Sharp-shinned hawk	<i>Accipiter striatus</i>	Accipiteridae	Angluqauliq
Northern goshawk	<i>Accipiter gentilis</i>	Accipiteridae	Qecu'uliq
Northern harrier	<i>Curcus cyaneus</i>	Accipiteridae	" "
Bald eagle	<i>Haliaeetus leucocephalus</i>	Accipiteridae	Saqrtuliiq
Osprey	<i>Pandion haliaetus</i>	Accipiteridae	
Merlin	<i>Falco columbarius</i>	Falconidae (falcons)	
Peregrine falcon	<i>Falco peregrinus</i>	Falconidae (falcons)	
Spruce grouse	<i>Dendragapus canadensis</i>	Phasianidae	Egtugtuliq
Rock ptarmigan	<i>Lagopus mutus</i>	Phasianidae	Qategyuk
Sandhill crane	<i>rus canadensis</i>	Gruidae (cranes)	Tatelggaq
Brown creeper	<i>Certhia americana</i>	Certhiidae	
		(creepers)	
American dipper	<i>Cinclus mexicanus</i>	Cinclidae (dippers)	
Northwestern crow	<i>Corvus caurinus</i>	Corvidae	Qanitiisaq
Common raven	<i>Corvus corax</i>	Corvidae	Qanitiirpak
Steller's jay	<i>Cyanocitta stelleri</i>	Corvidae	
Black-billed magpie	<i>Pica pica</i>	Corvidae	
Lapland longspur	<i>Calcarius lapponicus</i>	Emberizidae	Qallqanaq
Yellow warbler	<i>Dendroica petechia</i>	Emberizidae	

Townsend's warbler	<i>Dendroica townsendi</i>	Emberizidae	
Rusty blackbird	<i>Euphagus carolinus</i>	Emberizidae	
Dark-eyed junco	<i>Junco hyemalis</i>	Emberizidae	
Lincoln's sparrow	<i>Melospiza lincolnii</i>	Emberizidae	lituyuaq
Savannah sparrow	<i>Passerculus sandwichensis</i>	Emberizidae	" "
Fox sparrow	<i>Passerella iliaca</i>	Emberizidae	" "
Snow bunting	<i>Plectrophenax nivalis</i>	Emberizidae	
American tree sparrow	<i>Spizella arborea</i>	Emberizidae	lityuaq
Orange-crowned warbler	<i>Vermivora celata</i>	Emberizidae	
Wilson's warbler	<i>Wilsonia pusilla</i>	Emberizidae	
Golden-crowned sparrow	<i>Zonotrichia atricapilla</i>	Emberizidae	lituyuaq
White crowned sparrow	<i>Zonotrichia leucophrys</i>	Emberizidae	" "
Common redpoll	<i>Carduelis flammea</i>	Fringillidae	
		(finches)	
Pine siskin	<i>Carduelis pinus</i>	Fringillidae	
		(finches)	
Rosy finch	<i>Leucosticte arctoa</i>	Fringillidae	
		(finches)	
Red crossbill	<i>Loxia curvirostra</i>	Fringillidae	
		(finches)	
White-winged crossbill	<i>Loxia leucoptera</i>	Fringillidae	
		(finches)	
Pine grosbeak	<i>Pinicola enucleator</i>	Fringillidae	
		(finches)	
Bank swallow	<i>Riparia riparia</i>	Hirundinidae	La'tackaaq
		(swallows)	
Tree swallow	<i>Tachycineta bicolor</i>	Hirundinidae	" "
		(swallows)	
Violet-green swallow	<i>Tachycineta thalassina</i>	Hirundinidae	" "
		(swallows)	
Northern shrike	<i>Lanius excubitor</i>	Laniidae	
Water pipit	<i>Anthus spinoletta</i>	Motacillidae	
Hermit thrush	<i>Catharus guttatus</i>	Muscicapidae	
Varied thrush	<i>Ixoreus naevius</i>	Muscicapidae	
Ruby-crowned kinglet	<i>Regulus calendula</i>	Muscicapidae	
Golden-crowned kinglet	<i>Regulus satrapa</i>	Muscicapidae	
American robin	<i>Turdus migratorius</i>	Muscicapidae	Keliimaanii
Chestnut-backed chickadee	<i>Parus rufescens</i>	Paridae	
		(chickadees)	
Red-breasted nuthatch	<i>Sitta canadensis</i>	Sittidae	
		(nuthatches)	
Winter wren	<i>Troglodytes troglodytes</i>	Troglodytidae	
		(wrens)	
Alder flycatcher	<i>Empidonax alnorum</i>	Tyrannidae	
Downy woodpecker	<i>Picoides pubescens</i>	Picidae	
		(woodpeckers)	
Short-eared owl	<i>Asio flammeus</i>	Strigidae (owls)	Yartuliq

Great horned owl	<i>Bubo virginianus</i>	Strigidae (owls)	" "
Snowy owl	<i>Nyctea scandiaca</i>	Strigidae (owls)	" "
Northern hawk-owl	<i>Surnia ulula</i>	Strigidae (owls)	" "

**FISH**

<b>Common</b>	<b><u>Genus/Species</u></b>	<b><u>Family</u></b>	<b><u>Alutiiq</u></b>
Silver Salmon	<i>Oncorhynchus kisutch</i>	Salmonidae	Qakiiyaq
Chum Salmon	<i>Oncorhynchus keta</i>	Salmonidae	Alimaq
King Salmon	<i>Oncorhynchus tshawytscha</i>	Salmonidae	Kluq'akaaq
Pink Salmon	<i>Oncorhynchus gorbuscha</i>	Salmonidae	Amartuq
Red Salmon	<i>Oncorhynchus nerka</i>	Salmonidae	Niklliq
Rainbow Trout	<i>Oncorhynchus mykiss</i>	Salmonidae	Saguayaq
Dolly Varden	<i>Salvelinus malma</i> Walbaum	Salmonidae	
Arctic grayling	<i>Thymallus arcticus</i>	Salmonidae	
Longnose sucker	<i>Catostomus datostomus</i>	Catostomidae	
<b>Eulacho</b>	<i>Thaleichthys pacificus</i>	Osmeridae	

**APPENDIX C**

**Port Graham Nanwalek Watershed Council**

**Biological Monitoring Program Summary – 1998**

## **Port Graham Nanwalek Watershed Council**

### **Biological Monitoring Program Summary – 1998**

Biological assessment (bioassessment) is the use of living organisms to tell us something about the environment. Because aquatic insects live in streams, they are directly affected by water quality. Streams with good water quality generally have several different types of insects. Streams that have been affected by pollutants generally do not support as many insect groups. Aquatic insects are the “canaries in the coal mine”. They are monitored to indicate potential problems in a watershed before they affect other aquatic resources, such as salmon populations, or human health and safety.

The University of Alaska Anchorage’s Environment and Natural Resources Institute (ENRI) designed a biological monitoring program to provide the Port Graham Nanwalek Watershed Council with a tool to monitor water quality. A summary of biological monitoring activities in the Port Graham and English Bay River basins follows:

- In June, 1998, bioassessments were conducted by ENRI, Chugachmiut, and interested volunteers at each of the eight sampling stations. These samples provided baseline information and allowed volunteers to become familiar with the methods.
- In September, 1998, ENRI and Chugachmiut conducted a Bioassessment Training Workshop. Participants included members of the Port Graham Nanwalek Watershed Council, environmental specialists responsible for the collection of bioassessment data, and interested volunteers. Training included an overview and field demonstration of bioassessment procedures, assessment of four sites established on the English Bay River, and family level identification of insects collected at the four sites. Four participants received a Certificate of Bioassessment Training as a Water Watcher.
- In September, 1998, ENRI and Chugachmiut also conducted a classroom training session for middle and high school students to generate interest in the aquatic resources of the English Bay River, the Port Graham/ Nanwalek biological monitoring program, as well as career opportunities in the environmental field. The training focused on what bioassessment is and how it can be used to evaluate water quality. Students processed samples and identified aquatic insects using the Alaska Volunteer Bioassessment Methods.
- In 1999, ENRI and Chugachmiut would like to conduct a similar 3-day training workshop. The purpose of the training would be to:
  1. Conduct a refresher training workshop for environmental specialists.
  2. Assist environmental specialists with sample collection as needed.
  3. Conduct field training for other interested individuals.
  4. Discuss results of samples collected in 1998.

5. Demonstrate a database designed to manage bioassessment data collected by environmental specialists.

If there were interest, ENRI and Chugachmiut would conduct a similar classroom training session for middle and high school students in 1999. With the permission of the Watershed Council, parents, and teachers, students could conduct their own assessment of one station following a field demonstration of the procedures.

We look forward to working with you again in 1999. Please contact me at (907) 257-2744 or Bill Sobers at (907) 562-4155 if you would like to participate or have any questions.

Lisa Houston  
Environment and Natural Resources Institute  
University of Alaska Anchorage  
707 A Street  
Anchorage AK 99501

**APPENDIX D**

**Port Graham/ Nanwalek Watershed Council  
Tribal Wetlands Survey**

## APPENDIX D

### Port Graham/ Nanwalek Watershed Council

### **Tribal Wetlands Survey**

#### **Purpose Statement**

The Port Graham Nanwalek Watershed Council (PGNWC) would like to conduct a survey of wetlands within each village. The delivery of the survey will aid the PGNWC in identifying wetlands within each watershed that are important to residents. The PGNWC recognizes that the community uses wetlands for many different traditional purposes, for example, fishing, hunting, recreating, and berry picking to name a few. The following reasons for the delivery of a local survey were developed by the PGNWC:

#### **As a Primary Goal:**

To utilize a method for gathering local information about wetland use which will aid in decision making processes for the *tribal* management of wetland resources; and

To make a record of traditional wetland use areas and monitor for changes over time; and

To engage community members in substantial dialogue about important future use and management of wetland resources; and

To create an opportunity for developing partnerships in research management and understanding; and

To pass information onto future generations for both planning purposes and to preserve a traditional use perspective; and

#### **As a Secondary Goal:**

To protect and preserve important wetland areas now, instead of having to fix it later.

To record local value for wetlands which may later be supported by western science methods for assessing wetlands; and

To develop groundbreaking method for incorporating traditional values with western science and then sharing that information with other Tribes.

## **Scope of Survey Work**

Violet Yeaton, Tribal Environmental Specialist in Port Graham, will lead the delivery of wetland surveys to each home in Port Graham and will fulfill the role of Recorder.

Nancy Yeaton, Natural Resource Specialist and Tom Evans, Tribal Environmental Specialist in Nanwalek will deliver the surveys to each home in Nanwalek and will fulfill the role of Recorder. Everyone in the community who would like to participate is welcome. The Recorders will arrive at a home or welcome members of a home to join them in a community meeting place to deliver the survey. Cassette recorders with microphones will be made available to participants so that the Recorder does not miss important information. A translator will be provided upon request.

**Recorders will have a participant release form and an agreement between The Port Graham/Nanwalek Watershed Council and each tribal council. The recorders will explain the purpose and use of the forms to all participants.**

**The time frame for the survey completion is to begin in June 2000 and carry through for as long as it takes, not to exceed six months.**

**Maps of the watershed planning area have been provided to the Recorders to make identification of a wetland easier for the participants and the Recorder.**

**The results of the survey will *remain within the community* and will be kept on file by each tribal council.**

**The results will be compiled and formatted to be included in a narrative report, which will be made available to each tribal council upon completion of the data gathering.**

**Results of the survey will be made available to the community after all results are in and recorded properly.**

# Participant Release Form

## Port Graham/Nanwalek Watershed Council Traditional Wetland Value Survey

### Port Graham/Nanwalek Watershed Council

Elenore McMullen, Co-Chair  
PO BOX 5510, Port Graham, AK 99603  
Phone: (907) 284-2227  
Fax: (907) 284-2222

Tom Evans, Co-Chair  
PO BOX 8065, Nanwalek, AK 99603  
Phone: (907) 281-2214  
Fax: (907) 281-2277

### RELEASE

I, \_\_\_\_\_, understand the purpose of the research project named above, and am willing to participate in this project. The information that I provide in interview sessions will be tape-recorded and will be marked on maps. All such information, including direct quotes, may be used in the final reports, maps and other research products. The Port Graham/Nanwalek Watershed Council will be responsible for writing a report based on information collected in these interviews. A space to note confidential information can be found below. All confidentiality requests will be granted upon participant signature. I also understand that I will review the information documented by the Port Graham/Nanwalek Watershed Council, and that I have the right to correct and edit this information to ensure that it is accurate and that it is not potentially harmful to me or my community.

**This material contains no confidential or sensitive material unless noted here.**

---

In addition:

- Any photos/video of me taken for this project may/may not be used in final reports or research products. Any other use of photographs/video must be agreed to separately.
- My name may/may not be used in final reports or research products.

Signed: \_\_\_\_\_ Date: \_\_\_\_\_

Address: \_\_\_\_\_

Interpreter (if applicable): \_\_\_\_\_

## Participant Release Form (Continued)

### RIGHT OF REVIEW

The Port Graham/Nanwalek Watershed Council will review draft maps and reports with participants in the project, both to ensure that the information is accurate and to ensure that potentially harmful information, as identified by research participants, is not included in the final reports, maps, and other research products. As Principal Recorder, I, \_\_\_\_\_, promise to conduct/review these sessions and to follow the directions given to me by research participants as the final reports are prepared. All reports, maps, and other research products will be distributed to participants, and their Village Councils.

Signed: \_\_\_\_\_  
\_\_\_\_\_

Date:

# Village Consultation Form

## Port Graham/Nanwalek Watershed Council Traditional Wetland Value Survey

### Port Graham/Nanwalek Watershed Council

Elenore McMullen, Co-Chair  
PO BOX 5510, Port Graham, AK 99603  
Phone: (907) 284-2227  
Fax: (907) 284-2222

Tom Evans, Co-Chair  
PO BOX 8065, Nanwalek, AK 99603  
Phone: (907) 281-2214  
Fax: (907) 281-2277

### DATA OWNERSHIP AGREEMENT

The Port Graham/Nanwalek Watershed Council (PGNWC) is conducting a research project to document traditional ecological knowledge by determining location and use of wetlands in the two watersheds of Port Graham and Nanwalek. The information collected in this study will be compiled into a report and other publications and will also be entered into the PGNWC Geographic Information System (GIS) to prepare maps and computer generated display and analysis of the information.

To ensure that the information collected in this project remains under the control of the villages where the research is conducted, the Port Graham/Nanwalek Watershed Council will:

1. Obtain signed release forms from each of the participants in the project, indicating that the project has been explained to them, and that they are willing to share what they know.
2. Sign a commitment to review all information with the participants before it is published, to make sure that the report is accurate and that it will not adversely affect the use of wetlands in the villages.
3. Sign this agreement with the appropriate tribal government, stating that the project has been approved by the village, and that when the project is over, the data that has been collected will remain under the control of the village, to the best of the PGNWC's ability. Any further use of the original information beyond the PGNWC's

project must first obtain the consent of the tribal government co-signing this agreement. The data will be stored in the place or places mutually agreed upon.

**For the Port Graham/Nanwalek Watershed Council:**

**Signature:** \_\_\_\_\_

**Date:** \_\_\_\_\_

**Title:** \_\_\_\_\_

**For the Community:**

**Signature:** \_\_\_\_\_

**Date:** \_\_\_\_\_

**Title:** \_\_\_\_\_

# Survey Form

Participant ID #

WHAT IS YOUR  
TOP  
PRIORITY?

WHAT IS YOUR  
TOP  
PRIORITY?

	BO ATI NG	WA LKI NG/ HIK NG	RET RE AT (QU IET)	ED UC ATI ON AL	FO OD GA THE RIN G	CUL TU RAL	SPI RIT UAL	ST OR Y TEL LIN G	ME DICI NAL	EC ON OMI C US E	OT HE R	SP RIN G	SU MM ER	FAL L	WIN TER
<b>VEGETATION</b>															
<b>HERBS:</b>															
-----															
-----															
<b>GRASSES:</b>															
-----															
-----															
<b>SHRUB/TREE:</b>															
-----															
-----															
<b>PLANTS:</b>															
-----															
-----															
<b>BERRIES:</b>															
-----															
-----															
<b>ROOTS:</b>															
-----															
-----															
<b>MUSHROOM FUNGUS</b>															
-----															
<b>GOOSE TONGUE</b>															
-----															
<b>SEAWEED/KELP</b>															
-----															
<b>LARGE ANIMALS</b>															
-----															
<b>MOOSE</b>															
-----															
<b>BEAR</b>															
-----															
<b>GOAT</b>															
-----															





# SURVEY FORM INSTRUCTIONS

This sheet was put together to assist the surveyor and participant in the survey with any questions they might have regarding the survey form. The following information is designed to take the interviewer through each step of filling out the survey form beginning at the top.

## **SURVEY #:**

This should be filled in with the number assigned to the participant in the study. Each participant will be assigned a number, instead of using their name, to keep the surveys anonymous. For residence of Port Graham the number assigned will start with PG plus a number (PG1, PG2, PG3, etc.). For Nanwalek the number assigned will start with NA plus a number (NA1, NA2, NA3, etc.). The information collected is expected to be available to the Port Graham/Nanwalek Watershed Council, Village Councils, and participants in the study. Be sure to identify the survey participant number prior to interview for accuracy in audio recording.

## **DATE:**

Insert the date the survey was taken.

## **Participant ID #:**

This should be filled in with the participant ID #, (PG1, PG2, NA1, NA2, etc.)

Participant's number



Village code → PG1A ← Survey form page letter

## **Page Number ID:**

Up to five resources can be identified on each survey form. To differentiate easily between wetland resources on a single survey form, five different color markers will be used on the map to distinguish between resources if desired, i.e. berries, salmon, grasses, moose, herbs- PG1A...etc.

## **Wetland Location ID:**

On the topographic maps provided, the area representing a township is six square miles. Within each of those townships are thirty-six one square mile sections. All coordinates found within the Port Graham /Nanwalek Watershed planning area are consistently Northern townships and Western ranges. The wetland location ID includes the recording of a Township (T), Range (R) and Section (S) and will identify a wetland area. The resulting location ID number will look like T1N, R1W, S22.

## **WHAT?**

The "WHAT?" refers to the natural resource being used.

## **NATURAL RESOURCES:**

The resources are split into five categories (vegetation, large mammals, small mammals, fish, and other). The participant will choose the resources that they use at color coded

sites on the aerial survey map. There are spaces under some resources to write in a more specific resource used (i.e.: under berries you might write blueberries cranberries or salmonberries). There is also space on the second page to list additional resources that are not already listed under one of the five categories.

#### **WHEN?**

Refers to the season the resource is being used.

The time of year the resource is used should be marked in this box. Be sure to use the corresponding colored pen. The seasons that the resource is used can overlap. Extra room in the comment section has been provided to write more specific information regarding the time of year the resource is used, such as a specific month.

#### **COMMENTS:**

This is the section to write any information that the participant wants to add but did not have the room for on the first two pages. This would also be a good place for participants to explain why they don't use a certain resource or why they don't use them during a certain time of year. Remember to include the reasons people don't use resources in specific sights. These areas can be just as important as the reasons they do use them.

#### **MYLAR**

This is a thin plastic covering to place on the aerial photo. Using a permanent colored marker you can mark, directly on the Mylar, the resource use areas being discussed.

#### **OPTIONAL: WHY?**

Refers to the *reason* (i.e. cultural, spiritual, recreational) for using the resource. This may be added later with reference to the audio recording. The original database will be developed with information on which resource is used, along with where and when. A column with this particular information (Why) may be easily added to the survey form sheet at a later date.

Using a colored pen, corresponding to the resource on the aerial survey map, the surveyor will mark the reason for using that particular resource. In order to assure the resource is assigned to the correct area on the map, work with one resource at a time. Be sure to use a different colored marker for each resource on a map.

Additional information regarding *why* a resource is used can be placed in the "comments" section.

**APPENDIX E**

**PGNWC Video, Brochure & Airport Display**

**APPENDIX F**

**PGNWC Geographic Information System**