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ALASKA NATIVE VILLAGES

Villages Affected by Flooding and Erosion Have Difficulty Qualifying for Federal Assistance

Statement of Robert A. Robinson, Managing Director
Natural Resources and Environment

June 29, 2004

ALASKA NATIVE VILLAGES

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Highlights

Highlights of GAO-04-895T, a testimony before the Committee on Appropriations, United States Senate

Why GAO Did This Study

Approximately 6,600 miles of Alaska's coastline and many of the low-lying areas along the state's rivers are subject to severe flooding and erosion. Most of Alaska's Native villages are located on the coast or on riverbanks. In addition to the many federal and Alaska state agencies that respond to flooding and erosion, Congress established the Denali Commission in 1998 to, among other things, provide economic development services and meet infrastructure needs in rural Alaska communities.

This testimony is based on GAO's report, *Alaska Native Villages: Most Are Affected by Flooding and Erosion, but Few Qualify for Federal Assistance* (GAO-04-142, December 12, 2003). Specifically, GAO identified (1) the number of Alaska Native villages affected by flooding and erosion, (2) the extent to which federal assistance has been provided to those villages, (3) the efforts of nine villages to respond to flooding and erosion, and (4) alternatives that Congress may wish to consider when providing assistance for flooding and erosion.

What GAO Recommends

GAO's December 2003 report suggested that Congress consider directing the relevant federal agencies and the Denali Commission to assess the feasibility of alternatives for responding to flooding and erosion.

www.gao.gov/cgi-bin/getrpt?GAO-04-895T.

To view the full product, including the scope and methodology, click on the link above. For more information, contact Anu Mittal at (202) 512-3841 or mittala@gao.gov.

What GAO Found

Flooding and erosion affects 184 out of 213, or 86 percent, of Alaska Native villages to some extent. While many of the problems are long-standing, various studies indicate that coastal villages are becoming more susceptible to flooding and erosion caused in part by rising temperatures.

Small and remote Alaska Native villages have generally not received federal assistance under federal flooding and erosion programs largely because they do not meet program eligibility criteria. Even villages that do meet the eligibility criteria may still not receive assistance if they cannot meet the cost-share requirements for the project.

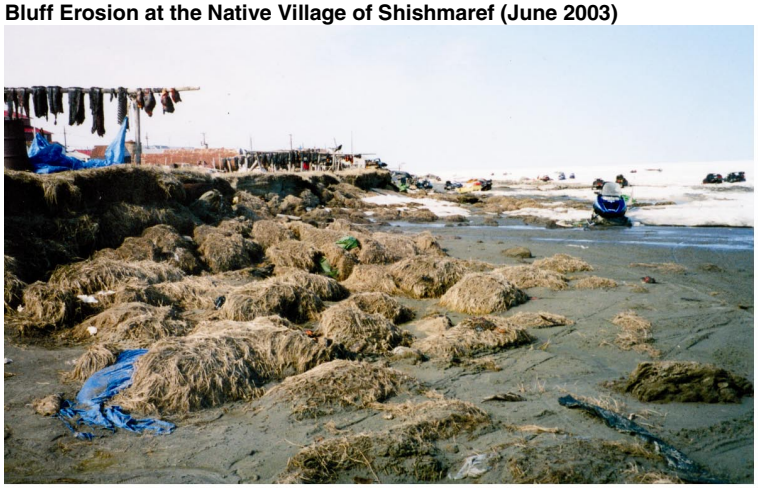
Of the nine villages that GAO reviewed, four—Kivalina, Koyukuk, Newtok, and Shishmaref—are in imminent danger from flooding and erosion and are planning to relocate, while the remaining five are in various stages of responding to these problems. Costs for relocating are expected to be high.

GAO, other federal and state officials, and village representatives identified alternatives that could increase service delivery for Alaska Native villages. These alternatives include

- expanding the role of the Denali Commission,
- directing federal agencies to consider social and environmental factors in analyzing project costs and benefits,
- waiving the federal cost-sharing requirement for these projects, and
- authorizing the "bundling" of funds from various federal agencies.

Although the Denali Commission and two federal agencies raised questions about expanding the role of the Denali Commission in commenting on GAO's report, GAO still believes it continues to be a possible alternative for helping to mitigate the barriers that villages face in obtaining federal services.

Bluff Erosion at the Native Village of Shishmaref (June 2003)



Source: GAO.

Mr. Chairman and Members of the Committee:

Thank you for the opportunity to discuss our work on Alaska Native villages affected by flooding and erosion. As you know, Alaska's shorelines and riverbanks serve as home to over 200 Native villages whose inhabitants generally hunt and fish for subsistence. However, these shorelines and riverbanks can be subject to periodic, yet severe flooding and erosion. Coastal and river flooding and erosion cause millions of dollars of property damage in Alaska Native villages, damaging or destroying homes, public buildings, and airport runways. Several federal and state agencies are directly or indirectly involved in providing assistance for flooding and erosion in Alaska. In addition to government agencies, the Denali Commission, created by Congress in 1998, is charged with addressing crucial needs of rural Alaska communities, particularly isolated Alaska Native villages, although it is not directly responsible for responding to flooding and erosion.[1]

The fiscal year 2003 Conference Report for the military construction appropriation bill directed GAO to study Alaska Native villages affected by flooding and erosion.[2] In December 2003, we reported on Alaska Native villages' access to federal flooding and erosion programs.[3] These programs are administered by several federal agencies, but principally by the U.S. Army Corps of Engineers and the Agriculture Department's Natural Resources Conservation Service. Our report discussed four alternatives that could help mitigate the barriers that villages face in obtaining federal services. Our testimony today is based on that report and focuses on (1) the number of Alaska Native villages affected by flooding and erosion, (2) the extent to which federal assistance has been provided to those villages, (3) the efforts of nine villages to respond to flooding and erosion, and (4) alternatives that Congress may wish to consider when providing assistance for flooding and erosion of Alaska Native villages.

To meet these objectives, we reviewed federal and state flooding and erosion studies and project documents and interviewed federal and state agency officials and representatives from nine Alaska Native villages. We

[1]Pub. L. No. 105-277, tit. III, 112 Stat. 2681 (1998).

[2]H. R. Conf. Rep. No. 107-731, at 15 (2002).

[3]U.S. General Accounting Office, *Alaska Native Villages: Most Are Affected by Flooding and Erosion, but Few Qualify for Federal Assistance*, GAO-04-142 (Washington, D.C.: Dec. 12, 2003).

also visited four of the nine villages. While the conference report directed us to include at least six villages in our study—Barrow, Bethel, Kaktovik, Kivalina, Point Hope, and Unalakleet—we added three more—Koyukuk, Newtok, and Shishmaref—based on discussions with congressional staff and with federal and state officials familiar with flooding and erosion problems. Our December 2003 report, on which this testimony is based, was prepared in accordance with generally accepted government auditing standards.

In summary, we reported the following:

- First, 184 out of 213, or 86 percent of Alaska Native villages experience some level of flooding and erosion, according to federal and state officials in Alaska. Native villages on the coast or along rivers have long been subject to both annual and episodic flooding and erosion. Various studies and reports indicate that coastal villages in Alaska are becoming more susceptible to flooding and erosion in part because rising temperatures delay formation of protective shore ice, leaving the villages vulnerable to fall storms. For example, the barrier island village of Shishmaref, which is less than 1,320 feet wide, lost 125 feet of beach to erosion during an October 1997 storm. In addition, villages in low-lying areas along riverbanks or in river deltas are susceptible to flooding and erosion caused by ice jams, snow and glacial melts, rising sea levels, and heavy rainfall.

- Second, small and remote Alaska Native villages often fail to qualify for assistance under federal flooding and erosion programs because they do not meet program eligibility criteria. For example, according to the Corps' guidelines for evaluating water resource projects, the Corps generally cannot undertake a project when the economic costs exceed the expected benefits. With few exceptions, Alaska Native villages' requests for assistance under this program are denied because the project costs usually outweigh expected economic benefits as currently defined. Even villages that meet the Corps' cost/benefit criteria may still fail to qualify if they cannot meet cost-share requirements for the project. The Natural Resources Conservation Service's Watershed Protection and Flood Prevention Program also requires a cost/benefit analysis similar to that of the Corps. As a result, few Alaska Native villages qualify for assistance under this program. However, the Natural Resources Conservation Service has other programs that have provided limited assistance to these villages—in part because these programs consider additional social and environmental factors in developing their cost/benefit analysis.

- Third, of the nine villages that we reviewed, four—Kivalina, Koyukuk, Newtok, and Shishmaref—are in imminent danger from flooding and erosion and are making plans to relocate; the remaining villages are taking other actions. Kivalina, Newtok, and Shishmaref are working with relevant federal agencies to determine the suitability of possible relocation sites, while Koyukuk is in the early stages of planning for relocation. Because of the high cost of materials and transportation in remote parts of Alaska, the cost of relocation for these villages is expected to be high. The five villages not currently planning to relocate—Barrow, Bethel, Kaktovik, Point Hope, and Unalakleet—are in various stages of responding to their flooding and erosion problems. For example, two of these villages, Kaktovik and Point Hope, are studying ways to prevent flooding of specific infrastructure, such as the airport runway.

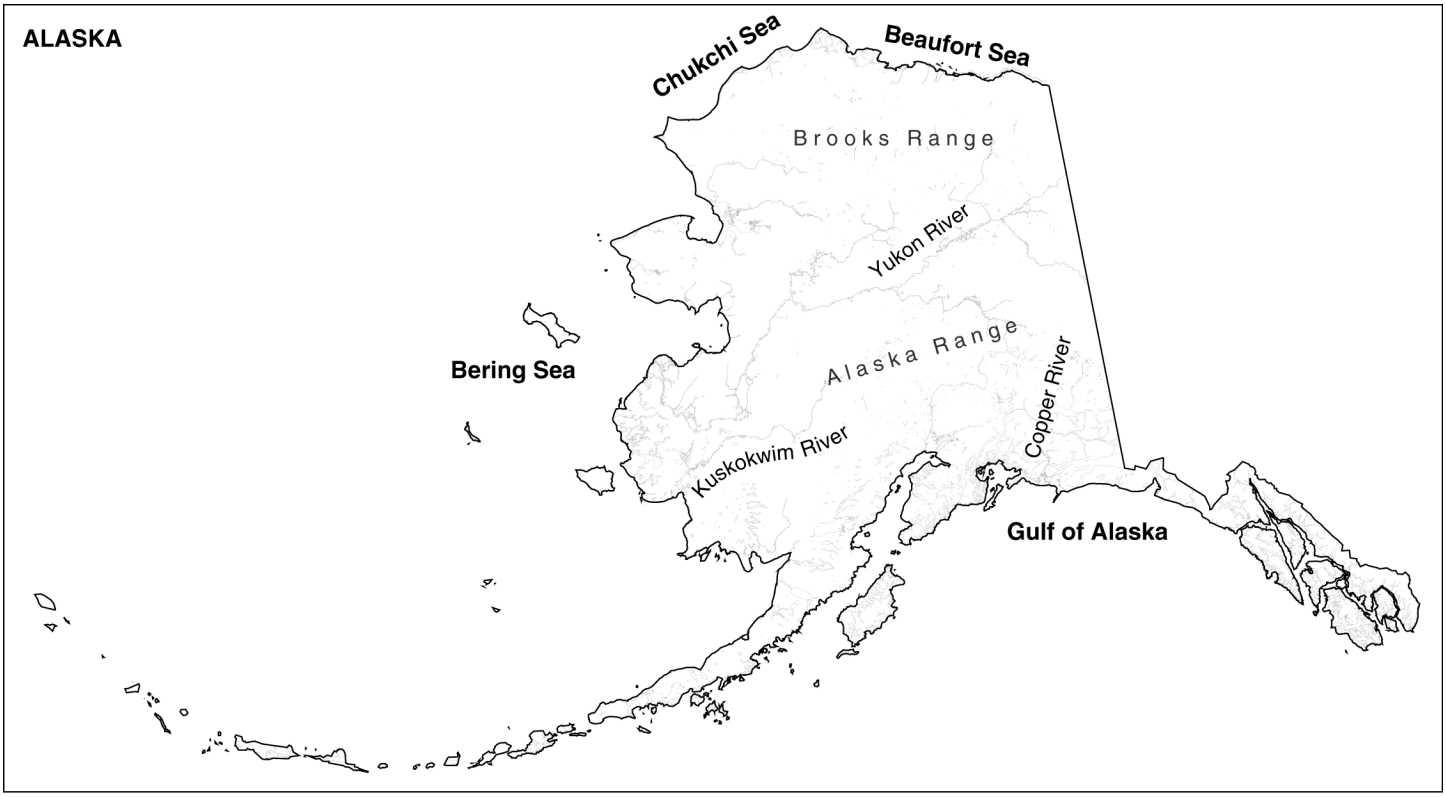
- Fourth, federal and Alaska state officials and Alaska Native village representatives that we spoke with identified the following three alternatives that could help mitigate barriers to villages' obtaining federal services: (1) expand the role of the Denali Commission to include responsibility for managing a new flooding and erosion assistance program, (2) direct the federal agencies to consider social and environmental factors in their cost benefit analyses for these projects, and (3) waive the federal cost-sharing requirement for flooding and erosion programs for Alaska Native villages. In addition, we identified as a fourth alternative the bundling of funds from various agencies to address flooding and erosion problems in Alaska Native villages. While we did not determine the cost or the national policy implications associated with any of these alternatives, these costs and implications are important considerations in determining the appropriate level of federal services that should be available to respond to flooding and erosion in Alaska Native villages. Consequently, in our report we suggested the Congress consider directing relevant federal agencies and the Denali Commission to assess the feasibility of each of the alternatives, as appropriate. In commenting on our report, the Denali Commission and two federal agencies raised questions about expanding the Denali Commission's role to cover flooding and erosion. While each of these entities recognized the need for improved coordination of federal efforts to address flooding and erosion in Alaska Native villages, none of them provided any specific suggestions on how this should be accomplished or by whom. As a result, we continue to believe that expanding the role of the commission is a viable alternative.

Background

Alaska encompasses an area of about 365 million acres—more than the combined area of the next three largest states of Texas, California, and Montana. The state is bound on three sides by water, and its coastline, which stretches about 6,600 miles (excluding island shorelines, bays and fjords) and accounts for more than half of the entire U.S. coastline, varies from rocky shores, sandy beaches, and high cliffs to river deltas, mud flats, and barrier islands. The coastline constantly changes through wave action, ocean currents, storms, and river deposits and is subject to periodic, yet often severe, erosion. Alaska also has more than 12,000 rivers, including three of the ten largest in the country: the Yukon, Kuskokwim, and Copper Rivers.[4] (See fig. 1.) While these and other rivers provide food, transportation, and recreation for people, as well as habitat for fish and wildlife, their waters also shape the landscape. In particular, ice jams on rivers and flooding of riverbanks during spring breakup change the contour of valleys, wetlands, and human settlements.

[4]The size is determined by the average rate of flow (discharge at the mouth).

Figure 1: Map of Alaska Showing Major Rivers, Oceans, and Mountain Ranges



Source: Mapping information from Meridian GeoSystems, Inc.

Permafrost (permanently frozen subsoil) is found over approximately 80 percent of Alaska. It is deepest and most extensive on the Arctic Coastal Plain and decreases in depth further south, eventually becoming discontinuous. In northern Alaska, where the permafrost is virtually everywhere, most buildings are elevated to minimize the amount of heat transferred to the ground to avoid melting the permafrost. However, rising temperatures in recent years have led to widespread thawing of the permafrost, causing serious damage. As permafrost melts, land slumps and erodes, buildings and runways sink, and bulk fuel tank areas are threatened. (See fig. 2.)

Figure 2: Sea Erosion at Shishmaref (June 2003)

Source: GAO.

Rising temperatures have also affected the thickness, extent, and duration of sea ice that forms along the western and northern coasts. Loss of sea ice leaves coasts more vulnerable to waves, storm surges, and erosion. When combined with the thawing of permafrost along the coast, loss of sea ice seriously threatens coastal Alaska Native villages. Furthermore, loss of sea ice alters the habitat and accessibility of many of the marine mammals that Alaska Natives depend upon for subsistence. As the ice melts or moves away early, walruses, seals, and polar bears move with it, taking themselves too far away to be hunted.

Federal, state, and local government agencies share responsibility for controlling and responding to flooding and erosion. The U.S. Army Corps of Engineers has responsibility for planning and constructing streambank and shoreline erosion protection and flood control structures under a specific set of requirements.[5] The Department of Agriculture's Natural

[5]The Corps may study and construct erosion protection and flood control structures, provided it receives authority and appropriations from Congress to do so. In addition to building structures, the Corps may also consider and implement non-structural and relocation alternatives.

Resources Conservation Service (NRCS) is responsible for protecting small watersheds. The Continuing Authorities Program, administered by the Corps, and the Watershed Protection and Flood Prevention Program, administered by NRCS, are the principal programs available to prevent flooding and control erosion. Table 1 below lists and describes the five authorities under the Corps' Continuing Authorities Program that address flooding and erosion, while table 2 identifies the main NRCS programs that provide assistance for flooding and erosion.

Table 1: Authorities that Address Flooding and Erosion Under the Corps' Continuing Authorities Program

Program authority	Description
Section 14 of the Flood Control Act of 1946	For emergency streambank and shoreline erosion protection for public facilities
Section 205 of the Flood Control Act of 1948	Authorizes flood control projects
Section 208 of the Flood Control Act of 1954	Authorizes flood control activities
Section 103 of the River and Harbor Act of 1962	Protect shores of publicly owned property from hurricane and storm damage
Section 111 of the River and Harbor Act of 1968	Mitigate shoreline erosion damage caused by federal navigation projects

Source: GAO analysis of Corps program information.

In addition to the Corps' Continuing Authorities Program, other Corps authorities that may address problems related to flooding and erosion include the following:

- Section 22 of the Water Resources Development Act of 1974, which provides authority for the Corps to assist states in the preparation of comprehensive plans for the development, utilization, and conservation of water and related resources of drainage basins.

- Section 206 of the Flood Control Act of 1960, which allows the Corps' Flood Plain Management Services' Program to provide states and local governments technical services and planning guidance that is needed to support effective flood plain management.

Table 2: NRCS Programs That Respond to Flooding and Erosion

Program	Description
Watershed Protection and Flood Prevention Program	Provides funding for projects that control erosion and prevent flooding. Limited to watersheds that are less than 250,000 acres.
Emergency Watershed Protection Program	Provides assistance where there is some imminent threat—usually from some sort of erosion caused by river flooding.
Conservation Technical Assistance Program	Provides technical assistance to communities and individuals to solve natural resource problems including reducing erosion, improving air and water quality, and maintaining or restoring wetlands and habitat.

Source: GAO analysis of NRCS program information.

A number of other federal agencies, such as the Departments of Transportation, Homeland Security (Federal Emergency Management Agency), and Housing and Urban Development, also have programs that can assist Alaska Native villages in responding to the consequences of flooding by funding tasks such as moving homes, repairing roads and boardwalks, or rebuilding airport runways. In additional to government agencies, the Denali Commission, created by Congress in 1998, while not directly responsible for responding to flooding and erosion, is charged with addressing crucial needs of rural Alaska communities, particularly isolated Alaska Native villages.

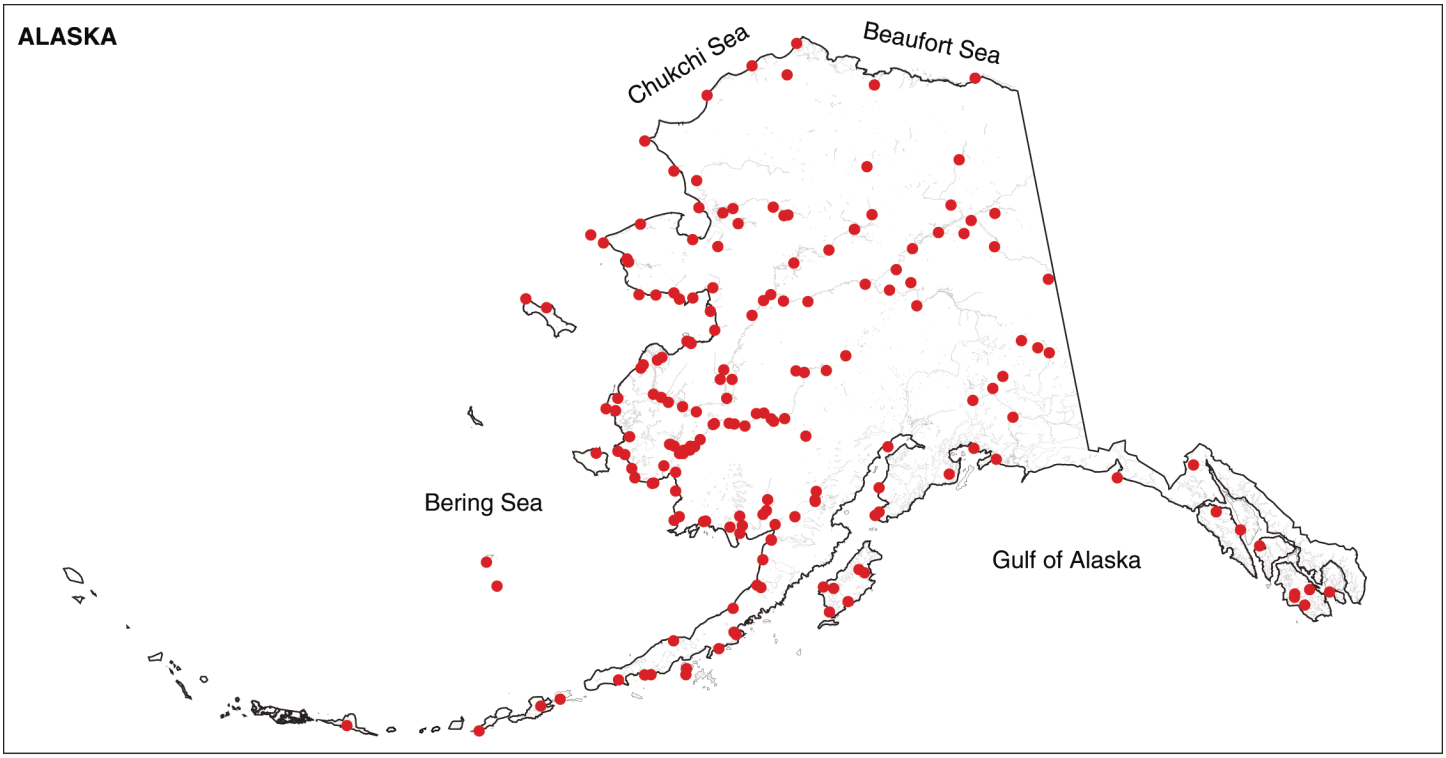
On the state side, Alaska's Division of Emergency Services responds to state disaster declarations dealing with flooding and erosion when local communities request assistance. The Alaska Department of Community and Economic Development helps communities reduce losses and damage from flooding and erosion. The Alaska Department of Transportation and Public Facilities funds work to protect runways from erosion. Local governments such as the North Slope Borough have also funded erosion control and flood protection projects.

Most Alaska Native Villages Are Affected to Some Extent by Flooding and Erosion

Flooding and erosion affects 184 out of 213, or 86 percent, of Alaska Native villages to some extent, according to studies and information provided to us by federal and Alaska state officials. The 184 affected villages consist of coastal and river villages throughout the state. (See fig. 3.) Villages on the coast are affected by flooding and erosion from the sea. For example, when these villages are not protected by sea ice, they are at risk of flooding and erosion from storm surges. In the case of Kivalina, the

community has experienced frequent erosion from sea storms, particularly in late summer or fall. These storms can result in a sea level rise of 10 feet or more, and when combined with high tide, the storm surge becomes even greater and can be accompanied by waves containing ice. Communities in low-lying areas along riverbanks or in river deltas are susceptible to flooding and erosion caused by ice jams, snow and glacial melts, rising sea levels and heavy rainfall.

Figure 3: Locations of 184 Alaska Native Villages Affected by Flooding and Erosion



Sources: GAO (analysis); Meridian GeoSystems, Inc., (map).

Flooding and erosion are long-standing problems in Alaska. In Bethel, Unalakleet, and Shishmaref for example, these problems have been well documented dating back to the 1930s, 1940s, and 1950s, respectively. The state has made several efforts to identify communities affected by flooding and erosion over the past 30 years. In 1982, a state contractor developed a

list of Alaska communities affected by flooding and erosion.[6] This list identified 169 of the 213 Alaska Native villages, virtually the same villages identified by federal and state officials that we consulted in 2003. In addition, the state appointed an Erosion Control Task Force in 1983 to investigate and inventory potential erosion problems and to prioritize erosion sites by severity and need. In its January 1984 final report, the task force identified a total of 30 priority communities with erosion problems. Of these 30 communities, 28 are Alaska Native villages. Federal and state officials that we spoke with in 2003 also identified almost all of the Native communities given priority in the 1984 report as still needing assistance.

While most Alaska Native villages are affected to some extent by flooding and erosion, quantifiable data are not available to fully assess the severity of the problem. Federal and Alaska state agency officials that we contacted could agree on which three or four villages experience the most flooding and erosion, but they could not rank flooding and erosion in the remaining villages by high, medium, or low severity. These agency officials said that determining the extent to which villages have been affected by flooding and erosion is difficult because Alaska has significant data gaps. These gaps occur because remote locations lack monitoring equipment. The officials noted that about 400 to 500 gauging stations would have to be added in Alaska to attain the same level of gauging as in the Pacific Northwest.

While flooding and erosion has been documented in Alaska for decades, various studies and reports indicate that coastal villages in Alaska are becoming more susceptible. This increasing susceptibility is due in part to rising temperatures that cause protective shore ice to form later in the year, leaving the villages vulnerable to storms. According to the Alaska Climate Research Center, mean annual temperatures have risen for the period from 1971 to 2000, although changes varied from one climate zone to another and were dependent on the temperature station selected. For example, Barrow experienced an average temperature increase of 4.16 degrees Fahrenheit for the 30-year period from 1971 to 2000, while Bethel experienced an increase of 3.08 degrees Fahrenheit for the same time period.

[6]This report was prepared for the Alaska Department of Community and Regional Affairs, the predecessor of the Alaska Department of Community and Economic Development.

Alaska Native Villages Have Difficulty Qualifying for Federal Assistance

Alaska Native villages have difficulty qualifying for assistance under the key federal flooding and erosion programs, largely because of program requirements that the project costs not exceed economic benefits, or because of cost-sharing requirements. For example, according to the Corps' guidelines for evaluating water resource projects, the Corps generally cannot undertake a project whose costs exceed its expected economic benefits as currently defined.[7] With few exceptions, Alaska Native villages' requests for the Corps' assistance are denied because of the Corps' determination that project costs outweigh the expected economic benefits. Alaska Native villages have difficulty meeting the cost/benefit requirement because many are not developed to the extent that the value of their infrastructure is high enough to equal the cost of a proposed erosion or flood control project. For example, the Alaska Native village of Kongiganak, with a population of about 360 people, experiences severe erosion from the Kongnignanohk River. However, the Corps decided not to fund an erosion project for this village because the cost of the project exceeded the expected benefits and because many of the structures threatened are private property, which are not eligible for protection under a Section 14 Emergency Streambank Protection project. Meeting the cost/benefit requirement is especially difficult for remote Alaska Native villages because the cost of construction is high—largely because labor, equipment, and materials have to be brought in from distant locations.

Even villages that do meet the Corps' cost/benefit criteria may still not receive assistance if they cannot provide or find sufficient funding to meet the cost-share requirements for the project. By law, the Corps generally requires local communities to fund between 25 and 50 percent of project planning and construction costs for flood prevention and erosion control projects.[8] According to village leaders we spoke to, they may need to pay hundreds of thousands of dollars or more under these cost-share

[7]The Corps' guidelines are based on the Flood Control Act of 1936, which provides that "the Federal Government should improve or participate in the improvement of navigable waters or their tributaries . . . if the benefits . . . are in excess of the estimated costs." 33 U.S.C. § 701a.

[8]The Corps has the authority to make cost-sharing adjustments based upon a community's ability to pay under section 103 (m) of the Water Resources Development Act of 1986, as amended. 33 U.S.C. §2213 (m).

requirements to fund their portion of a project—funding many of them do not have.[9]

NRCS has three key programs that can provide assistance to villages to protect against flooding and erosion. One program—the Watershed Protection and Flood Prevention Program—has a cost/benefit requirement similar to the Corps program and as a result, few projects for Alaska Native villages have been funded under this program. In contrast, some villages have been able to qualify for assistance from NRCS's two other programs—the Emergency Watershed Protection Program and the Conservation Technical Assistance Program. For example, under its Emergency Watershed Protection Program, NRCS allows consideration of additional factors in the cost/benefit analysis.[10] Specifically, NRCS considers social or environmental factors when calculating the potential benefits of a proposed project, and the importance of protecting the subsistence lifestyle of an Alaska Native village can be included as one of these factors. In addition, while NRCS encourages cost sharing by local communities, this requirement can be waived when the local community cannot afford to pay for a project under this program. Such was the case in Unalakleet, where the community had petitioned federal and state agencies to fund its local cost-share of an erosion protection project and was not successful. Eventually, NRCS waived the cost-share requirement for the village and covered the total cost of the project itself. (See fig. 4.) Another NRCS official in Alaska estimated that about 25 villages requested assistance under this program during the last 5 years, and of these 25 villages, 6 received some assistance from NRCS and 19 were turned down—mostly because there were either no feasible solutions or because the problems they wished to address were recurring ones and therefore ineligible for the program.

[9]According to state of Alaska officials, historically the state has provided the nonfederal matching funds for most Corps of Engineers (and other federal) projects, but with the extreme budget deficits currently faced by the state of Alaska, matching funds have been severely limited.

[10]The Emergency Watershed Protection program was authorized under the Flood Control Act of 1950, Pub. L. No. 81-516 (1950).

Figure 4: NRCS Seawall Erosion Protection Project at Unalakleet (c. 2000)

Source: NRCS.

Unlike any of the Corps' or NRCS's other programs, NRCS's Conservation Technical Assistance Program does not require any cost-benefit analysis for projects to qualify for assistance.[11] An NRCS official in Alaska estimated that during the last 2 years, NRCS provided assistance to about 25 villages under this program. The program is designed to help communities and individuals solve natural resource problems, improve the health of the watershed, reduce erosion, improve air and water quality, or maintain or improve wetlands and habitat. The technical assistance provided can range from advice or consultation to developing planning, design, and/or engineering documents. The program does not fund construction or implementation of projects.

[11]The Conservation Technical Assistance Program was authorized under the Soil Conservation and Domestic Allotment Act of 1935, Pub. L. No. 74-46 (1935).

Four Villages in Imminent Danger Are Planning to Relocate, and the Remaining Five Villages Are Taking Other Actions

Four of the nine villages we reviewed are in imminent danger from flooding and erosion and are making plans to relocate, while the remaining five are taking other actions. Of the four villages relocating, Kivalina, Newtok, and Shishmaref are working with relevant federal agencies to locate suitable new sites, while Koyukuk is just beginning the planning process for relocation. Because of the high cost of construction in remote parts of Alaska, the cost of relocation for these villages is expected to be high. For example, the Corps estimates that the cost to relocate Kivalina could range from $100 million for design and construction of infrastructure, including a gravel pad, at one site and up to $400 million for just the cost of building a gravel pad at another site. Cost estimates for relocating the other three villages are not yet available. Of the five villages not currently planning to relocate, Barrow, Kaktovik, Point Hope, and Unalakleet each have studies under way that target specific infrastructure that is vulnerable to flooding and erosion. The fifth village, Bethel, is planning to repair and extend an existing seawall to protect the village's dock from river erosion. In fiscal year 2003, the Senate Committee on Appropriations directed the Corps to perform an analysis of costs associated with continued erosion of six of these nine villages, potential costs of relocating the villages, and to identify the expected timeline for complete failure of useable land associated with each community.[12] Table 3 summarizes the status of the nine villages' efforts to respond to their specific flooding and erosion problems.

[12]The Senate report for the Energy and Water Development Appropriations Act, 2003, Pub. L. No. 108-7 (2003), directed the Corps to study the following communities in Alaska: Bethel, Dillingham, Shishmaref, Kaktovik, Kivalina, Unalakleet, and Newtok. S. Rep. No. 107-220 at 23-24 (2002). The Energy and Water Development Appropriations Act, 2004 further provided that the $2 million previously provided in the 2003 appropriations was "to be used to provide technical assistance at full Federal expense, to Alaskan communities to address the serious impacts of coastal erosion." Pub. L. No. 108-137, §112, 117 Stat. 1827, 1835-36 (2003).

Table 3: Nine Alaska Native Villages' Efforts to Address Flooding and Erosion

Alaska Native village	Population[a]	Status of efforts
Villages planning to relocate		
Kivalina	388	Located on a barrier island that is both overcrowded and shrinking. Cost estimates to relocate range from $100 million to over $400 million. The Corps is currently negotiating a scope of work for relocation alternatives under both the Planning Assistance to States Program and the Alaska Villages Erosion Technical Assistance Program.
Shishmaref	594	Located on a barrier island and experiencing chronic erosion. Recently selected a relocation site. In the meantime, a Bureau of Indian Affairs funded seawall was recently completed to temporarily protect a road project and the Corps is starting a Section 14 project to extend this seawall to protect the school as well.
Newtok	329	Suffers chronic erosion along its riverbank. Legislation for a land exchange with the U.S. Fish and Wildlife Service became law in November 2003 (Pub. L. No. 108-129). Interim Conveyance No. 1876 signed in April 2004. Relocation studies are continuing under the Corps' Planning Assistance to States Program and the Alaska Villages Erosion Technical Assistance Program.
Villages taking other actions		
Kaktovik	295	Airport runway is subject to annual flooding. The Federal Aviation Administration funded a study to determine least-cost alternative, but consensus on a site for a new airport has not been reached.
Point Hope	725	Airport runway experiences flooding and is at risk of erosion. The North Slope Borough is analyzing construction alternatives for an evacuation road.
Barrow	4,417	The Corps is currently conducting a 5-year feasibility study of storm damage reduction measures. The underlying authority for this study is the "Rivers and Harbors in Alaska" study resolution adopted by the House of Representatives Committee on Public Works on December 2, 1970.
Unalakleet	741	Coastal and river flooding and erosion have combined to create a chronic problem at the harbor. The Corps has begun a study on improving navigational access.
Bethel	5,899	Spring break-up ice jams on the Kuskokwim River cause both periodic flooding and severe erosion along the riverbank. A Corps project to repair and extend the seawall to protect the dock and small boat harbor is stalled over land easements.

Source: GAO analysis.

[a]Populations for the villages are based on 2003 Alaska State Demographer estimates.

Alternatives for Addressing Barriers That Villages Face in Obtaining Federal Services

The unique circumstances of Alaska Native villages and their inability to qualify for assistance under a variety of federal flooding and erosion programs may require special measures to ensure that the villages receive certain needed services. Alaska Native villages, which are predominately remote and small, often face barriers not commonly found in other areas of the United States, such as harsh climate, limited access and infrastructure, high fuel and shipping prices, short construction seasons, and ice-rich permafrost soils. In addition, many of the federal programs to prevent and control flooding and erosion are not a good fit for the Alaska

Native villages because of the requirement that project costs not exceed the economic benefits. Federal and Alaska state officials and Alaska Native village representatives that we spoke with identified several alternatives for Congress that could help mitigate the barriers that villages face in obtaining federal services.

These alternatives include (1) expanding the role of the Denali Commission to include responsibilities for managing a new flooding and erosion assistance program, (2) directing the Corps and NRCS to include social and environmental factors in their cost/benefit analyses for projects requested by Alaska Native villages, and (3) waiving the federal cost-sharing requirement for flooding and erosion projects for Alaska Native villages. In addition, we identified a fourth alternative—authorizing the bundling of funds from various agencies to address flooding and erosion problems in these villages. Each of these alternatives has the potential to increase the level of federal services to Alaska Native villages and can be considered individually or in any combination. However, adopting some of these alternatives will require consideration of a number of important factors, including the potential to set a precedent for other communities and programs as well as resulting budgetary implications. While we did not determine the cost or the national policy implications associated with any of the alternatives, these are important considerations when determining appropriate federal action.

In conclusion, Alaska Native villages are being increasingly affected by flooding and erosion problems being worsened at least to some degree by climatological changes. They must nonetheless find ways to respond to these problems. Many Alaska Native villages that are small, remote, and have a subsistence lifestyle, lack the resources to address the problems on their own. Yet villages have difficulty finding assistance under several federal programs, because as currently defined the economic costs of the proposed project to control flooding and erosion exceed the expected economic benefits. As a result, many private homes and other infrastructure continue to be threatened. Given the unique circumstances of Alaska Native villages, special measures may be required to ensure that these communities receive the assistance they need to respond to problems that could continue to increase.

Mr. Chairman, this completes my prepared statement. I would be happy to respond to any questions you or other Members of the Committee my have at this time.

Contact and Acknowledgments

For further information, please contact Anu Mittal on (202) 512-3841. Individuals making key contributions to this testimony and the report on which it was based were José Alfredo Gómez, Jeffery Malcolm, Cynthia Norris, Amy Webbink, and Judith Williams.

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