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**ANNOTATED BIBLIOGRAPHY SERIES IN SUPPORT  
OF COASTAL COMMUNITY HAZARD PLANNING:  
NORTHWEST ALASKA**

by  
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# ANNOTATED BIBLIOGRAPHY SERIES IN SUPPORT OF ALASKA COASTAL COMMUNITY HAZARD PLANNING—NORTHWEST ALASKA

Foreword by N. Kinsman<sup>1</sup>

## Abstract

*A series of annotated bibliographies focusing on coastal geohazards in Northwest Alaska has been prepared by the Alaska Division of Geological & Geophysical Surveys. Included sources have been grouped by community, and each of the 21 bibliographies is designed to serve as a stand-alone product. The full bibliographic information and informative-style annotations will provide planners, scientists, and the general public with a starting point for evaluating and addressing the coastal hazard planning needs of some of Alaska's most at-risk communities.*

## INTRODUCTION

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According to the 2010 United States census, 64 percent of Alaskans reside in coastal communities. Many of these communities, by nature of their coastal setting, are exposed to a range of geohazards including erosion, slope instability, wave attack, storm surge/flooding, tsunamis, and ivu (ice push). In 2004, the U.S. General Accounting Office (GAO) reported that flooding and erosion affects 184 out of 213 Alaska Native villages, the majority of which are located along the coast. In response to both existing risks and to climate-change-influenced shifts in the frequency and/or magnitude of geohazard-triggering events, communities throughout the state are becoming increasingly involved with mitigation or adaptation efforts in response to these natural hazards.

As community hazard planning efforts evolve, there is an increasing interest and demand for geologic and oceanographic information pertaining to coastal hazard evaluation, monitoring, and mitigation. In 2009, the Alaska Division of Geological & Geophysical Surveys (DGGS) received federal funding through the Coastal Impact Assistance Program (CIAP) to produce a geohazard map series for Alaska coastal communities in support of local and regional planning. As part of the process of selecting communities on which to focus mapping efforts, an extensive review of existing published and unpublished source materials was undertaken by DGGS geologists.

The publication of this bibliographic series is intended to facilitate access to and knowledge of existing documents relating to geohazards in some of Alaska's most at-risk coastal communities. This catalogue of literature will provide planners, scientists, and interested citizens with a starting point to enable informed decision making, develop prudent management strategies, and guide continued research about coastal hazards.

## BIBLIOGRAPHY PREPARATION & SCOPE

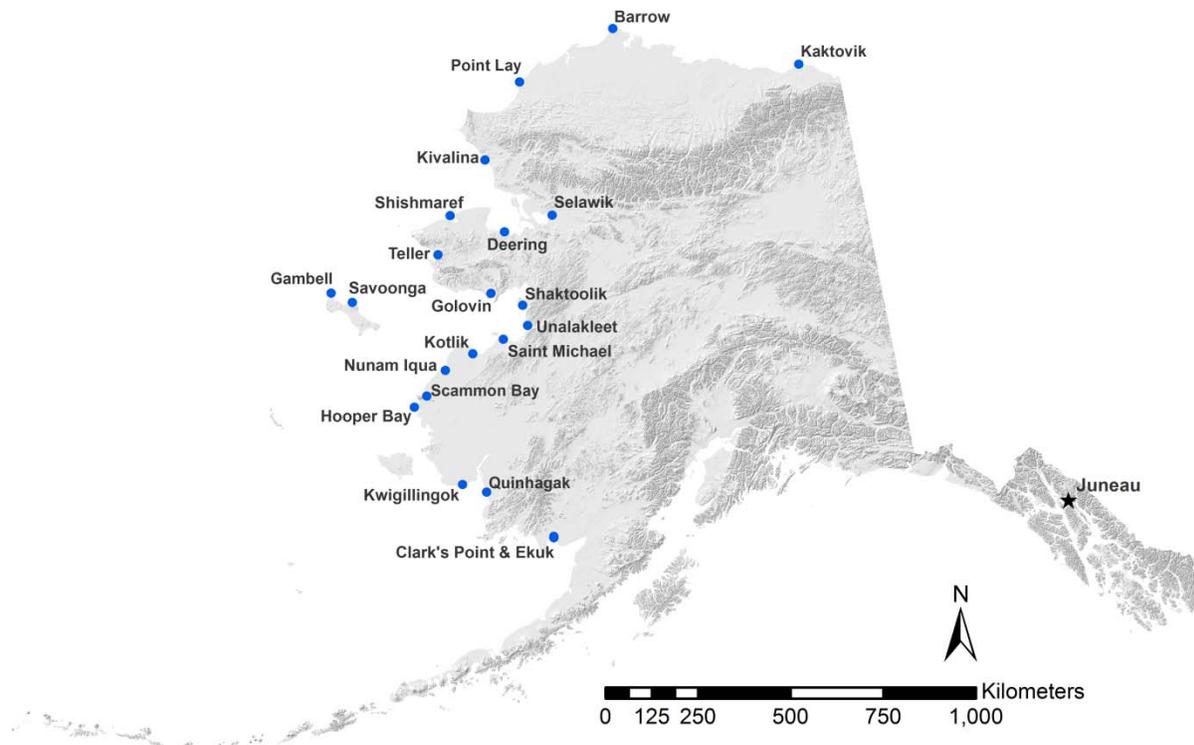
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This publication is composed of 21 community-specific reference lists covering 22 communities. Each annotated bibliography is designed to function as a stand-alone product; a regional document will appear multiple times as it is included with each relevant community. The collected literature focuses on topics that encompass regional oceanographic and atmospheric conditions, specific documented geohazards, ongoing mitigation strategies, local hydrology and surficial geology, relevant modeling studies, and pertinent infrastructure planning documents.

The 22 communities in this bibliographic series are illustrated in figure 1 and listed in table 1. All of the communities selected for inclusion have been previously designated as imperiled or at-risk by the U.S. Government Accountability Office (GAO, formerly the U.S. General Accounting Office), the U.S. Army Corps of Engineers and/or the Immediate Action Work Group of the Governor's Subcabinet on Climate Change. The majority of the communities are Alaska Native villages, which often face increased challenges in establishing geohazard management plans due to remote settings, small populations, and limited resources. The presence or absence of a community in this catalog is not indicative of the degree of coastal hazards present in certain areas, but is dictated by the areas currently under consideration for DGGS mapping efforts.

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**Figure 1.** Map illustrating the locations of the 22 coastal communities that are included in this annotated bibliography series.

Each included reference is accompanied by complete bibliographic information, along with an annotation that provides a concise summary of the source or the published abstract. The summaries may include reason for publication, intended audience, summary of methodology, scope of content, overview of conclusions, relevance to coastal hazards, and/or details pertaining to the community of interest. In some cases, excerpts from the original documents are included.

Many of the annotations were authored by a University of Alaska Fairbanks student through the Alaska Department of Natural Resources Student Intern Program and reviewed for accuracy by DGGs staff specializing in coastal processes. Some annotations were obtained from preexisting unpublished bibliographies. The annotations have not been reviewed for accuracy by the authors of the cited publications and, due to the scope of this project, some errors may exist.

Considerable effort has been made to make these bibliographies as exhaustive as possible; however, the user should be advised that they may not contain all pertinent maps, academic theses, and unpublished literature, especially those held by private industry. For completeness, drafts of individual community bibliographies were sent for review by local or regional experts and reported omissions have been corrected. DGGs is not able to guarantee access to any of the sources listed in these bibliographies and has not endorsed the content or conclusions of individual references that have been included. It is requested that any notable errors or omissions of documents available prior to 2011 be called to the attention of the Coastal Hazards Program manager at DGGs.

A digital database file has been produced for release as part of this publication. This database file includes the complete bibliographic information and general annotations for the source materials included on all of the individual community lists as well as some additional statewide literature. The database is provided in the BibTeX file format (.bib), a plain-text bibliographic standard developed by Oren Patashnik and as an .html reference table (created using a modified version of a JavaScript export filter by Mark Schenk, <http://www.markschenk.com/tools/jabref/>). BibTeX files can be easily converted to a variety of other formats using a range of open-source tools and can also be imported into reference management software including EndNote, Zotero, Papers, and RefWorks. Development of this BibTeX database was undertaken using JabRef, a Java BibTeX manager freely available under the terms of the GNU general public license for both download or as a web start utility at <http://jabref.sourceforge.net>.

**Table 1.** List of included communities with pertinent information useful for expediting research efforts and obtaining additional resources.

Community	Native Name	USGS Quadrangle	Borough/Census Area	Native Regional Corporation	Regional Native Non-Profit	Native Village Corporation	Former CMD <sup>1</sup>	2010 U.S. Census Population
<b>Barrow</b>	Ukpeagvik	Barrow	North Slope Borough	Arctic Slope	Arctic Slope NA <sup>2</sup> Ltd.	Ukpeagvik Inupiat Corp.	North Slope Borough	4,212
<b>Clark's Point &amp; Ekuk<sup>3</sup></b>	Saguyaq	Nushagak Bay	Dillingham Census Area	Bristol Bay	Bristol Bay NA	Saguyak Inc. & Ekuk Native Ltd.	Bristol Bay CRSA	62 <sup>4</sup>
<b>Deering</b>	Ipnatchiaq	Kotzebue	Northwest Arctic Borough	NANA <sup>5</sup>	—	Deering Ipnatchiak Corp.	Northwest Arctic Borough	122
<b>Gambell</b>	Sivuqaq	St. Lawrence	Nome Census Area	Bering Straits	Kawerak, Inc.	Sivuqaq Inc.	Bering Straits CRSA	681
<b>Golovin</b>	Chinik	Solomon	Nome Census Area	Bering Straits	Kawerak, Inc.	Golovin Native Corp.	Bering Straits CRSA	156
<b>Hooper Bay</b>	Naparyarmiut	Hooper Bay	Wade Hampton Census Area	Calista	—	Sea Lion Corp.	Ceñaliurriit CRSA	1,093
<b>Kaktovik</b>	Qaagtuviġmiut	Barter Island	North Slope Borough	Arctic Slope	Arctic Slope NA Ltd.	Kaktovik Inupiat Corp.	North Slope Borough	239
<b>Kivalina</b>	Kivalliñiq	Noatak	Northwest Arctic Borough	NANA	—	Kivalina Sinnigaakmiut	Northwest Arctic Borough	374
<b>Kotlik</b>	Qerrulliik	St. Michael	Wade Hampton Census Area	Calista	—	Kotlik Yupik Corp	Ceñaliurriit CRSA	577
<b>Kwigillingok</b>	Kuigilnguq	Kuskokwim Bay	Bethel Census Area	Calista	—	Kwik Inc.	Ceñaliurriit CRSA	321
<b>Nunam Iqua</b>	Sheldon Point <sup>6</sup>	Kwiguk	Wade Hampton Census Area	Calista	—	Swan Lake Corp.	Ceñaliurriit CRSA	187
<b>Point Lay</b>	Kali	Point Lay	North Slope Borough	Arctic Slope	Arctic Slope NA Ltd.	Cully Corp.	North Slope Borough	189
<b>Quinhagak</b>	Kuinerraq	Goodnews	Bethel Census Area	Calista	—	Qanirtuuq Inc.	Ceñaliurriit CRSA	669
<b>Saint Michael</b>	Taciq	St. Michael	Nome Census Area	Bering Straits	Kawerak, Inc.	St. Michael Native Corp.	Bering Straits CRSA	401
<b>Savoonga</b>	—	St. Lawrence	Nome Census Area	Bering Straits	Kawerak, Inc.	Kukulget, Inc.,	Bering Straits CRSA	671
<b>Scammon Bay</b>	Marayaaq	Hooper Bay	Wade Hampton Census Area	Calista	—	Askinuk Corp.	Ceñaliurriit CRSA	474
<b>Selawik</b>	—	Selawik	Northwest Arctic Borough	NANA	—	Akuliuk Inc.	Northwest Arctic Borough	829
<b>Shaktoolik</b>	Saqtuliq	Norton Bay	Nome Census Area	Bering Straits	Kawerak, Inc.	Shaktoolik Native Corp.	Bering Straits CRSA	251
<b>Shishmaref</b>	Qiqiqtaq	Shishmaref	Nome Census Area	Bering Straits	Kawerak, Inc.	Shishmaref Native Corp.	Bering Straits CRSA	563
<b>Teller</b>	Tala	Teller	Nome Census Area	Bering Straits	Kawerak, Inc.	Teller Native Corp.	Bering Straits CRSA	229
<b>Unalakleet</b>	Uñalaqliq	Unalakleet	Nome Census Area	Bering Straits	Kawerak, Inc.	Unalakleet Native Corp.	Bering Straits CRSA	688

<sup>1</sup> Coastal Management District, dissolved with the sunset of the statewide Alaska Coastal Management Program in 2011. <sup>2</sup> Native Association <sup>3</sup> Communities grouped due to close proximity and similar coastal hazard regime. <sup>4</sup> Population of Clark's Point, not inclusive of Ekuk. <sup>5</sup> Not an acronym; predecessor organization was Northwest Alaska NA. <sup>6</sup> Formerly used non-Native place name.

## **ADDITIONAL RESOURCES**

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While this list serves as an outline of many of the community-specific coastal hazard sources that are available, it is not comprehensive. Notably absent from annotated bibliography series are publications already catalogued by DGGS. These include U.S. Geological Survey and DGGS-authored maps and scientific reports on a range of topics that are pertinent to understanding coastal geohazards in Northwest Alaska. These publications may be accessed through the Online Publications listing (<http://dggs.alaska.gov/publications/index.php>) or the *Guide to Geologic Hazards in Alaska* (<http://dggs.alaska.gov/sections/engineering/geohazards/>) on the DGGS website. Many of these publications are organized by quadrangle; for ease of location, community quadrangle names have been provided in table 1.

This publication is composed of location-specific reports and is not intended to direct the researcher to general references about various types of coastal hazards or state-wide literature. For broader information about coastal hazards please visit the following recommended resources:

### **Bibliographies & Resource Lists**

Alaska Coastal Management Program (ACMP)'s Annotated Bibliography of References  
*General Habitat References & References for ACMP 147Standards (Tables 1, 2A, 2B, 3A & 3B)*  
Prepared by LaRoche & Associates, 2004

National Oceanic and Atmospheric Administration (NOAA)'s Ocean & Coastal Management Resources  
*Coastal Hazards: Resources (includes links to Sea Grant Library, FEMA, and USGS Resources)*  
Available online: [http://coastalmanagement.noaa.gov/issues/hazards\\_links.html](http://coastalmanagement.noaa.gov/issues/hazards_links.html)  
*Annotated Bibliography of Shoreline Management Resources*  
Available online: [http://coastalmanagement.noaa.gov/initiatives/shoreline\\_resources.html](http://coastalmanagement.noaa.gov/initiatives/shoreline_resources.html)

U.S. Army Corps of Engineers Resources  
*Coastal & Hydraulics Laboratory Expertise sections, Glossary & Other Resources*  
Available online: <http://chl.erdc.usace.army.mil/>  
*Alaska District Civil Works Floodplain Management Services Bibliography*  
Available online: [http://www.poa.usace.army.mil/en/cw/fld\\_haz/bibliography.htm](http://www.poa.usace.army.mil/en/cw/fld_haz/bibliography.htm)

U.S. Geological Survey, Alaska Science Center and Alaska Science Portal  
*Current Alaska Coastal Studies Project publications*  
Available online: [http://alaska.usgs.gov/science/geography/studies/coastal\\_studies.php](http://alaska.usgs.gov/science/geography/studies/coastal_studies.php)  
*Alaska Science Portal (includes National Assessment of Shoreline Change Project, Alaska)*  
Available online: <http://alaska.usgs.gov/portal/>

### **Statewide & General References for Coastal Hazard Research & Planning**

Alaska Climate Impact Assessment Commission, 2008, Final commission report: Alaska Climate Impact Assessment Commission Final Report to the Legislature, 125 p.  
[http://www.housemajority.org/coms/cli/cli\\_finalreport\\_20080301.pdf](http://www.housemajority.org/coms/cli/cli_finalreport_20080301.pdf)

Alaska Department of Military & Veterans Affairs, Homeland Security and Emergency Management, 2010, State of Alaska hazard mitigation plan: Division of Homeland Security and Emergency Management, 888 p.  
<http://ready.alaska.gov/plans/mitigationplan.htm>

Alaska Department of Military & Veterans Affairs, Homeland Security and Emergency Management, 2009, 2009 Fall sea storm preparation guide: Division of Homeland Security and Emergency Management, 43 p.

Arctic Climate Impact Assessment (ACIA), Carolyn Symon, Lelani Arris, and Bill Heal, eds., 2005, Arctic climate impact assessment: New York, NY, Cambridge University Press, 1,092 p.  
<http://www.acia.uaf.edu>

Douglas, D.C., 2010, Arctic sea ice decline—Projected changes in timing and extent of sea ice in the Bering and Chukchi seas: U.S. Geological Survey Open-File Report 2010-1176, 32 p.

- Forbes, Donald L., ed., 2011, State of the arctic coast 2010—Scientific review and outlook: Geesthacht, Germany, International Arctic Science Committee, Land–Ocean Interactions in the Coastal Zone, Arctic Monitoring and Assessment Programme, International Permafrost Association, Helmholtz-Zentrum, 178 p.  
<http://arcticcoasts.org>
- H. John Heinz III Center for Science, Economics and the Environment, 2000, Evaluation of erosion hazards: Washington, D.C., Federal Emergency Management Agency (FEMA), 252 p.
- Intergovernmental Panel on Climate Change (IPCC), R.K. Pachauri and A. Reisinger, eds., 2007, Climate change 2007—Synthesis report, contribution of working groups I, II and III to the fourth assessment report (AR4) of the Intergovernmental Panel on Climate Change: Geneva, Switzerland, 104 p.  
[http://www.ipcc.ch/publications\\_and\\_data/ar4/syr/en/contents.html](http://www.ipcc.ch/publications_and_data/ar4/syr/en/contents.html)
- Mason, Owen, William J. Neal, Orrin H. Pilkey, Jane Bullock, Ted Fathauer, and Deborah Pilkey, 1997, Living with the coast of Alaska, *in* Pilkey, Orrin H., and W.J. Neal, eds., Living with the Shore: Durham, U.K., Duke University Press, 348 p.
- Pilkey, O.H., W.J. Neal, J.T. Kelley, and J.A.G. Cooper, 2011, The world’s beaches—A global guide to the science of the shoreline: Berkeley, CA, University of California Press, 283 p.
- U.S. Government Accountability Office (GAO), June 2009, Report to congressional requestors—Alaska Native villages, limited progress has been made on relocating villages threatened by flooding and erosion: U.S. General Accountability Office Report GAO-040895T, 53 p.  
<http://www.gao.gov/products/GAO-09-551>
- U.S. Government Accounting Office (GAO), 2003 [2004], Alaska Native villages—Most are affected by flooding and erosion, but few qualify for federal assistance: U.S. General Accounting Office Report GAO-04-142, 82 p.  
<http://www.gao.gov/products/GAO-04-142>
- Wise, James L., Albert L. Comiskey, and Richard Becker, 1981, Storm surge climatology and forecasting in Alaska: Anchorage, AK, Arctic Environmental Information and Data Center, University of Alaska, 62 p.
- Wright, Stoney J., Philip K. Czaplak, and Brennan V. Low, eds., 2010, Alaska coastal revegetation and erosion control guide: Palmer, AK, State of Alaska Department of Natural Resources Division of Agriculture Plant Materials Center, 236 p.  
<http://plants.alaska.gov/reveg/>
- Zenkovitch, Vsevolod P., 1967, Processes of coastal development: Edinburgh, UK, Oliver and Boyd, 738 p.

For additional information on specific communities, the reader is advised to contact the Alaska Department of Commerce, Community, and Economic Development (DCCED), Division of Community and Regional Affairs. Table 1 contains regional designations and names that may be useful for continued research. Native corporation names have also been listed as they may be able to facilitate access to additional and updated resources.

## **ACKNOWLEDGMENTS**

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