

NOAA and Demographic Data Collection

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About this report

The Pacific Islands Fisheries Science Center of NOAA's National Marine Fisheries Service uses the NOAA Technical Memorandum NMFS-PIFSC series to disseminate scientific and technical information that has been scientifically reviewed and edited. Documents within this series reflect sound professional work and may be referenced in the formal scientific and technical literature.

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Authorship contribution

This technical memorandum was developed over time with the input of authors across four NOAA line offices (NMFS, NOS, OAR, and NWS). The development of demographic data questions began as part of a larger effort led by ONMS and NOAA supported by NMFS, NCCOS and NEERS to develop a question bank of core social science questions that could be approved by OMB. The initial questions were developed by Danika Kleiber with support from Jennifer Selgrath. There was a great deal of interest in the demographic questions. On the advice of Rita Curtis, the NMFS OMB liaison at the time, Kleiber convened three consecutive virtual workshops primarily for NMFS economists and human dimensions social scientists to discuss the best practices for the use of demographic questions. The workshops were held in November 2021. Some NOS social scientists also participated. The discussion then gathered momentum and broadened to include social scientists from OAR and NWS. Steve Elliot, working for OAR at the time, provided an analysis of federal definitions of demographic data, and Joe Terry reviewed the Magnuson-Stevens Fishery Conservation and Management Act, 2007 (MSA) and other documents for potential uses of social science and demographic data. Danika Kleiber led the writing and organization of the tech memo. Because of their significant contributions to major sections of this tech memo they are included as lead authors. Other co-authors contributed either through providing information about specific uses of demographic data in their line offices, or by providing expertise on the inclusion and wording of specific demographic questions.

Contents

| | |
|--------------------------------------------------------------------------------------------------------|----|
| Authorship contribution..... | i |
| List of Acronyms..... | iv |
| Executive summary..... | v |
| Introduction | 1 |
| 1. Representative sampling | 1 |
| 2. Monitor and improve the effectiveness and equity of NOAA’s products, services, and policies..... | 2 |
| 3. Measuring social change over time | 3 |
| General Federal Framework for Data and Statistical Information..... | 5 |
| Definitions of ‘demographic data’..... | 5 |
| Directives and Guidance | 7 |
| Demographic Data Considerations..... | 13 |
| Issues of sample size | 13 |
| Response rates..... | 13 |
| The need for training..... | 14 |
| Demographic Data to Inform NOAA Management Actions..... | 15 |
| National Marine Fisheries Service (NMFS)..... | 15 |
| National Ocean Service (NOS)..... | 16 |
| Office of National Marine Sanctuaries (ONMS)..... | 16 |
| National Centers for Coastal Ocean Science (NCCOS)..... | 16 |
| Office for Coastal Management (OCM)..... | 16 |
| National Weather Service (NWS) | 17 |
| NOAA Demographic Data Collection..... | 18 |
| NMFS | 19 |
| NOS..... | 22 |
| ONMS | 22 |
| NCCOS | 22 |
| OCM..... | 22 |
| NWS | 22 |
| Demographic Questions..... | 23 |

| | |
|--------------------------------------------------------------------------------------------------------------------------|----|
| Conclusion | 27 |
| Appendix 1: Demographic Questions | 28 |
| 1. Race and Ethnicity..... | 28 |
| 2. Gender and Sex..... | 30 |
| 3. Age | 33 |
| 4. Geographic Residence | 34 |
| 5. Geographic Affiliation..... | 35 |
| 6. Income..... | 35 |
| 7. Sexual Orientation and LGBTQ+ Identity..... | 37 |
| 8. Disability | 38 |
| 9. Citizenship Status | 39 |
| 10. Language(s) Used | 40 |
| 11. Marital Status..... | 41 |
| 12. Education Level | 42 |
| 13. Employment Status..... | 44 |
| 14. Health Insurance Status | 45 |
| 15. Household Composition..... | 46 |
| 16. Phone and Internet Access..... | 46 |
| 17. Housing Characterization | 47 |
| 18. Number of Vehicles | 48 |
| 19. Veteran Status | 49 |
| Appendix 2: Use of Demographic Data Under the MSA..... | 51 |
| Appendix 3: NOAA FY 22–26 Strategic Plan Support for Demographic and Other Economic and Social Data and Analyses..... | 60 |
| Literature Cited..... | 65 |

List of Acronyms

CIPSEA - Confidential Information Protection and Statistical Efficiency Act of 2018

DCA - Digital Coast Act

EO - Executive Order

EPA - Environmental Protection Agency

ESA - Endangered Species Act

HABHRCA - The Harmful Algal Bloom and Hypoxia Research and Control Act

MMPA - Marine Mammal Protection Act

MSA - Magnuson-Stevens Fishery Conservation and Management Act, 2007

NCCOS - National Centers for Coastal Ocean Science

NCRMP - National Coral Reef Monitoring Program

NEEA - National Environmental Education Act

NEPA - National Environmental Policy Act

NMFS - National Marine Fisheries Service

NMSA - National Marine Sanctuaries Act

NOAA - National Oceanographic and Atmospheric Administration

NOS - National Ocean Services

OA - Organic Act of 1890

OAR - Oceanic & Atmospheric Research

OCMIA - Ocean and Coastal Mapping Integration Act

OCR - Office for Coastal Management

OMB - Office of Management and Budget

PRA - Paperwork Reduction Act

RFA - Regulatory Flexibility Act

WRFIA - Weather Research and Forecasting Innovation Act

Executive summary

NOAA's mission is supported by social science research. NOAA strives to understand and predict changes in climate, weather, oceans, and coasts, to share that knowledge and information with others, and to conserve and manage coastal and marine ecosystems and resources. Demographic and other economic and social data support NOAA's ability to make more informed decisions concerning the effectiveness and equity of its programs, services, and policies by assessing how different groups access, and are affected by them and how they might respond to any proposed changes.

However, the collection of demographic data used to meet NOAA's mission is not consistent within or among line offices. The objectives of this technical memorandum are to:

- a) propose a potential definition of 'demographic data' for informal use within NOAA,
- b) foster collaboration across NOAA to articulate best practices for the uses of demographic data to support NOAA's mission, and
- c) provide best practices guidance across NOAA on when and how to collect these data.

In this document, we work to meet our objectives by providing information to answer the following questions:

- How do NOAA's social scientists use demographic data to meet its mission?
- What is the federal framework for collecting information from the public, as well as for protecting and using it?
- Under what authority does NOAA collect or use demographic data?
- What are the current and potential sources of demographic data NOAA can use in meeting its mission?
- What demographic questions could be included in information collections?

To answer these questions, NOAA social scientists with backgrounds in sociology, geography, anthropology, interdisciplinary natural resource management, and economics came together in a series of meetings to discuss demographic data, and here we document our shared understandings. This manuscript was a collaborative effort across multiple NOAA line offices including NMFS, NOS, NWS, and OAR; using information gathered via three workshops and multiple meetings, we clarified the needs

for and uses of demographic data in meeting NOAA's mission (see Authorship Contribution for more details).

Three principal reasons NOAA social scientists use demographic data are to:

- improve data collection and quality by checking the representativeness of the sampling, address sampling or response bias and create more representative sampling methods;
- monitor and improve the effectiveness and equity of NOAA's products, services, and policies by assessing how different groups access, respond to, and are affected by them and by proposed changes to them; and
- measure social change through time to allow for the assessment of the effects of policies, products, and services and match social data to the temporal scale of ecological data.

The following sections of this report discuss (1) demographic data considerations, (2) the federal framework for collecting information from the public and for protecting and using it, (3) the authorities under which demographic data may be informative, (4) NOAA's demographic data collection, and (5) the categories of demographic questions. In addition, Appendices 1–3, respectively, present information on: (1) demographic questions with variations and explanations, (2) the collection and use of demographic data under the Magnuson-Stevens Fishery Conservation and Management Act, 2007 (MSA), and (3) the NOAA FY 22–26 Strategic Plan support for demographic and other economic and social data and analyses.

Introduction

“What many Americans desire more than anything is transparency, inclusion, and equity. Demographic data help to provide this. A lack of demographic data often leads to bad science, does a disservice to Americans, and inhibits the United States’ ability in continuing to be innovative and comprehensive.” (*Enhancing Patent Diversity for America’s Innovators*, 2020, p. 3)

Social science is an integral part of NOAA’s mission of science, service, and stewardship. NOAA social science research is provided to decision makers in furtherance of NOAA’s mission to understand and predict changes in climate, weather, oceans, and coasts; to share that knowledge and information with others; and to conserve and manage coastal and marine ecosystems and resources. NOAA’s social scientists use demographic and other economic and social data and analyses, which provide information NOAA can use to make more informed decisions concerning programs, services, and policies related to fisheries management; the uses of ocean habitats, ocean recreation, maritime culture; and access to life-saving weather and climate change information.

Below we present three core reasons we collect demographic data and how they are subsequently used. Taken together, they provide NOAA an opportunity to create more effective and equitable programs, services, and policies.

1. Representative sampling

“Collecting demographic data is important because they eliminate false positives,³ determine whether a sample is representative of the desired population, and reduce the likelihood that certain demographic groups are left out of the process.” (*Enhancing Patent Diversity for America’s Innovators*, 2020, p. 3)

Demographic data are often used as an important check of data quality. In both population selection and sampling, marginalized populations are more likely to be overlooked. Demographic data can be used to ensure all populations are considered and sampled correctly and any sampling or response bias can be identified and addressed. Demographic data can also provide an opportunity for innovation in sampling to increase the inclusion of underserved populations that would otherwise be overlooked by traditional data collection methods, and thereby improve the science and data used to inform NOAA decisions concerning its products, services, and policies.

Demographic data can be used to check if sampling strategies are effective for representative sampling of the population. For example, surveying hard-to-reach

³ False positives in this sense occur when data falsely indicate that a condition exists when it does not.

populations can include approaches such as intercept⁴, or network⁵. Without checks on representation, these methods could result in biased samples. Randomization approaches may also create biased samples if done at certain times or limited to certain geographic areas like a port. There may also be non-response bias that would not be detected without demographic data. In each of these cases, demographic data can be used to assess if the data are representative of the population being sampled.

Additionally, if a survey has under- or over-represented certain demographic groups, it is standard practice to weight the survey results to better reflect the demography of the population the study is supposed to represent (Valliant et al., 2018). Demographic data are used to recognize representation issues and to statistically correct for them via weighting. Census data, when available, provide an important resource for determining if the sample represents the larger population.

2. Monitor and improve the effectiveness and equity of NOAA's products, services, and policies

Demographic data provide NOAA the opportunity to assess how different groups access, respond to, and are affected by NOAA's products, services, and policies and evaluate how these groups may respond to any changes. This ability is critical for monitoring and improving the effectiveness and equity of those products, services, and policies, where equity refers to the ease of access, availability, and usefulness of NOAA's products and services and the effects of NOAA policies for different demographic groups.

Furthermore, demographic data can offer a powerful tool for analyzing inequality by contextualizing individual experiences into wider patterns (D'Ignazio & Klein, 2020). Once these patterns are identified, the data can provide a policy opportunity to address inequity. Within NOAA, these wider patterns can relate to differences in access to information, services, or benefits, engagement in specific labor sectors, or awareness of or engagement in the management of natural resources. Identifying characteristics of populations within communities helps us to identify barriers to effective and equitable product and service delivery and policies.

An example of this is the National Coral Reef Monitoring Program (NCRMP) which collects demographic data to understand how and why different subgroups of the population use and benefit from marine resources (Allen et al., 2021). Segmenting the

⁴ Includes finding volunteers in areas where the sample population is known to frequent (see e.g., NOAA Fisheries, 2011).

⁵ Includes asking respondents to recommend other people in their population to survey (see e.g., Calhoun et al., 2020).

population provides more nuanced understanding of human interactions with managed resources, which can help create a more informed and inclusive resource management response. The National Centers for Coastal Ocean Science (NCCOS) has found that perceptions of offshore wind development differ by education, race, age, and geography, likely due to differential experiences with energy development and coastal management in the past (Fleming et al., 2022). Similarly, the Office for Coastal Management (OCM) regularly collects data on who uses OCM products, how they are being used, and how its products can be improved. Identifying characteristics of populations within coastal communities helps OCM ensure effective and equitable service delivery.

The National Weather Service (NWS) uses Census Bureau demographic data to examine who is most vulnerable to weather, water, and climate hazards (Bitterman et al., 2022). In addition, NWS could collect demographic data in its surveys to determine if customer satisfaction differs significantly by demographic group and how to address that if it does. Similarly, demographic data from Oceanic and Atmospheric Research's (OAR) competitive program applicants would be important for diversifying its panel reviewers and better understanding its awardees.

Without demographic data, inequitable access and service delivery would be difficult to detect. The NOAA Service Equity Assessment states that, "better understanding of our populations, including demographic information on those using our products, is requisite to ensure equitable outcomes of our work." Furthermore, as outlined in Executive Order *Advancing Racial Equity and Support for Underserved Communities Through the Federal Government* (Exec. Order No. 13985, 2021), the lack of basic demographic data impedes justice and equity progress:

Many Federal datasets are not disaggregated by race, ethnicity, gender, disability, income, veteran status, or other key demographic variables. This lack of data has cascading effects and impedes efforts to measure and advance equity. A first step to promoting equity in Government action is to gather the data necessary to inform that effort. (Exec. Order No. 13985, 2021, section 9)

3. Measuring social change over time

Long-term monitoring, also known as longitudinal research, is an important part of understanding how social and ecological factors can change or have changed over time. Monitoring demographic data over time can reveal how changes brought about by management, socioeconomic shifts or ecological changes can have different impacts on different groups of people. For example, gender analysis of boat and fishing quota owners over 27 years in Norway revealed the different ways the individual transferable

quota (ITQ) system, originally meant to mitigate the “graying of the fleet,” had impacted women and men differently (Gerrard & Kleiber, 2019).

Long-term monitoring of demographic data can support equity and environmental justice objectives to provide or improve government programs for a wider and more diverse population. Demographic data can provide information about which communities and groups are currently being reached by NOAA programs and about how those who are currently benefiting from government programs differ from those who do not have access. Longitudinal data offer a dynamic perspective to the context around the effectiveness of specific interventions for reaching different communities. Such longitudinal tracking of demographic data in concert with patterns of interest is widely used in other fields such as health care (Caruana et al., 2015). Populations of user groups can also change through time, and longitudinal demographic data can be used to track such changes.

In the context of natural resource management, long-term ecological data and social and economic data that include demographic data can be used in assessing how changing policies influence people, other components of the environment, and interactions between the two. Integrating demographic data collections into long-term ecological and resource use data collections creates an opportunity to track who participates in various uses of marine resources and how different groups contribute to and are affected by environmental change. Short-term or cross-sectional studies have mistaken anomalous patterns for ‘normal’ circumstances (Micheli et al., 2020). Long-term monitoring has been essential for resolving these issues by clarifying the environmental conditions, resource use patterns, and demographic patterns that are temporary and which ones are stable through time (Lindenmayer et al., 2011; Selgrath et al., 2018). Such knowledge contributes to effective management.

General Federal Framework for Data and Statistical Information

Definitions of ‘demographic data’

The federal government does not have a universal definition of ‘demography’ or related terms. There is also no specified set of features or values that are universally classed as demographic information or data. There are, however, federal laws related to information collection and maintenance that are applicable to demographic data collections, some of which are described below.

‘Demographic data’ can have different meanings and is, therefore, ambiguous. To eliminate that ambiguity for the purpose of this technical memorandum, we have developed a definition, which is derived from the definition academics and professional demographers usually use. It has been modified to reflect a federal policy framework applicable to specific agencies collecting certain types of data (which may include demographic data) from the public, as well as for storing, protecting, and using those data.

For academics and professional demographers, the term ‘demographic data’ usually refers to the raw values collected from and attributed to individuals in a population. Typical demographic data categories include age, sex, gender, race, ethnicity, level of education, disabilities, employment, place of residence, and socio-economic status (Jennifer Hickes Lundquist et al., 2015). Consistent with the federal data policy reflected in Confidential Information Protection and Statistical Efficiency Act of 2018 (CIPSEA)⁶, we define ‘demographic data’ as recorded demographic information that agencies collect from respondents, store in data assets with associated metadata, and potentially use for statistical or nonstatistical purposes, where the term ‘statistical purpose’ “(A) means the description, estimation, or analysis of the characteristics of groups, without identifying the individuals or organizations that comprise such groups; and (B) includes the development, implementation, or maintenance of methods, technical or administrative procedures, or information resources that support the purposes described in (A).” (44 U.S.C. § 3561(12)). Any particular demographic data asset may be in identifiable form, non-identifiable form, or in varying degrees thereof, where the term ‘identifiable form’ means “any representation of information that permits the identity of the respondent to whom the information applies to be reasonably inferred by either direct or indirect means.” (44 U.S.C. § 3561(7)). In addition, we define ‘demographic information’ as information that, in particular instances, satisfies the

⁶ Although the terms defined in CIPSEA may not apply to NOAA as NOAA is not a “statistical agency or unit” for purposes of that law, the statute nonetheless has defined terms that are helpful for developing a shared understanding of what this Technical Memorandum means when it uses the term ‘demographic data.’

meanings of the categories for features and kinds of values about individuals. By tradition of scientific practice, relevant categories of features for demography include but are not limited to age, sex, gender, race, ethnicity, level of education, disabilities, employment, place of residence, and socio-economic status.

Using these definitions, we have so far identified the following 19 categories of demographic questions:

1. Race and Ethnicity
2. Gender and Sex
3. Age
4. Geographic Residence
5. Income
6. Sexual Orientation
7. Disability
8. Citizenship Status
9. Language Used
10. Marital status
11. Education Level
12. Employment Status
13. Health Insurance Status
14. Household Composition
15. Phone and Internet Access
16. Housing Characterization
17. Number of Vehicles
18. Geographic Affiliation
19. Veteran Status

[Appendix 1](#) presents potential reasons to ask demographic questions or analyze demographic data, as well as method overview and question variations for each of the 19 categories of demographic questions. This list is not exhaustive and relevant demographic information can vary geographically and temporally.

Directives and Guidance

The Constitution directs the federal government to carry out the census, pursuant to which the government collects what we now call demographic data (see Art. I, Section 2), and the government has done so at least since the 1790 Census, which collected from people their age, race, sex, and place of residence (U.S. Census Bureau, n.d.-a). The Constitution and the Census predate the development of the modern field of demography and its specialized terms. Nonetheless, the federal data framework, parts of which are detailed in this section, enable the specification of a compatible concept for demographic data that is akin to standard definitions used by demographers within and outside of the federal government. This section discusses three relevant acts and related OMB and NOAA guidance.

1. Paperwork Reduction Act

The Paperwork Reduction Act (PRA), 44 U.S.C. §§ 3501 et seq., provides the statutory framework for federal agencies to collect information from the public, including demographic information, and to use, protect, and disseminate that information. The goals of the PRA include (1) minimizing paperwork and reporting burdens on the American public and (2) ensuring the maximum possible utility from the information that is collected (44 U.S.C. §§ 3501(1), (2)). The PRA generally requires agencies to obtain approval from the Office of Management and Budget (OMB) before using identical questions to collect information from 10 or more persons; the term ‘persons’ includes, among others, individuals, businesses, and state, local, and tribal governments (44 U.S.C. §§ 3502(3), 3507). The PRA applies to NOAA data collection requests that meet these criteria whether the information is collected using permit application forms, mandatory reports, or voluntary collections such as surveys and focus groups (Clay & Colburn, 2020). For voluntary data collections, the information collection request (ICR) submitted to OMB for approval must include supporting statements which, among other things, include an explanation of research methods, including sampling design, weighting design, and analytical plan.

The NOAA instructions for preparing Supporting Statement A states, “For information collections involving questions of race/ethnicity, the agency should ensure that the OMB Standards for the Classification of Federal Data on Race and Ethnicity are followed.” For Data on Race and Ethnicity, OMB uses the 2024 Revisions to Statistical Policy Directive (SPD) 15, which details the minimal set of race and ethnicity categories and their definitions that agencies must use when collecting such information (Revisions to OMB’s Statistical Policy Directive No. 15: Standards for Maintaining, Collecting, and Presenting Federal Data on Race and Ethnicity, 2024). See [Appendix 1](#) for more details.

OMB worked with the Federal Committee on Statistical Methodology to examine categories for gender and sexual orientation but has not yet issued directives (Morgan et al., 2020). In addition, the Office of the Chief Statistician of the United States has developed recommendations for federal agencies on best practices for the collection of self-reported sexual orientation and gender identity (SOGI) data (Office of the Chief Statistician of the United States, 2023).

There are no other OMB directives or schemes that all federal agencies must follow when collecting demographic data about features like age, disability status, education level, etc. However, in a recent review of two Department of Commerce (DOC) generic information collections for the Collection of Qualitative Feedback on Agency Service Delivery and for Managing Customer Experience and Improving Service Delivery (OMB Control Number: 0690-0030. Expiration Date: 7/31/2026), OMB approved the following question.

Do you or your organization identify with any of the following groups that the Federal Government, in Executive Order 13985, has identified as underserved?
(Check all that apply)

- a) Black, Latino, and Indigenous and Native American persons, Asian Americans and Pacific Islanders, and other persons of color
- b) Members of religious minorities
- c) Lesbian, gay, bisexual, transgender, and queer (LGBTQ+) persons
- d) Persons with disabilities
- e) Persons who live in rural areas
- f) Persons otherwise adversely affected by persistent poverty or inequality
- g) No, I do not identify with any of these groups

DOC has confirmed that similar questions that break out more categories from items a) or c) can be used.

2. Information Quality Act

Section 515 of the Treasury and General Government Appropriations Act for Fiscal Year 2001 (Public Law 106-554), hereinafter Section 515, which is also known as the Information Quality Act, directed the Office of Management and Budget (OMB) to issue government-wide guidelines that "provide policy and procedural guidance to federal agencies for ensuring and maximizing the quality, objectivity, utility, and integrity of information (including statistical information) disseminated by federal agencies" and direct each federal agency to issue its own guidelines to do the same (Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity of Information Disseminated by Federal Agencies, 2002, Pub. L. 106-554, Section 515(a), 114 Stat.

2673A-153–154)." The NOAA Information Quality Guidelines (NOAA, 2021), last updated November 4, 2021, state, "Information quality is composed of three elements: utility, integrity, and objectivity. Quality will be ensured and established at levels appropriate to the nature and timeliness of the information to be disseminated. NOAA will conduct a pre-dissemination review of information it disseminates to verify quality. Information quality is an integral part of the pre-dissemination review; it is also integral to information collections conducted by NOAA and is incorporated into the clearance process required by the Paperwork Reduction Act (PRA) to help improve the quality of information that NOAA collects and disseminates to the public. NOAA offices already are required to demonstrate in their PRA submissions to OMB the "practical utility" of a proposed collection of information that they plan to disseminate. Additionally, for all proposed collections of information that will be disseminated to the public, NOAA offices should demonstrate in their PRA clearance submissions to OMB that the proposed collection of information will result in information that will be collected, maintained, and used in a way consistent with applicable information quality guidelines."

The NOAA Guidelines include the following definitions of quality, objectivity, utility, integrity, and information with respect to the information it disseminates.

Quality is an encompassing term comprising utility, objectivity, and integrity. Therefore, the guidelines sometimes refer to these four statutory terms, collectively, as "quality."

Utility refers to the usefulness of the information to its intended users, including the public.

Objectivity consists of two distinct elements: presentation and substance. The presentation element includes whether disseminated information is presented in an accurate, clear, complete, and unbiased manner and in a proper context. The substance element involves a focus on ensuring accurate, reliable, and unbiased information. In a scientific, financial, or statistical context, the original and supporting data shall be generated, and the analytic results shall be developed, using sound statistical and research methods.

Integrity refers to security, the protection of information from unauthorized access or revision, to ensure that the information is not compromised through corruption or falsification.

Information means any communication or representation of knowledge such as facts or data, in any medium or form including textual, numerical, graphic, cartographic, narrative, or audiovisual forms. This definition includes information that an agency disseminates from a web page but does not include the provision

of hyperlinks to information that others disseminate. This definition does not include opinions where the agency's presentation makes it clear that what is being offered is someone's opinion rather than fact or the agency's views.

The NOAA Guidelines also state,

“As OMB has recognized, ‘information quality comes at a cost [(Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity of Information Disseminated by Federal Agencies; Republication, 2002)].’” In this context, OMB directed that “agencies should weigh the costs (for example, including costs attributable to agency processing effort, respondent burden, maintenance of needed privacy, and assurances of suitable confidentiality) and the benefits of higher information quality in the development of information, and the level of quality to which the information disseminated will be held.” (NOAA, 2021)

Therefore, in deciding the appropriate level of review and documentation for information disseminated by NOAA, the costs and benefits of using a higher quality standard or a more extensive review process will be considered. OMB describes “fitness for purpose” as the relevant touchstone; information destined for a higher-impact purpose must be held to higher standards of quality. Where necessary, other compelling interests such as privacy and confidentiality protections will be considered (Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity of Information Disseminated by Federal Agencies, 2002).

3. Privacy Act

When demographic or other economic or social information NOAA collects can be linked to an individual, the Privacy Act of 1974, 5 U.S.C § 552a (records maintained on individuals), places the following restrictions on the disclosure of that information . We **highlighted** the terms and subsections referenced in those restrictions and present their definition or explanation after the restrictions. NOAA is also subject to “system of records” requirements, which include but are not limited to: (1) publishing a notice in the *Federal Register* of the existence and character of each system of records, and (2) informing each individual asked to supply information on the form used to collect the information or on a separate form that can be retained by the individual, of (A) the statute or executive order which authorizes the solicitation of the information and whether disclosure of such information is mandatory or voluntary; (B) the principal purpose or purposes for which the information is intended to be used; (C) the routine uses which may be made of the information, as published pursuant to paragraph (4)(D) of this subsection; and (D) the effects, if any, of not providing all or any part of the requested information. 5 U.S.C 552a(e)(3)-(4).

(b) CONDITIONS OF DISCLOSURE.—No agency shall disclose any record which is contained in a system of records by any means of communication to any person, or to another agency, except pursuant to a written request by, or with the prior written consent of, the individual to whom the record pertains, unless disclosure of the record would be—

- (1) to those officers and employees of the agency which maintains the record who have a need for the record in the performance of their duties;
- (2) required under section 552 of this title;
- (3) for a routine use as defined in subsection (a)(7) of this section and described under subsection (e)(4)(D) of this section;
- (4) to the Bureau of the Census for purposes of planning or carrying out a census or survey or related activity pursuant to the provisions of title 13;
- (5) to a recipient who has provided the agency with advance adequate written assurance that the record will be used solely as a statistical research or reporting record, and the record is to be transferred in a form that is not individually identifiable;
- (6) to the National Archives and Records Administration as a record which has sufficient historical or other value to warrant its continued preservation by the United States Government, or for evaluation by the Archivist of the United States or the designee of the Archivist to determine whether the record has such value;
- (7) to another agency or to an instrumentality of any governmental jurisdiction within or under the control of the United States for a civil or criminal law enforcement activity if the activity is authorized by law, and if the head of the agency or instrumentality has made a written request to the agency which maintains the record specifying the particular portion desired and the law enforcement activity for which the record is sought;
- (8) to a person pursuant to a showing of compelling circumstances affecting the health or safety of an individual if upon such disclosure notification is transmitted to the last known address of such individual;
- (9) to either House of Congress, or, to the extent of matter within its jurisdiction, any committee or subcommittee thereof, any joint committee of Congress or subcommittee of any such joint committee;
- (10) to the Comptroller General, or any of his authorized representatives, in the course of the performance of the duties of the Government Accountability Office;
- (11) pursuant to the order of a court of competent jurisdiction; or
- (12) to a consumer reporting agency in accordance with section 3711(e) of title 31.

For those restrictions, the relevant definition from Section (a) (DEFINITIONS) and referenced subsection (e)(4)(D) are as follows:

(2) the term “individual” means a citizen of the United States or an alien lawfully admitted for permanent residence;

(4) the term “record” means any item, collection, or grouping of information about an individual that is maintained by an agency, including, but not limited to, his education, financial transactions, medical history, and criminal or employment history and that contains his name, or the identifying number, symbol, or other identifying particular assigned to the individual, such as a finger or voice print or a photograph;

(5) the term “system of records” means a group of any records under the control of any agency from which information is retrieved by the name of the individual or by some identifying number, symbol, or other identifying particular assigned to the individual;

(7) the term “routine use” means, with respect to the disclosure of a record, the use of such record for a purpose which is compatible with the purpose for which it was collected;

(e) AGENCY REQUIREMENTS.—Each agency that maintains a system of records shall—(4) subject to the provisions of paragraph (11) of this subsection, publish in the Federal Register upon establishment or revision a notice of the existence and character of the system of records, which notice shall include—

(D) each routine use of the records contained in the system, including the categories of users and the purpose of such use;

Several agencies have developed demographic questions for their particular use, and other agencies can use them as a matter of best practice. For instance, agencies often use the demographic questions and categories developed by the U.S. Census Bureau for its decadal censuses and its ongoing American Community Survey (ACS) (US Census Bureau, 2024). The ACS provides for each question historical provenance for the question and its justification (US Census Bureau, n.d.-b). For instance, it asks about the age, sex, and location of individuals based on the precedent set by the first Census in 1790. Ultimately, the Secretary of Commerce has the authority to design or approve the questions on Census and ACS questionnaires (13 U.S.C. § 5).

Demographic Data Considerations

Issues of sample size

Demographic data may be sought through many different types of data collections that have different sample size requirements. Different types of data collections include surveys, interviews, focus group discussions, and oral histories. In each of these cases, demographic data are helpful to ensure representative sampling and provide additional depth of analysis to the findings.

Surveys conducted with the purpose of being representative of large populations may require a power analysis, a calculation to determine the smallest sample size that can support a proposed analysis. However, NOAA is often working with small populations or sub populations, so the power analysis would need to adjust for the size of the population being sampled.

Convenience or non-probabilistic sampling, which is not designed to meet underlying statistical assumptions, may also be done. For example, focus groups, targeted interviews, and oral histories often have even smaller sample sizes as these methods rely on depth rather than breadth of information. In these cases, demographic data may be important in the careful selection of representative voices or in the contextualization of the perspectives of the participants.

Response rates

There is considerable concern about the effect of demographic questions on response rates. There are also reports of strong negative reactions from respondents to the inclusion of demographic questions. These may stem from distrust of the use of demographic data for equity and environmental justice analysis. The drop-in response rates in pilot testing of National Marine Fisheries Service (NMFS) surveys have been given as a reason by survey developers for not including demographic questions. For example, recent focus group testing of a vessel cost survey found that some respondents refused to respond entirely upon learning that the survey questionnaire included questions about race and ethnicity.

How and where these questions are asked can affect response rates. Providing context for why the questions are being asked (Lor et al., 2017) and placing demographic questions at the beginning of the survey (Teclaw et al., 2012) may increase response rates. The method of introducing these questions could also vary with in-person versus mail or web-based surveys.

Some questions, such as sex and gender, when asked in-person or over the phone may be more difficult to navigate. For example, many cultures within American society

adhere to strictly binary gender presentation and asking the question may be interpreted as suggesting that the sex or gender of the respondent is not self-evident, which can be viewed as an insult. Furthermore, a person's gender presentation and their gender identity are not always aligned, so making assumptions about gender or sex based on visual or voice cues may be incorrect.

[Appendix 1](#) provides greater detail on the justification, methods, and variations of different categories of demographic questions.

The need for training

The creation and deployment of surveys, interviews, focus groups, or oral histories that include demographic data require social science expertise or training. This expertise should include postsecondary education or equivalent experience working with a trained social scientist. This is a field of expertise; just as we would not expect a history major to conduct coral reef transects without training, we should not expect people without social science training to develop and conduct surveys that include demographic information.

Demographic Data to Inform NOAA Management Actions

NOAA's collection and use of demographic data can support the administration of various acts and the implementation of Executive Orders (EOs), including those listed below. Demographic data are rarely explicitly referenced or required by these statutes or EOs. However, language related to human communities, including impacts of management either through benefits or burdens, could be supported by demographic data because it is common for these impacts to vary by demographic groups.

- Magnuson-Stevens Fishery Conservation and Management Act, 2007;
- National Marine Sanctuaries Act (NMSA);
- Harmful Algal Bloom and Hypoxia Research and Control Act (HABHRCA);
- Digital Coast Act (DCA);
- Ocean and Coastal Mapping Integration Act (OCMIA);
- Weather Research and Forecasting Innovation Act (WRFIA)
- Marine Mammal Protection Act (MMPA);
- Endangered Species Act (ESA);
- National Environmental Policy Act (NEPA);
- Regulatory Flexibility Act (RFA);
- National Environmental Education Act (NEEA);
- Organic Act (OA) of 1890;
- EO 12866 (Regulatory Planning and Review);
- EO 12898 (Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations);
- EO 13985 (Advancing Racial Equity and Support for Underserved Communities Throughout the Federal Government);
- EO 14008 (Tackling the Climate Crisis at Home and Abroad).

The act or acts that could potentially be supported by demographic data are explored in this section.

National Marine Fisheries Service (NMFS)

Collecting demographic data which could be used to support fishery management decisions is relevant to many sections of the MSA. Demographic data could support NMFS and the regional fishery management councils to do the following:

- Assess how different groups responded to and were affected by current fishery management measures.
- Assess how those responses and effects have changed over time.
- Assess how different groups will respond to and be affected by proposed changes to those measures.

See Appendix 2 for a description of provisions in the MSA for which demographic data could support particular management decisions or actions.

National Ocean Service (NOS)

Office of National Marine Sanctuaries (ONMS)

The Office of National Marine Sanctuaries (ONMS) serves to conserve, protect, and enhance locations with exceptional biodiversity, unique seascapes, and rich cultural heritage, as well as to preserve both modern and traditional uses of sanctuaries. Although not specifically required by the National Marine Sanctuaries Act, the collection of demographic data by ONMS may help to inform efforts to enhance public awareness, understanding, and appreciation of the marine sanctuaries as required in 16 U.S.C. 1440(a) of the Act.

National Centers for Coastal Ocean Science (NCCOS)

The Harmful Algal Bloom and Hypoxia Research and Control Act (HABHRCA) (33 U.S.C. 4001, *et seq.*) establishes a framework for NOAA and the U.S. Environmental Protection Agency (EPA) to advance the scientific understanding and abilities to detect, monitor, assess, and predict harmful algal bloom and hypoxia events in marine and freshwater environments. One of the main concerns of harmful algal blooms and hypoxic events is the economic impact, which HABHRCA directs resources to measure. There are also concerns regarding the increasing frequency and intensity of harmful algal bloom events in the nation's waterways, threats to public health and safety, and concern among the public about the safety of seafood. Since these impacts and concerns can vary across different demographic groups, demographic data may help to identify groups with outsized impacts and concerns. Although HABHRCA does not explicitly authorize the collection of demographic data, such data may also be helpful in determining the potential economic costs of harmful algal bloom and hypoxic events as well as the costs of mitigation methods. (33 U.S.C. 4001(e)(2) and (f)(2)).

Office for Coastal Management (OCM)

The Digital Coast Act (DCA) directs OCM to, among other things, support and improve existing efforts in acquiring data needed for coastal management, including

socioeconomic and human use data pursuant to the Ocean and Coastal Mapping Integration Act (33 U.S.C. 3501, *et seq.*).

National Weather Service (NWS)

Collecting demographic data can support several sections in the Weather Research and Forecasting Innovation Act of 2017. Section 101[15 U.S.C 85011] directs the Under Secretary of Commerce for Oceans and Atmosphere to prioritize public safety. Section 102[15 U.S.C. 85012](b)(2) is related to public action to warnings and forecasts. Section 406(a) directs NOAA to develop and improve risk communication of hazardous weather and water events. Section 505(c)(5)(D), Section 505(c)(7)(C), and especially Section 511[33 U.S.C. 3208](3), modified the National Tsunami Hazard Mitigation Program to include activities that would be supported by a better understanding of communities' social and demographic characteristics.

NOAA Demographic Data Collection

There are several potential sources of demographic data that could be used by NOAA. Information about the people and communities that use NOAA resources and services, receive NOAA benefits, or are subject to NOAA regulations can come from permit applications, mandatory reports, voluntary surveys, or secondary data sources, such as the American Community Survey or the Decadal Census. Each of these data sources has strengths and limitations.

Permit applications and mandatory reports are the most consistent source of longitudinal data for those who participate in federally managed fisheries or use marine sanctuaries. Demographic questions are rarely included in permit applications and mandatory report forms, which a respondent either completes in order to obtain or retain benefits, such as a permit, or must complete to avoid facing civil or criminal sanctions ([Figure 2A](#)). The latter includes catch or activity reports, which are required and NOAA uses to monitor the use of resources.

Demographic questions are often included in voluntary surveys commonly used by several NOAA line offices. However, these surveys are often not coordinated or consistent within or between NOAA line offices. For example, in NMFS, demographic questions are inconsistently included in region-specific voluntary socio-economic surveys, which are infrequently longitudinal, either by design or due to funding limitations. Therefore, NMFS cannot use demographic data from these surveys in concert with longitudinal ecological data for socio-ecological models or to understand or predict the effects of ecological changes or regulations on different NOAA stakeholders.

NOAA scientists frequently use secondary sources of demographic data. The most common sources are the Census, either in the Decadal Census or the yearly American Community Survey (ACS). Data from these sources can be used with demographic data collected by NOAA to test for quality, check if a sample is representative of a population, calibrate survey weights to improve sample representativeness, or to provide community-scale information to characterize geographic locations (Colburn et al., 2016). However, geographic analysis is not adequate for evenly distributed demographic categories such as gender or age, and the scale at which these data are collected does not allow for more detailed characterizations of resource users such as fish processors. Finally, yearly ACS data are not collected in the U.S. territories. While Decadal Census data are available for all the U.S. including its territories, the questions are different and not always transferable (Kleiber et al., 2018).

Demographic data can support robust social science research that contribute to NOAA's efforts to monitor and increase the effectiveness and equity of its products, services,

and policies by assessing how different groups access, respond to, and are affected by them and by proposed changes to them.

NMFS

In 2021, NMFS had around 607 forms and surveys approved by OMB to collect data from people.⁷ To examine the prevalence and purpose of demographic data collection by NMFS, we reviewed the forms.

Most forms were either permit applications required to obtain or retain fishing related benefits or mandatory reports the respondent must complete to avoid facing civil or criminal sanctions ([Figure 1](#)). Voluntary surveys, often used to collect social, cultural, or economic data, accounted for 16.5% of all data collection instruments.

Types of NMFS Forms and Surveys

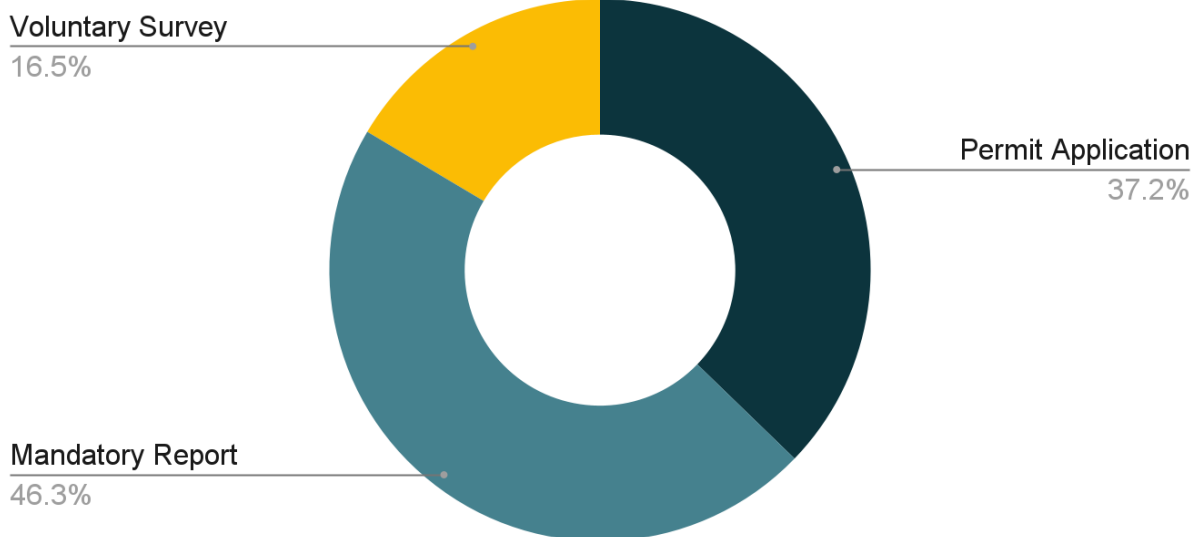


Figure 1. Type of NMFS information collections (N=607).

Demographic questions were sporadically included in region-specific voluntary socio-economic surveys which were conducted infrequently. Therefore, permit applications and reports are the most consistent source of longitudinal demographic data for commercial fisheries, but they typically do not require or request demographic data. Data from secondary sources, such as the ACS and Decadal Census, have been used for geographic analysis of community vulnerability based on indices developed using demographic data (Colburn et al., 2016). However, as noted above, yearly ACS data

⁷ These forms were downloaded from reginfo.gov and examined for demographic data questions. A complete list of all form numbers reviewed is on file with the authors.

are not available in all NOAA jurisdictions such as the U.S. territories, and questions are not asked in the same way, changing the meaning of the answers (Kleiber et al., 2018).

The result is that demographic data are not consistently collected over time or by geographic regions. This limits the support social science can provide to management decisions.

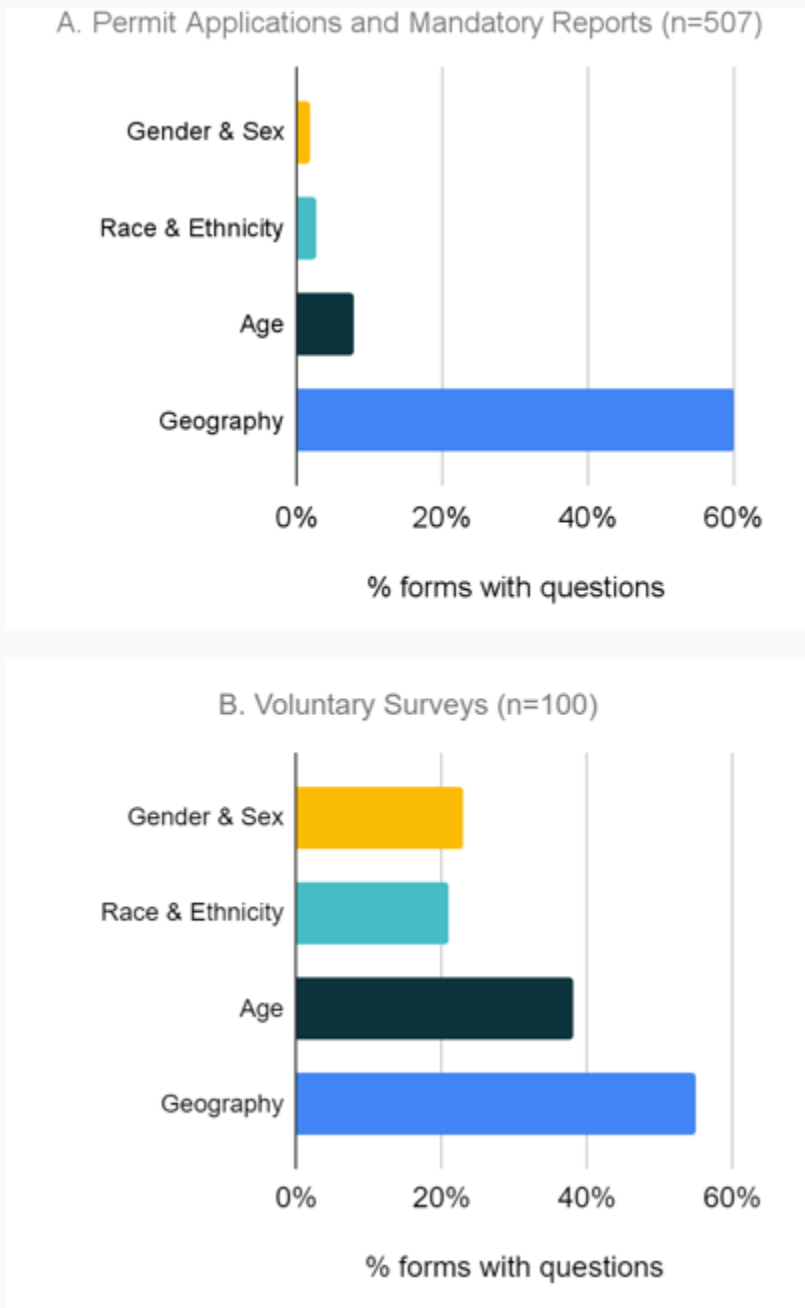


Figure 2. The frequency of demographic questions in (A) application permits and mandatory reports, and (B) voluntary surveys.

NOS

ONMS

Socioeconomic surveys conducted by the Office of National Marine Sanctuaries (ONMS) and its partners regularly collect demographic data. They do this using census categories or categories that can be aggregated to U.S. census categories, including household income (collected in categories of earning ranges), race and ethnicity, sex, number of children in a household, employment status, and education level. These data allow ONMS to measure non-response bias and weight survey data in order to generalize to the entire study population. However, gaps in demographic data collection, particularly by other entities (e.g., state natural resource agencies) make it difficult for ONMS to track and forecast use for key user groups, such as recreational fisheries and boaters.

NCCOS

Most NCCOS research surveys include demographic questions to measure non-response bias and weight survey data in order to generalize to the entire study population. These demographic questions mirror Census demographic questions to enable direct comparisons between the survey and known demography, including topics like age, sex, race, ethnicity, education, and income. All NCCOS surveys are voluntary, increasing the need to measure non-response bias since response rates tend to be low and vary across demographic groups, as is typical for voluntary surveys.

OCM

Most OCM surveys contain categorical questions regarding the respondent's professional affiliation (e.g., coastal planner or floodplain manager) and professional geography (i.e., where one focuses their work). OCM surveys are voluntary.

NWS

NWS Customer Satisfaction surveys ask respondents to choose the most appropriate category for their professional affiliation (e.g., individual, business/industry, or other federal government). There may also be a question about where in the United States and territories the respondent is located. All NWS surveys are voluntary.

Demographic Questions

We developed a list of the demographic questions that could be included in NOAA information collections to support NOAA social science research ([Appendix 1](#)). These questions were informed by global natural resources research that has identified these social categories as cross-cutting demographic categories, which have been found to affect how people access and benefit from natural resources and the impacts of policy and management of these different groups (Gerrard & Kleiber, 2019). We identified 19 demographic question categories. We developed the categories using several different approaches.

1. We reviewed the demographic questions currently asked, both in consultation with social scientists within NOAA and by examining current NOAA forms and surveys.
2. We consulted the following Executive Orders which identified certain communities as having been systematically denied a full opportunity to participate in aspects of economic, social, and civic life, and included questions on all but one of those categories ([Table 1](#)).
 - a. *Advancing Racial Equity and Support for Underserved Communities Through the Federal Government* (Exec. Order No. 13985, 2021),
 - b. *Tackling the Climate Crisis at Home and Abroad* (Exec. Order No. 14008, 2021)
 - c. *Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations* (Exec. Order No. 12898, 1994)
3. We examine the ACS questions used to create the NMFS Social Indicators for Coastal Communities (NOAA Fisheries, n.d.). Three social indices, (1) poverty, (2) population composition, and (3) personal disruption use demographic data from the ACS. In [Table 1](#), we indicate which demographic question categories are included in the three social indices.
4. Finally, we asked the co-authors from across the NOAA line offices to identify demographic question categories that they think would aid them meet NOAA's mission.
5. Most of the demographic question categories are also covered in some form by the ACS ([Table 1](#)).

We distinguish among three “core” categories of demographic questions and 16 other categories of demographic questions we identified ([Table 1](#)). We consider the core questions to be universally important, while the others may be important in most or some circumstances. The core demographic questions concern: (1) race and ethnicity, (2) gender and sex, and (3) age. Other demographic questions could be needed to

satisfy regulatory guidelines in some surveys and in other cases add greater depth of analysis and understanding.

For many demographic categories, we offer several different ways to ask a question, recognizing that wording can be context dependent, and recommendations can shift over time ([Appendix 1](#)). Making sure questions are relevant to local context is paramount, but different wording can mean data may not be appropriate for cross-regional analysis of disaggregated data. In each case, we provide background information on wording or approaches that would be most appropriate in certain contexts. In some cases, this also accounts for differences in in-person, phone, mail, and electronic surveys.

EO 13985 includes members of religious minorities as an underserved community (Exec. Order No. 13985, 2021). In addition, as noted above in the discussion of the PRA, OMB has approved, a question about being a member of religious minorities for two DOC information collections. Though we have not yet included a question regarding religious affiliation, it may be a relevant category to include in the future as NOAA refines its demographic data collection. It is important to note that while we attempted to include as many relevant demographic categories as possible, we recognize that there are undoubtedly more that could be included in the future. Therefore, this list should not be viewed as complete, but rather a starting point on which to build.

The list of responses (check boxes) included with a specific question determines the level of disaggregation that will be possible. Disaggregation is important because these are all cross-cutting variables that have been found to influence how people access and benefit from natural resources and the effects of policy and management on their lives and livelihoods (Gerrard & Kleiber, 2019). In some cases, this information can give us the opportunity to understand the impacts of policies that affect or target different demographic groups. This disaggregation can also assist in understanding how people receive, interpret, and take action to protect their lives and livelihoods. For example, results from a study of tornado warnings suggested significant differences in how people receive, understand, and respond to tornado warnings and recommended that social criteria be included to account for geographic and demographic characteristics of the population (Ripberger et al., 2019).

Table 1. Summary of demographic questions and characterization by type and source.

| Demographic Category | Core question | EO 13985 | EO 14008 | EO 12898 | CSVI | co-author addition | ACS |
|------------------------|---------------|--------------------------|--------------------------|--------------------------|----------------------|--------------------|---------------------|
| Race and ethnicity | x | x | x | x | pc | | x |
| Gender and sex | x | x | x | | | | x |
| Age | x | | | | po, pc | | x |
| Geographic residence | | x | x | | | | x |
| Geographic affiliation | | | | | | x | |
| Income | | x | | x | po, pd | | x |
| Sexual orientation | | x | | | | | x |
| Disability | | x | | | | | x |
| Citizenship status | | | | x | | | x |
| Language use | | | | | pc | | x |
| Marital status | | | | | pc, pd | | x |
| Education level | | | | | pd | | x |
| Employment | | | | | pd | | x |

| Demographic Category | Core question | EO 13985 | EO 14008 | EO 12898 | CSV1 | co-author addition | ACS |
|-----------------------------------|---------------|--------------------------|--------------------------|--------------------------|----------------------|--------------------|---------------------|
| Health insurance | | | | | | x | x |
| Household composition | | | | | | x | x |
| Phone and internet access | | | | | | x | x |
| Housing type | | | | | | x | x |
| Vehicle type | | | | | | x | x |
| Veteran status | | x | | | | x | x |
| po = poverty index | | | | | | | |
| pc = population composition index | | | | | | | |
| pd = personal disruption index | | | | | | | |

Conclusion

When considering whether it is appropriate to include demographic questions with an information collection request, it is important to understand the difference between the types of collections, primary purpose of the data collection, as well as the intended use of demographic data. OMB will also require information collection requests to identify specific statutory authorization for the collection. Regardless of the type of data collection, those trained in survey development are cognizant that items on a form or survey, or the presentation of those items, can influence response and, therefore, affect the quality of the data.

Demographic data, a key component of social science research, provide NOAA with the opportunity to better understand and serve the U.S. population. Demographic data can help us understand how people access resources, use NOAA products and services, are vulnerable to change and extreme weather events, are considered eligible for benefits, and will respond to and be affected by changes to NOAA products, services, and policies.

Without demographic data, the advancement of equity and environmental justice is severely limited (American Sociological Association, 2003). Without demographic data, it is difficult to identify vulnerable or at-risk groups or strive for equitable access to resources and services. Demographic data can help achieve NOAA's mission.

Appendix 1: Demographic Questions

1. Race and Ethnicity

Justification

Race and ethnicity, which include categories that are also often used as proxies for indigenous identity, are core components of environmental justice indicators (US EPA, 2014) and are included in EO 13985. In addition, race and ethnicity data can be important in assessing how different groups access, respond to, and are affected by NOAA's products, services, and policies and by proposed changes to them. Including these demographic variables in surveys will support vulnerability and environmental justice analysis related to disparities in capacity and access, as well as effectiveness and efficiency analysis. It is important to note that, "The racial and ethnic categories set forth in the standards should not be interpreted as being primarily biological or genetic in reference." (62 Fed. Reg. 58782)

Method Overview

OMB Statistical Policy Directive No. 15 (Revisions to the Standards for the Classification of Federal Data on Race and Ethnicity, 1997) dictates how questions of race and ethnicity should be asked. The 1997 policy was updated in March 2024 (Revisions to OMB's Statistical Policy Directive No. 15: Standards for Maintaining, Collecting, and Presenting Federal Data on Race and Ethnicity, 2024), and our guidance here reflects those changes. In accordance with updated federal statistical policy, race and ethnicity information should be collected using one combined question (62 Fed. Reg. 22184). The previous two-question approach that distinguished between race and ethnicity was found to be overly confusing and led to a growing non-response rate. The wording should now be, "What is your race and/or ethnicity?" with the instructions "Select all that apply and enter additional details in the spaces below." (62 Fed. Reg. 22188)

The revision also requires the addition of Middle Eastern or North Africa (MENA) to the minimum race categories, which also include American Indian or Alaska Native, Asian, Black or African American, Hispanic or Latino, Native Hawaiian or Other Pacific Islander, and White. MENA categories had previously been a subset of the White category (62 Fed. Reg. 22185).

The third revision was a requirement to collect detailed race and ethnicity categories as a default. This was to maximize sample sizes of smaller groups.

These changes are reflected in Variation 1. However, if an agency finds that the additional burden of detailed data collection is greater than this benefit, the agency may

request an exemption from OIRA (62 Fed. Reg. 22186). If exemptions are granted, all seven race/ethnicity categories must still be listed, but the detailed categories may be left out, as seen in Variation 2.

Question variations

1. What is your race and/or ethnicity? Select all that apply and enter additional details in the spaces below.

American Indian or Alaska Native - Individuals with origins in any of the original peoples of North, Central, and South America, including, for example, Navajo Nation, Blackfeet Tribe of the Blackfeet Indian Reservation of Montana, Native Village of Barrow Inupiat Traditional Government, Nome Eskimo Community, Aztec, and Maya.

Asian - Individuals with origins in any of the original peoples of Central or East Asia, Southeast Asia, or South Asia, including, for example, Chinese, Asian Indian, Filipino, Vietnamese, Korean, and Japanese.

Black or African American - Individuals with origins in any of the Black racial groups of Africa, including, for example, African American, Jamaican, Haitian, Nigerian, Ethiopian, and Somali.

Hispanic or Latino - Includes individuals of Mexican, Puerto Rican, Salvadoran, Cuban, Dominican, Guatemalan, and other Central or South American or Spanish culture or origin.

Middle Eastern or North African - Individuals with origins in any of the original peoples of the Middle East or North Africa, including, for example, Lebanese, Iranian, Egyptian, Syrian, Iraqi, and Israeli.

Native Hawaiian or Pacific Islander - Individuals with origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands, including, for example, Native Hawaiian, Samoan, Chamorro, Tongan, Fijian, and Marshallese.

White - Individuals with origins in any of the original peoples of Europe, including, for example, English, German, Irish, Italian, Polish, and Scottish.

Some other race

2. What is your race and/or ethnicity? Select all that apply and enter additional details in the spaces below.

American Indian or Alaska Native _____

Asian _____

Black or African American _____

Hispanic or Latino _____

Middle Eastern or North African _____

Native Hawaiian or Pacific Islander _____

White _____

Some other race _____

2. Gender and Sex

Justification

Including gender as a core variable will allow for gender analysis of the often-different ways women and men contribute to, benefit from, and make decisions about the marine resource economy. In the United States, women and men have been shown to contribute in different ways to fisheries, resulting in gendered impacts of management decisions (Calhoun et al., 2016; Lavoie et al., 2019). In general, this information can be important in assessing how different individuals access, respond to, and are affected by NOAA's products, services, and policies and by proposed changes to them. Additionally, gender blind data (not including gender as a variable) impedes vulnerability and environmental justice analyses.

Method Overview

Gender and sex are often simplified as a binary categories (female and male, woman and man, girl and boy). This binary categorization does not reflect social or biological realities, but the acknowledgement of gender and sex diversity can be contentious and possibly make people less likely to respond to such questions and to the other questions in a specific information collection. This is a rapidly progressing field; therefore, questions should be expected to evolve over time (Office of the Chief Statistician of the United States, 2023).

In the U.S. Decadal Census and ACS, this question is described as sex, and offers a binary response (Variation 1). This could be used in cases where strict adherence to the Census wording is necessary or where the population may be less likely to respond if given anything other than a binary option. It is important to acknowledge that while the question asks about sex, in almost all cases the subsequent analysis of these sex categories is used to describe social rather than biological phenomena. In these cases, sex categories are used as a proxy for gender phenomena.

Variation 2 matches the language recommended by the Office of the Chief Statistician of the United States. This variation does not use the term sex or gender and offers a third open-ended choice to reflect current common gender categories. This may be more appropriate in cultures or populations that acknowledge more than two gender categories.

Finally, Variation 3 most closely reflects current understanding of the realities of sex and gender in North American society and matches the dual question approach recommended by the Office of the Chief Statistician of the United States. It begins with a question of what sex the person was assigned at birth and we include an open-ended response. This could include responses such as intersex (approximately 1% of the population). This third option is an addition to the language recommended in the SOGI guidance. This is then followed up with a question of how the respondents currently describe themselves and offers three discrete choices and an open-ended response. Variation 3 would be important if the study design or focus included the need to disaggregate gender minorities.

Question variations

1. What is your sex?
 - Female
 - Male
 - Prefer not to answer

2. Are you: [Mark all that apply]

- Female
- Male
- Transgender, non-binary, or another gender
- Prefer not to answer

3a. What sex were you assigned at birth, on your original birth certificate?

- Female
- Male
- Not listed above (please state) _____
- Prefer not to answer

3b. How do you currently describe yourself? (mark all that apply)

- Female
- Male
- Transgender
- I use a different term (please state) _____
- Prefer not to answer

Other methods and considerations

Researchers have imputed gender into existing data sets using other personal information within the data—names and birth years—and the R “Gender” and “genderize R” packages (Szymkowiak & Rhodes-Reese, 2020). This method relies on underlying gender naming conventions and the availability of individuals' names in public databases where gender is also documented that underlie the R packages. The method assigns a probability of gender based on the individual's name and birth year and the gender of other individuals with that name and birth year in the databases. While this method removes the subjectivity of researchers themselves assigning gender based on names, it also has several underlying issues that limit its applicability in various contexts. The method has limited utility with names that are not well represented in underlying databases (e.g., Alaska Native and Native Hawaiian names) including many ethnic groups throughout the U.S. that do not have binary gendered

naming conventions. The method can be applied in contexts with less represented names and without birth years using the social media data that are included in the packages; however, doing so presents accuracy issues in gender assignment. Gender assignment using R constrains gender to a binary construct that is fundamentally not aligned with how many individuals perceive their own gender. Finally, no other demographic information can be derived using this method, limiting its utility to non-intersectional gender analysis.

3. Age

Justification

Age is an important factor in how people engage with natural resources and access services (Donkersloot & Carothers, 2016). Including age as a variable will allow for analysis related to phenomena such as “graying of the fleets.” Additionally, age is needed to identify age-related barriers to entry in younger populations. Finally, age data can be important in assessing how different age groups access, respond to, and are affected by NOAA’s products, services, and policies and by proposed changes to them.

Method Overview

Age can be asked in a few different ways. Variation 1 allows for the most specificity and flexibility in terms of analysis. Variation 2 gives the same information as long as the year the data collection took place is available. Variation 3 asks for age ranges which is easier for respondents, but gives less flexibility in terms of analysis. Note that surveys are often only asked of adults, so the age ranges of the first bin may not match those of the others, and the last bin is usually an open age limit. It also requires the year the data collection took place. In this example, we have used decadal bins, but other cut offs are possible depending on the age range and specificity of interest.

Question variations

1. What is [your] year of birth?
2. What is [your] age?
3. What is [your] age? (check one)
 - < 20 years old
 - 20-29 years old
 - 30-39 years old
 - 40-49 years old

- 50-59 years old
- 60-69 years old
- > 69 years old
- Prefer not to answer

4. Geographic Residence

Justification

Including geographic residence allows for geospatial and other community scale analyses (such as social indicators). The connection of an individual to a particular community can be an important factor in understanding their engagement in resource use and knowledge, management engagement, and their access to and satisfaction with NOAA products and services. In general, geographic residence data can be important in assessing how residents of different areas access, respond to, and are affected by NOAA's products, services, and policies and by proposed changes to them. The question used may vary as there are often distinctions between where people live, where they work, and where they spend most of their money. Geographic location may also be an important indicator of rurality, and persons who live in rural areas have been identified as an underserved community in EO 13985.

Method Overview

We offer many different questions that are helpful for different contexts and can relate to residency or affiliation with place. The scale of the second question will depend on the region. For example, in commonwealth and territories, zip codes are not specific enough, and the village name is more helpful. Variations 1-5 offer different ways to ask for a specific geographic location.

Question variations

1. What is the [address/zip code/village/country] of your primary residence?
2. What is the [address/zip code/village/country] where you file taxes?
3. What is the [address/zip code/village/country] you call home?
4. What is the [address/zip code/village/country] linked to your quota / permit?
5. What is the [address/zip code/village/country] where you spend the majority of your working time?

5. Geographic Affiliation

Justification

Affiliation to a geographic location can confer important distinctions of insider/outsider status which can be an important factor in access to resources and vulnerability. These can be linked with geographic residence to form a more complete understanding of a person's link to a geographic area. Geographic affiliation can be important in assessing how different individuals access, respond to, and are affected by NOAA's products, services, and policies and by proposed changes to them.

Method Overview

Variations 1 and 2 offer different ways to ask about a relationship to a particular place either through how long they have lived in the area or how much time they spend in the area.

Question variations

1. How long have you lived in [local area] _____years
2. What is your relationship to [area]? (check one)
 - I live here full time
 - I live here part time or seasonally
 - I work here and live in another place
 - I used to live here but I currently live outside this area
 - Other (Please specify)_____
 - Prefer not to answer

6. Income

Justification

Income, both personal and household level, is often linked to vulnerability and access. It can also be used as an indicator of poverty which is used in environmental justice vulnerability indices and included in EO 13985. In general, this information can be important in assessing how different individuals or groups of individuals access, respond to, and are affected by NOAA's products, services, and policies and by proposed changes to them. For intrahousehold analysis, it would be necessary to ask both personal and household level income questions.

Method Overview

In line with the Census, questions about income are asked at a household level. Where possible and appropriate, the income categories should match regional and jurisdictional Census categories. Variations 1 and 2 demonstrate the development of those categories. Variation 1 provides the most flexibility, while Variation 2 gives an example of income bins. The flexibility is necessary because, in some jurisdictions, the lower and upper bounds may need to shift to be relevant. Variation 3 is not a true variant, in that it is intended to be coupled with Variation 1 or 2, as it asks only for the number of income contributors. These questions can work with additional questions on household composition (see below) to better understand the number of adults and children reliant on that income.

Question variations

1. What was your annual [household / personal] income (before taxes) in [year]?

- Less than \$[area relevant amount]
- \$[area relevant amount] to \$[area relevant amount]
- \$[area relevant amount] to \$[area relevant amount]
- \$[area relevant amount] to \$[area relevant amount]
- \$[area relevant amount] or more
- Prefer not to answer

2. What was your annual [household / personal] income (before taxes) in [year]?

- Less than \$10,000
- \$10,000 to \$19,999
- \$20,000 to \$29,999
- \$30,000 to \$39,999
- \$40,000 to \$49,999
- \$50,000 to \$59,999
- \$60,000 to \$74,999
- \$75,000 to \$99,999

- \$100,000 to \$149,999
- \$150,000 to \$199,999
- \$200,000 or more
- Prefer not to answer

3. Including yourself, how many people contribute to your annual household income?

7. Sexual Orientation and LGBTQ+ Identity

Justification

Sexual orientation and LGBTQ+ identity have been acknowledged both in the EPA definition of environmental justice, and in EO 13985 as a variable to recognize an underserved community. In general, this information can be important in assessing how different individuals or groups of individuals access, respond to, and are affected by NOAA's products, services, and policies and by proposed changes to them.

Method Overview

Categories used to describe sexual orientation and LGBTQ+ identities have changed over time. In Variation 1, we follow the recommendations of the Office of the Chief Statistician of the United States which include both sexual orientation and gender identity (Office of the Chief Statistician of the United States, 2023). In Variation 2, we have provided commonly used sexual orientation categories while leaving space for self-identification. The term "queer" can be considered derogatory or empowering depending on the context. "Queer" was included as a category in EO 13985; therefore, we included it here but recommend the inclusion be flexible given the context.

Question variations

1. Which of the following do you consider yourself to be? You can select as many as apply.
 - Lesbian or Gay
 - Gay
 - Bisexual
 - Transgender
 - Straight or heterosexual

2. Which of the following do you consider yourself to be? You can select as many as apply.

- Lesbian
- Gay
- Bisexual
- Queer
- Straight or heterosexual
- Self-Identify _____
- I do not know the answer
- Prefer not to answer

8. Disability

Justification

Persons with disabilities are included as an underserved community in EO 13985. Disability can be an important factor in access to NOAA services such as sanctuaries, education centers, offices, and online services. In general, this information can be important in assessing how different individuals or groups of individuals access, respond to, and are affected by NOAA's products, services, and policies and by proposed changes to them.

Method Overview

These questions are based on the 2008 update to disability questions in the ACS Questionnaire (Brault, 2009). They cover six disability types and focus on the impact those conditions might have on basic functioning and social participation. The wording has been modified from the ACS questions to ask the question directly of an individual.

Question variations

1. Are you deaf or do you have serious difficulty hearing?
2. Are you blind or do you have serious difficulty seeing even when wearing glasses?
3. Because of a physical, mental, or emotional condition, do you have serious difficulty concentrating, remembering, or making decisions?

4. Do you have serious difficulty walking or climbing stairs?
5. Do you have difficulty dressing or bathing?
6. Because of a physical, mental, or emotional condition, do you have difficulty doing errands alone such as visiting a doctor's office or shopping?

9. Citizenship Status

Justification

Citizenship can be a requisite for benefit eligibility; this question does appear on some NMFS forms. Due to differences in benefit eligibility, citizenship status may be a source of inequality or vulnerability. However, the use of this question may increase vulnerabilities and its use should be carefully examined. It is important to note that those born in the U.S. territory of American Samoa are not American citizens at birth, so questions related to eligibility of benefits would relate to their status as U.S. nationals (U.S. Department of the Interior, 2023). In general, this information can be important in assessing how different individuals or groups of individuals access, respond to, and are affected by NOAA's products, services, and policies and by proposed changes to them

Method Overview

Variation 1 is a simple binary; the wording is found on mandatory forms that use this information to determine benefit eligibility. Variation 2 is an adaptation of the ACS and provides more detailed choices (US Census Bureau, 2020).

Question variations

1. Are you a U.S. citizen?
 - Yes
 - No
 - Prefer not to answer
2. Are you a citizen of the United States?
 - Yes, born in the United States
 - Yes, born in Puerto Rico, Guam, the U.S. Virgin Islands, or Northern Marianas
 - Yes, born abroad of U.S. citizen parent or parents
 - Yes, U.S. citizen by naturalization

- No, born in American Samoa, U.S. National
- No, not a U.S. citizen
- Prefer not to answer

10. Language(s) Used

Justification

These questions would be important for determining what languages should be used for communication materials. It may also be an important way to identify language-related vulnerabilities. In addition, this information can be important in assessing how different individuals or groups of individuals access, respond to, and are affected by NOAA's products, services, and policies and by proposed changes to them.

Method Overview

Language categories may be changed based upon location of research. Variation 1 focuses on preferred language for speaking, reading, and writing; Variation 2 asks about language spoken in the household.

Question variations

1. What is your preferred language for:
 - Speaking
 - [Regionally relevant language]
 - [Regionally relevant language]
 - [Regionally relevant language]
 - English
 - Spanish
 - Other (Please specify)_____
 - Reading and Writing
 - [Regionally relevant language]
 - [Regionally relevant language]
 - [Regionally relevant language]

- English
- Spanish
- Other (Please specify)_____

2. Which of the following languages are spoken in your household? (Check all that apply)

- [Regionally relevant language]
- [Regionally relevant language]
- [Regionally relevant language]
- English
- Spanish
- Other (Please specify)_____

11. Marital Status

Justification

Marital status can be important in determining the distribution of benefits from employers or state and federal government aid programs. It may also be important to federal and state agencies in determining how benefits are to be distributed to those affected by natural disasters. Marital status is also often linked to health insurance status, which is a critical source of vulnerability for underserved communities. Many individuals rely on health insurance benefits from their spouses' employers. This is especially true for those employed in the fishing industry, many of whom are either self-employed or have only seasonal/part-time employment. In addition, marital status data may be important in assessing how those in each marital status respond to and are affected by NOAA's products, services, and policies and by proposed changes to them.

Method Overview

Variation 1 is a modification on the ACS marital status question. It has been changed to ask the question directly of an individual. Variation 2 asks about the marital status stated on tax returns.

Question variations

1. Which one of the following best describes your current marital status? [Check one]?

- Married
- Widowed
- Divorced
- Separated
- Never married
- Prefer not to answer

2. On your taxes, do you file as [check one]?

- Single
- Married, filing jointly
- Married, filing separately
- Other (Please specify)_____
- Prefer not to answer

12. Education Level

Justification

Education level is often linked to vulnerability and access to NOAA services. It has been used by NMFS as an indicator of environmental justice vulnerability. In general, this information can be important in assessing how different individuals or groups of individuals access, respond to, and are affected by NOAA's products, services, and policies and by proposed changes to them.

Method Overview

Variation 1 offers levels of education completed by individual respondents to select. The question and choices follow ACS language. The categories included here are detailed but could be condensed if appropriate as seen in Variation 2. Variation 3 includes information on the education attainment of parents.

Question variations

1. What is the highest level of school you have completed? (check one)

- No schooling completed
- Nursery school and/or kindergarten
- Grades 1 through 11
- 12th grade-no diploma
- Regular high school diploma
- GED or alternative credential
- Less than 1 year of college credit, no degree
- 1 or more years of college credit, no degree
- Associate's degree (for example: AA, AS)
- Bachelor's degree (for example: BA, BS)
- Master's degree (for example: MA, MS, MEng, MEd, MSW, MBA)
- Vocational degree (for example: electrician, pharmacy technician)
- A degree beyond a master's degree (for example: MD, DDS, DVM, LLB, JD, or PhD)
- Prefer not to answer

2. What is the highest level of school you have completed? (check one)

What is the highest level of education you have completed? (check one)

Less than 9th grade (no high school)

Some high school (no diploma)

High school graduate (including GED)

Some college (no degree)

College graduate (bachelor's degree)

Graduate degree (professional, Master's, PhD, etc.)

Vocational degree (for example: electrician, pharmacy technician)

Other (fill in the blank) _____

Prefer not to answer

3. Are you a First Generation College Student/Graduate: (Check one)

- Yes (Parent(s) have NOT attended college or earned a bachelor's or higher degree)
- No (Parent(s) have earned a bachelor's or higher degree)
- Unsure (Do not know if parent(s) have earned a bachelor's or higher degree)
- Prefer not to answer

13. Employment Status

Justification

Unemployment can be an indicator of vulnerability. It may also be particularly relevant for seasonal employees working in the fishing industry to characterize their employment status. In addition, employment status can be important in assessing how different individuals access, respond to, and are affected by NOAA's products, services, and policies and by proposed changes to them.

Method Overview

Variation 1 offers many options while Variation 2 offers a binary option. Variation 3 may be important in areas with high levels of seasonal work.

Question variations

1. What employment categories best describe you? (Check all that apply)

- Employed full-time
- Employed part-time
- Seasonally employed

Typical months of employment: _____

- Homemaker/caregiver
- Student (full-time)
- Student (part-time)
- Self-employed
- Retired
- Not currently employed

Other (Please specify): _____

Prefer not to answer

2. Are you currently employed?

Yes

No

Prefer not to answer

3. What is the length of your current employment? _____ months _____ years

14. Health Insurance Status

Justification

Health insurance status is a critical source of vulnerability for underserved communities. In addition, health insurance status can be important in assessing how different individuals or groups of individuals access, respond to, and are affected by NOAA's products, services, and policies and by proposed changes to them. These questions were adapted from the 2021 Socio-Economic Survey of Hired Captains and Crew in New England and Mid-Atlantic Commercial Fisheries (Northeast Fisheries Science Center & NOAA Fisheries, 2022).

Method Overview

Questions

1a. Did you have health insurance in [the last year/time period]?

NO

YES (Continue)

1b. Where did the insurance come from? (Check all that apply).

From my [ocean industry] related employer ([the vessel owner/owner details])

From another employer I have

Spouse's/Partner's employer

Another household member's employer

My own private insurance

Federal or State Insurance Program/ Affordable Care Act/ Insurance Exchange/ Marketplace/ Medicare

Medicaid

Other (Please describe): _____

Prefer not to answer

15. Household Composition

Justification

Household size, including the number of adults and children, is an important factor in calculating poverty levels. Additionally, these questions could relate to networks of multigenerational households, a measure of household resilience. Household composition can be important in assessing how different individuals access, respond to, and are affected by NOAA's products, services, and policies and by proposed changes to them.

Method Overview

Questions –2 relate to the number of income contributors and the household size and composition. Household size and the number of adults and children are important for calculating household poverty levels. These questions can work with additional questions on income (see above) to better understand the number of people reliant on that income.

Questions

1. Including yourself, how many adults are in your household (18 years or older)?
2. How many children are in your household (17 years and younger)?

16. Phone and Internet Access

Justification

Similar to language use, phone and internet access can inform NOAA about effective communication strategies. Lack of access to a phone or internet can also be an indicator of vulnerability as it can lead to difficulties accessing benefits, resources, or decision making venues. In addition, phone and internet access can be important in assessing how different individuals or groups of individuals access, respond to, and are affected by NOAA's products, services, and policies and by proposed changes to them.

Method Overview

The categories could be adapted to be regionally relevant.

Questions

1. My cell-phone access is:
 - Unlimited
 - Limited
 - No cell-phone access
 - Prefer not to answer
2. My land-line phone access is:
 - Unlimited
 - Limited
 - No land-line phone access
 - Prefer not to answer
3. My internet access is:
 - Unlimited
 - Limited
 - No internet access
 - Prefer not to answer

17. Housing Characterization

Justification

Housing type can be an indicator of vulnerability, and in the case of boat-based living, mobility that could complicate geographic relationships to coastal communities, particularly to extreme weather events. In addition, housing characterization can be important in assessing how different individuals access, respond to, and are affected by NOAA's products, services, and policies and by proposed changes to them. The housing characterization categories should be flexible to local context.

Method Overview

This question offers a few choices, but can be expanded as needed. Version 1 was used on the [Recreational Saltwater Boat Fishing Survey](#), and Version 2 was adapted from the [ACS 2020](#).

Question variations

1. Which of the following best describes this house, apartment or mobile home?

- Owned with a mortgage or a loan
- Owned without a mortgage or a loan
- Rented
- Occupied without payment or rent
- Other (Please specify)_____
- Prefer not to answer

2. What best describes the building/structure you reside in?

- A mobile home
- A one-family house detached from any other house
- A one-family house attached to one or more houses
- An apartment building
- Boat
- RV
- Van or car
- Other (Please specify)_____
- Prefer not to answer

18. Number of Vehicles

Justification

Data on number vehicles available in a household help us understand access to transportation. This information is important in determining people's ability to evacuate

their home to avoid weather, water, and climate disasters. It can also be used as an indicator of wealth and influence access to oceans. Therefore, this information can be important in assessing how different individuals or groups of individuals access, respond to, and are affected by NOAA's products, services, and policies and by proposed changes to them.

Method Overview

This question offers a few choices, but can be expanded as needed. It was adapted from the ACS questionnaire.

Question

1. How many cars, vans, and trucks are kept at home for use by the household?

- None
- 1
- 2
- 3
- 4
- 5
- 6 or more
- Prefer not to answer

19. Veteran Status

Justification

Veteran status can be a consideration for benefits eligibility; it is a category of underserved communities in EO 13985. In addition, veteran status can be important in assessing how different individuals or groups of individuals access, respond to, and are affected by NOAA's products, services, and policies and by proposed changes to them.

Method Overview

The question is multiple choice and was adapted from the ACS (US Census Bureau, 2020).

Question

1. Have you ever served on active duty in the U.S. Armed Forces, Reserves, or National Guard?

Never served in the military

Only on active duty for training in the Reserves or National Guard

Now on active duty

On active duty in the past, but not now

Appendix 2: Use of Demographic Data Under the MSA

The Magnuson-Stevens Fishery Conservation and Management (MSA), 16 U.S.C. §§ 1801 *et seq.*, establishes a national program for conservation and management of fishery resources with federal jurisdiction over such resources within the U.S. exclusive economic zone (EEZ). 16 U.S.C. §§ 1801(a)(6), 1811(a). For purposes of the MSA, the EEZ extends from the seaward boundary of each coastal State generally out to 200 nautical miles. *Id.* § 1802(11). Key purposes of the MSA are to “take immediate action to conserve and manage the fishery resources found off the coasts of the United States. . .” and “promote domestic commercial and recreational fishing under sound conservation and management principles. . .” *Id.* §§ 1801(b)(1), (3). NOAA’s National Marine Fisheries Service (NMFS or NOAA Fisheries⁸), acting under authority delegated from the Secretary of Commerce, is responsible for managing fisheries pursuant to the MSA. Regulation of fisheries is accomplished through fishery management plans, amendments to those plans (hereinafter, collectively referred to as “FMPs”), and implementing regulations. To assist in fishery management, the MSA established eight regional fishery councils who prepare and submit to NMFS FMPs for fisheries within their respective geographic areas that require conservation and management. *See id.* § 1852(a), (h)(1). NMFS reviews and takes actions on FMPs pursuant to a process set forth in the MSA at 16 U.S.C. §1854(a). In addition, NMFS promulgates regulations to implement FMPs pursuant to a process in § 1854(b).

A number of provisions in the MSA integrate social and economic considerations into the decision-making process. Robust demographic data analysis can foster better informed decisions by improving the ability of the Councils and NMFS to monitor, explain, and/or predict the effect of a management decision through an improved understanding of the demographic makeup of the individuals likely to be impacted. For example, some of those provisions mention fishing communities or require the consideration of social and economic impacts of fishery management measures, including the impacts on fishing communities. This appendix describes those MSA provisions in the following order: (1) national standards for federally managed fisheries; (2) required and discretionary provisions for fishery management plans (FMPs); (3) region-specific provisions; and (4) information collection.

1. National Standards for Federally Managed Fisheries

The MSA sets out ten national standards for federally managed fisheries and requires NMFS to establish advisory guidelines on them. 16 U.S.C. §§ 1851(a), (b). FMPs and implementing regulations are required to be consistent with the national standards. *Id.* §

⁸ Known informally as NOAA Fisheries, the official name of the agency in legislation and regulations is the National Marine Fisheries Service (NMFS).

1851(a). Although demographic and other economic and social data and the analyses that use these data are relevant to all ten national standards, demographic data and analyses are particularly relevant to the following six National standards.

The national standards do not explicitly provide the authority to collect demographic data. However, NMFS continuously strives to improve the available scientific information, including demographic and other economic and social information, to meet its mission to provide vital services for the nation, all backed by sound science and an ecosystem-based approach to management and to improve its ability to determine if the national standards are being met or will be met by a proposed conservation and management measure. See section 4, below, describing MSA information collection provisions.

National Standard 1 requires that “conservation and management measures”⁹ prevent overfishing while achieving, on a continuing basis, the optimum yield (OY) from each fishery for the United States fishing industry. 16 U.S.C. § 1851(a)(1). OY refers to an amount of fish which provides the greatest overall benefit to the Nation, particularly with respect to food production and recreational opportunities, and taking into account protection of marine ecosystems; and is prescribed on the basis of maximum sustainable yield “as reduced by any relevant social, economic, or ecological factor...” *Id.* § 1802(33). For social factors, the [National Standard 1](#) guidelines provide a non-exhaustive list of potential considerations, fishery-related indicators, and other factors that may be considered, including: “...preservation of a way of life for fishermen and their families, and dependence of local communities on a fishery (e.g., involvement in fisheries and ability to adapt to change)...non-fishery related indicators (e.g., unemployment rates, percent of population below the poverty level, population density, etc.),...[and] the cultural place of subsistence fishing, obligations under tribal treaties, proportions of affected minority and low-income groups, and worldwide nutritional needs.” 50 C.F.R. § 600.310(e)(3)(iii)(B)(1).

National Standard 2 requires conservation and management measures to be based upon the best scientific information available (BSIA). 16 U.S.C. § 1851(a)(2). One criteria for BSIA in the National Standard 2 guidelines is inclusiveness. Under that criteria, the guidelines provide that “[r]elevant local and traditional knowledge (e.g., fishermen’s empirical knowledge about the behavior and distribution of fish stocks)

⁹ MSA defines “conservation and management” as “all of the rules, regulations, conditions, methods, and other measures (A) which are required to rebuild, restore, or maintain, and which are useful in rebuilding, restoring, or maintaining, any fishery resource and the marine environment; and (B) which are designed to assure that—(i) a supply of food and other products may be taken, and that recreational benefits may be obtained, on a continuing basis; (ii) irreversible or long-term adverse effects on fishery resources and the marine environment are avoided; and (iii) there will be a multiplicity of options available with respect to future uses of these resources.” 16 U.S.C. § 1802(5).

should be obtained, where appropriate, and considered when evaluating the BSIA.” 50 C.F.R. § 600.315(a)(6)(ii)(C). The guidelines further recognize that historical information “should be evaluated for [their] relevance to inform the current situation.” *Id.* § 600.315(a)(6)(v)(B). Historical data (e.g., abundance, environmental, catch statistics, market and trade trends) provide time-series information on changes in fish populations, fishery participation, and fishing effort that may inform current management decisions. *Id.* Moreover, the Stock Assessment and Fishery Evaluation (SAFE) report is to include, inter alia, “the social and economic condition of...fishing communities...” *Id.* § 600.315(d). While NMFS may consider and incorporate relevant traditional ecological knowledge (TEK) as BSIA where warranted, National Standard 2 does not itself authorize data collection or study. See e.g., *id.* § 600.315(d)(2)-(3) (providing that SAFE report should contain “the following scientific information when it exists,” explain information gaps, and highlight needs for future scientific work).

National Standard 4 requires that conservation and management measures shall not discriminate between residents of different states and that allocations be fair and equitable, reasonably calculated to promote conservation, and carried out to avoid excessive shares. 16 U.S.C. §1851(a)(4). The [National Standard 4 guidelines](#) elucidate these requirements. 50 C.F.R. § 600.325. With regard to allocations, the guidelines provide, among other things: “Where relevant, judicial guidance and government policy concerning the rights of treaty Indians and aboriginal Americans must be considered in determining whether an allocation is fair and equitable.” *Id.* § 600.325(c)(3)(i)(B). The guidelines also note factors relevant to the FMP’s objectives that should be considered when designing an allocation scheme, such as “economic and social consequences of the scheme, food production,...dependence on the fishery by present participants and coastal communities, ...opportunity for new participants to enter the fishery...” 50 C.F.R. § 600.325(c)(3)(iv). NMFS also has a [Fisheries Allocation Review Policy](#) (NMFS Procedure 01-119-01, July 27, 2016) that encourages the use of adaptive management to help ensure that fisheries allocations are periodically evaluated. That policy uses the following terms: “social and economic impacts,” “the social, economic, and ecological performance of the fishery,” and “economic, social and ecological aspects of the fishery.” Although demographic data are used in assessing social and economic impacts, the social and economic performance or aspects of the fishery, the use of demographic data is explicit in the following statement.

An allocation review is a structured review of current allocations based on adaptive management (i.e., evaluating successful attainment of management objectives) to determine if further action is required. The purpose is to determine if current management objectives are being achieved through the existing allocation, with the caveat that management objectives are up to date and address the relevant operational, economic, social and ecological aspects of the

fishery, including ... new and expected changes in such things as climate, demography, technology, etc.

National Standard 8 requires conservation and management measures, consistent with MSA conservation requirements, to consider the importance of fishery resources to fishing communities by utilizing economic and social data that are based upon the best scientific information available in order to provide for the sustained participation of such communities; and to the extent practicable, minimize adverse economic impacts on such communities. 16 U.S.C. § 1851(a)(8). When addressing these requirements, the [National Standard 8 \(NS8\) guidelines](#) provide that both consumptive and non-consumptive uses of fishery resources should be considered. 50 C.F.R. § 600.345(c)(4). “Fishing community” is defined under the MSA as a “community which is substantially dependent on or substantially engaged in the harvest or processing of fishery resources to meet social and economic needs, and includes fishing vessel owners, operators, and crew and United States fish processors that are based in such community.” 16 U.S.C. § 1802(17); 50 C.F.R. § 600.345(b)(3). The NS8 guidelines further explain: “A fishing community is a social or economic group whose members reside in a specific location and share a common dependency on commercial, recreational, or subsistence fishing or on directly related fisheries-dependent services and industries (for example, boatyards, ice suppliers, tackle shops).” 50 C.F.R. § 600.345(b)(3). The guidelines identify the fishery impact statement (see 16 U.S.C. § 1853(a)(9) text below) as an “appropriate vehicle” for the analysis of this standard and allow for the use of qualitative and quantitative information. 50 C.F.R. § 600.345(c)(2). National Standard 8 does not itself authorize data collection or study, but the guidelines encourage, “[i]n cases where data are severely limited, effort should be directed to identifying and gathering needed data.” *Id.*

While **National Standard 9** is focused on minimizing bycatch and bycatch mortality to the extent practicable, 16 U.S.C. § 1851(a)(9), the National Standard 9 guidelines include, in addition to ecological factors, consideration of these social and economic factors: changes in fishing, processing, disposal, and marketing costs; changes in fishing practices and behavior of fishermen; changes in the economic, social, or cultural value of fishing activities and non-consumptive uses of fishery resources; changes in the distribution of benefits and costs; and social effects. 50 C.F.R. § 600.350(d)(3)(i)(E-F, H-J).

National Standard 10 (promoting safety of human life at sea), 16 U.S.C. § 1851(a)(10), does not explicitly mention economic or social factors. However, economic or social data may help inform consideration of the feasibility and effects of potential mitigation measures, including examples described in the National Standard 10 guidelines: tailoring gear requirements to provide for smaller or lighter gear for smaller vessels; setting seasons to avoid hazardous weather; providing for seasonal or trip flexibility to

account for bad weather (weather days); limiting the number of participants in the fishery; spreading effort over time and area to avoid potential gear and/or vessel conflicts; and implementing measures that reduce the race for fish and resulting incentives to take additional risks with respect to vessel safety. 50 C.F.R. § 600.355(e)(1, 2, 4, 6-8).

1. Required and Discretionary Elements in FMPs

In addition to the national standards, the MSA contains required elements for FMPs and permissible, discretionary elements. Demographic and other economic and social data and the analyses that use these data are relevant to the below-described FMP provisions.

Required FMP Provisions

Section 303(a) of the MSA requires that FMPs shall:

- “contain a description of the fishery, including, but not limited to, the number of vessels involved, the type and quantity of fishing gear used, the species of fish involved and their location, the cost likely to be incurred in management, actual and potential revenues from the fishery, any recreational interests in the fishery, and the nature and extent of foreign fishing and Indian treaty fishing rights, if any...” (16 U.S.C. § 1853(a)(2))
- “specify the pertinent data which shall be submitted to the Secretary with respect to commercial, recreational, charter fishing, and fish processing in the fishery, including, but not limited to, ... areas in which fishing was engaged in,...economic information necessary to meet the requirements of this chapter....” (*Id.* § 1853(a)(5)).
- “include a fishery impact statement for the plan or amendment ... which shall assess, specify, and analyze the likely effects, if any, including the cumulative conservation, economic, and social impacts, of the conservation and management measures on, and possible mitigation measures for—
 - (A) participants in the fisheries and fishing communities affected by the plan or amendment;
 - (B) participants in the fisheries conducted in adjacent areas under the authority of another Council, after consultation with such Council and representatives of those participants; and

(C) the safety of human life at sea, including whether and to what extent such measures may affect the safety of participants in the fishery...” (*Id.* § 1853(a)(9)).

- “include a description of the commercial, recreational, and charter fishing sectors which participate in the fishery, including its economic impact, and, to the extent practicable, quantify trends in landings of the managed fishery resource by the commercial, recreational, and charter fishing sectors...” (*Id.* § 1853(a)(13)).
- “to the extent that rebuilding plans or other conservation and management measures which reduce the overall harvest in a fishery are necessary, allocate, taking into consideration the economic impact of the harvest restrictions or recovery benefits on the fishery participants in each sector, any harvest restrictions or recovery benefits fairly and equitably among the commercial, recreational, and charter fishing sectors in the fishery...” (*Id.* § 1853(a)(14)).

In addition, section 304(e) of the MSA requires that, for overfished fisheries, FMPs and regulations must “allocate both overfishing restrictions and recovery benefits fairly and equitably among sectors of the fishery.” *Id.* § 1854(e)(4)(B).

Discretionary FMP Provisions

The following management measures are not required in FMPs, but if included therein, must be consistent with statutory requirements.

- Section 303(b)(6) of the MSA provides that an FMP may establish a limited access system (LAS)¹⁰ for the fishery in order to achieve optimum yield. When establishing an LAS, the Council and NMFS must take into account present participation in the fishery; historical fishing practices in, and dependence on, the fishery; the economics of the fishery; the capability of fishing vessels used in the fishery to engage in other fisheries; the cultural and social framework relevant to the fishery and any affected fishing communities; the fair and equitable distribution of access privileges in the fishery; and any other relevant considerations. 16 U.S.C. § 1853(b)(6).
- For fisheries managed under a LAS, section 303A authorizes the approval of limited access privilege programs (LAPPs). *See id.* § 1853a. LAPPs are required, among other things, to “promote...fishing safety; fishery conservation and

¹⁰ Limited access system (LAS) means “a system that limits participation in a fishery to those satisfying certain eligibility criteria or requirements contained in a fishery management plan or associated regulation.” 16 U.S.C. § 1802(27).

management; and social and economic benefits,” and prevent accumulation of excessive shares of privileges. *Id.* § 1853a(c)(1)(C).

- In developing a LAPP, a Council or NMFS shall:
 - Establish procedures to ensure fair and equitable initial allocations, including consideration of “current and historical harvests; employment in the harvesting and processing sectors; investments in, and dependence upon, the fishery; and the current and historical participation of fishing communities.” *Id.* § 1853a(c)(5)(A)(i)-(iv).
 - Consider the basic cultural and social framework of the fishery, especially through the (i) development of policies to promote the sustained participation of small owner-operated fishing vessels and fishing communities that depend on the fisheries, including regional or port-specific landing or delivery requirements; and (ii) procedures to address concerns over excessive geographic or other consolidation in the harvesting or processing sectors of the fishery. *Id.* § 1853a(c)(5)(B).
 - Include measures to assist, when necessary and appropriate, entry-level and small vessel owner-operators, captains, crew, and fishing communities through set-asides of harvesting allocations, including providing privileges, which may include set-asides or allocations of harvesting privileges, or economic assistance in the purchase of limited access privileges. *Id.* § 1853a(c)(5)(C).
 - Authorize limited access privileges to harvest fish to be held, acquired, used by, or issued under the system to persons who substantially participate in the fishery, including in a specific sector of such fishery. *Id.* § 1853a(c)(5)(E).
- A fishing community¹¹ may be eligible to participate in a LAPP if it meets eligibility requirements, which include:
 - Meeting criteria developed by the relevant Council that are approved by NMFS. *See id.* § 1853a(c)(3)(A)(i)(II). In developing participation criteria for eligible communities, the Council shall consider, among other things, traditional fishing or processing

¹¹ *See* National Standard 8 explanation above for text of “fishing community” definition from 16 U.S.C. § 1802(17). Voluntary “regional fishery associations” may also be eligible to participate in LAPPs if they meet eligibility criteria, including criteria developed by the relevant Council that are approved by NMFS. *See id.* § 1853a(c)(4).

practices in, and dependence on, the fishery; the cultural and social framework relevant to the fishery; economic barriers to access to fishery; the existence and severity of projected economic and social impacts associated with implementation of LAPPs on harvesters, captains, crew, processors, and other businesses substantially dependent upon the fishery in the region or subregion; and the potential for improving economic conditions in remote coastal communities lacking resources to participate in harvesting or processing activities in the fishery. See *id.* § 1853a(c)(3)(B)(i)-(iv), (vi).

- Submitting to NMFS for approval a community sustainability plan that demonstrates how the plan will address the social and economic development needs of coastal communities, including those that have not historically had the resources to participate in the fishery. See *id.* § 1853a(c)(3)(A)(i)(IV).

LAPPs fall under the umbrella of “catch shares.” This term does not appear in the MSA but is a general term that refers to fishery management strategies that allocate a specific portion of the total allowable fishery catch to individuals, cooperatives, communities, or other entities. In its 2017 [Catch Share Policy](#) (NMFS Policy 01-121, January 14, 2017), NMFS explicitly encouraged Councils to “*consider endorsing the obligatory submission of data, including social and economic data, in return for the use of the public’s fishery resources.*” Catch Share Policy at 18 (emphasis in original). NMFS explained that “[i]mproved social and economic data are also key for better conservation and management for fisheries under any management regime. These data are essential to computing and tracking allocations, and conducting analyses of the relative economic values and impacts of different fishery sectors.”¹²

3. Region-Specific Provisions

Demographic data and the analyses they support are relevant to the following two region-specific provisions.

- Western Alaska Community Development Quota Program: The goals of this program are providing eligible western Alaska villages with the

¹² Catch Share Policy at 18. The MSA also provides that “[e]ach Council shall establish...a scientific and statistical committee [SSC] to assist it in the development, collection, evaluation, and peer review of such statistical, biological, economic, social, and other scientific information as is relevant to such Council’s development and amendment of any fishery management plan.” *Id.* § 1852(g)(1)(A). Each SSC “shall provide its Council ongoing scientific advice for fishery management decisions, including ... reports on... social and economic impacts of management measures...” *Id.* § 1852(g)(1)(B).

opportunity to participate and invest in Bering Sea and Aleutian Islands fisheries, supporting economic development, alleviating poverty and providing economic and social benefits for residents, and achieving sustainable and diversified local economies. 16 U.S.C. § 1855(i)(1).

- Western Pacific Community Development Program: For any fishery under the authority of the Western Pacific Fishery Management Council, the MSA authorizes the establishment of a community development program in order to provide access to such fisheries for western Pacific communities that participate in the program. *Id.* § 1855(i)(2). The eligibility criteria include, among other things, that a community consist of residents who are descended from the aboriginal people indigenous to the area who conducted commercial or subsistence fishing using traditional fishing practices in the waters of the Western Pacific region. *Id.* § 1855(i)(2)(B)(iii).

4. Information Collection

This section highlights some of the MSA's provisions related to information collection. Under MSA section 303(a), FMPs are required to "specify the pertinent data which shall be submitted to the Secretary with respect to commercial, recreational, charter fishing, and fish processing in the fishery, including, but not limited to, ... areas in which fishing was engaged in,...economic information necessary to meet the requirements of this chapter...." 16 U.S.C. § 1853(a)(5) (required provision). MSA section 303(b) provides that FMPs may require fish processors who first receive fish to submit data necessary for the conservation and management of the fishery. *Id.* § 1853(b)(7) (discretionary provision).

FMPs may require permits in a fishery, *id.* § 1853(b)(1), and also require observers on board fishing vessels for the purpose of collecting data necessary for the conservation and management of the fishery, *id.* § 1853(b)(8).

In addition, FMPs may "prescribe such other measures, requirements, or conditions and restrictions as are determined to be necessary and appropriate for the conservation and management of the fishery," *id.* § 1853(b)(14).

MSA section 402(a) provides that a Council may request that NMFS implement an information collection program, if the Council determines that "additional information would be beneficial for developing, implementing, or revising a fishery management plan or for determining whether a fishery is in need of management." *Id.* § 1881a(a)(1). If NMFS determines the need is justified, the agency will promulgate regulations for the program. NMFS may also implement an information collection or observer program, on its own initiative. *Id.* § 1881a(a)(2).

Appendix 3: NOAA FY 22–26 Strategic Plan Support for Demographic and Other Economic and Social Data and Analyses

The NOAA FY22–26 Strategic Plan includes three overarching priorities. NOAA can meet none of them well without demographic and other economic and social data and analyses, which it can use to increase the effectiveness and equity of its products, services, and policies by assessing how different groups access, respond to and are affected by them and by proposed changes to them.

1. Building a Climate Ready Nation by establishing NOAA as the primary federal authoritative provider of climate information and services in the whole-of-government response to tackling the climate crisis;
2. Integrating equity into our core operations; and
3. Promoting economic development while maintaining environmental stewardship with a focus on advancing the New Blue Economy.

The following, which is one of the seven key operating principles identified in the Strategic Plan, requires demographic information on those who use NOAA products and services.

Equity is central to how the agency develops and delivers, and how it builds a workforce.

Similarly, the following statements in the Strategic Goal Summary to Make Equity Central to NOAA’s Mission make it clear that the attainment of that goal requires demographic data on those who use NOAA products and services.

NOAA will strive to ensure the needs of America’s underserved and vulnerable populations are met through delivery of services, education and training to prepare all communities for increasing extreme weather and climate hazards. NOAA [will] focus on partnerships that will increase its reach to underserved and vulnerable communities....

The Strategic Plan includes several Strategic Objectives for each of its three overarching priorities. As noted below, NOAA needs demographic and other economic and social data and analyses to meet many of those Strategic Objectives. Below, we list only the Strategic Objectives and related actions with a clear link to such data and analyses.

STRATEGIC OBJECTIVE 1.1: Enhance Service Delivery to Partners

1.1.3: Provide Science-Based Use-Inspired Decision Support Tools

Demographic data on those who use NOAA products and services and analyses of how different demographic groups respond to them can inform the development of decision support tools.

STRATEGIC OBJECTIVE 1.2: Improve Environmental Predictions and Projections

1.2.4: Enhance Monitoring and Modeling for Mitigation and Adaptation Strategies

Demographic data on those who use NOAA products and services and analyses of how different demographic groups respond to them can inform modeling for mitigation and adaptation strategies.

STRATEGIC OBJECTIVE 1.3: Advance Integrated Breakthrough Climate Research

The following is in the introduction to this strategic objective.

NOAA has a history of issuing ecological forecasts to support those with the responsibility of managing human use of U.S. coastal, marine, and Great Lakes resources. Understanding how ecological communities will adjust due to climate associated impacts — and how human interaction with those resources will change as a result — are both necessary to effectively manage living resources for current and future generations. NOAA will enhance its ecological forecasting capabilities to provide improved information on the range and magnitude of such changes.

Demographic data on those who use NOAA products and services can contribute to NOAA's understanding of "how human interaction with those resources will change."

1.3.2: Strengthen Capacity for Social Science Research

Improving demographic and other economic and social data and analyses is a fundamental method to strengthen capacity for social science research.

1.3.3: Advance Cutting-Edge Integrated Research to Operations

Demographic and other economic and social data and analyses can contribute to cutting-edge integrated research and integrating it to operations.

MAKE EQUITY CENTRAL TO NOAA'S MISSION

STRATEGIC OBJECTIVE 2.2: Support Underserved and Vulnerable Communities

2.2.1: Launch National Integrated Community Pilot Projects

Demographic and other economic and social data and analyses can inform the development of integrated community pilot projects that are more likely to be effective, efficient and successful.

2.2.2: Remove Administrative Burdens

Demographic and other economic and social data and analyses can help NOAA identify and remove administrative burdens effectively and efficiently.

2.2.3: Design Easy-to-Use Tools and Services

Demographic and other economic and social data and analyses can inform the design of easy-to-use tools and services that are effective, efficient, and equitable.

2.2.4: Develop New Community Engagement Approaches

Demographic and other economic and social data and analyses can inform the development of new community engagement approaches that will be effective, efficient, and equitable.

2.2.5: Strengthen Social Science and Evaluation Capacity

The following statement in the introduction to this item provides clear support for improving the demographic and other economic and social data and analyses available to NOAA.

NOAA's equity-focused outcomes will be supported by an increase in social science expertise, applying the latest information on social, behavioral and economic factors to communities, households and individuals. NOAA will study fishing engagement and reliance indicators to help understand and manage for social vulnerability and community resilience. NOAA will continue developing mechanisms to integrate this information across multiple programs in collaboration with the communities themselves. NOAA will also strengthen its program assessments to determine whether they are meeting and exceeding requirements including effectively serving underserved and vulnerable communities.

ACCELERATE GROWTH IN AN INFORMATION-BASED BLUE ECONOMY

STRATEGIC OBJECTIVE 3.1: Improve Ocean-Related Data and Data Access

Demographic and other economic and social data and analyses can increase NOAA's ability to do each of the following effectively, efficiently, and equitably:

3.1.1: Promote the Development of the Ocean Enterprise

3.1.2: Innovate Approaches for Data Collection and Forecasting

3.1.3: Increase Stakeholder Engagement

That point is emphasized in the following statement concerning 3.1.3.

NOAA will prioritize social inclusion and equity in every aspect of stakeholder engagement and service delivery.

STRATEGIC OBJECTIVE 3.2: Strengthen Established Sectors of the Blue Economy

Demographic and other economic and social data and analyses can increase NOAA's ability to do each of the following effectively, efficiently, and equitably:

3.2.1: Improve Adaptive Fisheries Management

3.2.2: Expand Sustainable Marine Tourism and Recreation Opportunities

3.2.3: Support Sustainable Development of Offshore Renewable Energy

STRATEGIC OBJECTIVE 3.3: Improve Resilience of Coastal Communities and Economies

Demographic and other economic and social data and analyses can increase NOAA's ability to do each of the following effectively, efficiently, and equitably:

3.3.2: Reduce Risk from Coastal and Environmental Hazards

3.3.3: Support Responsible Coastal Development and Management

STRATEGIC OBJECTIVE 3.4: Protect and Restore Marine Life and Ocean, Coastal, and Great Lakes Ecosystems

Demographic and other economic and social data and analyses can increase NOAA's ability to do each of the following effectively, efficiently, and equitably

3.4.1: Recover and Conserve Protected Species

3.4.2: Protect, Conserve and Restore Coastal, Ocean and Great Lakes Lands, Waters and Resources

3.4.3: Advance Science for Stewardship and Conservation

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