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ARCTIC RESEARCH PRIORITIES: ANALYSIS OF NATIONAL POLICY DRIVERS

August 2020

Introduction and Background

The United States, by virtue of Alaska, is an Arctic nation and has substantial political, socio-economic, and environmental interests in the region. National policy drivers reflect long-standing U.S. interests in the Arctic, and consequently serve as a foundation for the Interagency Arctic Research Policy Committee (IARPC) five-year Arctic Research Plan – a comprehensive plan for the overall interagency federal effort in Arctic research.

The following four overarching policy drivers guided the inclusion of goals and the implementation of the current plan (2017-2021) and will help to guide the discussion of scope of the next plan FY 2022-2026:

1. Enhance the well-being of Arctic residents (*Well-Being*);
2. Advance stewardship of the Arctic environment (*Stewardship*);
3. Strengthen national and regional security (*Security*); and
4. Improve understanding of the Arctic as a component of planet Earth (*Arctic-Global Systems*).

The policy drivers reflect the collective priorities of the IARPC federal agencies. These priorities are derived from the major U.S. policy documents of the past 50 years, including the following:

- Richard Nixon's 1971 National Security Decision Memorandum (NSDM-144);
- Ronald Reagan's 1983 National Security Decision Directive (NSDD-90);
- Bill Clinton's 1994 Presidential Decision Directive (PDD/NSC-26);
- The 1984 Arctic Research and Policy Act (ARPA);
- George Bush's 2009 Arctic Policy Directive (NSPD 66/HSPD 25);
- Barack Obama's 2013 National Strategy for Arctic Region (NSAR) and the 2014 NSAR Implementation Plan;
- Policy documents developed in 2015 and 2016 by the White House Arctic Executive Steering Committee;
- Donald Trump's 2018 National Ocean Policy (from Executive Order 13840);
- The 2019 Presidential Memorandum on Ocean Mapping of the U.S. Exclusive Economic Zone and the Shoreline and Nearshore of Alaska;
- The 2020 Presidential Memorandum on Safeguarding U.S. National Interests in the Arctic and Antarctic Regions;
- Biennial Arctic Science Ministerial joint statements (2016, 2018); and
- Annual presidential memoranda on White House Research and Budgetary Priorities.

Analysis

The goal of the analysis is to determine whether the four policy drivers, first used to guide the development and implementation of the current Arctic Research Plan FY2017-2021, maintain their alignment with the current national Arctic priorities. The analysis encompasses a review of the major U.S. policy documents relating to the Arctic between December 2016 (the release date of the current plan) and August 2020. Documents include presidential memoranda and executive orders, special committees' reports, and other federal policy directives. The selection of documents is based on overall relevance to the Arctic region or national science and technology priorities and is limited to U.S. federal policies.

A total of 12 documents with dates of release from August 2017 to June 2020 were analyzed (Appendix, Figure 1). Each document was searched for keywords relevant to the four policy drivers (Appendix, Figure 2).

Enhance the Well-Being of Arctic Residents

The *Well-Being* policy driver is addressed in 10 of the policy documents with an emphasis on the themes of cultural vibrancy, economic development and growth, and health. The theme of domestic and foreign economic development is addressed in eight policy documents, with emphasis on U.S. national, as well as foreign, interests in the Arctic region. Economic growth is mentioned in the context of ocean mapping and the nation's overall research and development priorities.

“American leadership in science and technology is critical to achieving this Administration’s highest priorities: national security, economic growth, and job creation.” (*FY 2019 Administration Research and Development Budget Priorities*)

“The Arctic region has strategic and economic importance.” (*Science & Technology Highlights in the Second Year of the Trump Administration*)

Advance Stewardship of the Arctic Environment

The *Stewardship* policy driver is addressed in six documents relevant to the U.S. national and foreign interests in the Arctic, with an emphasis on the marine environment and globally driven changes themes. The marine environment theme is addressed in the U.S. ocean priorities. The globally driven changes theme is also addressed in the oceans context, as well as in the national overall science and technology priorities and U.S. foreign policy priorities in the region.

“To improve our Nation’s understanding of our vast ocean resources and to advance the economic, security, and environmental interests of the United States, it is the policy of the United States to support the conservation, management, and balanced use of America’s oceans by exploring, mapping, and characterizing the U.S. EEZ, including mapping the Arctic and Sub-Arctic shoreline and nearshore of Alaska.” (*Memorandum on Ocean Mapping of the US EEZ & the Shoreline & Nearshore of Alaska*)

“The rapidly changing conditions in the Arctic have national security, commerce, and transportation implications...Departments and agencies should prioritize research investments that enhance our ability to observe, understand, and predict the physical, biological, and socio-economic processes of the Arctic to protect and advance American interests.” (*2022 Administration Research and Development Budget Priorities and Cross-cutting Actions*)

Strengthen National and Regional Security

The *Security* policy driver is addressed in 11 documents relevant to the U.S. national and foreign interests in the Arctic, with an emphasis on the national and regional security, as well as risk management and emergency preparedness themes. The national and regional security policy themes are addressed in eight documents with relevance to the nation's overall research, technology, and development interests, as well national security and American oceans mapping and research.

“To help protect our national interests in the Arctic and Antarctic regions, and to retain a strong Arctic security presence alongside our allies and partners, the United States requires a ready, capable, and available fleet of polar security icebreakers that is operationally tested and fully deployable by Fiscal Year 2029.” (*Memorandum on Safeguarding National Interests in the Arctic & Antarctic Regions*)

The risk management and emergency preparedness policy themes are addressed in the context of ocean research and U.S. foreign research collaboration in the Arctic region.

“The changing conditions of the Arctic...impact homeland and national security operations such as search and rescue, oil spill preparedness and response...Accurate operational forecasts of the environment...will be critical to safe and efficient operations (defense and commercial) in the Arctic.” (*Science & Technology for America’s Oceans: A Decadal Vision*)

Improve Understanding of the Arctic as a Component of Planet Earth

The *Arctic Global Systems* policy driver is addressed in five documents relevant to the U.S. national and foreign interests in the Arctic, with an emphasis on how physical changes in the Arctic impact the lower latitudes (e.g., sea level and meteorological conditions). Existing and potential impact of the changes in the Arctic region on the lower latitudes are addressed in the nation’s overall science, technology, and development priorities, as well as in the context of the American oceans mapping and research and U.S. international science priorities in the region.

“Arctic dynamics influence global geophysical and biochemical systems, including freshwater storage and export, ocean-ice-atmospheric interactions, weather and climate dynamics, primary production, and the ocean’s response to acidification, while also shaping human activities in the region.” (*Science & Technology for America’s Oceans: A Decadal Vision*)

“Changes in the Arctic are driven by environmental, climatic, social and economic factors that are local, regional and global. Feedback from the Arctic climatic system, in turn, has global repercussions affecting the environment, people and economies worldwide... The complexity of regional and global impacts of a warming Arctic and of associated ecosystem changes regarding land, freshwater and oceans have not yet been fully assessed and quantified. Understanding and responding to this challenge requires joint efforts by the global community.” (*2nd Arctic Science Ministerial – Joint Statement*)

Conclusions

The analysis has revealed that the policy drivers – (1) enhance the well-being of Arctic residents, (2) advance stewardship of the Arctic environment, (3) strengthen national and regional security, and (4) improve understanding of the Arctic as a component of planet Earth – remain robust and are consistent with the prevalent federal considerations regarding the Arctic region. The strongest emphases fall on the economy and security policy themes. Current national priorities have emphasized the need to advance ocean mapping and research in the Arctic to help foster regional as well as national economic and homeland security.

As of August 2020, the current Administration has not released any updated or new Arctic Policy Directives or National Strategy for the Arctic Region. Still, the U.S. national and foreign policy continues to have a strong emphasis on the Arctic region, which is evident from the array of national documents reviewed above. Moreover, the Arctic has been highlighted as one of the Administration's budgetary research and development priorities for the FY 2022. The White House has also taken an active role in shaping the course of Arctic research by signing a Joint Statement at the 2nd Arctic Science Ministerial in October 2018 and committing "to strengthening, integrating, and sustaining Arctic observations, facilitating access to Arctic data, and sharing Arctic research infrastructure; understanding the regional and global dynamics of Arctic change; and assessing the vulnerability and building resilience of Arctic environments and societies" (2nd Arctic Science Ministerial-Joint Statement).

This paper was prepared by Yekaterina Kontar on behalf of the IARPC Plan Development Steering Group.



Photo: Brandt Meixell/USGS

References

- Arctic Policy Directive (NSPD 66/HSPD 25), January 2009. www.hsd.org/?view&did=750476
- Arctic Research Plan FY 2017-2021. www.iarpcollaborations.org/uploads/cms/documents/iarpc_arctic_research_plan_2017-2021.pdf
- Arctic Research Policy Act (ARPA) of 1984, As Amended. www.nsf.gov/geo/opp/arctic/iarpc/arc_res_pol_act.jsp
- Changes in the Arctic: Background and Issues for Congress (R41153), June 2020. www.crsreports.congress.gov/product/pdf/R/R41153/165
- Executive Order 13840 – Regarding the Ocean Policy to Advance the Economic, Security, and Environmental Interests of the United States, June 2018. www.whitehouse.gov/presidential-actions/executive-order-regarding-ocean-policy-advance-economic-security-environmental-interests-united-states/
- Joint Statement of Ministers - On the occasion of the Second Arctic Science Ministerial. In: 2nd Arctic Science Ministerial, 25-26 October 2018, Berlin, Germany. www.arcticsscienceministerial.org/files/ASM2_Joint_Statement.pdf
- Interagency Arctic Research Policy Committee Biennial Report 2016-2017. www.whitehouse.gov/wp-content/uploads/2018/03/IARPC-Biennial-Report-2016-2017.pdf
- Memorandum for the Heads of Executive Departments and Agencies: FY 2019 Administration Research and Development Budget Priorities. www.whitehouse.gov/sites/whitehouse.gov/files/omb/memoranda/2017/m-17-30.pdf
- Memorandum for the Heads of the Executive Departments and Agencies: FY 2020 Administration Research and Development Budget Priorities. www.whitehouse.gov/wp-content/uploads/2018/07/M-18-22.pdf
- Memorandum for the Heads of Executive Departments and Agencies: Fiscal Year 2021 Administration Research and Development Budget Priorities. www.whitehouse.gov/wp-content/uploads/2019/08/FY-21-RD-Budget-Priorities.pdf
- Memorandum for the Heads of Executive Departments and Agencies: Fiscal Year 2022 Administration Research and Development Budget Priorities and Cross-cutting Actions. www.whitehouse.gov/wp-content/uploads/2020/08/M-20-29.pdf
- Memorandum on Ocean Mapping of the United States Exclusive Economic Zone and the Shoreline and Nearshore of Alaska, November 2019. www.whitehouse.gov/presidential-actions/memorandum-ocean-mapping-united-states-exclusive-economic-zone-shoreline-nearshore-alaska/
- Memorandum on Safeguarding U.S. National Interests in the Arctic and Antarctic Regions, June 2020. www.whitehouse.gov/presidential-actions/memorandum-safeguarding-u-s-national-interests-arctic-antarctic-regions/

National Science Foundation, FY 2021 Budget Request to Congress, February 10, 2020. www.nsf.gov/about/budget/fy2021/pdf/fy2021budget.pdf

National Security Decision Directive 90 - United States Arctic Policy. www.reaganlibrary.gov/sites/default/files/archives/reference/scanned-nsdds/nsdd90.pdf

National Security Decision Memorandum 144 - United States Arctic Policy and Arctic Policy Group. www.hsdl.org/?view&did=750480

National Security Strategy of the United States of America, December 2017. www.whitehouse.gov/wp-content/uploads/2017/12/NSS-Final-12-18-2017-0905.pdf

National Strategy for Arctic Region, May 2013. www.storage.googleapis.com/arcticgov-static/publications/related/nat_arctic_strategy.pdf

Ocean Science and Technology Highlights: Selected Projects from our Federal Agencies, June 2018. www.whitehouse.gov/wp-content/uploads/2018/06/Ocean-Science-and-Technology-Highlights-Selected-Projects-From-Our-Federal-Agencies.pdf

President's Council of Advisors on Science and Technology (PCAST) June 2020 Report: Recommendations for Strengthening American Leadership in Industries of the Future. www.science.osti.gov/-/media/_/pdf/about/pcast/202006/PCAST_June_2020_Report.pdf

Presidential Decision Directive/NSC 26 - United States Policy on the Arctic and Antarctic Regions. www.fas.org/irp/offdocs/pdd/pdd-26.pdf

Science and Technology for America's Oceans: A Decadal Vision, November 2018. www.whitehouse.gov/wp-content/uploads/2018/11/Science-and-Technology-for-Americas-Oceans-A-Decadal-Vision.pdf

Science & Technology Highlights in the First Year of the Trump Administration. www.whitehouse.gov/wp-content/uploads/2018/03/Administration-2017-ST-Highlights.pdf

Science & Technology Highlights in the Second Year of the Trump Administration. www.whitehouse.gov/wp-content/uploads/2019/02/Administration-2018-ST-Highlights.pdf

Appendix

Table 1. List of analyzed documents.

| Policy Document | Date of Public Release | Retrieved From |
|---|------------------------|--|
| FY 2019 Administration Research and Development Budget Priorities | August 17, 2017 | www.whitehouse.gov/sites/whitehouse.gov/files/ostp/fy2019-administration-research-development-budget-priorities.pdf |
| National Security Strategy of the United States of America | December 2017 | www.whitehouse.gov/wp-content/uploads/2017/12/NSS-Final-12-18-2017-0905.pdf |
| IARPC Biennial Report 2016-2017 | March 2018 | www.iarpccollaborations.org/uploads/cms/documents/iarpc-biennial-report-2016-2017.pdf |
| Ocean Science and Technology Highlights: selected Projects from Our Federal Agencies | June 2018 | www.whitehouse.gov/wp-content/uploads/2018/06/Ocean-Science-and-Technology-Highlights-Selected-Projects-From-Our-Federal-Agencies.pdf |
| FY 2020 Administration Research and Development Budget Priorities | July 31, 2018 | www.whitehouse.gov/wp-content/uploads/2018/07/M-18-22.pdf |
| Arctic Science Ministerial II – Joint Statement of Ministers | October 26, 2018 | www.arcticsscienceministerial.org/files/ASM2_Joint_Statement.pdf |
| Science and Technology for America's Oceans: A Decadal Vision | November 2018 | www.whitehouse.gov/wp-content/uploads/2018/11/Science-and-Technology-for-Americas-Oceans-A-Decadal-Vision.pdf |
| Science & Technology Highlights in the Second Year of the Trump Administration | March 1, 2019 | www.whitehouse.gov/wp-content/uploads/2019/02/Administration-2018-ST-Highlights.pdf |
| Fiscal Year 2021 Administration Research and Development Budget Priorities | August 30, 2019 | www.whitehouse.gov/wp-content/uploads/2019/08/FY-21-RD-Budget-Priorities.pdf |
| Presidential Memorandum on Ocean Mapping of the United States Exclusive Economic Zone and the Shoreline and Nearshore of Alaska | November 19, 2019 | www.whitehouse.gov/presidential-actions/memorandum-ocean-mapping-united-states-exclusive-economic-zone-shoreline-nearshore-alaska/ |
| Presidential Memorandum on Safeguarding U.S. National Interests in the Arctic and Antarctic Regions | June 9, 2020 | www.whitehouse.gov/presidential-actions/memorandum-safeguarding-u-s-national-interests-arctic-antarctic-regions/ |
| FY 2022 Administration Research and Development Budget Priorities and Cross-cutting Actions | August 14, 2020 | www.whitehouse.gov/wp-content/uploads/2020/08/M-20-29.pdf |

Table 2. References of the policy drivers outlined in the current Arctic Research Plan in the U.S. policy documents from 2017- 2020.

| Policy Driver | Key Words | Related Key Words | Policy Documents, 2017-2020 |
|----------------------|------------------|---------------------------------------|--|
| Well-Being | Well-Being | | IARPC Biennial Report 2016-2017 FY 2022 Administration R&D Budget Priorities and Cross-cutting Actions |
| | Health | Wellness | FY 2020 Administration R&D Budget Priorities FY 2021 Administration R&D Budget Priorities IARPC Biennial Report 2016-2017 Memorandum on Ocean Mapping of the US EEZ & the Shoreline & Nearshore of Alaska |
| | Economy | Resources | 2nd Arctic Science Ministerial – Joint Statement FY 2019 Administration R&D Budget Priorities FY 2021 Administration R&D Budget Priorities FY 2022 Administration R&D Budget Priorities and Cross-cutting Actions IARPC Biennial Report 2016-2017 Memorandum on Ocean mapping of the US EEZ & the Shoreline & Nearshore of Alaska Memorandum on Safeguarding U.S. National Interests in the Arctic & Antarctic Regions S&T for America's Oceans: A Decadal Vision, November 2018 S&T Highlights in the Second Year of the Trump Administration |
| | Development | Growth, Natural Resources, Energy | IARPC Biennial Report 2016-2017 FY 2022 Administration R&D Budget Priorities and Cross-cutting Actions |
| | Culture | Society, Lifestyle, Heritage | 2nd Arctic Science Ministerial – Joint Statement |
| | Prosperity | Vitality | IARPC Biennial Report 2016-2017 FY 2022 Administration R&D Budget Priorities and Cross-cutting Actions National Security Strategy of the United States of America, December 2017 |
| | Stewardship | Leadership, Management | Memorandum on Ocean Mapping of the US EEZ & the Shoreline & Nearshore of Alaska FY 2022 Administration R&D Budget Priorities and Cross-cutting Actions |
| | Environment | Habitat, Nature. Ecosystem, Biosphere | IARPC Biennial Report 2016-2017 FY 2022 Administration R&D Budget Priorities and Cross-cutting Actions S&T for America's Oceans: A Decadal Vision, November 2018 |

| Policy Driver | Key Words | Related Key Words | Policy Documents, 2017-2020 |
|----------------------|---------------|--|---|
| Stewardship | Change | Adaptation | 2nd Arctic Science Ministerial – Joint Statement FY 2021 Administration R&D Budget Priorities FY 2022 Administration R&D Budget Priorities and Cross-cutting Actions IARPC Biennial Report 2016-2017 S&T Highlights in the Second Year of the Trump Administration |
| | Local Action | Community | |
| Security | Security | National Security, Regional Security, Safety Defense, Protection | FY 2019 Administration R&D Budget Priorities FY 2020 Administration R&D Budget Priorities FY 2021 Administration R&D Budget Priorities FY2022 Administration R&D Budget Priorities and Cross-cutting Actions IARPC Biennial Report 2016-2017 Memorandum on Ocean Mapping of the US EEZ & the Shoreline & Nearshore of Alaska National Interests in the Arctic & Antarctic Regions National Security Strategy of the United States of America, December 2017 S&T for America's Oceans: A Decadal Vision, November 2018 |
| | Emergency | Emergency Preparedness, Emergency Response, Crisis, Disaster | 2nd Arctic Science Ministerial – Joint Statement Ocean S&T Highlights, June 2018 |
| | Risk | Risk Management, Risk Reduction, Uncertainty, Vulnerability | Ocean S&T Highlights, June 2018 |
| | Prediction | Forecasting | IARPC Biennial Report 2016-2017 FY2022 Administration R&D Budget Priorities and Cross-cutting Actions 2nd Arctic Science Ministerial – Joint Statement |
| | Global System | Planet, Earth | 2nd Arctic Science Ministerial – Joint Statement FY 2021 Administration R&D Budget Priorities IARPC Biennial Report 2016-2017 S&T for America's Oceans: A Decadal Vision, November 2018 S&T Highlights in the Second Year of the Trump Administration |
| Arctic Global System | Weather | Meteorological Conditions, Climate, Temperature, Weather Systems | IARPC Biennial Report 2016-2017 |
| | Sea Level | | |
| | Cryosphere | | IARPC Biennial Report 2016-2017 |