

## NOAA's Northwest Fisheries Science Center

# Vivid Description of the Future 2025

## WELCOME

Visit any part of the Northwest Fisheries Science Center (NWFS) and you will find a place teeming with smart, talented people who are passionate about producing high-quality science in support of the National Oceanic and Atmospheric Administration (NOAA) mission and in service of the public good. No matter their role, they see themselves as stewards of the aquatic ecosystem of the Pacific Northwest and beyond. They are proud to belong to an agency that is known for:

### A Science in Service Ideal

Flowing alongside serious commitment to producing high-quality science with impeccable integrity runs a spirit of enthusiastic dedication toward making a contribution that matters; toward giving of oneself to the promise of science and its power to positively alter the world in ways large and small.

### State-of-the-Art Habitats for Science and People

The family of facilities—headquarters, research stations, and remote sites—that constitute NWFS are a tangible testament to the values and outcomes revered by those who call it their workplace home. Cutting-edge research and supporting activities are conducted efficiently in comfortable workspaces that foster both independent endeavors and collaborative effort. Modern technology enables efficient, boundary-pushing science, innovation, and flexibility. While the shapes and configurations may vary, all NWFS facilities universally provide a welcoming space for employees, partners, and the public.



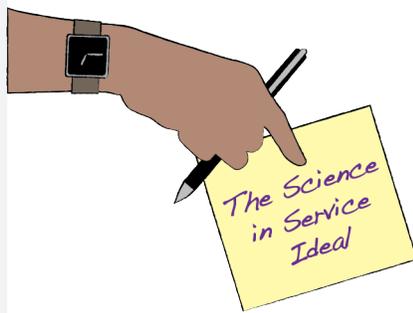
**NOAA**  
**FISHERIES**  
Northwest Fisheries  
SCIENCE CENTER

## Counting on Collaboration: Partnership, Public Outreach, and Education

Admired for its role as a convener, connector, and collaborator, the Center has earned a leadership reputation not for seeking to stand head and shoulders above others, but rather for enabling outcomes that rest on the shoulders of giants, past and present. By engaging both traditional and nontraditional partners and applying the “1 + 1 > 2” principle to its alliances, the Center creates outcomes far greater than the sums of their parts.

## Organizational Excellence

People line up to be part of the Center, drawn by an organization that is optimally designed and aligned to fulfill its mission, while offering a level of autonomy that enables scientific inquiry to flourish. The Center operates as an organic whole with a deep commitment to employee engagement, as evidenced by its practice of forming teams to develop customized approaches for every aspect of the organization. It is a tight-knit culture that values autonomy and collaboration; expects leadership and science excellence; and respects diverse roles, talents, traits, and backgrounds.



## The Science in Service Ideal

NWFSC is a preeminent marine and aquatic research institution, internationally renowned for its integrity and the relentless pursuit of research that contributes to the reduction of key uncertainties hampering the management of natural resources.

The Center is seen as integral to realizing the NOAA and National Marine Fisheries Service (NMFS) missions of sustainable fisheries; conservation, protection, and recovery of marine species and their habitats; and organizational excellence. Fishery managers and regional policymakers consistently report that the Center can be relied on to provide decision-makers with increased understanding and the best options as they weigh alternatives affecting the function of marine and freshwater ecosystems. The management community and the Center work closely together, which ensures that the Center’s priorities are well aligned with management needs and that the full range of its capabilities are understood and utilized. At the same time, the Center maintains the respectful distance from policymakers required to ensure scientific independence.

The diversity of scientific research conducted at the Center reflects the need for a deep and broad understanding of ecosystem structure. The interconnectedness of aquatic, climate, economic, technological, and human systems is evident in the wide variety of natural, social, and other scientists who work at the Center. A penchant for cross-functional, cross-disciplinary teams ensures that multiple perspectives are regularly used to address complex scientific challenges.

The work of the Center coalesces around seven key social, economic, and environmental outcomes that form an interdependent matrix of scientific research.

### 1. A sustainable, safe, and abundant seafood supply

Ensuring a sufficient, safe supply of fish and other seafood while maintaining healthy populations and ecosystems is at the core of the NOAA Fisheries mission. The Center provides leading-edge science supporting this societal priority. For capture fisheries, this includes efficient surveys of marine resources and environmental conditions at appropriate spatial and temporal scales, observing social and economic aspects of fisheries, understanding the full impact of fisheries on target and bycaught species, and developing population and ecosystem analyses indicating sustainable harvest levels. Raising cultured seafood is also an important component of ensuring an abundant and safe food supply. Better understanding ways to minimize negative ecological impacts of aquaculture and hatchery production while developing new technologies to maximize safety, output, and other benefits from these efforts is a key part of the Center’s leadership in fisheries science.

### 2. Resilience and adaptation to climate change and forecasting population/ecosystem response

The impact of the changing climate has become increasingly clear and is perhaps the largest challenge to conducting effective natural-resource management in the 21<sup>st</sup> century. The Center is a leader in proactive research to forecast climate impacts on marine and freshwater ecosystems and to identify the best mechanisms for increasing the resilience and adaptation capacity of marine and anadromous species and the habitats on which they depend.

### **3. Advancement toward effective ecosystem-based management**

Thanks in part to the efforts of Center scientists, there is now a broad understanding among scientists, decision-makers, the fishing industry, and the public about what constitutes a healthy marine ecosystem, including its human components. The California Current ecosystem is regularly cited as a successful example of ecosystem-based management and is being used as a model for similar efforts around the world. Stakeholder groups regularly make use of NWFSC ecosystem models to inform decisions about coastal development and resource use.

### **4. Recovery, delisting, and rebuilding of species**

NWFSC scientists work in collaboration with regional partners to evaluate the status of species and provide the leading-edge discovery needed to achieve recovery. They have contributed to measurable increases, delisting, and bycatch reduction across several species and populations. NWFSC research has also contributed key knowledge necessary to protect interdependent elements of the marine systems, genetic variation, and habitat areas to strengthen species' ability to thrive into the future.

### **5. Effective and prioritized habitat actions to support recovered and sustainable populations**

The Center is at the forefront of helping to guide the identification and prioritization of marine and freshwater habitat restoration actions by understanding how species rely on habitat and the root causes of habitat changes, including contamination by toxins and toxicants. This has resulted in actions that lead to habitat restoration, including water quality, benefiting particular life stages of targeted species.

### **6. Abundant, robust wild fish populations to support cultural, economic, and recreational uses**

As a steward of the Pacific Northwest ecosystem, the Center stands with a broad range of stakeholders who share a strong desire to maintain robust wild salmon runs as part of the regional culture. The Center, working with management, executes a coherent research agenda to improve the abundance and diversity of wild fish populations in the region. Research activities include life cycle modeling to evaluate the robustness of populations across their life cycles; monitoring of changes in climate, hydrology, and ocean conditions over time; and physiological studies to better understand the adaptability of salmon as well as other interdependent species to their changing environment. Center scientists and staff successfully integrate their science into a wide range of management decisions impacting fish in the wild.

### **7. Healthy coastal communities**

An important component of NOAA Fisheries' mission is to maintain healthy coastal communities. The Center's reputation for leading-edge applied science includes investigating the human economic and social impacts of alternative management approaches for commercial and recreational fisheries and aquaculture. The Center is respected for effectively evaluating key monetary and nonmonetary aspects of human wellbeing at the intersection of coastal ecosystems and human communities. Center research consistently helps policymakers implement regulations that ensure both natural ecosystems and human communities are vibrant, sustainable, and resilient.

A systemic approach to these priority outcomes requires a balance of scientific depth and breadth, as well as short-term and long-term projects. Adhering to a robust Science Prioritization Process ensures that the Center maintains that balance, even as the boundaries of what is known expand due to the Center's research, and global developments continually reveal new areas of needed inquiry. The Leadership Team uses agreed-upon criteria to identify high-priority projects, review them regularly, and identify areas of focus that reflect gaps between the Center's core work and emerging opportunities and issues. The Leadership Team then charters teams from multiple disciplines and subject-matter expertise to delve into these priority research areas. This fully transparent process fosters robust discussion that provides employees a high degree of clarity about where best to focus their individual and collective efforts and ensures the highest-priority areas receive commensurate levels of investment in time, hiring, energy, and funding.

Disciplined intentionality within defined areas of exploration is balanced by nurturing the Center staff's entrepreneurial spirit and creativity, affording them opportunities to follow their passion and interests in constructive ways. For example, every Center employee can carve out discretionary time for pursuits that are consistent with the broader agency mission but may not be related to their current, immediate work. This structured approach honoring the entrepreneurial spirit is a key differentiator that helps the Center attract and retain the best and brightest staff, for both scientific and support functions.

In addition to progress toward the positive recovery of natural systems and species, the Science in Service ideal has resulted in the Center being widely recognized for the proven clarity and credibility it brings to the linkage between scientific research, ecological sustainability, and socioeconomic health.



## State-of-the-Art Habitats for Science and People

Perhaps the best representation of all that the Center values is the striking facility that stands as a testament to the power of partnership and authentic collaboration. The new Research Center and headquarters campus is the embodiment of visionary stewardship of the resources entrusted to the NWFSC. It is a hive of activity, buzzing with excitement, conveying the promise of discovery, the vigorous exchange of ideas, and housing a diverse population of employees, partners, visiting scientists, and a public that eagerly embraces science.

An innovative approach enabled monies to be invested for construction of the new building and the modernization of all the research stations to equip them for the world-class science they perform.

Today, the Center headquarters and all the research stations exude an air of excellence and vibrancy that is immediately palpable from the first step onto the grounds or into the buildings. Entries double as attractive visitors' centers. Guests and employees are greeted by artful displays of marine life, interactive, real-time educational exhibits showcasing the sights and sounds of the sea and waterways, vivid illustrations of the interconnectedness between natural systems and society, as well as examples of NWFSC science that has contributed to improved understanding of these systems. The rich history of the Center is also visibly acknowledged. The buildings are Gold LEED-certified, solar-powered, with a minimal environmental footprint.

Research and other areas are built for "serendipity and flexibility," enabling the space to be easily reconfigured as projects, experiments, emerging technology, and scientific advances require.

Consistent across each of the facilities is a space serving as a central interactive common area highlighting current work underway in both the science and science support areas and allowing for facility-wide forums. Modern technology likewise connects all the facilities into a reliable and seamless whole.

Labs and technical facilities for all disciplines support the level of activity required for the Center to sustain its preeminent position. To enable high-performance teamwork, employees regularly access an online collaborative workspace through which they can communicate with colleagues locally and afar, collaborate as teams, acquire training, access a directory of employee skills and backgrounds, and view live streaming from leaders and teams describing Center accomplishments and strategic progress.

Smaller collaboration rooms create ample opportunities for colleagues to share, think, and work together on projects, face-to-face or virtually. Work space is set aside for employees who frequently take advantage of short-term assignments outside their base facilities. This cross-pollination enables them to access highly specialized equipment, including advanced and real-time sampling technology. Cross-working also fosters the collaboration that underpins the Center's culture of comradery.

Break areas provide welcoming spaces for employees to gather and connect, indoors and out. Walking/biking trails encircle the grounds; mental and physical fitness areas enable employees to attend to balancing their work day with other demands of life. No visit to a facility is complete without a trip to the docks, where visitors are routinely fascinated by the research vessels/small boat fleet.

In addition to physical space, habitats for science and people provide the right technology at the right time. The Center takes a reasoned approach to eliminating technological approaches and systems that no longer serve fisheries science or the Center's constituencies well. A cross-functional technology team weighs the trade-offs between gambling on new technology and maximizing the tried-and-true. As innate problem-solvers and solution-creators, Center employees ensure that breakthrough-thinking and innovation remain hallmarks of the Center's approach to technology.

Center scientists and operations professionals adeptly bridge the man-the-boats/wade-in-the-water ethos of historic fisheries field work with computer and digital science, creating immediate access to the entirety of real-time data, as well as to the stored knowledge accumulated by NWFSC and her sister organizations. The Center partners with a broad circle of private and public entities to benefit from devices that provide 24/365 information about aquatic patterns and life cycles in critical zones within the region of stewardship.

Stationary and robotic devices hold constant vigil in key locations. Autonomous Underwater Vehicles and drones regularly survey the whole of the ecosystem to send back information from places people cannot go or stay. Manned platforms and boats carry people and state-of-the-art technology that maximizes scientific research and safety while minimizing expense.

Miniaturization, artificial intelligence, digital management, eDNA, and other developing capabilities allow the Center to measure, observe, theorize, experiment, and test at the macro and micro levels in unprecedented ways. Scientists can assess and predict patterns, habits, and other aspects of the aquatic populations by measuring broad, diverse, and sometimes unexpected aspects of the ecosystem. Center staff embrace rapidly advancing improvements in technology for the critical role they play in enabling and magnifying the impact of the scientific inquiry they direct.

## Counting on Collaboration: Partnership, Public Outreach, and Education



The Center invites productive and powerful alliances among a highly diversified base of supporters who bring strategic value and are aligned with the Center's mission and funding objectives. NWFSC continues to build and foster deep relationships with traditional partners, including the Pacific Fisheries Management Council and the Pacific States Marine Fisheries Commission, as well as educational institutions, businesses, tribes, governments, sport and commercial fishermen, and nonprofit organizations, among others. The Center continues to expand its collaborations with ever more disciplines, research organizations, and technologies, consistent with broader trends of scientific research into complex systems. The Center has maintained particularly strong collaborations with its principal academic partners—the University of Washington and Oregon State University—as well as its sister NMFS Science Centers and other NOAA labs.

The Center has also widened its circle to include interested parties that historically were not considered essential to the fisheries science mission, from foodies to big tech. This has led to breakthrough solutions for complex challenges, as well as heightened visibility of marine conservation and fishery science among new audiences.

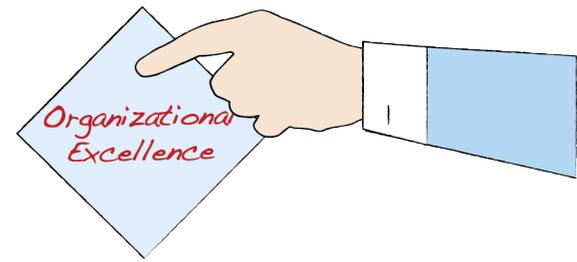
The Center is heralded as a national best practice for its efforts in making research science and ecological assessment approachable by the public. It is frequently cited for: encouraging young people to take an interest in STEM-related fields; dramatically increasing the public's understanding of the intricate relationship between fish, marine mammals, and human actions; and volunteering for K–12 science fairs, school group field trips, interactive classroom talks, etc.

The strength of the Center's partnerships, alliances, and outreach efforts not only nets the Center positive relationships and awareness, but also attracts funding and support. Due to its reputation for environmental stewardship, traditional, nontraditional, and nongovernmental organizations are eager to align with the Center in forming cooperative research and development agreements. These alliances provide new sources for collaborations, technology, and various initiatives aligned with the Center's mission and strategic initiatives. Long-term support and resources become readily available because the Center is so adept at showcasing science's contribution to society and the economy in terms that everyone can understand.

NWFSC customers' advocacy on behalf of the Center positively influences financial and policy decision-makers, including Congress. Between stable annual appropriations and productive partnerships, today's core science programs are supported predominantly through baseline funding. This helps ensure that the Science in Service mission of the organization can withstand the inevitable swings that accompany political shifts. The Center is better able to engage in long-term strategic planning because of greater financial stability from known funding sources.

## Organizational Excellence

The NWFSC organizational structure mirrors the whole-systems approach it takes to the natural ecosystems it researches. Supported by strong collaboration with an administrative, operational, and executive core, the scientific aspects of the organization are flexible and nimble; an organic network of programs and disciplines that can easily collaborate across the Center and reconfigure to match opportunities identified through the Science Prioritization Process. The configuration of professional communities comprising headquarters, research stations, and remote sites clearly reflects the capabilities and roles each contributes to the whole.



The overall organizational structure is clearly aligned and focused on the Center's seven science outcomes. It is organic and networked rather than hierarchical and formal. The structure fosters autonomy and accountability, cross-pollination, and open all-way communication across the Center. Like an orchestra, each function in the Center comprises skilled professionals who perform their part well and are attentive and responsive to how each part works together to further the mission. Employees helped design the organization structure that today produces high levels of clarity, cross-functional teamwork, and improved performance. It stands as a model of what is possible within the highly bureaucratic environment of the federal government.

Administrative and operational services are streamlined with modern and compliant processes, allowing the scientific functions to focus on their role in the mission of the organization. The strong, skilled core group of administrative, operations, and leadership professionals demonstrates a dedication to internal customer focus. Its efforts are efficiently and transparently managed, enabled, and aligned toward the Science in Service ideal. Assets and equipment are available precisely when needed. The Operations, Management, and Information (OMI) Division is organized to provide efficient internal support to science as well as to the robust Outreach and Education initiatives for which the Center is known. In return, the science community is both quick to respond to administrative and operational requirements and vocal in their respect and appreciation for the role OMI plays in the mission.

The Center is staffed with a combination of full time employees and highly skilled contractors, grantees, students, and post-doctoral associates. This blended approach enables the Center to flex as workloads and funding dictate, while maintaining a stable workforce that also allows for the periodic influx of new talent and specific expertise.

The Center's culture is grounded in positivity and inclusion. The diversity of the Center's workforce extends beyond gender, race, ethnicity, and generational boundaries. It is rooted in a shared value that cultivates and encourages diversity of thought, educational background, world view, and behavior styles. The pipeline for new employees is rich in multigenerational, international, and specialized expertise. This abundance enables the Center to pick and choose the best and brightest.

Frequent and multiple forums, across all levels and peer-to-peer, both online and face-to-face, foster a heartfelt sense of collegial community. They have been pivotal in creating a culture of recognition and respect for the talents and gifts every team member brings to the mission.

The Center cultivates a strong sense of belonging and commitment in its employees, from their first day and throughout the life-cycle of their career. To create high levels of engagement, staff regularly volunteer to serve on task teams that design processes and programs focused on creating the most positive employee commitment possible. Career development is a key aspect of the Center's culture, and includes regular performance and professional development plans and conversations, opportunities for at least one perception-broadening assignment a year, mentoring, clear career ladders, and continuous investment in technical, leadership, and team skill training.

The Leadership Team, Directors, and other leaders demonstrably hold themselves accountable to the Center employees. Executive leadership is focused on the long-term viability of the Center, its fulfillment of the mission, strategic direction and accomplishment, and the overall health of the organization. They regularly review succession plans for managers and directors and maintain a robust pipeline of diverse and talented people.

The Center applies its understanding of systems, an innate culture of curiosity, and scientific diligence to its own organizational systems, finding ways to understand and measure their ongoing health. For example, in addition to the Federal Employee Viewpoint Survey, Center employees respond to pulse surveys which enable leadership to quickly gauge employee attitudes toward a broad range of topics.

Managers' primary responsibility is the development of their direct reports to facilitate and advance the science. Leaders are skilled in creating high levels of commitment from the workforce, and in creating a workplace that is vibrant, dynamic, and flexible. They can articulate the vision for the organization, the science it does, and help employees see their place in it. Internal communication focuses on answering "Why?" questions regarding the rationale for Center decisions.

The Center places particular emphasis on attentive organizational listening to reinforce a strong culture and to ensure there is ongoing awareness of current contexts into which leadership is communicating. Strategic communication processes ensure that messaging is aligned with organizational priorities, and that it is delivered in the forums preferred by employees. An employee-based communication network pulls together a diverse group of employees from each office, enabling leadership to maintain a constant pulse on workplace attitudes and culture.

## CONCLUSION

NWFSC has a century of outstanding and noble accomplishment behind it. Its status today as a model of scientific, organizational, and governmental leadership is a testament to the dedication, creativity, and commitment of its people. Seeing every aspect of the organization as a critical part of a whole system that makes an important difference in the world ensures that the Center will maintain its role in sustaining aquatic life. As new knowledge, technologies, and capabilities emerge, so will new frontiers in ecological stewardship, attracting new generations of professionals and supporters. In many ways, its history has just begun.

September 2018



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