



**Oregon Department of Fish and Wildlife**  
**Climate and Ocean Change Policy-Plain English Edition**

## ODFW Climate and Ocean Change Policy

### **Vision**

Through science and proactive leadership to address a changing climate and ocean, ODFW and Oregon:

- (a) Understand how the changing climate and ocean conditions impact air, water, land, and plants and how these changes will affect people and fish and wildlife;
- (b) Understand where and how natural areas and processes or built infrastructure can safeguard against these impacts;
- (c) Work collectively to protect and enhance these natural areas and processes; and
- (d) Strive toward carbon-neutral operations.

As a result, Oregonians have healthy natural areas that provide clean air and drinking water, food, abundant fish and wildlife, support a thriving economy, and are the first line of defense against fires, droughts, floods, and sea level rise associated with a changing climate and ocean.

### **Background**

The Earth's climate and oceans are changing because of activities that emit greenhouse gases into the atmosphere. Oregon is already experiencing changes that are consistent with changes observed and projected globally, such as increased average air and water temperatures, disrupted precipitation patterns, and increased ocean acidification and hypoxia.

These changing climate and ocean conditions are undermining the ability of lands and waters to support Oregon's native fish and wildlife, and the cultural and economic benefits they provide. This represents a serious and immediate threat to the Department's ability to achieve its mission and meet its statutory mandates to manage the public trust resources in its care.

The Department does not have the capacity, authority, or resources to reverse all the impacts of changing climate and ocean conditions on all species, biological communities, and their habitats. The impacts of changing climate and ocean conditions will extend more broadly to all facets of Oregon's culture and economy. The increased frequency and magnitude of events such as fire, floods, and heatwaves, as well as sea level rise, will impact human health, safety, and



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infrastructure. There will be direct costs associated with responding to and recovering from these events.

Appropriately managed lands and waters can play a significant role in reducing risk from extreme events (e.g., flooding, fire) to human health, safety and property. It is critical that the Department and Oregon improves the preparedness of fish and wildlife, its communities, culture, economy, and natural resources to these changes.

The systems in place at the time this policy was adopted are inadequate to respond sufficiently. There is a need for rapid institutional change to improve coordination around science, planning, and implementation of preparedness actions, as well as in working towards carbon neutrality of state government operations.

The Department can provide strong leadership in support of the State's collective effort to respond to the impacts of climate and ocean change. This leadership will focus on providing good science, implementing appropriate stewardship actions, enhancing cross-agency coordination of natural resource management to achieve a balanced climate adaptation response, and leading by example toward achieving carbon neutrality.

**Purpose of the Climate and Ocean Change Policy (635-900-0001)**

The Earth's climate and oceans are changing. The Fish and Wildlife Commission concurs with the Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change that the current warming trend is of particular significance because most of it is extremely likely (greater than 95 percent probability) to be the result of human activity since the mid-20th century and proceeding at a rate that is unprecedented over decades to millennia.

Oregon is already experiencing changes that are consistent with changes observed and projected globally, such as increased average air and water temperatures, disrupted precipitation patterns,



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and increased ocean acidification and hypoxia. The purpose of this policy is to ensure that the Department prepares for and responds appropriately to the impacts of a changing climate and ocean on fish, wildlife, their habitats, and their use and enjoyment by current and future Oregonians.

**Key Expectations Underpinning the Climate and Ocean Change Policy (635–900–0003)**

This policy provides overarching guidance to the Department with all of its operations and activities. This guidance is based on the following key, science-based projections and expectations about how the climate and ocean will continue to change and how fish and wildlife populations and their habitats will respond to those changes.

We assume that air temperatures will continue to increase and Oregon’s coastal waters will continue to acidify and become more hypoxic. These changes will result in cascading impacts that, in general, include:

- (a) Changing precipitation patterns, including a decreasing trend for snowpack volume, resulting in changes in streamflow characterized by increased frequency and severity of flooding, increased flows in winter, and decreased flows in late summer and fall;
- (b) An increasing trend in fresh- and marine- water temperatures;
- (c) A change in wildfire patterns, including an increase in the frequency and magnitude of intense wildfires;
- (d) Changing ocean currents and stratification, including changes in the frequency and magnitude of coastal upwelling; and
- (e) Rising average ocean levels

We expect that these changes will not occur evenly in all habitats and that some species, biological communities, and habitats will have characteristics that make them more resistant to these changes. We also expect that these changes will not occur evenly through time. The frequency of years in which Oregon’s fish and wildlife experience good conditions will diminish and the frequency and magnitude of poor environmental conditions will increase. As a result of these changes, we expect a number of impacts, including but not limited to:



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- (a) Changes in the distribution and range of many fish and wildlife populations;
- (b) Changes in food-webs resulting in negative effects on some key species and long term shifts of key ecosystems;
- (c) Conditions in some areas will become unsuitable to support self-sustaining populations of vulnerable native species;
- (d) These changes will favor many non-native or invasive species, as well as bacteria, viruses, and parasites, and that this will negatively impact native species; and

While we are already observing some of these changes and expect this to continue for many decades even if greenhouse gas reduction efforts are successful, we recognize that there is uncertainty in the timing and extent of impacts to habitat, in the ability of fish and wildlife to adapt to changes, and in how changes in one part of a food web may impact the balance of ecosystems.

**Goals of the Climate and Ocean Change Policy (635–900–0005)**

- (1) Ensure the Department understands the risks and opportunities associated with changing climate and ocean conditions and incorporates that understanding into all of the Department’s actions to maximize the conservation, use, and enjoyment of fish, wildlife, and their habitats for present and future generations.
- (2) Provide leadership toward a coordinated statewide and regional response that minimizes the impacts of changing climate and ocean conditions on Oregon’s natural resources and the communities, culture and economies reliant on them, and allows for sustainable use of natural resources in the future.
- (3) Increase public awareness about the current and future impacts of climate and ocean change on fish, wildlife, and their habitats and the value of resilient habitats for fish and wildlife, clean air and water, flood attenuation, recreational opportunities, and the natural resources economy.
- (4) Provide leadership towards achieving the reductions in global greenhouse gases emissions that will be needed to prevent worsening of the impacts by reducing the Department’s carbon footprint to the extent practicable, with the goal reaching carbon neutrality.



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**Implementation (635–900–0007)**

The Climate and Ocean Change policy is intended to be overarching in scope and will be applied as follows:

- (1) The Department should, as appropriate, lead a coordinated, long term state-wide response consistent with direction in 635 – 900 – 0010 of this rule.
- (2) The Department will integrate relevant climate and ocean change monitoring and research needs into the planning, prioritization, and implementation of the Department’s science in accordance with the Key Principles in 635 – 900 – 0015.
- (3) The Department will incorporate the relevant Key Principles in 635 – 900 – 0013 through 635 – 900 – 0020 into any new Department plans or policies and will revise any existing plans or policies to incorporate these principles as needed.
- (4) The Department will apply the Key Principles in 635 – 900 – 0013 through 635 – 900 – 0020 when the acting in a consultation, regulatory, or advisory role and when prioritizing the use of Department resources.
- (5) The Department will develop a carbon reduction plan by 2022 that outlines how the Department will reduce its own net carbon emissions, with the goal of being carbon neutral by mid-century, through the construction, purchasing, and use of energy-efficient facilities, structures, vehicles, and equipment and by managing Department owned lands to sequester carbon. As a precursor to the development of a plan, the Department should assess its carbon footprint within a year from adoption of this policy and thereafter on a recurring basis not longer than 5 years.
- (6) The Department will develop a communications strategy and coordinate with local and regional partners to raise awareness of the effects and impacts of climate and ocean change and the steps the Department is taking to counteract and adapt to impacts on fish, wildlife and their habitats in the face of changing climate and ocean conditions and the value of resilient natural areas for both fish and wildlife, clean air and water, recreational opportunities, and the natural resource economy.

**Statewide Coordination of a Climate and Ocean Change Response (635–900–0010)**



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The Department should exhibit leadership in facilitating a coordinated statewide response to minimizing the impacts of the changing climate and ocean conditions on Oregon's natural resources and the people who depend on those resources. As such, the Department should, to the extent practicable:

- (1) Work with other executive branch natural resource agencies and appropriate federal, tribal, and local partners to complete inventories of the State's natural resource assets. The inventories should also evaluate the vulnerability of our assets and/or their utility in improving preparedness to changing climate and ocean conditions, and identify areas for priority investment of resources.
- (2) Work with other state, federal, and tribal natural resource agencies and academic institutions to ensure research and monitoring related to changing climate and ocean conditions is conducted efficiently by:
  - a. Identifying existing and new foundational data that are needed by multiple agencies to adequately monitor and project the impacts of changing climate and ocean conditions;
  - b. Coordinating the collection, storage, and analysis of this data; and
  - c. Ensuring there is appropriate consistency in the use of climate models and emissions scenarios.
- (3) Work with other executive branch agencies, to the extent possible, to determine clear priorities for vulnerable natural resources within and across geographical areas of the State then coordinate implementation of regulatory and non-regulatory authorities consistent with these priorities. This collective effort should seek to address legacy impacts to fish and wildlife in priority areas and avoid or minimize further negative outcomes for fish and wildlife populations statewide. This collective effort should include collaboration with local, regional and tribal jurisdictions.
- (4) Work with other state and federal agencies and local governments, to the extent possible, to review incentives and regulations that relate to the protection, enhancement, and



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management of fish and wildlife habitat with the goal of ensuring that the appropriate mechanisms exist to:

- a. Achieve protections and enhancement in priority areas for fish and wildlife
  - b. Encourage economic development that sustains essential ecosystems while providing preparedness for the impacts of the changing climate and ocean; and
  - c. Ensure that voluntary and regulatory actions are coordinated among agencies.
- (5) Work with the public and landowners to encourage or incentivize habitat management that protects and enhances priority areas for fish and wildlife as well as increasing carbon sequestration.

635 – 900 – 0013

**Climate and Ocean Change Key Principles for Coordination**

- (1) The Department should collaborate and partner with other agencies, tribes, stakeholders, and academics to achieve successful implementation of this policy.
- (2) Collaborations and partnerships should span scientific expertise, stakeholder interests, and regulatory authorities.

**Climate and Ocean Change Key Principles for Science (635–900–0015)**

- (1) The Department should ensure that it is monitoring the appropriate metrics to document the changing climate and ocean conditions (e.g., flow, temperature, dissolved oxygen, ocean pH) and the impacts of those changes on fish, wildlife, and their habitats (e.g., distribution, survival, disease).
- (2) The Department should use appropriate analytic approaches to determine how species, biological communities, and habitats may respond to the changes in climate and ocean conditions on a time horizon that is relevant to a specific species' life history.
- (3) The Department should conduct ongoing research to reduce key uncertainties related to the response of fish, wildlife, or their habitats to climate and ocean change.



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- (4) The Department should communicate clearly about the uncertainty involved in predicting both the likely changes in climate and ocean conditions and the impacts on fish and wildlife to allow decision makers to take action in an informed way.
- (5) The Department should consider modifying the timing and location of research and monitoring during periods of adverse environmental conditions that are stressful to individuals. Handling of live animals should balance the benefits of the research and monitoring against the additional impacts to the animal, as well as risks to the population.

**Climate and Ocean Change Key Principles for Species and Habitat Management (635–900–0017)**

- (1) The conservation of naturally produced native species in the geographic areas to which they are indigenous is a primary obligation of the Department. It is on this platform of conservation that the social and economic benefits of harvest and viewing are realized. As such, the ability to utilize fish and wildlife for harvest or viewing is dependent on the health of wild populations. Conservation and use are not mutually exclusive, and can be fully integrated through risk management that scales use appropriately to avoid undermining conservation.
- (2) The Department should, to the extent predictions are available, incorporate into all of its actions an understanding of predicted future conditions and how species may respond to these conditions on a time horizon that is relevant to specific species' life history. These responses may include range shifts, local extirpations, altered species compositions, and elevated life-stage vulnerabilities. Management goals, strategies, and actions will consider this long view, but allow for near term conservation, utilization, or transition in an adaptive management approach.
- (3) The Department may manage a species whose range naturally expands into or within Oregon as a result of the changing climate and ocean for conservation or utilization purposes in the new area provided this does not conflict with the conservation of naturally produced native species in the new area. When a species range shift or expansion is likely to have a negative effect on native species conservation in the new





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area, the Department will strive to limit these expansions to the extent practicable, unless otherwise directed in a Commission adopted plan.

- (4) The Department should proceed with a precautionary approach that is most likely to result in conservation of native species across as broad a range of future conditions as possible, including when faced with scientific and management uncertainty.
- (5) The Department should prioritize conservation actions for native species and their habitats to be most efficient and effective in achieving conservation outcomes. In some instances, naturally-produced, native species will be unable to persist in an area because the impacts of changing climate and ocean conditions are practicably irreversible. In these instances the Department, only through the Commission, may consider modification of the conservation approach as long as healthy populations of the species exist elsewhere in the range and the modification is in compliance with other state and federal laws.
- (6) The Department should plan for real time adaptive management of hatcheries, wildlife areas, and harvest to account for potential impacts to fish and wildlife populations during periods of adverse environmental conditions, such as high water temperature, low river flows, low oxygen water, or fire.
- (7) The Department should generally use the following approach when implementing management actions that relate to fish and wildlife habitat, unless directed otherwise through an adopted plan:
  - a) Give priority to protecting habitat for native fish and wildlife that is currently high functioning and projected to remain or become high functioning despite the impacts of changing climate and ocean conditions;
  - b) Give priority to restoration and enhancement actions where such actions would result in creation of high functioning habitat despite the impacts of changing climate and ocean conditions;
  - c) Assign lower priority to actions where projected habitat changes caused by climate and/or ocean change are likely to exceed native species' ability to persist.
  - d) Support actions that maximize carbon sequestration as long as such actions do not result in loss of habitat to fish and wildlife.



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**Ocean and Climate Change Key Principles for Department Operations (635-900-0020)**

- (1) The Department will consider the risk from the impacts of climate and ocean change in the design of new facilities or structures and identify existing facilities or structures at high risk of failure due to climate change impacts and mitigate those risks over time.
- (2) The Department will, to the extent practicable, operate equipment and facilities in such a way that they do not exacerbate the impacts of climate and ocean change on fish, wildlife and their habitats.
- (3) The Department will operate its own equipment and facilities in such a way as to reduce carbon outputs and/or sequester carbon as directed in a carbon reduction plan.