UNITED STATES DISTRICT COURT FOR THE

WESTERN DISTRICT OF WASHINGTON

CENTER FOR BIOLOGICAL DIVERSITY, Plaintiff, v. UNITED STATES ENVIRONMENTAL PROTECTION AGENCY; GINA MCCARTHY, Administrator; DENNIS MCLERRAN, Region 10 Administrator, United States Environmental Protection Agency; Defendants.	CASE NO. _____ **COMPLAINT FOR DECLARATORY AND INJUNCTIVE RELIEF** (Administrative Procedure Act, 5 U.S.C. § 706, and Clean Water Act, 33 U.S.C. §§ 1251 *et seq*.)

I. INTRODUCTION

1. Shellfish in Washington and Oregon are experiencing a dramatic collapse in production. Beginning in 2005, billions of oyster larvae have perished in the Pacific Northwest hatcheries that raise young oysters in the region's seawater, with some hatcheries losing up to 80 percent of their larvae. At the same time, wild oyster reproduction crashed in Willapa Bay, Washington.

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2. These wild and hatchery shellfish production declines in Washington and Oregon signal a serious water quality problem – the increasing acidity of marine waters, or "ocean acidification." Ocean acidification results when the ocean absorbs carbon dioxide emissions from the atmosphere. The carbon dioxide reacts with seawater to alter the ocean's chemistry, lowering the ocean's pH and making it more acidic. Ocean acidification also strips seawater of calcium carbonate, an essential building block for marine organisms that build shells.

3. The Pacific Northwest's coastal waters are particularly vulnerable to ocean acidification. Acidified waters are already reaching surface waters along the Washington and Oregon coasts. As a result, marine organisms in the Puget Sound and along the Pacific Coast are exposed to corrosive waters. Scientists have definitively linked the oyster production problems in the hatcheries to ocean acidification.

4. The Clean Water Act, as the nation's strongest law protecting water quality, aims to halt water pollution and protect the beneficial uses of water bodies. Toward those goals, Section 303(d) of the Clean Water Act requires each state to identify any water bodies that fail to meet the state's water quality standards and list those bodies as "impaired" waters. 33 U.S.C. § 1313(d).

5. The state then submits its 303(d) list of impaired waters to the Environmental Protection Agency ("EPA"), and EPA must either approve the list if it meets the requirements of the law or disapprove the list. 33 U.S.C. § 1313(d); 40 C.F.R. § 130.7(d)(2). If EPA disapproves the list, Section 303(d) requires that EPA identify any impaired water bodies omitted from a state's list. 33 U.S.C. § 1313(d)(2). The state, or EPA if necessary, must then establish and implement pollution limits for any listed, impaired water body. *Id.* § 1313(d)(1), (2).

6. Oregon and Washington have both adopted state water quality standards that ensure their marine waters will support shellfish spawning, rearing, and production and protect other marine species. However, in 2011, when the states of Oregon and Washington developed

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their biennial lists of impaired waters under Section 303(d), neither state listed any marine waters as impaired due to ocean acidification.

7. EPA has long-acknowledged that, as a result of absorbing large quantities of human-made carbon dioxide emissions, ocean chemistry is changing, and this is likely to negatively affect marine ecosystems and species including coral reefs, shellfish, and fisheries. EPA also has acknowledged the Clean Water Act and its 303(d) program can and must be used to address the water quality problem of ocean acidification. EPA had substantial evidence before it that the oyster production problems in Oregon and Washington were linked to acidification and the states' ocean waters did not meet water quality standards.

8. Nevertheless, in 2012, EPA approved Oregon and Washington's lists of impaired waters. EPA's approval of these deficient lists is arbitrary and capricious and not in accordance with the Clean Water Act, 33 U.S.C. § 1313(d), or the Administrative Procedure Act, 5 U.S.C. § 706(2)(a).

9. For these reasons, Plaintiff seeks declaratory and injunctive relief requiring EPA to partially disapprove of Oregon and Washington's impaired waters lists and add water bodies impaired by ocean acidification to those lists.

II. JURISDICTION AND VENUE

10. This court has jurisdiction over this action pursuant to the Administrative Procedure Act, 5 U.S.C. §§ 701-706, 28 U.S.C. § 1331 (federal question), 28 U.S.C. § 1356 (action against the United States), 28 U.S.C. § 1361 (action to compel and officer of the United States to perform his or her duty), and 28 U.S.C §§ 2201-02 (power to issue declaratory judgments in cases of actual controversy).

11. An actual controversy exists between the parties within the meaning of 28 U.S.C § 2201.

12. Venue is properly vested in this Court pursuant to 28 U.S.C. § 1391(e) because at least one defendant resides in this judicial district, a substantial part of the events giving rise to

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the claim occurred, and the violations alleged in this Complaint are affecting ocean waters in this judicial district.

III. PARTIES

13. Plaintiff CENTER FOR BIOLOGICAL DIVERSITY ("the Center") is a nonprofit corporation dedicated to the preservation of biodiversity, native species, and ecosystems. The Center's Oceans Program focuses on the protection of marine species and their ocean habitats, including significant efforts to ensure the conservation of imperiled marine species. The Center has worked extensively to protect ocean ecosystems in Oregon, Washington, and nationwide from various threats including ocean acidification. The Center has engaged in efforts to protect endangered marine species threatened by ocean acidification such as black abalone, staghorn coral, elkhorn coral, and 66 coral species currently being considered for Endangered Species Act protection by the National Marine Fisheries Service. Moreover, the Center has taken measures to protect marine species and their habitat in Oregon and Washington, such as northern abalone, salmon, killer whales, Pacific herring, sea otters, seabirds, and other species.

14. The Center has more than 40,000 members, over 2,700 of whom live in Oregon and Washington and many of whom visit the Pacific Northwest's coastal and marine areas, including the waters at issue in this case. Center members regularly use Oregon and Washington's ocean and coastal areas for research, aesthetic enjoyment, observation, fishing, harvesting shellfish, and other recreational, scientific, and educational activities and intend to continue doing so in the future.

15. Center members and staff also regularly research, observe, photograph, enjoy habitat, and seek protection for numerous marine species that are affected by ocean acidification in Oregon and Washington, including abalone, mussels, clams, oysters, and other shellfish. Ocean acidification harms these marine species by stripping seawater of chemicals that are essential for shellbuilding and growth. It impairs the ability of these shellfish to build shells and

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Phone (206) 327-2344

can also reduce their reproduction, survival, and growth. Center members and staff also regularly view and use the habitat of other marine animals such as salmon, sea otters, and whales that are affected by the ecosystem changes, including prey availability, caused by ocean acidification. These aesthetic, scientific, conservation, procedural, and informational harms are actual, concrete injuries suffered by the Center and its members.

16. Center members and staff derive scientific, recreational, conservation, and aesthetic benefits from the existence of marine animals in the wild and their ocean habitat. Center members also regularly harvest and consume shellfish on the Oregon and Washington coasts. The maintenance of a healthy marine ecosystem and water quality is important to the Center's members' interest. The Center brings this action on behalf of itself and its adversely affected members and staff.

17. Plaintiff and plaintiff's members' injuries are directly traceable to EPA's unlawful approval of Oregon and Washington's deficient 303(d) lists. States must identify impaired water bodies – those failing to meet water quality standards – and establish limits on pollutants causing their impairment. 33 U.S.C. § 1313(d). If a state fails to list an impaired water body, EPA, using its oversight authority, must reject the state's list and identify impaired waters on its own. *Id.* Marine waters in Oregon and Washington do not meet state water quality standards, and therefore when the states failed to identify waters impaired by ocean acidification, EPA was required to disapprove the states' lists and identify those waters as impaired. Once a water body is identified as impaired, either the state or EPA must set total maximum daily load of pollutants that will ensure the protection of water quality. *Id.* As a result of Defendant's approval of Oregon and Washington's impaired waters lists without including marine waters violating water quality standards due to ocean acidification, there has been a continued influx of pollutants that are harming marine wildlife and ecosystems. Defendant's approval of Oregon and Washington's deficient 303(d) lists inhibits the protection of water quality and denies important pollution regulations for water bodies and marine species, allowing ocean acidification to continue

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Phone (206) 327-2344

unabated and decreasing Plaintiff's members' ability and opportunity to use, research, view, and enjoy affected marine species and habitats. Species abundance and health, and Plaintiff's members' subsequent opportunities to observe tidepools containing calcifying organisms, or collect shellfish along the shoreline, are harmed by Defendant's deficient approval and the subsequent lack of pollution controls.

18. Plaintiff is also suffering procedural and informational injuries resulting from EPA's deficient identification of waters impaired by ocean acidification and the consequent failure to establish total maximum daily loads and take other actions as required by the Clean Water Act. EPA regulations make it clear that impaired water listings and total maximum daily loads shall be developed with public participation. 40 C.F.R. § 130.7(d)(2). Due to EPA's violations of law, the Center and its members are deprived of informational and procedural benefits that would aid them in their activities to conserve ocean wildlife and habitat.

19. Plaintiff's injuries can be redressed by the declaratory and injunctive relief sought herein. An order compelling EPA to disapprove Oregon and Washington's impaired waters lists and add water bodies not attaining water quality standards due to ocean acidification will be more protective of seawater quality. Listing triggers a duty for these states or the EPA to develop total maximum daily loads necessary to attain applicable water quality standards, which are incorporated into water quality management plans. The addition of ocean waters to Oregon and Washington's impaired lists also is likely to result in increased monitoring and management of those waters as well as benefits from educating the public and policymakers about ocean acidification. Listing would focus funding, research, and management on those areas that are vulnerable to ocean acidification. Therefore, adding ocean waters to the list will likely improve ocean water quality, better protect ocean waters from further ocean acidification, and increase and improve Plaintiff's members' opportunities to use and enjoy marine waters and species of the Pacific Northwest.

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Phone (206) 327-2344

20. Defendant UNITED STATES ENVIRONMENTAL PROTECTION AGENCY is the federal agency charged with the implementation of the Clean Water Act. EPA has the authority and ability to remedy the harm inflicted by Defendant's actions.

21. Defendant GINA MCCARTHY is the Administrator of EPA and is sued in her official capacity. As Administrator of EPA she is responsible for the agency's implementation of the Clean Water Act. Administrator MCCARTHY has the authority and ability to remedy the harm inflicted by Defendant's actions.

22. Defendant DENNIS MCLERRAN is the Administrator of Region 10 of the EPA and is sued in his official capacity. EPA's Region 10's jurisdiction covers the Pacific Northwest of the United States including Oregon and Washington and their ocean waters that are harmed by EPA's unlawful actions and inactions. Administrator MCLARREN is responsible for EPA's implementation of the Clean Water Act within Region 10 including ocean waters in Washington and Oregon. The Regional Administrator has the authority and ability to remedy the harm inflicted by Defendant's actions.

IV. LEGAL BACKGROUND

A. Clean Water Act

23. Congress enacted the Clean Water Act, 33 U.S.C. §§ 1251 *et seq*., with the express purpose of "restor[ing] and maintain[ing] the chemical, physical, and biological integrity of the Nation's waters." 33 U.S.C. § 1251(a) (2009). The goals of the Clean Water Act are to guarantee "water quality which provides for the protection and propagation of fish, shellfish, and wildlife and provides for recreation" and to promptly eliminate water pollution. 33 U.S.C. § 1251(a).

24. Towards those goals, the Clean Water Act requires each state to establish water quality standards for bodies of water within the state's boundaries. 33 U.S.C. § 1313(a)-(c); 40 C.F.R. § 130.3. To do so, a state first designates the use or uses of a particular body of water (e.g., recreation, shellfish production), *see* 40 C.F.R. § 131.10, and then designates water quality

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Phone (206) 327-2344

criteria necessary to protect that designated use, *id.* § 131.11. These water quality standards include numeric criteria, narrative criteria, water body uses, and antidegradation requirements and should "provide water quality for the protection and propagation of fish, shellfish and wildlife and for recreation." 40 C.F.R. § 130.3.

25. In turn, Section 303(d) of the Clean Water Act requires states to establish a list of impaired water bodies within their boundaries for which existing pollution controls "are not stringent enough" to ensure "any water quality standard applicable" will be met. 33 U.S.C. § 1313(d). "Each State shall assemble and evaluate all existing and readily available water quality-related data and information to develop the list." 40 C.F.R. § 130.7(b)(5).

26. The state's list of impaired waters must include all water bodies that fail to meet "any water quality standard," including numeric criteria, narrative criteria, water body uses, and antidegradation requirements. 40 C.F.R. § 130.7(b)(1),(3) & (d)(2). The list must also include waters that are threatened, waters currently attaining water quality standards but are not expected to meet applicable water quality standards before the next listing cycle. 40 C.F.R. § 130.7(b)(5)(iv); EPA, *Guidance for 2006 Assessment, Listing and Reporting Requirements Pursuant to Sections 303(d), 305(b) and 314 of the Clean Water Act* (2005). Additionally, states must "identify the pollutants causing or expected to cause violations of the applicable water quality standard." 40 C.F.R. § 130.7(b)(4). If a water body does not meet a water quality standard, but the specific pollutant or source of the problem is not known, the water body must nonetheless be listed as impaired.

27. Once a state develops its impaired waters list, the state must submit the list to EPA, and EPA must approve, disapprove, or partially disapprove the impaired waters list. 33 U.S.C. § 1313(d)(2). If EPA does not approve a state's list, then EPA must identify waters that should have been listed as impaired within 30 days. 33 U.S.C. § 1313(d)(2); 40 C.F.R. § 130.7(d)(2). EPA must solicit and consider public comment on such listings. 40 C.F.R. § 130.7(d)(2).

CENTER for BIOLOGICAL DIVERSITY
2400 NW 80th Street #146, Seattle, WA 98117
Phone (206) 327-2344

28. Once a water body is listed as impaired pursuant to Clean Water Act Section 303(d), the state has the authority and duty to control pollutants from all sources that are causing the impairment. Specifically, the state or EPA must establish total maximum daily loads of pollutants that a water body can receive and still attain water quality standards. 33 U.S.C. § 1313(d). States then implement the maximum loads by incorporating them into the state's water quality management plan and controlling pollution from point and nonpoint sources. 33 U.S.C. § 1313(e); 40 C.F.R. §§ 130.6, 130.7(d)(2). The goal of section 303(d) is to ensure that our nation's waters attain water quality standards whatever the source of the pollution. EPA has recognized that airborne pollutants can deposit onto water bodies and can be an important contributor to declining water quality.

B. Administrative Procedure Act

29. The Administrative Procedure Act allows for review of agency actions. "A person suffering legal wrong because of agency action, or adversely affected or aggrieved by agency action within the meaning of a relevant statute, is entitled to judicial review thereof." 5 U.S.C. § 702.

30. The Administrative Procedure Act requires that a court set aside and hold unlawful agency actions found to be "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law," and "without observance of procedure required by law." 5 U.S.C. § 706(2).

V. PROCEDURAL BACKGROUND

31. Pursuant to Section 303(d) of the Clean Water Act, Oregon and Washington initiated separate processes to update their lists of impaired waters for 2010. Both states put out a call for data to solicit water quality information from the public.

A. Washington's Listing Process

32. In 2007, Plaintiff submitted a request to Washington's Department of Ecology that it list all state marine waters for pH impairments due to ocean acidification on the 2008 list

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2400 NW 80th Street #146, Seattle, WA 98117
Phone (206) 327-2344

of impaired waters. Washington denied Plaintiff's request, and in response to EPA's approval of Washington's list, Plaintiff sued EPA in May 2009. The parties settled, and EPA agreed to a public process for determining how ocean acidification should be addressed under Section 303(d) of the CWA, and to make such a determination by November 15, 2010. EPA consequently published a Federal Register notice, accepted public comment, and determined that waters impaired by ocean acidification should be identified on the list as required by Section 303(d).

33. In response to Washington's 2010 water quality assessment, Plaintiff submitted comments and supporting scientific documentation to the Department of Ecology in September 2009 requesting the state list all ocean segments within the state's jurisdiction as threatened or impaired due to ocean acidification.

34. Washington's 2010 draft assessment failed to include any coastal waters as threatened or impaired by ocean acidification, for which Plaintiff submitted additional comments and support in August 2011. In January and April 2012, Plaintiff submitted comments to EPA requesting disapproval of Washington's list for its failure to include Puget Sound and other coastal waters in the list of impaired waters for ocean acidification.

35. In June 2012 and December 2012, Plaintiff submitted additional comments and data to EPA in support of a listing of Washington's coastal waters due to ocean acidification.

36. Despite possessing scientific data demonstrating that Washington's coastal waters were not meeting or threatening to not attain state water quality standards, on December 21, 2012, EPA approved Washington's deficient list of impaired waters and therefore did not add any ocean segments as impaired due to ocean acidification.

B. Oregon's Listing Process

37. In August 2007, and again in June 2009, the Center for Biological Diversity submitted letters formally requesting that Oregon include ocean waters within its jurisdiction on the list of impaired waters due to ocean acidification. Numerous peer-reviewed reports on ocean

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Phone (206) 327-2344

acidification from highly-credible scientific journal articles accompanied the letters in support of the listing.

38. Oregon's 2010 draft list did not include any segments as impaired by ocean acidification. During the public comment period, in December 2010 and again in May 2011, Plaintiff submitted additional comments and supporting documents to Oregon's Department of Environmental Quality requesting the identification of Oregon's coastal waters as impaired. In May 2011, Oregon submitted its list of impaired waters to EPA but did not include any segments as impaired by ocean acidification. In June 2011, Plaintiff submitted a letter to EPA requesting that EPA partially disapprove Oregon's list for failing to address ocean acidification.

39. In March 2012, EPA partially approved and partially disapproved of Oregon's list of impaired waters, finding the list to be incomplete. In April, June, and December 2012, Plaintiff again submitted comments and references to EPA urging listings of waters impaired by ocean acidification. On December 14, 2012, EPA approved Oregon's list and therefore did not identify any of the state's ocean waters as impaired for ocean acidification.

VI. FACTUAL BACKGROUND

A. Ocean Acidification

40. When carbon dioxide is released into the atmosphere, the oceans absorb a portion of those emissions. Carbon dioxide uptake by the ocean alters seawater chemistry, causing ocean waters to become more acidic and the pH to decline. This process, termed "ocean acidification," represents one of the greatest threats to ocean ecosystems in the United States and throughout the world.

41. The oceans have absorbed approximately 30 percent of the carbon dioxide released into the atmosphere by human activities, contributed largely from fossil fuel use and land-use changes such as deforestation. At present, the atmospheric carbon dioxide concentration is nearly 400 ppm and continues to rise over 2 ppm per year. The ocean will continue to absorb carbon dioxide until it reaches equilibrium with the atmosphere.

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Phone (206) 327-2344

42. Globally, human sources of carbon dioxide have changed the pH of oceans an average of 0.11 units since the Industrial Revolution – a 30 percent increase in acidity. By the end of the century, the pH of the world's oceans is predicted to drop by another 0.3 to 0.5 units, amounting to a 100 to 150 percent increase in acidity.

43. Washington and Oregon coastal waters are especially vulnerable to ocean acidification. Ocean acidification is affecting coastal waters at rates and magnitudes greater than scientists had previously estimated and has already reached levels that were not predicted until the end of the century. The entire West Coast is currently experiencing an upwelling of "corrosive acidified" waters onto the continental shelf, exposing shellfish and plankton in surface waters to corrosive conditions. Ocean acidification is already at levels that were not predicted until the end of the century. The carbon dioxide levels in the upwelled water ranges from 850 to 950 µatm (microatmospheres) near the shelf-break with higher values inshore.

44. Regional factors, such as nutrient runoff and algal blooms, may combine with high carbon dioxide waters to influence ocean acidification in the coastal waters of Oregon and Washington. Nutrient runoff and algal blooms can result from anthropogenic causes, and human sources are a major contributor to nutrient loads in the Puget Sound.

45. Ocean acidification poses a threat to marine animals and ecosystems. Our oceans are becoming more acidic faster than they have in the past 300 million years. During the closest analogous ocean acidification event, 55 million years ago, approximately 95% of marine species went extinct. Seawater chemistry is changing so rapidly that many organisms today may be unable to respond and adapt.

46. Ocean acidification impairs the ability of marine animals to build the shells and skeletons required for their survival. When carbon dioxide concentrations in seawater increase, the availability of carbonate ions decreases, making it more difficult for marine organisms to form, build, and maintain calcium carbonate shells and other calcium carbonate-based body

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Phone (206) 327-2344

parts. As a result of ocean acidification, calcifying marine plants and animals experience greater difficulty in making or maintaining their shells, slower growth rates, and higher mortality.

47. Ocean acidification decreases calcification in shellfish. Studies have found declining calcification rates of edible mussels (*Mytilus edulis*), Pacific oysters (*Crassostrea gigas*), Olympia oysters (*Ostreola conchaphila*), and northern abalone (*Haliotis kamtschatkana*) with increases in carbon dioxide. Even moderate increases in atmospheric carbon dioxide have significant negative effects on the survival and growth of sea urchins and snails, among other species.

48. Juvenile shellfish are especially vulnerable to ocean acidification. Hatcheries in both Oregon and Washington have experienced problems rearing oyster larvae due to ocean acidification. Disastrous production failures at hatcheries in both states have been caused by acidified waters creating conditions corrosive to shell-formation. For example, wild oysters in Willapa Bay, Washington, have failed to reproduce successfully since 2005.

49. Scientists now predict that global warming coupled with ocean acidification will destroy most of the world's coral reefs by the end of the century. The calcification rates of reef-building corals are expected to decrease by 50% by the middle of the century, and studies have shown that between 1990 and 2005 the calcification rates of corals in the Great Barrier Reef have declined by 15 percent. Cold-water corals, like those found off the coast of Oregon and Washington, are believed to be even more sensitive to ocean acidification than tropical corals because they already live in conditions less favorable to calcification.

50. Ocean acidification also harms the planktonic organisms that form the base of the marine food web. Many species of plankton are vulnerable to decreased calcification from ocean acidification resulting in thin and weak shells. Most species of common plankton, including pteropods, coccolithophorids, and foraminifera, have exhibited negative responses to ocean acidification.

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Phone (206) 327-2344

51. Ocean acidification has implications for the broader marine environment and food web. Many calcifiers provide habitat, shelter, and/or food for various plants and animals. Washington's Blue Ribbon Panel, a panel convened to review ocean acidification impacts and recommend action and of which EPA was a participating member, concluded that more than 30 percent of Puget Sound's marine species are vulnerable to ocean acidification by virtue of their dependency on the mineral calcium carbonate to make shells, skeletons, and other hard body parts. For example, pteropods, a type of plankton, are the predominant prey of pink salmon, and a ten percent decrease in pteropod production results in a 20 percent decline in pink salmon weight.

52. Additionally, ocean acidification disrupts the metabolism and other biological functions of marine life. Changes in the ocean's carbon dioxide concentration result in accumulation of carbon dioxide in the tissues and fluids of fish and other marine animals, called hypercapnia, and increased acidity in the body fluids, called acidosis. These impacts can cause a variety of problems for marine animals, including difficulties with acid-base regulation, calcification, growth, respiration, energy turnover, predation response, and mode of metabolism. Studies have shown adverse impacts in squid and fish, among other animals.

53. While the biological impacts of ocean acidification are diverse, ocean acidification has negative effects on survival, calcification, growth, and reproduction across a broad range of marine organisms. There is a consensus among scientists that the oceans are becoming more acidic due in large part to human sources of carbon dioxide and that ocean acidification will fundamentally alter ocean ecosystems.

54. Effects of ocean acidification in marine communities and on calcification of plankton, corals, and other species have already been observed in the world's oceans. These impacts will worsen in time if carbon dioxide emissions continue unabated.

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2400 NW 80th Street #146, Seattle, WA 98117
Phone (206) 327-2344

55. While the most catastrophic impacts of ocean acidification have yet to be felt, ocean acidification has arrived in the Pacific Northwest and is an imminent water quality problem that requires immediate action by the EPA.

B. Washington's Impaired Ocean Waters

56. Washington's marine waters are protected with several water quality standards that are relevant to ocean acidification. The coastal waters in Washington are mostly designated as extraordinary quality for aquatic life uses. W.A.C. 173-201A-612. Such waters "[m]ust support extraordinary quality salmonid and other fish migration, rearing, and spawning; clam, oyster, and mussel rearing and spawning; crustaceans and other shellfish (crabs, shrimp, crayfish, scallops, etc.) rearing and spawning." W.A.C. 173-201-210(1)(a)(i). Accordingly, Washington adopted the following pH standard for marine waters of extraordinary quality:

> pH must be within the range of 7.0 to 8.5 with a human-caused variation within the above range of less than 0.2 units.

W.A.C. 173-201A-210(1)(f). Additionally, waters of excellent quality must support "excellent quality clam, oyster and mussel rearing and spawning." W.A.C. 173-201-210(1)(a)(ii).

57. To support the beneficial uses of marine waters "deleterious material concentrations must be below those which have the potential, either singularly or cumulatively, to adversely affect characteristic water uses, cause acute or chronic conditions to the most sensitive biota dependent upon those waters." W.A.C. 173-201A-260(2)(a); W.A.C. 173-201A-210(1)(b), (2)(a), (4)(a).

58. Ocean acidification is impacting coastal waters in Washington. Marine animals are exposed to waters that are more acidic as a result of carbon dioxide pollution. Ocean waters off the Washington coast exhibit acidification that exceeds the state's water quality standards, including the marine pH standard that requires human-caused pH to remain with 0.2 units of variation. Because the pH scale is logarithmic a small decrease is a significant change in acidity; for example, a decrease of 0.2 pH is an approximate 60 percent increase in acidity.

CENTER for BIOLOGICAL DIVERSITY
2400 NW 80th Street #146, Seattle, WA 98117
Phone (206) 327-2344

59. Coastal waters in the Strait of Juan de Fuca experienced a decline of 0.045 pH annually between 2000-2008; resulting in a decrease of about 0.36 pH units. The declining trend continues. In that same region, tidepools experience a shift from calcifying organisms, such as mussels, to non-calcifying organisms during low-pH seawater episodes.

60. Waters containing reduced calcium carbonate, which researchers attribute in significant part to the anthropogenic contribution of carbon dioxide, are upwelling along the Washington coast. Every year since 2008, Puget Sound waters have also experienced conditions with low calcium carbonate that can be corrosive to animals. The southern Hood Canal has highly corrosive conditions with extremely low pH waters. Waters with low calcium carbonate have been linked to mass shellfish mortalities.

61. Shellfish hatcheries in Washington have experienced drastic declines in shellfish production due to ocean acidification. For example, Taylor Shellfish Hatchery on Dabob Bay, Washington, experienced persistent problems rearing oyster larvae beginning around 2005 because of ocean acidification. The hatchery relies on waters from the Bay to raise its oysters. The best available science demonstrates that ocean acidification in Washington waters threatens the rearing of shellfish.

62. In 2012, Washington convened a Blue Ribbon Panel to summarize the scientific knowledge about ocean acidification in Washington and provide recommendations for action. Washington's Department of Ecology and EPA participated in the Panel. The Panel acknowledged that low pH seawater was responsible for disastrous production failures in state oyster hatcheries. The Panel also concluded that shell growth by calcifying organisms is compromised in Washington's corrosive coastal waters.

63. Ocean acidification is preventing Washington waters from maintaining their designated use as excellent or extraordinary aquatic habitat for plankton and calcifying organisms. Lowered plankton populations, in turn, threaten the survival of salmon and other marine life.

CENTER for BIOLOGICAL DIVERSITY
2400 NW 80th Street #146, Seattle, WA 98117
Phone (206) 327-2344

64. The species most sensitive to increased concentrations of carbon dioxide, such as oysters, mussels, and other calcifying organisms, have shown negative impacts from acidified waters. The cumulative effect of lowered pH, fewer available carbonate ions, and acidic upwelling waters has adversely affected species both in hatcheries and in natural ecosystems.

65. Ocean acidification is causing degradation of ocean water quality in violation of Washington's antidegregdation policy. Washington's antidegradation policy provides that existing and designated uses must be maintained and protected, and "[n]o degradation may be allowed that would interfere with, or become injurious to, existing or designated uses." WAC 173-201A-310. As detailed above, ocean acidification is degrading the quality of Washington's coastal waters and interfering with their designated uses.

66. Because Washington's ocean waters do not attain water quality standards, including numeric criteria, narrative criteria, designated uses, and antidegradation requirements, these ocean waters meet the requirements for inclusion on Washington's list of impaired water bodies. Each segment of Washington's coastal waters, and in particular Hood Canal, Dabob Bay, Puget Sound, the Strait of Juan de Fuca, and Willapa Bay, should be listed as threatened or impaired for failing to achieve one or more of Washington's water quality standards. EPA's approval of Washington's deficient 303(d) list of impaired waters was arbitrary and capricious and a violation of the law. 5 U.S.C. § 706; 33 U.S.C. § 1313(d).

C. Oregon's Impaired Ocean Waters

67. Oregon has set several water quality standards applicable to ocean acidification. For example, Oregon's coastal waters for all basins must be protected for beneficial uses that include fish and aquatic life, wildlife and hunting, and fishing uses. OAR 340-041-0220, 0230, 0300 Tables 220A, 230A, and 300A. Oregon's biological criteria require that "waters of the state must be of sufficient quality to support aquatic species without detrimental changes in the resident biological communities." OAR 340-041-0011. The water quality standards also protect against "other conditions that are deleterious to fish or other aquatic life." OAR 340-041-0007.

CENTER for BIOLOGICAL DIVERSITY
2400 NW 80th Street #146, Seattle, WA 98117
Phone (206) 327-2344

Further, "waters will be free from dissolved gasses, such as carbon dioxide…, in sufficient quantities … to be deleterious to fish or other aquatic life, navigation, recreation, or other reasonable uses made of such water." OAR 340-041-0031.

68. Ocean acidification is impacting coastal waters in Oregon and causing "deleterious" and "detrimental" impacts to shellfish and other marine life, in violation of Oregon's water quality standards. *Id.* Coastal nearshore waters and estuaries, which are home to economically and ecologically important species such as mussels, oysters, and scallops, are experiencing elevated acidity that is impacting the ability of shellfish to calcify and build the shells they need to survive.

69. Oregon oyster hatcheries have experienced mass larvae mortality in recent years due to ocean acidification. The Pacific Northwest's largest oyster seed producer, Whiskey Creek Hatchery is located on Netarts Bay, Oregon. It uses seawater directly from the Bay to raise its oyster larvae. In 2006, the hatchery experienced a severe collapse in its oyster production. The problems with the oyster larvae were linked to the conditions of ambient seawater that was affected by ocean acidification with low levels of calcium carbonate.

70. Oregon's coast and coastal waters are clearly affected by ocean acidification. A survey of waters off the Oregon coast documented the upwelling of waters undersaturated with calcium carbonate. Carbon dioxide pollution is ubiquitous, and therefore ocean acidification broadly affects large geographic areas. Accordingly, Oregon's fish and other aquatic life are being exposed to corrosive conditions in coastal surface waters. In turn, this water quality problem has negative ecological consequences for benthic and pelagic calcifying organisms such as mussels, oysters, abalone, echinoderms, and pteropods.

71. The contribution of anthropogenic carbon dioxide has caused ocean acidification to rise above natural background levels in Oregon's coastal waters.

72. The best available science demonstrates that ocean acidification in Oregon threatens the rearing of shellfish, especially oysters and mussels. Ocean acidification also

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threatens plankton that salmon and other marine life depend upon for foraging. Furthermore, increasingly acidic waters threaten to become unsuitable habitat for many marine species.

73. Shellfish aquaculture, combined with recreational and commercial wild fisheries, contributes hundreds of millions of dollars to Oregon and Washington's economies. Coastal economies depend upon the harvest of species that are negatively affected by ocean acidification. Ocean acidification's impacts on shellfish could result in economic losses ranging from $1.5 to $6.4 billion though mid-century.

74. Ocean acidification is also causing degradation of ocean water quality in violation of Oregon's antidegredation policy, which aims to maintain and enhance existing water quality, and "ensure the full protection of all existing beneficial uses." OAR 340-041-0004.

75. Oregon's ocean waters do not attain water quality standards, including narrative criteria, biological criteria, dissolved gas standards, and antidegradation requirements. Accordingly, the State of Oregon was required to list each segment of Oregon's coastal waters, and in particular Netarts Bay, as threatened or impaired for failing to achieve one or more of Oregon's water quality standards.

76. EPA's approval of Oregon's deficient 303(d) list of impaired waters was arbitrary and capricious and a violation of the law. 5 U.S.C. § 706; 33 U.S.C. § 1313(d).

VII. CLAIMS FOR RELIEF

(Violations of the Clean Water Act and Administrative Procedure Act)

77. Plaintiff realleges and incorporates by reference all the allegations set forth in this Complaint.

78. EPA's approval of Washington's impaired waters list that failed to include all ocean segments that do not meet and/or are not expected to meet Washington's water quality standards due to by ocean acidification violates the Clean Water Act Section 303(d), 33 U.S.C. § 1313(d), and is arbitrary, capricious, and otherwise not in accordance with law in violation of the Administrative Procedure Act, 5 U.S.C. § 706. EPA's subsequent failure to identify any

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Washington ocean waters that do not attain water quality standards for pH and other criteria due to ocean acidification violates Clean Water Act Section 303(d), 33 U.S.C. § 1313(d), and constitutes a failure to act in violation of the Administrative Procedure Act, 5 U.S.C. § 706.

79. EPA's approval of Oregon's impaired waters list that failed to include all ocean segments that do not meet and/or are not expected to meet Oregon's water quality standards due to ocean acidification violates the Clean Water Act Section 303(d), 33 U.S.C. § 1313(d), and is arbitrary, capricious, and not in accordance with law in violation of the Administrative Procedure Act, 5 U.S.C. § 706. EPA's subsequent failure to identify any Oregon ocean waters that do not attain water quality standards due to ocean acidification violates Clean Water Act Section 303(d), 33 U.S.C. § 1313(d), and constitutes a failure to act in violation of the Administrative Procedure Act, 5 U.S.C. § 706.

VIII. PRAYER FOR RELIEF

For the reasons listed above, Plaintiff respectfully requests that the Court grant the following relief.

1. A declaration that EPA violated its duties under the Clean Water Act and acted in a manner that is arbitrary, capricious, or otherwise not in accordance with law when it unlawfully approved Oregon and Washington's deficient lists of impaired water bodies under Section 303(d) of the Clean Water Act;

2. An order compelling the EPA to disapprove Oregon and Washington's lists of impaired water bodies and identify waters impaired by ocean acidification within 30 days of the disapproval, as required by Section 303(d) of the Clean Water Act or, in the alternative, vacate and remand the approvals to EPA for a new determination that complies with the requirements of the Clean Water Act by a date certain; and

3. Award Plaintiff its costs of litigation, including reasonable attorneys' fees pursuant to the Equal Access to Justice Act; and

4. Grant Plaintiff such other relief as the Court deems just and proper.

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DATE: October 16, 2013

Respectfully submitted,

s/ Sarah Uhlemann

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