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IN THE SUPERIOR COURT OF THE STATE OF WASHINGTON  
IN AND FOR THE COUNTY OF THURSTON

NORTHWEST SPORTFISHING INDUSTRY	)	
ASSOCIATION, ASSOCIATION OF	)	NO.
NORTHWEST STEELHEADERS, PACIFIC	)	
COAST FEDERATION OF FISHERMEN'S	)	
ASSOCIATIONS, INSTITUTE FOR FISHERIES	)	PETITION FOR JUDICIAL REVIEW
RESOURCES, and IDAHO RIVERS UNITED,	)	AND DECLARATORY AND
	)	INJUNCTIVE RELIEF
Petitioners,	)	
	)	
vs.	)	
	)	
WASHINGTON DEPARTMENT OF ECOLOGY,	)	
	)	
Respondent.	)	
	)	
	)	

1. By this action, Petitioners Northwest Sportfishing Industry Association, Association of Northwest Steelheaders, Pacific Coast Federation of Fishermen's Associations, Institute for Fisheries Resources, and Idaho Rivers United (collectively "Petitioners") seek to compel the Washington State Department of Ecology ("Ecology") to comply with Washington law and promulgate water quality standards that protect endangered salmon and other aquatic life in the Columbia and Snake Rivers. Specifically, Washington's current water quality standards for total dissolved gas ("TDG") do not adequately protect migrating Snake and Columbia River salmon and steelhead, including species that are listed as threatened and endangered under the federal Endangered Species Act. Ecology's refusal to correct the TDG standard reduces the

1 numbers of juvenile fish that survive their migration through Washington's waters to the sea, is  
2 arbitrary and capricious, and in violation of state law.

3           2. Ecology's current water quality standards mandate that when dam managers are  
4 spilling water past the dams to aid juvenile salmon migration, TDG must not exceed an average  
5 of 115 percent saturation as measured in the forebays of the next downstream dam and 120  
6 percent saturation as measured in the tailrace of each dam. WAC 173-201A-200(1)(f)(ii).  
7 Credible scientific studies conclusively demonstrate that the 115 percent forebay standard  
8 unnecessarily limits beneficial spill and so forces a greater number of juvenile salmon and other  
9 aquatic life to pass through the dams' turbines or bypass pipes, causing high mortality. Scientific  
10 studies also demonstrate that no aquatic life will be significantly harmed if the 115 percent  
11 forebay standard is removed or increased to 120 percent to match the tailrace standard, and that  
12 the forebay monitoring does not provide representative or credible data in any event.

13           3. Petitioners have asked Ecology three times to eliminate the 115 percent forebay  
14 standard or increase it to 120 percent to protect salmon and other aquatic life; Ecology has  
15 rejected each of those requests. Ecology received the most recent petition on March 8, 2010, and  
16 denied it on May 7, 2010. The March 8, 2010 petition and Ecology's May 7, 2010 denial are  
17 attached.

18           4. Petitioners state three causes of action under the judicial review provisions of the  
19 Washington Administrative Procedure Act ("APA"), RCW 34.05.570.

20           5. First, Petitioners seek judicial review of Ecology's denial of their petition to  
21 amend the TDG rule, WAC 173-201A-200(1)(f)(ii). In denying the petition, Ecology failed to  
22 consider or adequately address relevant and credible scientific literature and information  
23 regarding the effects of TDG on fish and other aquatic life and the effects of spill on salmonids  
24

1 and Pacific lamprey. RCW 90.48.580(1). Ecology also failed to consider or adequately address  
2 relevant studies demonstrating that monitoring in forebays does not produce credible data. RCW  
3 90.48.580(2)(c). Ecology's denial of the petition is therefore arbitrary and capricious, contrary  
4 to law, and exceeds the statutory authority of the agency, in violation of RCW 34.05.570(4)(c).

5           6.       Second, Ecology has a mandatory duty under Washington law to set a TDG water  
6 quality standard at a level that supports aquatic life, the most sensitive designated use of the  
7 Snake and Columbia Rivers. RCW 90.48.035; WAC 173-201A-310; WAC 173-201A-  
8 200(1)(a)(ii)-(iv). Ecology also has a mandatory duty to rely only on credible data in  
9 determining whether water quality standards are being met. RCW 90.48.580(2)(c). Ecology's  
10 failure to set a TDG standard that protects endangered salmonids and failure to rely on credible  
11 data therefore constitute a failure to perform duties required by law, and is arbitrary and  
12 capricious, contrary to law, and exceeds the statutory authority of the agency, in violation of  
13 RCW 34.05.570(4)(b).

14           7.       Third, petitioners seek judicial review of Ecology's TDG rule, WAC 173-201A-  
15 200(1)(f)(ii). The rule fails to protect salmonids and other aquatic life and fails to rely on sound  
16 science and credible data, and is therefore arbitrary and capricious, contrary to law, and exceeds  
17 the statutory authority of the agency, in violation of RCW 34.05.570(2).

18           8.       For relief, Petitioners seek a judgment declaring that Ecology's denial of the  
19 March 7, 2010 petition was arbitrary and capricious; a judgment declaring WAC 173-201A-  
20 200(1)(f)(ii) invalid; an order compelling the promulgation of a new rule consistent with  
21 Ecology's duties mandated by law; and an award of reasonable costs and attorneys' fees. RCW  
22 34.05.570; RCW 4.84.350.

PARTIES

9. Petitioner Northwest Sportfishing Industry Association (“NSIA”) is a trade association of several hundred sporting goods manufacturers, wholesalers, retailers, marinas, guides, and charter boat operators. NSIA is dedicated to restoring and protecting the region’s rivers, lakes, and streams, keeping them healthy and full of fish. About 60 percent of the member businesses are located in Washington, 30 percent in Oregon, and the remainder are national organizations. NSIA’s mailing address is P.O. Box 4, Oregon City, Oregon 97045.

10. Petitioner Association of Northwest Steelheaders is a nonprofit corporation that seeks to promote responsible and enjoyable sport angling with good access to healthy, abundant, and sustainable fisheries in Oregon’s healthy watersheds. Association of Northwest Steelheaders is the Oregon affiliate of the National Wildlife Federation, a non-profit corporation that is the nation’s largest conservation advocacy and education organization. Association of Northwest Steelheaders’ mailing address is P.O. Box 22065, Milwaukie, Oregon 97269.

11. Petitioner Pacific Coast Federation of Fishermen’s Associations (“PCFFA”) is a trade association and federation. PCFFA is the largest organization of commercial fishermen on the west coast, with member organizations from San Diego to Alaska representing thousands of men and women in the Pacific fleet. Many of PCFFA’s members are salmon fishermen whose livelihoods depend upon salmon as a natural resource and who, until recent fisheries closures, generated hundreds of millions of dollars in personal income within the region. PCFFA has its main office in Sausalito, California, and a Northwest regional office in Eugene, Oregon. PCFFA’s mailing address is P.O. Box 11170, Eugene, Oregon 97440-3370.

12. Petitioner Institute for Fisheries Resources (“IFR”) is a nonprofit marine resource and salmon protection corporation that constitutes the conservation arm of PCFFA and shares

1 PCFFA's offices in Sausalito, California, and Eugene, Oregon. IFR's mailing address is P.O.  
2 Box 11170, Eugene, Oregon 97440-3370.

3 13. Petitioner Idaho Rivers United ("IRU") is a nonprofit corporation organized under  
4 the laws of the State of Idaho with a principal place of business in Boise, Idaho. IRU and its  
5 approximately 2,400 members throughout the State of Idaho are dedicated to the protection and  
6 restoration of Idaho's rivers and river resources. IRU's mailing address is P.O. Box 633, Boise,  
7 Idaho 83701.

8 14. Petitioners are represented by Amanda Goodin and Stephen Mashuda,  
9 Earthjustice, 705 Second Avenue, Suite 203, Seattle, Washington 98104.

10 15. Petitioners and their members use the Columbia River and its tributaries  
11 throughout Washington for recreational, scientific, aesthetic, commercial, and educational  
12 purposes. Petitioners and their members derive or, but for the threatened and endangered status  
13 of salmon and steelhead in the Columbia River basin, would derive recreational, scientific,  
14 aesthetic, commercial, and educational benefits from the existence of these species in the wild  
15 through wildlife observation, study and photography, and recreational and commercial fishing  
16 within the Columbia River basin and the Pacific Ocean.

17 16. The rights and privileges of the Petitioners and Petitioners' members are impaired  
18 or violated by the TDG rule, WAC 173-201A-200(1)(f)(ii), and by Ecology's denial of their  
19 petition to amend the rule. Ecology's enforcement of the 115 percent forebay TDG requirement  
20 unnecessarily limits the volume of water spilled to carry salmon over the dams on the Columbia  
21 and Snake Rivers, increasing mortality in juvenile salmon and steelhead. This further depletion  
22 of Washington's already-imperiled salmon and steelhead populations harms the recreational,  
23

1 scientific, aesthetic, commercial, and educational interests of Petitioners and their members in  
2 the use and enjoyment of Washington's water and wildlife resources.

3 17. Respondent Washington Department of Ecology is an agency of the state of  
4 Washington charged with promulgating rules and regulations, including water quality standards,  
5 in order to protect the designated uses of Washington's fresh waters and maintain the highest  
6 possible quality standards for all waters of the state. RCW 90.48.035. Ecology's mailing  
7 address is 300 Desmond Drive, Lacey, Washington 98503.

#### 8 JURISDICTION AND VENUE

9 18. This Court has jurisdiction under RCW 34.05.570, which authorizes judicial  
10 review of agency action, including review of a rule, review of the failure of an agency to perform  
11 a legally required duty, and review of the exercise of agency discretion. Because this action  
12 involves a rule challenge, venue is appropriate in Thurston County under RCW 34.05.570(2)(b)  
13 and RCW 34.05.514. This action is timely under RCW 34.05.542.

#### 14 STATUTORY FRAMEWORK

15 19. The federal Clean Water Act mandates that all states develop water quality  
16 standards for all waters within their boundaries. 33 U.S.C. § 1313. State water quality standards  
17 must meet the minimum requirements of the Clean Water Act and the federal regulations  
18 implementing the Act. *Id.*; 40 C.F.R. §§ 131.4-.6.

19 20. State water quality standards must include both designated uses for specific water  
20 bodies and water quality criteria that protect the designated uses. 33 U.S.C. § 1313; 40 C.F.R. §  
21 131.6(a)-(d); 40 C.F.R. §§ 131.10-.13. Water quality criteria may be expressed in numeric or  
22 narrative form, and often take the form of numeric limitations on specific pollutants. 40 C.F.R. §  
23 131.11(b)(1), (2). Water quality criteria must be sufficiently stringent to protect each designated  
24 use of a water body. *Id.* § 131.11(a)(1). When there are multiple use designations, the water

1 quality criteria “shall support the most sensitive use.” Id. Additionally, a state’s water quality  
2 criteria “must be based on sound scientific rationale . . . .” Id.

3           21. The Washington Department of Ecology has the authority and duty to set water  
4 quality standards for the waters of Washington State, pursuant to the requirements of the Clean  
5 Water Act and Washington law. RCW 90.48.035.

6           22. Ecology has designated four uses for Washington’s fresh surface waters,  
7 including the Snake and Columbia Rivers. WAC 173-201A-200. The first of these is “aquatic  
8 life uses,” which “are designated based on the presence of, or the intent to provide protection for,  
9 the key uses identified” in the rule. WAC 173-201A-200(1)(a). Two of these “key uses” are  
10 “Salmonid spawning, rearing, and migration” and “salmonid rearing and migration only.” WAC  
11 173-201A-200(1)(a)(iii)-(iv). Other “key uses” include “core summer salmonid habitat,”  
12 including “summer salmonid spawning or emergence,” “use as important summer rearing  
13 habitat,” “foraging,” and “spawning outside the summer season, rearing, and migration by  
14 salmonids.” WAC 173-201A-200(1)(a)(ii). In addition to these “key uses,” water quality  
15 standards must also protect “all indigenous fish and nonfish aquatic species.” WAC 173-201A-  
16 200(1)(a).

17           23. In addition to “aquatic life uses,” Ecology designated “recreational uses,” “water  
18 supply uses,” and “miscellaneous uses” for Washington’s fresh surface waters. WAC 173-201A-  
19 200(2)-(4). The miscellaneous freshwater uses “are wildlife habitat, harvesting, commerce and  
20 navigation, boating, and aesthetics.” WAC 173-201A-200(4). Power generation is not a  
21 designated use for Washington’s fresh surface waters.

22           24. Ecology is required to maintain and protect all “existing and designated uses” for  
23 Washington’s waters. WAC 173-201A-310. For waters that do not meet any designated uses,  
24

1 Ecology “will take appropriate and definitive steps to bring the water quality back into  
2 compliance with the water quality standards.” WAC 173-201A-310.

3 25. Ecology’s water quality criteria for Washington’s fresh surface waters include  
4 numeric criteria for TDG. WAC 173-201A-200(1)(f). Generally, the rule requires that TDG  
5 levels not exceed 110 percent saturation. However, the rule includes exemptions to facilitate fish  
6 passage through the federal dams on the Snake and Columbia Rivers:

7  
8 The following special fish passage exemptions for the Snake and Columbia rivers  
apply when spilling water at dams is necessary to aid fish passage:

9 TDG must not exceed an average of one hundred fifteen percent as measured in  
10 the forebays of the next downstream dams and must not exceed an average of one  
hundred twenty percent as measured in the tailraces of each dam (these averages  
11 are measured as an average of the twelve highest consecutive hourly readings in  
any one day, relative to atmospheric pressure); and

12 A maximum TDG one hour average of one hundred twenty-five percent must not  
13 be exceeded during spillage for fish passage.

14 WAC 173-201A-200(1)(f)(ii).

15 26. The Washington Legislature requires Ecology to “use credible information and  
16 literature for developing and reviewing a surface water quality standard.” RCW 90.48.580(1).  
17 Ecology is also required to use “credible data” when it determines “whether any surface water of  
18 the state is supporting its designated use . . . .” RCW 90.48.580(2)(c). In order to be considered  
19 “credible” the data must be “representative of water quality conditions at the time the data was  
20 collected.” RCW 90.48.585(1)(b).

## 21 BACKGROUND

### 22 A. The Status of Anadromous Fish In the Columbia River Basin

23 27. Steelhead and salmon are anadromous fish. They are born and rear in fresh water  
24 tributaries of the Columbia River as far east as central Idaho, migrate downstream through the  
25 Columbia River to the Pacific Ocean where they grow and live as adults, and return to their natal

1 streams and lakes to spawn and die. The Columbia River, its tributaries, and estuary historically  
2 provided habitat for chinook, sockeye, chum, and coho salmon, as well as steelhead. A century  
3 ago, between 10 and 30 million salmon returned to the Columbia each year. By 1991, 67 stocks  
4 of Columbia River salmonids were extinct and 76 stocks were at risk of extinction.

5         28. During the course of their juvenile and adult lives, the few remaining Columbia  
6 River basin salmon and steelhead face numerous artificial obstacles to successful migration,  
7 reproduction, and rearing. Chief among these obstacles for many salmon and steelhead stocks  
8 are the effects of multiple hydroelectric, irrigation, and navigation dams and their associated  
9 reservoirs, facilities, and operations on the Columbia and Snake rivers. Juvenile salmon  
10 migrating down the Snake and Columbia Rivers are killed and injured in significant numbers at  
11 the dams when passing through the turbines. Returning adult salmon and steelhead also must  
12 face upstream passage through these federal facilities risking injury, death, and reduced  
13 reproductive success.

14         29. As a consequence of these and other obstacles, populations of salmon and  
15 steelhead in the Columbia River basin have declined precipitously since the advent of European  
16 settlement. Before European settlement and the development of the Columbia River basin for  
17 hydroelectric power and other purposes, Snake River spring/summer chinook numbered over 1.5  
18 million returning adult fish per year; Snake River fall chinook were once the most important fall  
19 chinook stock in the entire Columbia River basin with estimated annual returns of 72,000 fish  
20 earlier this century; upper Columbia spring chinook once had access to thousands of miles of  
21 spawning and rearing habitat that have been rendered inaccessible by the construction of Grand  
22 Coulee and Chief Joseph dams; and Snake River sockeye, with the longest and steepest  
23 migration route of any salmon in the world, once thrived in high-elevation lakes in central Idaho.

1           30.     The remarkable historic productivity, abundance, and diversity of these fish has  
2 now collapsed. For example, the most recent analysis of the status of the upper Columbia spring  
3 chinook evolutionarily significant unit, performed by the Interior Columbia Basin Technical  
4 Recovery Team, notes for each of the three populations in this evolutionarily significant unit that  
5 still exist:

6           The . . . population is not currently meeting viability criteria. Of particular  
7 concern is the high risk rating with respect to abundance and productivity. The  
8 population cannot achieve any level of viability without improving its status . . .  
9 for both abundance and productivity. Spatial structure and diversity is also rated  
10 as high risk.

11           See [http://www.nwfsc.noaa.gov/trt/col/trt\\_current\\_status\\_assessments.html](http://www.nwfsc.noaa.gov/trt/col/trt_current_status_assessments.html).

12           31.     As a consequence of these dramatic and ongoing population declines, the U.S.  
13 National Oceanic and Atmospheric Administration (“NOAA”) has listed the following  
14 evolutionarily significant units and distinct population segments of Pacific salmon and steelhead  
15 in the Columbia River basin as threatened or endangered and designated their migratory,  
16 spawning, and rearing habitat in the basin as critical habitat: Snake River sockeye, Snake River  
17 spring/summer chinook, Snake River fall chinook, Snake River steelhead, Upper Columbia River  
18 steelhead, Lower Columbia River steelhead, Upper Columbia River spring-run chinook, Lower  
19 Columbia River chinook, Middle Columbia River steelhead, Upper Willamette River steelhead,  
20 Upper Willamette River chinook, Columbia River chum, and Lower Columbia River coho.

21           B.     Spill at the Federal Columbia River Power System Dams

22           32.     Juvenile salmon and steelhead in the Snake and Columbia Rivers must pass the  
23 Federal Columbia River Power System (“FCRPS”) dams as they migrate from their spawning  
24 grounds to the ocean. These dams are often a lethal obstacle; some routes past the dams,  
25 however, offer much higher rates of survival than others. For juvenile salmon and steelhead

1 migrating in the Snake and Columbia Rivers, passage via “spill” indisputably provides the safest  
2 passage through the FCRPS dams.

3         33.       “Spill” refers to water that is released over the spillways at dams, allowing salmon  
4 and steelhead to pass the dams quickly and safely. Passage via spill allows migrating juvenile  
5 salmonids to avoid traveling through the power turbines – a passage route that increases  
6 mortality of these fish by subjecting them to rapid pressure changes and direct impacts with  
7 turbine blades. Increased spill also results in lower mortality than the practice of diverting fish  
8 from the turbine intakes and “bypassing” them through a series of screens, pipes, and tunnels to  
9 be ejected at the lower side of the dam – the only other method available to ensure that fish  
10 migrating in-river are not forced to pass through the turbines. There is also substantial evidence  
11 that spill is the safest route of passage for adult salmon and steelhead that may “fall back” past a  
12 dam after ascending a fish ladder. Unlike salmon, many steelhead do not die after spawning, but  
13 rather begin another seaward migration. Spill provides the safest way for these adult migrants,  
14 known as “kelts,” to migrate past the dams.

15         34.       The level of spill at the FCRPS dams is controlled by the U.S. Army Corps of  
16 Engineers (“Corps”) and the Bonneville Power Administration, the federal agencies responsible  
17 for the operation of the dams. A Biological Opinion prepared pursuant to the Endangered  
18 Species Act dictates that these agencies must meet specific hydropower system biological  
19 performance standards for both adult and juvenile salmon in their operation of the dams. To  
20 meet these biological performance standards, the Biological Opinion mandates that these  
21 agencies will provide spill to improve juvenile fish passage at the dams.

22         35.       In addition to spill operations prescribed by the Biological Opinion, since the  
23 summer of 2005, federal court injunctions have required the Corps to spill additional water at the  
24

1 FCRPS dams to aid downstream fish passage. These operations have allowed more juvenile  
2 salmon to migrate in the river under better conditions and resulted in some of the highest in-river  
3 juvenile survival rates in years. These in-river survivals have translated into increased adult  
4 returns. For example, the 2008 and 2009 adult return of sockeye salmon to the Columbia and  
5 Snake Rivers (fish that had out-migrated in 2006 and 2007) shattered recent records. According  
6 to an analysis of these increased adult returns by the Fish Passage Center (“FPC”), survival  
7 through the hydrosystem in the years these fish migrated to the ocean was better than any year  
8 since the late-1990s. These high survivals were due in large measure to good river conditions  
9 produced by adequate river flows and court-ordered spill levels. Similarly, an analysis by the  
10 FPC demonstrates that adult steelhead returns in 2009 were some of the highest in recent record.<sup>1</sup>  
11 Like sockeye salmon, these returns were due in part to the beneficial river conditions, including  
12 court-ordered spill levels, that these fish experienced during their migration to the ocean in 2007  
13 and 2008.

14           36. Despite its benefits, spill can cause elevated levels of TDG in the river by forcing  
15 the absorption of air into water at the base of the dam. As water is spilled over the spillways, it  
16 entrains air bubbles. When these air bubbles are carried to depth in the stilling basin below the  
17 dam, the higher pressure at greater depth can force air from the bubbles into solution in the  
18 water, resulting in water that is supersaturated with dissolved nitrogen, oxygen, and other gasses.  
19 TDG levels may also be elevated by the passage of water through the dam’s turbines, fishways,  
20 or locks, or by low barometric pressure and local weather conditions, high water temperatures, or  
21 high levels of algal growth. Extended exposure to elevated TDG levels can be harmful to fish  
22 and other aquatic life by causing gas bubble trauma (“GBT”), a condition caused by the  
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24 <sup>1</sup> See Steelhead Adult Returns in 2009, <http://www.fpc.org/documents/memos/131-09.pdf>.

1 formation of gas bubbles in the cardiovascular system of aquatic species. However, years of  
2 research by the federal government and others has established that GBT is unlikely to affect  
3 salmon or any other aquatic organisms if TDG levels are maintained at or below 120 percent  
4 saturation. That is why both Washington and Oregon require that TDG levels may not exceed  
5 120 percent in the tailrace of the dams – the area of the river with the highest levels of TDG.  
6 However, Washington’s rule also limits TDG to 115 percent saturation in the forebays  
7 immediately above the next downstream dam. As explained below more fully below, Oregon  
8 has eliminated its 115 percent TDG standard at the forebays of dams on the Columbia and Snake  
9 River based on its conclusion that this limitation is not necessary to protect aquatic life and  
10 harms juvenile salmon migration by unnecessarily restricting beneficial spill levels.

11           37. While the Corps and the Bonneville Power Administration control the amount of  
12 spill at the federal dams on the Snake and Columbia Rivers, the Biological Opinion for the  
13 FCRPS dams dictates that the amount of spill must not lead to violation of water quality  
14 standards adopted by Washington and Oregon, specifically each state’s TDG standards. For  
15 much of its course, the Columbia River forms the border between Washington and Oregon,  
16 giving both states jurisdiction over its management. By contrast, the lower Snake River is  
17 located entirely in Washington after it crosses the border from Idaho to its confluence with the  
18 Columbia. For the federal dams on the Columbia River, where jurisdiction is shared by  
19 Washington and Oregon, the amount of spill must not lead to violation of either Washington or  
20 Oregon’s TDG standards.

21           38. Because the Corps must comply with both states’ TDG rules in controlling the  
22 levels of spill at the FCRPS dams, in practice the more restrictive Washington rule for dam  
23 forebays dictates the level of spill allowed and unnecessarily limits the amount of spill under both  
24

1 the biological opinion and the spill operations mandated by court order since 2005. *See infra* at ¶  
2 46.

3 C. The Joint Washington-Oregon Adaptive Management Team

4 39. As noted above, Ecology’s TDG rule establishes a general limit of 110 percent  
5 saturation for TDG for Washington’s fresh surface waters. WAC 173-201A-200(1)(f). Because  
6 of the recognized benefits of spill, a fish passage exemption was first added to the rule in 1997  
7 allowing 120 percent saturation in the tailraces of each dam and 115 percent saturation in the  
8 forebays of the next downstream dam. WAC 173-201A-200(1)(f)(ii).

9 40. In 2007, in response to a petition from many of the petitioners in this action and a  
10 decision from the Oregon Environmental Quality Commission, Ecology and the Oregon  
11 Department of Environmental Quality (“DEQ”) convened an Adaptive Management Team  
12 (“AMT”) to assess the need for the 115 percent forebay TDG requirement during fish passage  
13 spill, as prescribed by the Lower Columbia River Total Dissolved Gas Total Maximum Daily  
14 Load.<sup>2</sup> The AMT consisted of eleven organizations and agencies, including the Washington  
15 Department of Ecology and the Oregon DEQ. The AMT met approximately monthly from  
16 November 2007 through September 2008.

17 41. As the culmination of their assessment, the AMT published a final report in  
18 January 2009, titled “Adaptive Management Team Total Dissolved Gas in the Columbia and  
19 Snake Rivers: Evaluation of the 115 Percent Total Dissolved Gas Forebay Requirement” (“AMT  
20 Report”).<sup>3</sup> The AMT Report summarizes and evaluates the technical information presented at  
21 the AMT meetings, and describes three independent literature reviews conducted by Ecology,  
22

23 <sup>2</sup> Available at <http://www.ecy.wa.gov/pubs/0303020.pdf>.

24 <sup>3</sup> Available at <http://www.ecy.wa.gov/biblio/0910002.html>

1 NOAA Fisheries, and a private consulting firm, Parametrix, on the effects of TDG on aquatic  
2 life.

3           42.     The NOAA Fisheries literature review noted that that there was conclusive  
4 support in the literature that the adverse effects of GBT on resident fish and invertebrates were  
5 negligible when TDG levels were less than 120 percent. The NOAA Fisheries literature review  
6 based this conclusion on a thorough review of the relevant scientific literature, including field  
7 studies conducted between 1994 and 1997 by NOAA scientists on non-salmonid fishes and  
8 invertebrates in the Columbia and Snake rivers. NOAA specifically designed those field studies  
9 to examine the consequences of then-temporary waivers from Ecology in 1994 from the 110  
10 percent dissolved-gas saturation standard; based on years of monitoring, the study concluded that  
11 signs of GBT were rare in resident fish and invertebrates when TDG was at or below 120 percent  
12 saturation. The NOAA Fisheries literature review also included a thorough discussion of several  
13 other field studies that tested fish and/or invertebrates (some specifically in the Snake or  
14 Columbia Rivers) and concluded that there was little evidence of harm from GBT when TDG  
15 was at or below 120 percent.

16           43.     The Parametrix literature review emphasized many of the same studies as the  
17 NOAA Fisheries literature review, and reached similar conclusions. Like the NOAA Fisheries  
18 study, the Parametrix literature review considered numerous field studies examining the effects  
19 of elevated TDG levels on salmonids, non-salmonid resident fish, and invertebrates; like NOAA  
20 Fisheries, the Parametrix review concluded that signs of GBT were rare when TDG was at or  
21 below 120 percent. The Parametrix literature review also considered laboratory studies showing  
22 that various species experienced adverse effects at TDG levels lower than 120 percent; noting the  
23 substantial discrepancy between the laboratory and field studies, the Parametrix review includes  
24

1 a discussion of the reasons that these laboratory studies overestimate the levels of GBT  
2 experienced by fish and other aquatic biota in actual river conditions.

3 44. The Ecology literature review, however, reached a different conclusion, instead  
4 finding that “the weight of the evidence clearly points to detrimental effects on aquatic life near  
5 the surface when TDG approaches 120 percent.” AMT Report at 46. In reaching this  
6 conclusion, the Ecology literature review fails to consider or misrepresents many of the field  
7 studies that form the basis for the conclusions of the NOAA Fisheries and Parametrix literature  
8 reviews. Instead, the Ecology literature review relies almost exclusively on laboratory studies  
9 that show GBT effects on captive aquatic biota under experimental conditions.

10 45. Based on the findings of the AMT as summarized in the AMT Report, the Oregon  
11 DEQ decided to remove Oregon’s 115 percent forebay TDG requirement. Specifically, the  
12 Oregon DEQ considered “the continued disagreement of the placement and representativeness of  
13 the TDG forebay monitoring gauges, the role of spill to fish survival, the impacts of TDG based  
14 on gas bubble trauma monitoring conducted over the past 14 years, and the expected spill  
15 volume changes and survival impacts based on the various modeling approaches” in concluding  
16 that the removal of the forebay requirement would not cause significant harm to aquatic life.  
17 AMT Report at 62. Oregon DEQ officially adopted the AMT’s findings on this point in a  
18 Departmental Order in February 2009 and removed the forebay monitoring requirement  
19 altogether.<sup>4</sup>

20  
21  
22 <sup>4</sup> See Departmental Order Removing the Requirement for the Use of Forebay Monitors in 2009,  
23 February 25, 2009: “The Department consulted with the Adaptive Management Team starting  
24 November 2007 until September 2008. Based on these consultations, and the findings and  
25 conclusions described in [the AMT Report], the Department removes the requirement for the use  
26 of forebay monitors in 2009.” That order was later extended through 2014 by the Oregon  
Environmental Quality Commission on June 24, 2009.

1           46. In a subsequent order extending the removal of the 115 percent forebay limit,  
2 Oregon DEQ noted that few or no fish displayed signs of GBT when TDG is at or below 120  
3 percent. Oregon DEQ specifically looked to the NMFS study and other field studies in  
4 conducted in the Columbia River, and noted that when TDG remained at or below 120 percent,  
5 there were no signs of GBT in any invertebrates found over the course of the five year study, and  
6 that there were either no signs of GBT in any fish species (two of the five years) or less than a  
7 one percent incidence of GBT (three of the five years). The Order also noted that managing spill  
8 to 120 percent TDG would increase juvenile salmon survival by 4 to 6 percent.<sup>5</sup>

9           47. Based on the same AMT Report and its findings, Ecology decided not to remove  
10 Washington's 115 percent forebay TDG requirement. While Ecology determined that removing  
11 the forebay requirement would provide a "small benefit" to salmon, it believed that there would  
12 also be "the potential for a small increase in harm from increased gas bubble trauma" to "aquatic  
13 life near the surface." AMT Report at 8. Ecology concluded that the information in the AMT  
14 Report does not demonstrate that "the overall benefits of additional spill versus additional risk of  
15 gas bubble trauma are clear and sufficient for a rule revision." *Id.*

16           D. The March 2010 Petition

17           48. On March 8, 2010, Save Our Wild Salmon, American Rivers, Northwest  
18 Sportfishing Industry Association, Association of Northwest Steelheaders, Idaho Rivers United,  
19 Berkley Conservation Institute, Citizens For Progress, and Pacific Coast Federation of  
20 Fishermen's Associations submitted a petition to Ecology to amend the 115 percent forebay  
21 TDG requirement (the "March 2010 petition" or "petition").<sup>6</sup> The petition summarizes the  
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23 <sup>5</sup> Oregon DEQ, Order Approving the U.S. Army Corps of Engineers' Request for a Waiver to the  
24 State's Total Dissolved Gas Water Quality Standard, June 24, 2009.

25 <sup>6</sup> Save Our Wild Salmon and others previously filed two petitions similar to the March 2010

1 beneficial effects of spill on migrating salmon and steelhead and explains in detail why the  
2 information summarized in the AMT Report compels Ecology to remove the 115 percent forebay  
3 TDG limit, and explains why Ecology's conclusion to the contrary was not based on  
4 consideration of the relevant evidence and information in the scientific literature. The petition  
5 also presented new evidence about the beneficial effects of spill on Pacific lamprey, another  
6 anadromous species that migrates through the dams in the Columbia River basin. The petition  
7 asked Ecology to either remove the 115 forebay standard altogether or, in the alternative, to  
8 bring the forebay standard in line with the tailrace standard of 120 percent.

9         49. Specifically, the petition demonstrates that the 115 percent forebay TDG limit is  
10 not grounded in science or credible data. The AMT Report and the studies considered by the  
11 AMT demonstrate that aquatic life is not harmed if TDG levels are at or below 120 percent,  
12 including in the forebays of the dams. In contrast, the survival rates of juvenile salmon and  
13 steelhead will increase if spill increases, and eliminating or raising to 120 percent the TDG  
14 forebay limit will allow for increased spill. Ecology decided to retain the 115 percent forebay  
15 TDG limit at the conclusion of the AMT Report, but the petition outlines the many critical  
16 scientific studies submitted to the AMT that Ecology failed to consider, did not accurately  
17 represent, or failed to adequately address or distinguish in making its decision. These failures  
18 led Ecology to overestimate the risk that 120 percent TDG poses to some forms of aquatic life  
19 and to underestimate the benefits that spill offers to salmon and other aquatic life, such as Pacific  
20 lamprey. The petition also notes that Ecology inappropriately based its belief that other aquatic  
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22 petition, the first in March 2007 and the second in June 2009, after Ecology's decision not to  
23 change the rule. The March 2007 petition was later withdrawn so that the petitioners could enter  
24 into discussions with Ecology about TDG in the Columbia and Snake Rivers; these discussions,  
25 in part, prompted Ecology's decision to convene the AMT. Ecology denied the June 2009  
26 petition on August 10, 2009.

1 life would be put at risk on out-dated or experimental studies under laboratory conditions, and  
2 ignored or inexplicably discounted numerous field studies considered in the NOAA Fisheries and  
3 Parametrix literature reviews demonstrating that no discernable harm actually results from TDG  
4 levels of 120 percent or less.

5           50.     The petition also provides evidence demonstrating that, for a variety of reasons,  
6 scientists in the region have long acknowledged that forebay monitoring does not produce the  
7 kind of credible data on which Ecology may rely in determining whether water quality standards  
8 are met. Monitoring in the tailrace, in contrast, does not suffer from the same limitations. Based  
9 on the unreliable data, the benefits to threatened or endangered salmon and steelhead, and the  
10 absence of credible scientific information or data demonstrating harm to other aquatic life, the  
11 petition asked Ecology to eliminate the 115 percent forebay TDG requirement, and instead rely  
12 solely on the more credible tailrace monitoring to determine whether water quality standards are  
13 met.

14           51.     Ecology denied the petition on May 7, 2010. In denying the petition, Ecology  
15 failed to explain why it did not consider or follow the relevant science, information, or literature  
16 supporting the elimination of the 115 percent forebay TDG requirement to fully protect  
17 salmonids and other aquatic life in the Snake and Columbia Rivers. Ecology stated that the  
18 fundamental basis for its denial was that “Ecology does not believe that the overall benefits of  
19 additional spill versus detrimental effect to other aquatic life are clear or sufficient for a rule  
20 revision.” Ecology’s denial states that maintaining the forebay criteria is necessary to provide “a  
21 margin of safety” for organisms “shown to be harmed by prolonged exposure to TDG levels  
22 above 115% of saturation,” and that the current TDG rule “balance[s] the needs of spill for fish  
23 passage with a margin of safety for other aquatic organisms.” Ecology highlighted several  
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1 laboratory studies considered in the Ecology literature review that found harm to some  
2 organisms from high TDG levels. In response to the evidence in the petition from Parametrix  
3 and NOAA Fisheries that laboratory studies overestimate the risk of GBT in aquatic biota and  
4 that the field studies, especially those conducted in the Snake and Columbia Rivers, are the best  
5 indicators of the effects of TDG on resident species, Ecology simply noted that “[d]ata and  
6 information from [laboratory] studies are routinely used by EPA and the states to develop water  
7 quality standards.” Ecology’s denial acknowledges that Ecology may not have considered the  
8 field studies discussed in the March 2010 petition in the “weight of the evidence” and that the  
9 problems with forebay TDG monitoring are well-established; yet Ecology still insisted on  
10 retaining the 115 percent forebay criteria.

#### 11 FIRST CAUSE OF ACTION

12 52. Petitioners incorporate by reference all preceding paragraphs.

13 53. The Washington APA, RCW 34.05.570(4)(c), authorizes this Court to grant relief  
14 for agency action that is arbitrary and capricious or outside the statutory authority of the agency.

15 54. On March 8, 2010, Petitioners petitioned Ecology to revise its TDG rule, WAC  
16 173-201A-200(1)(f)(ii), to protect key designated uses of the Columbia and Snake Rivers  
17 because the rule fails to protect aquatic life uses, including salmonid habitat, spawning, rearing,  
18 and migration, as well as other aquatic species such as Pacific lamprey. The 115 percent forebay  
19 TDG requirement unnecessarily limits spill at the FCRPS dams, thereby increasing mortality of  
20 juvenile salmonids and other aquatic life attempting to migrate past those dams without affording  
21 any countervailing benefit to other forms of aquatic life.

22 55. Ecology denied the petition on May 7, 2010. Ecology stated that the fundamental  
23 basis for its denial was that “Ecology does not believe that the overall benefits of additional spill  
24 versus detrimental effect to other aquatic life are clear or sufficient for a rule revision.”



1           61.     Washington law requires Ecology to establish water quality criteria that are  
2 sufficient to protect the designated uses of Washington’s waters. RCW 90.48.035; WAC 173-  
3 201A-310.

4           62.     The designated uses of Washington’s fresh surface waters include “aquatic life  
5 uses,” including “core summer salmonid habitat,” “salmonid spawning, rearing, and migration,”  
6 and “salmonid rearing and migration only.” WAC 173-201A-200(1)(a)(ii)-(iv). Water quality  
7 standards must also protect “all indigenous fish and nonfish aquatic species.” WAC 173-201A-  
8 200(1)(a).

9           63.     Ecology’s TDG rule, WAC 173-201A-200(1)(f)(ii), fails to satisfy Ecology’s duty  
10 to protect aquatic life uses, including salmonid habitat, spawning, rearing, and migration, as well  
11 as other aquatic species such as Pacific lamprey, because the 115 percent forebay TDG  
12 requirement unnecessarily limits spill at the FCRPS dams, thereby increasing mortality of  
13 juvenile salmonids and other aquatic life attempting to migrate past those dams, without  
14 providing any countervailing benefit to other aquatic life. The evidence before Ecology  
15 unequivocally supports eliminating or increasing the 115 percent forebay TDG limit, WAC 173-  
16 201A-200(1)(f)(ii).

17           64.     Washington law also requires Ecology to use credible data to determine whether  
18 water quality standards are met. RCW 90.48.580; RCW 90.48.585(1)(b).

19           65.     Ecology’s TDG rule, WAC 173-201A-200(1)(f)(ii), fails to satisfy its duty to use  
20 credible data because it requires Ecology to gauge compliance with its 115 percent forebay  
21 criterion based on data from forebay monitoring that has been demonstrated to be systematically  
22 inaccurate.





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F. Respectfully submitted this 2<sup>nd</sup> day of June, 2010.

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