SYMPOSIUM

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Changes in Oregon's Water Quality Standards for Toxics

On May 20, 2004, the Oregon Environmental Quality Commission (OEQC) adopted revisions to the Oregon Administrative Rules (OARs) concerning water quality criteria for toxic pollutants.[1] This was the culmination of a rulemaking process that took more than three years to complete. This article will explain how the criteria were developed, what the new rule contains, and which outstanding issues remain.

This article is based on an oral presentation given as part of a symposium hosted by the *Journal of Environmental Law and Litigation* titled: *Environmental Justice in Oregon's Water Quality Standards: Considering Fish Consumption Rates When Setting Toxics Criteria*. In keeping with the topic of the symposium, this article, although it discusses Oregon's rulemaking process generally, places special emphasis on the role of fish consumption rates as values underlying the new water quality criteria. Since these values reflect assumptions regarding the frequency and quantity of fish consumption, and fish consumption is an exposure route for many toxic pollutants, accurate and representative fish consumption rates are important in setting water quality criteria that effectively protect human health. A matter of particular concern

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[1] *See* Or. Envtl. Quality Comm'n, Minutes of the Three Hundredth and Eighteenth Meeting, http://www.deq.state.or.us/about/eqc/minutes/2004/5.20-21.04.EQCMinutes.htm (last visited Jan. 26, 2006).

during the rulemaking process was the protectiveness of the new criteria with respect to Native American tribal members in the Columbia River Basin, many of whom consume fish at subsistence levels. In addition, the OEQC and the Oregon Department of Environmental Quality (ODEQ) wrestled with a key issue of whether water quality criteria should be focused on protecting Oregon's general population or a sensitive subpopulation.

I

CRITERIA DEVELOPMENT

A. The Nature and Function of Water Quality Standards and Toxics Criteria

The Federal Water Pollution Control Act,[2] commonly referred to as the Clean Water Act (CWA), directs states and qualified tribes to adopt water quality standards.[3] The U.S. Environmental Protection Agency (EPA) defines water quality standards as consisting of: (1) beneficial uses (the goals for the waterbody, such as irrigation, aquatic life, and fishing); (2) numeric and narrative criteria (the minimum numeric and narrative conditions that will protect the beneficial uses); and (3) an antidegradation policy (to protect water quality from unnecessary degradation; for example, when water quality is better than that established by the criteria, the antidegradation policy prevents degradation of water quality to the level set by the criteria unless it can be shown that the socioeconomic benefits outweigh the environmental costs).[4]

Water quality standards are used in implementing a variety of CWA provisions. Particularly relevant are the numeric criteria for toxic pollutants ("toxics criteria"), which are used to set pollutant limits in both wastewater-discharge permits (referred to as National Pollutant Discharge Elimination System (NPDES) permits),[5] and in CWA section 401 certifications, which regulate dredge and fill activities and hydropower operations.[6] The crite-

[2] Clean Water Act, 33 U.S.C.A. §§ 1251-1387 (2005).

[3] *See id*. § 1313(a)-(c); *see also id*. § 1377(e).

[4] EPA Water Programs 40 C.F.R. § 131.6; *See* OR. DEP'T OF ENVTL. QUALITY, ANTIDEGRADATION POLICY IMPLEMENTATION INTERNAL MANAGEMENT DIRECTIVE FOR NPDES PERMITS AND SECTION 401 WATER QUALITY CERTIFICATIONS 4 (2001), http://www.deq.state.or.us/wq/standards/ AntidegPolicyDirect.pdf.

[5] *See* 33 U.S.C.A. § 1342(a) (2005).

[6] *See id.* § 1341.

ria are also used in officially designating, pursuant to CWA section 303(d), those waters that suffer from impaired water quality.[7] Finally, if a waterbody is designated as impaired because of toxic pollution, the toxics criteria are used in determining the water quality targets that must be met in the Total Maximum Daily Load (TMDL),[8] which can be viewed as the waterbody's "pollution budget."[9]

The EPA's latest recommended toxics criteria, which provide guidance to states and tribes in adopting water quality standards,[10] cover over 160 chemicals.[11] The toxics criteria can be categorized under two major themes: (1) "aquatic life criteria," which are designed to protect the beneficial use of fish and aquatic life,[12] and (2) "human health criteria," which are designed to protect the beneficial uses of fishing, water contact recreation, aesthetic quality, public domestic water supply, and private domestic water supply.[13] Within these two overarching themes, there are four possible numeric criteria for aquatic life (freshwater acute, freshwater chronic, saltwater acute, and saltwater chronic), and two possible numeric criteria for human health (water and organism consumption and organism consumption alone).[14] Thus, for any single chemical, there can be up to six different numeric criteria.

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[7] *See id.* § 1313(d). The resulting list is commonly referred to as the "section 303(d) list of impaired waters."

[8] *See id*. § 1313(d)(1)(C).

[9] *See* U.S. ENVTL. PROT. AGENCY OFFICE OF WATER, JOINT STATEMENT OF THE DEPARTMENT OF AGRICULTURE AND THE ENVIRONMENTAL PROTECTION AGENCY ADDRESSING AGRICULTURAL AND SILVICULTURAL ISSUES WITHIN EPA REVISIONS TO TMDL AND NPDES RULES (2000), http://www.epa.gov/owow/tmdl/tmdlwhit.html. Defined fully, "[a] TMDL or Total Maximum Daily Load is a calculation of the maximum amount of a pollutant that a waterbody can receive and still meet water quality standards, and an allocation of that amount to the pollutant's sources." U.S. Envtl. Prot. Agency, *Total Maximum Daily Loads*, http://www.epa.gov/owow/tmdl/intro.html (last visited Jan. 26, 2006).

[10] *See* U.S. Envtl. Prot. Agency, Current National Recommended Water Quality Criteria, *available at* http://www.epa.gov/waterscience/criteria/wqcriteria.html (last visited Jan. 26, 2006).

[11] *See id*.; *see* Revision of National Recommended Water Quality Criteria, 67 Fed. Reg. 79,091 (Dec. 27, 2002).

[12] OR. DEP'T OF ENVTL. QUALITY, REASONABLE POTENTIAL ANALYSIS FOR TOXIC POLLUTANTS INTERNAL MANAGEMENT DIRECTIVE, 2 (2005), http://www.deq.state.or.us/wq/wqPolicy/WQIMDRPA.pdf [hereinafter REASONABLE POTENTIAL ANALYSIS].

[13] *Id*.

[14] *See* U.S. ENVTL. PROT. AGENCY OFFICE OF WATER, NATIONAL RECOMMENDED WATER QUALITY CRITERIA: 2002, 3-9 (2002), *available at* http://www.epa.

States and tribes select criteria based on the beneficial uses relevant to a given waterbody, as well as the particular CWA provision being implemented. For example, in a NPDES permit for discharge into a freshwater stream in which "fish & aquatic life" is the most sensitive beneficial use, both the acute and chronic freshwater criteria could be used so long as the permit allows for a "mixing zone"[15] to protect that use: the discharger would need to meet the acute criterion[16] in the zone of initial dilution (next to the discharge point) and meet the chronic criterion at the edge of the mixing zone.[17] However, only the chronic criteria (which are always more stringent than the acute criteria) likely would be used in placing the same waterbody on the CWA section 303(d) list of impaired waters.[18] If the waterbody's most sensitive beneficial use is related to the human health criteria, then the water + organism criteria is applicable when both drinking water and fishing uses are present, whereas the organism-only criteria is applicable when only a fishing use is present.[19]

gov/waterscience/criteria/nrwqc-2002.pdf [hereinafter NATIONAL RECOMMENDED 2002].

[15] "A mixing zone is a defined area surrounding or downstream of a point source discharge where the effluent plume is progressively diluted by the receiving water and numeric criteria otherwise applicable to the segment may be exceeded." U.S. Envtl. Prot. Agency, *What are Water Quality Standards? General Policies*, http://www.epa.gov/wqsdatabase/demo/intro/pol.htm (last visited Jan. 26, 2006).

[16] The acute criterion is less stringent than the chronic criterion in terms of concentration, but more stringent in terms of allowable duration. The rationale for this difference is that, in general, organisms can withstand higher concentrations of a toxic pollutant for shorter periods of time. Such short-term exposures will not lead to adverse effects if the organisms move out of the zone of initial dilution (ZID), which is likely because of the ZID's smaller size (relative to the mixing zone) and repellant qualities.

[17] *See* REASONABLE POTENTIAL ANALYSIS, *supra* note 12, at 52-58; *see* U.S. ENVTL. PROT. AGENCY OFFICE OF WATER, TECHNICAL SUPPORT DOCUMENT FOR WATER QUALITY-BASED TOXICS CONTROL 47-65 (1991), http://www.epa.gov/npdes/pubs/owm0264.pdf.

[18] *See* OR. DEP'T OF ENVTL. QUALITY, CONSOLIDATED ASSESSMENT AND LISTING METHODOLOGY FOR THE 2002 303(D) LIST OF WATER QUALITY LIMITED WATERBODIES AND INTEGRATED 305(B) REPORT 42 (2003), http://www.deq.state.or.us/wq/303dlist/Final2002AssessmentAndListingMethodolgy.pdf.

[19] *See* REASONABLE POTENTIAL ANALYSIS, *supra* note 12, at 14-18.

B. Oregon's Review of its Water Quality Standards and Toxics Criteria

1. Overview of Oregon's Review Process

The CWA requires states and tribes to periodically analyze their water quality standards to determine if they should be revised.[20] This process is known as the "water quality standards review," or "triennial review" because it should take place every three years.[21] The ODEQ began its latest water quality standards review in 1999.[22]

Although the rulemaking process was initiated in 1999, the specific effort to revise Oregon's toxics criteria began in earnest in January 2001 with the introduction of that topic to the Policy Advisory Committee (PAC),[23] a multi-interest group convened to assist ODEQ with Oregon's triennial review.[24] The toxics criteria were in need of revision,[25] having been based on 1986 EPA recommended criteria (from the 1986 EPA "Gold Book"). Because the EPA had recommended significant revisions to those criteria several times in the intervening years,[26] Oregon's toxics criteria were out of date.

One can assess the scope of the review necessary to update Oregon's numeric toxics criteria by comparing Oregon's criteria in use at the time of the triennial review with the latest EPA recommended criteria (published in 2002, during the triennial review process).[27] A total of 281 of Oregon's old criteria differed

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[20] U.S. Envtl. Prot. Agency, *What are Water Quality Standards? Water Quality Standards Review and Revision*, http://www.epa.gov/OST/standards/about/rev.htm (last visited Jan. 26, 2006).

[21] *See* Or. Dep't of Envtl. Quality, *Water Quality Standards Review (Triennial Review),* http://www.deq.state.or.us/wq/standards/WQStdsReview.htm (last visited Jan. 26, 2006) [hereinafter Triennial Review].

[22] *Id*.

[23] *See* Or. Dep't of Envtl. Quality Water Quality Standards Review Policy Advisory Comm., *Draft Meeting Summary Jan. 17, 2001*, 5 (2001), http://www.deq.state.or.us/wq/standards/WQStdsPAC011701.pdf.

[24] *See* Triennial Review, *supra* note 21.

[25] *See* Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants; States' Compliance, 57 Fed. Reg. 60,848, 60,850 (Dec. 22, 1992) (requiring states to engage in triennial reviews of priority toxic pollutant standards).

[26] *See id*.; *see* NATIONAL RECOMMENDED 2002, *supra* note 14, at 3-10.

[27] *Compare* NATIONAL RECOMMENDED 2002, *supra* note 14, at 12-27 (explanation of criteria) *and* Revision of National Recommended Water Quality Criteria, *supra* note 11, at 79,094 (revising fifteen of the EPA's national recommended water quality criteria for protecting human health) *to* U.S. ENVTL. PROT. AGENCY, QUAL-

from the latest EPA criteria, and thus were in need of review.[28] This large number of criteria shaped the scope and approach of the review process.

The major participants in this review were: (1) the ODEQ, (2) the OEQC (ODEQ's policy and rulemaking board), (3) the EPA, (4) the PAC, (5) the Technical Advisory Committee (TAC), (6) the public. The PAC was made up of stakeholders who represented interests from industry, municipalities, forestry, agriculture, fisheries, environmental groups, and tribes.[29] In addition to these stakeholder groups, the PAC included *ex officio* members from the EPA, the U.S. Fish & Wildlife Service (USFWS), the National Marine Fisheries Service (NOAA Fisheries), the Oregon Department of Health Services, and the Oregon Department of Fish and Wildlife.[30] The PAC discussed the toxics criteria in public meetings as often as once per month from January 2001 through December 2003.[31] The TAC, a panel established to assist the ODEQ with the collection and assessment of scientific information,[32] was made up of toxicologists from academia and government agencies.[33] The TAC meetings were also open to the public, and were held from May 2001 through September 2002.[34] Written summaries of the PAC and TAC meetings were sent to committee members and made available to other interested parties on the ODEQ website.[35]

ITY CRITERIA FOR WATER 1986 454-55 (1986), *available at* http://www.epa.gov/waterscience/criteria/goldbook.pdf [hereinafter CRITERIA 1986].

[28] *See* MARTIN S. FITZPATRICK, TOXICS COMPOUNDS CRITERIA 1999-2003 WATER QUALITY STANDARDS REVIEW ISSUE PAPER H-9 (2004), http://www.deq.state.or.us/wq/standards/ToxicsEQCDocs/AttachmentHToxicsCriteriaIssuePaperfinal.pdf.

[29] DEQ: 1999-2003 Water Quality Standards Review, *available at* http://www.deq.state.or.us/wq/standards/PACMembers-adv-alt.pdf (last visited Jan. 26, 2006).

[30] *Id.*

[31] For a collection of PAC meeting minutes, *see* Or. Dep't Envtl. Quality, *1999-2003 Standards Review Policy Advisory Committee*, http://www.deq.state.or.us/wq/standards/WQStdsPolicyComm.htm [hereinafter 1999-2003 PAC].

[32] Or. Dep't Envtl. Quality, *The 1999-2003 Standards Review Technical Committees*, http://www.deq.state.or.us/wq/standards/WQStdsTechComm.htm (last visited Jan. 26, 2006) [hereinafter 1999-2003 TAC].

[33] *See* OR. DEP'T ENVTL. QUALITY, ATTACHMENT C: ADVISORY COMMITTEE MEMBERSHIP AND REPORT C-2 (2004), *available at* http://www.deq.state.or.us/wq/standards/ToxicsEQCDocs/AttachmentCfinal.pdf.

[34] *See* 1999-2003 TAC, *supra* note 32. Meeting notes are available from meetings in June 2001 to September 2002.

[35] *See id*.; *see* 1999-2003 PAC, *supra* note 31.

2. Technical Advisory Committee Recommendations

The TAC was to conduct a toxicological review of the criteria and make recommendations to the PAC, which would consider the TAC recommendations before making its own recommendations to the ODEQ.[36] However, the large number of criteria needing review made an in-depth toxicological review of each criterion impossible to complete in a timely manner. Therefore, the TAC approached the review by asking the following question: is there a technical basis for Oregon to adopt the EPA's latest recommended toxics criteria?

The TAC sought its answer by reviewing how the EPA develops recommendations for water quality criteria.[37] The aquatic life criteria and human health criteria were reviewed separately because of differences in how the EPA derives the two types of criteria. The data requirements for both are considerable. In order to derive an aquatic life criterion, the EPA analyzes robust toxicological data from organisms representing eight taxonomic families (including members of the Salmonidae family—salmon, trout, chars, and whitefish).[38] The resulting criterion is influenced primarily by the four representative families most sensitive to that particular toxic pollutant.[39] By contrast, the EPA derives the human health criteria after analyzing studies reflecting: (1) the potency of specific pollutants in terms of causing a toxic response, and (2) various measures of exposure risk, including drinking water- intake rate, body weight, bioaccumulation of the toxic pollutant in fish, and fish consumption rate.[40]

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[36] *See* OR. DEP'T OF ENVTL. QUALITY, 1999-2003 WATER QUALITY STANDARDS REVIEW POLICY ADVISORY COMMITTEE ROLE AND PROCESS AGREEMENT (2002), http://www.deq.state.or.us/wq/standards/PACRole.pdf [hereinafter PAC Process Agreement].

[37] *See generally* CHARLES E. STEPHEN ET AL., GUIDELINES FOR DERIVING NUMERICAL NATIONAL WATER QUALITY CRITERIA FOR THE PROTECTION OF AQUATIC ORGANISMS AND THEIR USES (1985), *available at* http://www.epa.gov/ostwater/criteria/85guidelines.pdf. Most states and tribes rely on the EPA to derive recommended criteria; thus, while the OEQC adopts revised criteria, the technical basis for those criteria largely comes from the EPA. *See* U.S. ENVTL. PROT. AGENCY, METHODOLOGY FOR DERIVING AMBIENT WATER QUALITY CRITERIA FOR THE PROTECTION OF HUMAN HEALTH 1-1 (2000), *available at* http://epa.gov/waterscience/criteria/humanhealth/method/complete.pdf [hereinafter METHODOLOGY].

[38] *See* STEPHAN ET AL., *supra* note 37, at 23-26.

[39] *See id.* at 17.

[40] *See* METHODOLOGY, *supra* note 37, at 1-9, 1-10.

The EPA's published guidance on deriving human health criteria[41] illustrates the importance of assigning values to the variables, such as fish consumption rate, used in deriving criteria. The equations for deriving human health criteria reflect the inverse relationship between the value for the criterion (i.e., the concentration in the water) and the fish consumption rate.[42] In other words, as the fish consumption rate increases, the criterion becomes more stringent.

The TAC found that the default values the EPA recommended for toxic potency, drinking-water intake, body weight, and bioaccumulation were technically sound, and therefore concentrated on reviewing fish consumption rates published in a variety of studies from around the United States.[43] The TAC found that four published fish-consumption rates, ranging from 17.5 grams per day (g/day) (0.6 ounces per day (oz/day)) to 389 g/day (13.7 oz/day), were technically sound and relevant to Oregon (see Table 1).[44] These rates were derived from the mean, ninetieth, and ninety-ninth percentiles of the populations sampled in two sources: (1) the EPA's human health criteria guidance,[45] and (2) a study of fish-consumption rates among Columbia River tribal members conducted by the Columbia River Inter-Tribal Fish Commission (CRITFC)[46] (see Table 1). The EPA designated 17.5 g/day as protective of the "general population" and 142.4 g/day as protective of "subsistence fishers."[47]

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41 *See generally id*.

42 *See id*. at 1-10, 3-13, 4-1, 5-1.

43 *See* CA. ENVTL. PROT. AGENCY OFFICE OF ENVTL. HEALTH HAZARD ASSESSMENT, CHEMICALS IN FISH: CONSUMPTION OF FISH AND SHELLFISH IN CALIFORNIA AND THE UNITED STATES FINAL REPORT OCTOBER 2001, 8-11 (2001), *available at* http://www.oehha.ca.gov/fish/pdf/Fishconsumptionrpt.pdf.

44 *See* METHODOLOGY, *supra* note 37 at 4-25; *see* COLUMBIA RIVER INTER-TRIBAL FISH COMM'N, A FISH CONSUMPTION SURVEY OF THE UMATILLA, NEZ PERCE, YAKAMA, AND WARM SPRINGS TRIBES OF THE COLUMBIA RIVER BASIN TECHNICAL REPORT 94-3, 85-86 (1994), *available at* http://www.critfc.org/ tech/94-3report.pdf.

45 *See* METHODOLOGY, *supra* note 37, at 4-25.

46 *See* COLUMBIA RIVER INTER-TRIBAL FISH COMMISSION, *supra* note 44, at 85-86.

47 *See* FITZPATRICK, *supra* note 28, at H-13; *see* Or. Dept. of Envtl. Quality, DEQ Water Quality Standards Triennial Review Toxics Technical Advisory Committee Meeting Summary June 24, 2002, 2, http://www.deq.state.or.us/wq/ standards/ ToxTCMeetSum0602.pdf.

TABLE 1

The table depicts the fish-consumption rates (FCRs) endorsed by the TAC for possible use in deriving Oregon's human health criteria. For each information source, the table depicts: (1) the information source, (2) the average FCR, (3) the ninetieth percentile FCR, and (4) the ninety-ninth percentile FCR. The values indicate rates inclusive of the specified percentage of the population in each category; for example, the ninetieth percentile indicates the rate at and below which ninety percent of the population consumes fish. At the time of consideration, Oregon's human health criteria were based on a fish consumption rate of 6.5 g/day (0.2 oz/day).[48]

SOURCE	AVERAGE FCR	90TH% FCR	99TH% FCR
EPA (2000)		17.5 g/day (0.6 oz/day)	142.4 g/day (5.0 oz/day)
CRITFC (1994)	63.2 g/day (2.2 oz/day)		389.0g/day (13.7 oz/day)

3. Policy Advisory Committee Recommendations

The PAC considered all of the TAC's recommended rates, but did not issue consensus recommendations of its own.[49] The PAC process was designed for the PAC to: (1) consider the TAC's recommendations, (2) discuss their policy implications, and (3) formulate consensus recommendations.[50] The ODEQ would then consider both the PAC's consensus recommendations and the TAC's recommendations in formulating the proposed rule for public comment.[51] However, because the PAC was unable to put forward significant consensus recommendations, the ODEQ was left to consider each individual PAC member's views along with

[48] *See* FITZPATRICK, *supra* note 28, at H-13; *see* U.S. ENVTL. PROT. AGENCY OFFICE OF WATER, NATIONAL RECOMMENDED WATER QUALITY CRITERIA: 2002 HUMAN HEALTH CRITERIA CALCULATION MATRIX 1 (2002), *available at* http://www.epa.gov/ostwater/criteria/hh_calc_matrix.pdf (showing that the fish consumption rate, abbreviated "FI" for fish intake, was 6.5 g/day before the 2002 revised recommendations).

[49] *See* ODEQ Water Quality Standards Review Policy Advisory Committee meeting summaries for April 1, 2002; July 10, 2002; August 22, 2002; September 17, 2002; October 23, 2002; December 2, 2002; February 25, 2003, *available at* http://www.deq.state.or.us/wq/standards/WQStdsPolicyComm.htm.

[50] *See* PAC Process Agreement, *supra* note 36, at 1.

[51] *See* id. at 2.

the TAC recommendations in devising the rulemaking proposal for public comment.[52]

II

THE REVISED RULE

The public comment period to ODEQ's proposed rule lasted eighty-eight days (after being extended four weeks in response to requests from several tribes and environmental groups).[53] The ODEQ received comments from fifty individuals or groups.[54] The final rules that OEQC proposed for adoption were revised to address these comments as well as other questions, suggestions, and concerns.[55] The revisions encompassed both aquatic life and human health criteria; however, in keeping with the purpose of the symposium for which this article was written, only the fish consumption rate issue as related to human health criteria is discussed here.

In the staff report to the OEQC, the ODEQ recommended adoption of human health criteria based on a fish consumption rate of 17.5 g/day, and identified this as one of six key issues put before the OEQC:

> [Issue] 1. Should the human-health criteria for toxic pollutants be derived using a fish consumption rate higher than the [EPA's] national recommendation of 17.5 g/day?
> Recommendation: The Department recommends adopting criteria for the protection of human health based on the nationally recommended fish consumption rate of 17.5 g/day. There is a lack of solid technical information on fish consumption rates for the general Oregon population and defaulting to the nationally recommended rate is consistent with EPA guidelines for deriving human health criteria. In addition, the use of 17.5 g/day in calculating the proposed criteria achieve a nearly 3-fold increase in stringency over the use of 6.5 g/day in current criteria and are the minimally acceptable criteria for EPA approval. Finally, the proposed criteria are within EPA guidelines for acceptable risk to more highly exposed subgroups, such as the Columbia River tribes, which are known to consume fish at a higher rate.[56]

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[52] *See* Memorandum from Stephanie Hallock, Director, Or. Dep't of Envtl. Quality, to Envtl. Quality Comm'n (April 29, 2004) *available at* http://www.deq.state.or.us/wq/standards/ToxicsEQCDocs/EQCStaffRptToxicsFinal.pdf.

[53] *See id*. at 4.

[54] *Id*.

[55] *Id*.

[56] *Id*.

On May 20, 2004, the OEQC discussed ODEQ's proposed revisions.[57] Although OEQC members voiced their concerns regarding the level of protection afforded high fish-consumption groups like Native Americans in the Columbia River Basin, the OEQC voted unanimously to adopt those revisions.[58] In the end, the revisions the OEQC adopted made Oregon's water-quality criteria for toxics much more consistent with EPA-recommended criteria than they were prior to the review.[59] Table 2 shows a summary comparing the adopted changes with the old Oregon criteria.[60]

TABLE 2

Comparison of 2004 revised criteria adopted by OEQC with the original Oregon criteria based on the 1986 EPA Gold Book. The table depicts the number of criteria that changed within each type of criterion, and whether the OEQC-adopted criteria are "more strict" or "less strict" than the corresponding original criteria. The "*" indicates that the change in stringency is undetermined.[61]

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[57] *See* Or. Envtl. Quality Comm'n, *supra* note 1.

[58] *Id*.

[59] *Compare* CRITERIA 1986, *supra* note 27, at 454-55, *with* NATIONAL RECOMMENDED 2002, *supra* note 14, at 12-27, *and* Revision of National Recommended Water Quality Criteria, 68 Fed. Reg. 75,510 (Dec. 27, 2002).

[60] Table 2 is constructed from the following sources: CRITERIA 1986, *supra* note 27; NATIONAL RECOMMENDED 2002, *supra* note 14; Revisions of National Recommended Water Quality Criteria, 67 Fed. Reg. 79,091 (Dec. 27, 2002); FITZPATRICK, *supra* note 28.

[61] The "*" category of Table 2 refers to the aquatic life metals criteria (cadmium, chromium (III), copper, lead, nickel, silver, and zinc) that were updated to: (1) reflect changes from the EPA's 1986 standards to the EPA's latest recommendations in 2002 for the values used in deriving the criteria which are dependent on the hardness of the water, i.e. the concentration of solutes (especially calcium salts) in the water, and (2) reflect the use of "dissolved" metals concentrations rather than "total recoverable" concentrations in deriving the criteria.

Compare cadmium criteria in CRITERIA 1986, *supra* note 27, at 63-65 *with* NATIONAL RECOMMENDED 2002, *supra* note 14, at 12, 20, 31, 32 to illustrate how metals criteria previously included consideration of hardness and were expressed as total recoverable metal, and were revised to consider hardness and be expressed as dissolved metal. These simultaneous adjustments to the criteria make it impossible to establish the direction of the change in stringency from the old criteria to the new criteria.

Compared to "old" criteria, adopted criteria are:	Aquatic Life				Human Health	
	Freshwater		Saltwater			
	Acute	Chronic	Acute	Chronic	Water + Organism	Organism Only
More strict	9	5	4	5	83	92
Less strict	1	4	0	0	26	17
Changed*	10	9	7	6	0	0
Same	13	20	15	19	14	4

Table 2 shows that the majority of human health criteria adopted by the OEQC are more stringent than the old criteria. This increase in stringency results mostly from the upward change in the fish-consumption rate—from 6.5 g/day to 17.5 g/day—used to calculate the criteria. Since Oregon adopted these criteria soon after the EPA's latest recommendation, Oregon's criteria are more stringent than those of most states and tribes. For example, the Confederated Tribes of the Umatilla Indians received EPA approval of their toxics criteria in October 2001 with human health criteria based on a fish consumption rate of 6.5 g/day.[62]

III

Outstanding Issues

The EPA approval process is one of the outstanding issues surrounding the revised toxics criteria adopted by the OEQC: the criteria do not immediately become water quality standards as defined under the CWA because the EPA first must approve them. In 2000, the EPA amended the "Alaska Rule"[63] to indicate that state-adopted water quality standards going into effect on or after May 30, 2000 become effective only upon EPA approval (unless the EPA has promulgated a more stringent water quality standard for the state, an exception that is not relevant to Oregon).[64]

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[62] *Compare* water quality criteria for the protection of human health from Dep't of Natural Res., Confederated Tribes of the Umatilla Indian Reservation of Or., Water Quality Standards, Beneficial Uses, and Treatment Criteria, 30-32 (1999), *available at* http://www.epa.gov/ waterscience/standards/wqslibrary/tribes/umatilla.pdf *with* those from National Recommended 2002, *supra* note 14, at 12, 20, 31, 32 (for example: acrolein).

[63] EPA Water Programs, 40 C.F.R. § 131.21 (2000).

[64] *Id*.

Also as part of the approval process, Oregon's aquatic life criteria are subject to what is referred to as an Endangered Species Act (ESA) consultation. During that procedure, the EPA conducts a formal biological assessment of the revised criteria, which is then reviewed by NOAA Fisheries and the USFWS to determine whether the criteria comply with the ESA.[65] Moreover, Oregon's human health criteria are subject to EPA consultation with tribes as part of EPA's federal/tribal trust responsibilities.[66] Both consultations have affected the EPA's process such that it has not met its statutory requirement to approve (within sixty days of filing) or disapprove (within ninety days) Oregon's adopted toxics criteria.[67] Finally, Northwest Environmental Advocates' notice of intent to file suit against the EPA regarding the toxics criteria[68] may also affect the EPA's approval process.

In anticipation of difficulties with the EPA's approval process, Oregon delayed the date when the revised toxics criteria rule would go into effect until February 15, 2005 (270 days after the OEQC adopted the revised rule).[69] However, because the Alaska Rule indicated that the EPA would not object to the states' use of more stringent criteria,[70] Oregon devised its revised rule so that only those criteria more stringent than their corresponding original criteria would go into effect on that date.[71] Thus, those criteria currently are being used in NPDES permits, Section 401 certifications, and for TMDLs.

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[65] *See* Memorandum of Agreement Between the Environmental Protection Agency, Fish and Wildlife Service and National Marine Fisheries Service Regarding Enhanced Coordination Under the Clean Water Act and Endangered Species Act, 66. Fed. Reg. 11,202, 11,212 (Feb. 22, 2001).

[66] *See* WILLIAM D. RUCKELSHAUS, ENVTL. PROT. AGENCY, EPA POLICY FOR THE ADMINISTRATION OF ENVIRONMENTAL PROGRAMS ON INDIAN RESERVATIONS, http://www.epa.gov/indian/1984.htm.

[67] *See* 33 U.S.C.A. § 1313(c)(3) (2005).

[68] *See* letter from Nina Bell, Executive Dir., Nw. Envtl. Advocates, to Christine Todd Whitman, Adm'r, U.S. Envtl. Prot. Agency, (Feb. 12, 2002) (on file with author).

[69] OR. ADMIN. R. 340-041-0033(2)(a)(A) (2005); *see* Memorandum from Stephanie Hallock, *supra* note 52, at 1-7.

[70] EPA Water Programs, 40 C.F.R. § 131.21 (2000).

[71] OR. ADMIN. R. 340-041-0022(2)(a)(A) (2005).