EPA

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WATER QUALITY CRITERIA AND STANDARDS NEWSLETTER

A NEW CONCEPT FOR CORE FEDERAL WATER QUALITY STANDARDS IN INDIAN COUNTRY WATERS

Indian tribes and EPA have worked hard over the past several years to protect the waters of Indian country from pollution. While progress has been made, most of the waters in Indian country are still not protected by water quality standards under the Clean Water Act. As of July 2000, fifteen tribes have their own approved water quality standards in place; one more Tribe has federally-promulgated standards. Without water quality standards, many of the tools available under the Clean Water Act to protect Indian country waters from sources of pollution are limited, whether these sources are within or upstream from Indian country.

EPA is committed to working with tribes to support establishing their own water quality programs. EPA's clear preference is for tribes to establish and implement their own water quality standards under the Act. While the number of tribes adopting their own standards is expected to increase as Indian water quality programs mature, EPA is concerned that there will still be several hundred tribes without standards for some time to come. In order to protect existing water quality and ensure progress in improving water quality, EPA believes it may be appropriate to consider an alternative approach that will protect water quality in Indian country in the interim. The core standards would be a first phase of standards for tribes, and would include prospective designated uses, narrative criteria, and an antidegradation policy.

In October 1999, EPA began circulating a paper "Core Water Quality Standards for Indian Country Waters Without EPA-Approved Tribal Standards," to Indian tribes, states, and others. This paper describes a concept under which EPA would promulgate a set of core Federal water quality standards generally for the Indian country waters of all tribes that do no not have EPA-approved tribal standards. There would be an exception for those tribes that: (1) choose to opt out of a federal promulgation and have a plan for adopting their own standards under the Clean Water Act in a specified period of time, such as three years; (2) choose to opt out of the federal promulgation of core standards because the tribes and the EPA Regional Administrator have agreed on a plan for putting individualized federal standards in place within a reasonable amount of time; or (3) choose to opt out of federal promulgation of core standards in order to take a limited period of time to consider options at this time (e.g., two years), and develop a plan for putting standards in place within a reasonable amount of time.

During October 1999 through January 2000, EPA consulted with tribes on whether the Agency should move forward with core water quality standards. EPA is considering these views in developing a proposed federal rule. In addition, EPA is interested in receiving written feedback, input and reactions to the core standards concept. A copy of the concept paper can be found at www.epa.gov/ost under What's New, or by calling Joanne Dea at (202) 260-0180, or sending an email to dea.joanne@epa.gov. Written comments may be sent to Frederick Leutner, Chief, Water Quality Standards Branch (4305), EPA, 401 M Street, S.W., Washington, DC 20460 or to leutner.fred@epa.gov.

STANDARDS AND APPLIED SCIENCE DIVISION (SASD)
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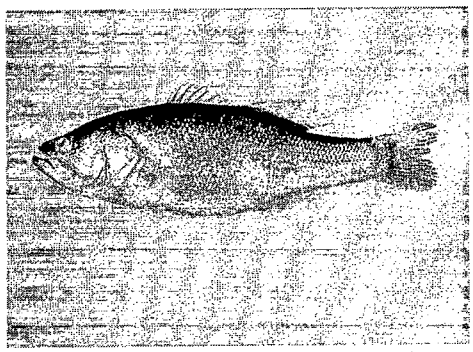
EPA PUBLISHES NATIONAL MERCURY SURVEY

On September 10, 1999, the EPA Office of Science and Technology published *The National Survey of Mercury Concentrations in Fish: Data Base Summary 1990-1995.* The report summarizes a large data compilation of state monitoring data for total mercury in fish tissues. It will assist states and other analysts comparing mercury levels, provide context for interpreting smaller study area results, and convey useful information on a National and state scale. The document is purely a data summary report and does not contain any risk analysis or conclusions about any associated health or ecological effects in the nation as a whole or for any particular area.



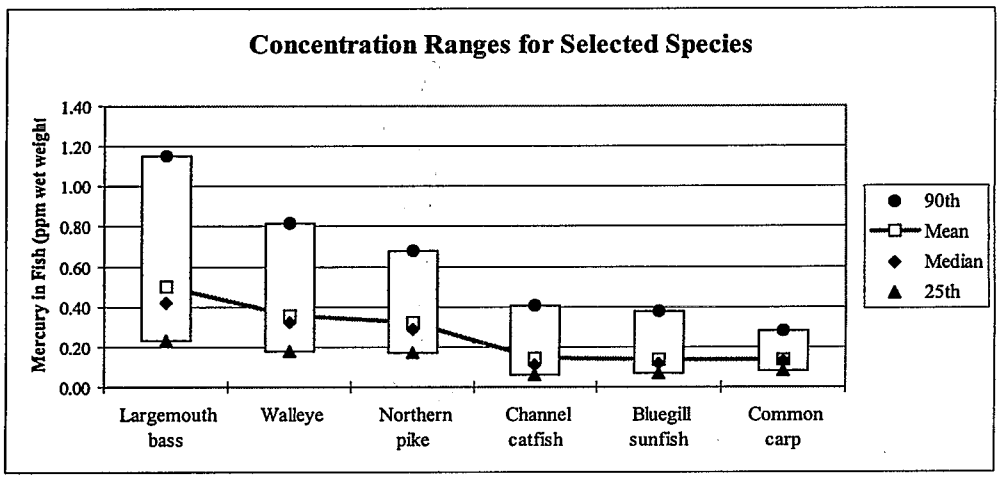
The potential adverse effects of chemical contaminants in fish is an ongoing Agency concern that is directly related to Clean Water Act responsibilities to ensure that waters of the United States are fishable and swimmable. As a percentage of total mercury, methylmercury is not problematic for short-lived species, because the opportunity to accumulate mercury for periods of many years does not exist. From an ecological perspective, however, mercury can bioaccumulate through the food chain, resulting in body burdens that are higher than the baseline exposure concentrations; species at higher trophic levels (e.g., humans, the bald eagle, and piscivorous fish species) prey on other mercury-concentrating organisms (e.g., forage fish, which in turn feed on smaller forage fish, which feed on zooplankton or benthic invertebrates). Bioaccumulation increases the likelihood that chronic effects of mercury will impact the health and reproduction of organisms at higher trophic levels.

Although the degree of mercury bioaccumulation in fish tissues differs from watershed to watershed, mercury contamination is a national concern. Concern is based on the fact that methylmercury can bioconcentrate in fish tissue up to a million times or more over concentrations found in the water column. In contrast to terrestrial animals, which concentrate mercury in feathers or fur, fish populations concentrate mercury in muscle tissue. This aspect is of particular concern to EPA, because edible tissues of fish and other aquatic organisms may contain mercury concentrations that exceed limits based on EPA risk assessment procedures for certain consumption patterns.

Regulatory and scientific focus on mercury in the aquatic ecosystem has been motivated largely by the health risks of consuming contaminated fish, primarily because human exposure to methylmercury is almost wholly due to fish. While mercury contamination poses potentially serious human health and ecological problems, understanding of the problem is still relatively

limited. The ability to determine the nature and the extent of mercury concentrations in fish on a regional and national basis, to identify possible sources of contamination, and to link mercury concentrations to sources depends on the availability of data suitable for such analysis.

The U.S. Environmental Protection Agency (EPA) has compiled data records of measures of total mercury in fish tissues conducted by State monitoring agencies during 1990-1995. This report summarizes the data base, provides a national overview of total mercury in various species of fish, presents a four page State Profile of data for each of the 40 States and the District of Columbia where electronic data records were available, and describes the types of analyses that the data could support. The data base includes over 33,000 composite or specimen samples from approximately 5,000 locations across the continental U.S. Total mercury concentrations have been standardized to reflect total mercury in fillet tissue on a wet weight basis. Weighted mean total mercury concentrations are greater for top predator species such as largemouth bass than for bottom feeders such as common carp.



Hard copies of *The National Survey of Mercury Concentrations in Fish: Data Base Summary 1990-1995* (EPA-823-99-014) are distributed by EPA's National Service Center for Environmental Publications (NSCEP). The NSCEP is authorized to distribute one free copy of this publication to each customer until supplies are depleted. It is available on the Internet at www.epa.gov/ost/pc/csnews.

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UPDATE OF EPA'S FISH AND WILDLIFE CONTAMINATION PROGRAM ACTIVITIES

EPA's Fish and Wildlife Contamination Program (FWCP) provides technical assistance to states, tribes and others on matters related to persistent bioaccumulative toxics in fish and wildlife and associated potential health risks to consumers. Since 1992, the FWCP has worked with state and tribal agencies in an effort to establish a national consistency in the approaches, methods, and protocols for assessing contaminants in fish and wildlife for the purpose of developing and managing fish consumption advisories. Through this program, EPA publishes guidance documents, develops and manages national databases, holds national forums, conferences and training workshops, provides grants for advisory development, conducts special studies, develops outreach materials, and assists in the issuance of advisories. The following provides an update of activities during the past several months. Contact: Jeff Bigler at (202) 260-1305 or bigler.jeff@epa.gov.

Annual Release of the *National Listing of Fish and Wildlife Advisories*

As part of the Administration's right-to-know initiative, EPA is making it easier for the public to find out if the fish they catch is safe to eat. Members of the public can now check for the occurrence of local fish consumption warnings on any river, lake or stream in the U.S. through EPA's national list of fish advisories at: http://www.epa.gov/ost/fish. Each year, states and tribes provide EPA with a list of fish advisories including information on species affected, pollutant, location, and state contact information. Hyperlinks to state and tribal advisory web sites are also provided. This information is compiled into a national listing of fish advisories and, for the first time, is now searchable on line. The advisories apply primarily to noncommercial fish and shellfish obtained through sport, recreation and subsistence activities. Fish advisories inform the public on which fish to avoid or limit eating due to elevated levels of pollutants. Each advisory is different: it may recommend limited or no consumption; it may target the general population or limit advice to women and/or children; and/or it may apply to all fish or only to certain species or sizes of fish. The database includes all available information describing state and tribal issued fish consumption advisories in the United States. The number of advisories in the United States rose by nine percent in 1998 to 2,506, due primarily to better monitoring of fish contamination. The total number of advisories in the United States increased for three major contaminants, mercury, PCBs and DDT. Dioxin advisories declined, in part, because more pulp and paper mills have changed their bleaching processes. Chlordane advisories also declined due to a recent re-evaluation of the toxicity of chlordane. The number of water bodies under advisory represents 15.8 percent of the nation's total lake acres and 6.8 percent of the nation's total river miles. In addition, all of the Great Lakes waters and nearly 60 percent of the nation's coastal waters remain under advisory. A Fact Sheet with additional information is available at: http://www.epa.gov/ost/fish.

National Forum on Contaminants in Fish

The Fourth Annual *EPA/AFS National Forum on Contaminants in Fish* (Forum) was held October 17-20, 1999 in Old Town Alexandria, Virginia. Attendees included representatives from 45 states, 17 tribes, several federal agencies, and various environmental and industry groups. The purpose of the *Forum* was to provide an opportunity for health and fisheries professionals to meet and discuss issues related to the occurrence of chemical contaminants in fish and associated potential health risks. The agenda included presentations on the Effectiveness of Advisories; Tribal Issues; the Arctic Monitoring and Assessment Project; the Environmental Dynamics of Mercury; Chemical Updates on Mercury, Dioxins, PCBs, and Arsenic; and Comparative Dietary Risk. Additionally, attendees participated in breakout sessions designed to address the need for national consistency among state and tribal advisory programs. While most of the participants agreed that the processes for establishing local advisories should be nationally consistent, most also agreed that each advisory situation is potentially unique and therefore flexibility is needed in determining the step-by-step criteria used by states and tribes for making local advisory determinations. The participants were also asked to identify areas in which EPA could provide additional technical assistance. In addition to providing a source of funding for fish tissue monitoring (highest priority), there were recommendations to develop guidance for assessing health risks for subsistence populations. Many participants proposed that, while the EPA guidance provides an approach for assessing and managing risks for populations with dietary or source options, the guidance may not be appropriate for those with limited options due to dietary or cultural considerations (e.g., subsistence populations and certain ethnic groups). EPA hopes to form a national workgroup of experts and begin developing guidance for addressing these issues during FY00. Proceedings of the Forum were published by American Fisheries Society and will be available through the FWCP web site at www.epa.gov/ost/fish.

Booklet on Children's Health Risk for Pediatricians

EPA is working with the Agency for Toxic Substances and Disease Registry (ATSDR) to develop a booklet for use by pediatricians and other health care professionals. The booklet will provide information regarding the health benefits to children of eating fish, health hazards associated with chemical contamination of noncommercial fish, associated health risks to children, and ways to reduce these health risks. In 1998, EPA and ATSDR developed a brochure in English, Spanish and Asian languages explaining how to reduce the health risks of exposure to contaminants in locally caught fish and shellfish. These brochures were distributed to all pediatricians, obstetricians, and family physicians in the U.S. as well as to various health care organizations for distribution to the public. The new booklet will be designed for use by health care professionals. Contact: Jeff Bigler at (202) 260-1305 or bigler.jeff@epa.gov.

Chemical Fact Sheets for State/Tribal Advisory Programs

EPA has developed chemical Fact Sheets designed for use by state and tribal fish advisory programs. The purpose of the Fact Sheets is to summarize current information on sources, fate and transport, occurrence in human tissues, range of concentrations in fish tissue, fish advisories, fish consumption limits, toxicity, and regulations for various chemicals. The Fact Sheets also illustrate how the information may be used for developing fish consumption advisories. An electronic version of Fact Sheets for mercury dioxins/furans, PCBs, arsenic and toxaphene are available at http://www.epa.gov/OST/fish. Future revisions and other chemical Fact Sheets will be posted on the web as they become available.

For more information concerning the National Fish and Wildlife Contamination Program, or for copies of the above described materials, contact Jeffrey Bigler, National Program Coordinator, phone (202-260-1305), FAX (202-260-9830), e-mail: bigler.jeff@epa.gov or write: U.S. Environmental Protection Agency, Fish and Wildlife Contamination Program, Mail drop 4305, 1200 Pennsylvania Avenue, NW, Washington, DC 20460.

NATIONAL RISK COMMUNICATION CONFERENCE

In Spring 2001, the EPA will sponsor a National Risk Communication Conference. The purpose of the conference is to learn about, discuss, and form opinions about risk communication methods designed for populations that are exposed and susceptible to contaminants in fish, and are hard-to-reach with risk communication messages. The desired outcome of the conference is to develop recommendations on risk communication techniques that are effective in reaching and informing specific audiences with information on risks from eating contaminated fish.

Participants in this conference will (1) become familiar with appropriate steps to developing and delivering a message about environmental health risks; (2) learn a variety of risk communication approaches used in health protection strategies directed at protecting target populations from environmental health risks; (3) learn about barriers to risk communication that may be unique to specific target populations; (4) discuss the use of risk/benefit information in communicating risks from contaminants in fish; and (5) become knowledgeable about risk communication practices currently used by programs concerned with contaminated fish. At the end of this conference, participants will be able to choose risk communication practices most suitable for informing particular populations about eating contaminated fish.

Anyone interested in improving their ability to effectively communicate risks from environmental hazards in general and fish contaminants in particular will find this conference of interest. The conference is designed for those with a special interest in health risks to fish eaters who may not hear, understand, or accept risk information due to barriers in language, cultural values, socio-economic conditions, or geographic location. Risk communication for these fish eaters may be directed at the fish eater, family members catching or preparing fish for food, or individuals who influence the fish eating habits of others.

Representatives from state and tribal government; local governments involved in environmental health; community groups including environmental and children's health advocates; health care providers; industry; and academia should attend this meeting. Efforts will be made to promote the participation of and include presentations by representatives of target populations (for example, Asian/Pacific islanders, immigrant subsistance anglers, advocates of maternal and children's health).

The location of the meeting will be determined in the near future. Contact: Jeff Bigler, phone (202-260-1305), FAX (202-260-9830), e-mail: bigler.jeff@epa.gov or write: U.S. Environmental Protection Agency, Fish and Wildlife Contamination Program, Mail drop 4305, 1200 Pennsylvania Avenue, NW, Washington, DC 20460.

REGIONAL BEACH CONFERENCES HELD BY EPA

The EPA initiated the Beaches Environmental Assessment, Closure and Health (BEACHES) Program in recognition of the need to significantly reduce the risk of disease to users of the nation's recreational waters through improvements in recreational water programs, communication, and scientific advances. One of the goals of the BEACHES Program is to develop national guidance to assist states and Tribes with recreational water notification and monitoring programs. To expedite guidance development, EPA convened two Regional BEACH Conferences, one in San Diego, CA, August 31 and September 1, 1999 and the second in Tampa, FL, October 18 and 19, 1999. These conferences provided a forum for learning about beach health initiatives and needs across the nation. The audience of more than 200 attendees at each site consisted of representatives from cities, counties, states, environmental groups, and the academic community.

Plenary sessions were presented by Federal (EPA, U.S. Geological Survey, National Park Service), State, County, and City beach professionals covering four topics; Water Quality Microbial Indicators, Risk Assessment, Exposure and Health Effects, Monitoring and Modeling, Water Quality Advisories and Risk Communication. After the plenary sessions, attendees participated in breakout sessions, which allowed the audience to provide input and comment for EPA's Guidance Document. Some of the breakout session results included; recommendations for developing a rapid "dip stick" method, considering alternative indicator organisms; defining sampling location, allowing flexibility for; site specific conditions; developing uniform sign advisory language; performing sanitary surveys; and addressing issues associated with watershed monitoring programs, etc.

A Proceedings Document that summarizes both conferences has been developed. The document contains transcribed speeches, accompanying slides, session questions and answers, breakout session recommendations, speaker biographical sketches, and a list of attendees. The Proceedings Document may be obtained from EPA's National Service Center for Environmental Publications at 1-800-490-9198. An internet version appears on the EPA's Beach Watch website at www.epa.gov/ost/beaches. For more information contact Charles Kovatch (202)-260-3754 or kovatch.charles@epa.gov.

CONTAMINATED SEDIMENT PAMPHLET AND POSTER AVAILABLE

EPA printed the pamphlet: Introduction to Contaminated Sediments (EPA-823-F-99-006) and the poster: A Healthy Ecosystem Can be Damaged by Toxic Contaminants (EPA-823-99-001). These outreach materials are intended to inform a variety of audiences about issues and problem solution related to sediment contamination. Topics discussed include: the definition and extent of contaminated sediments, sources of contamination, remediation and pollution prevention solutions and what citizens can do to protect sediment. Copies of the pamphlet and poster are available from EPA's National Service Center for Environmental Publications at 1-800-490-9198.

AMBIENT WATER QUALITY CRITERIA FOR BACTERIA

EPA is developing a guidance document to strongly encourage states and tribes that have not already done so to adopt the *Ambient Water Quality Criteria for Bacteria* – 1986 rather than total or fecal coliforms into their water quality standards. This guidance document addresses several issues to assist states and tribes make the transition from fecal coliforms to *E. Coli* and/or enterococci. This discusses and contains guidance related to the implementation of the 1986 criteria as well as includes:

- A reaffirmation of the scientific validity of the *Ambient Water Quality Criteria for Bacteria*, published by EPA in 1986, by reviewing relevant peer-reviewed studies conducted since EPA's 1984 epidemiological studies;
- Appropriate approaches for managing risk in non-primary contact recreational waters;
- Appropriate approaches for monitoring the safety of recreational waters in those tropical climates where *E. coli* and enterococci may exist naturally in the soil environment, possibly complicating the use of those organisms as indicators;
- EPA's schedule for proposing and promulgating the latest 24-hour laboratory methods for *E. coli* and enterococci into EPA's official regulatory methods (40 *CFR* 136).
- A description of a video and methods manual that EPA produced and distributed to help train staff in the use of the original and improved laboratory methods to detect and enumerate *E. coli* and enterococci.

The criteria published in 1986 recommends the use of enterococci for marine waters and *E. coli* or enterococci for fresh waters. As indicated in EPA's Office of Water *Guidance to States, Tribes, and Regions on Priorities for the Water Quality Standards Program for FY 2000-2002*, the transition to *E. coli* and enterococci indicators is a priority for the triennial review of water quality standards occurring in FY2000-2002. EPA encourages states and tribes to take these steps during their upcoming triennial reviews. If a state or tribe does not adopt the 1986 criteria during that period, EPA intends to act under section 303(c)(2) of the Clean Water Act to promulgate the criteria with the goal of assuring that the 1986 criteria apply in all states and tribes by 2003.

The guidance document was published in draft in February for comment. A final guidance document is anticipated in late Spring 2001. Contact: Jennifer Wigal at (202) 260-5177 or wigal.jennifer@epa.gov.

BASINS TRAINING

An exciting schedule of BASINS training workshops has been scheduled. Several courses will be taught in various locations throughout the country to serve the growing numbers of water quality professionals interested in utilizing the BASINS system.

Future BASINS workshop locations include the Utah State University at Logan, Utah and the University of Texas at Austin, Texas. Each University has scheduled 5-day BASINS workshops. Water quality analysts from states, counties, Tribal nations and the private sector may avail themselves of this training opportunity. Federal government employees are not eligible to register for these courses. The workshop schedules are listed below:

BASIN WORKSHOP SCHEDULES

Locations:	**State University of Utah, Logan, UT**	**University of Texas, Austin, TX**
Dates:	**November 12-16, 2001** **February 12-16, 2001** **May 21-25, 2001**	**March 5-9, 2001** **May 14-18, 2001**
Tuition:	**$300.00**	**$500.00**
POC's:	**Bethany Neilson** **Utah State University** **Civil & Engineering Dept.** **Phone: (435) 797-7369** **Fax: (435) 797-1185** **email: bethany.neilson@usu.edu**	**Sharon Campos** **The University of Texas** **Ctr. For Lifelong Eng. Education** **(512) 232-5168** **(512) 471-0831** **scampos@mail.utexas.edu**

For information about registration, tuition, etc., please visit EPA's web site at http://www.epa.gov/ost/basins/training.htm.

WATER QUALITY STANDARDS ACADEMY

The Water Quality Standards Academy is a comprehensive and highly structured course that introduces participants to all aspects of the water quality standards program, including the interpretation and application of the water quality standards regulation ;policies and program guidance; the development of water quality criteria (human health, aquatic life, sediment and biological) and all other facets of the program, including the administrative and procedural aspects of the program. This is a basic training course designed for those with fewer than six months of experience with the water quality standards and criteria programs. Others may also benefit from the course, including veterans of the water quality standards program who want a refresher course.

The course is aimed at employees from states, Indian tribes, other Federal Agencies, environmental groups, industrial groups, municipalities, the academic community, EPA and other interested parties.

Sessions of the Water Quality Standards Academy were held in July and August of 2000 and will be held in calendar year 2001. Registration and other information will appear on the Office of Science and Technology's web site at : www.epa.gov/ost. You may also contact EPA's contractor, the Great Lakes Environmental Center (GLEC) at (614) 487-1040 for registration information as well.

INDIAN TRIBAL NEWS

On December 12, 1991, EPA issued amendments to the Water Quality Standards Regulation pertaining to Indian tribes. The amendments contained two major components: 1) it set

procedures for Indian tribes to become eligible to administer the water quality standards program 2) creates a dispute resolution mechanism for resolving unreasonable consequences that arise when an Indian tribe and a State adopt different water quality standards for the same body of water.

At the present time, 15 Indian tribes have adopted water quality standards that have ben approved by EPA. One Indian tribe, the Colville Confederated Tribes Indian reservation has water quality standards that were promulgated by EPA at the request of the tribe.

EPA is accelerating its efforts to accelerate tribal interest in applying for authorization to conduct the water quality standards program and to help Indian tribes develop their own water quality standards. EPA is also committed to assisting Indian tribes fully develop other aspects of their environmental programs as well. In 2001, EPA's efforts will continue to focus on the following; 1) activities designed to publicize the water quality standards program; 2) training and educational activities; 3) issuance of guidance and technical materials; and 4) technical assistance and information sharing activities.

Activities are presently underway in several of the areas identified above. Outreach and other public information brochures and pamphlets are being developed. These will feature several tribes with EPA approved water quality standards. A specialized session of the "Water Quality Standards Academy was offered to tribes in Chicago in May 2000 (two specialized sessions will be held for Tribes in 2001 in Regions 9 and 10), a web site featuring information of interest to Indian tribes is being developed and a Technical Guidance Manual has been drafted which is described below. EPA sponsored a session of BASINS training workshop for Indian tribes. Information about the BASINS training workshop is also provided below.

In future editions of the "Water Quality Criteria and Standards Newsletter" we invite Indian tribes with EPA approved water quality standards programs to submit articles for publication in this newsletter. We would like to feature information about your water quality standards programs and the benefits of having such a program to your reservation and other articles that will highlight tribal programs and tribal efforts to protect our Nations' water resources. Indian tribes may submit those articles to their Water Quality Standards Coordinators who will submit them to the editor of the newsletter. Submissions of articles for the next newsletter should be submitted by December 15, 2000 to: Micki Treacy, Standards and Applied Science Division (4305), 401 M Street, SW, Washington, DC 20460 or e-mailed (as an attached Word Perfect file) to treacy.micki@epa.gov.

Basins Training

The Office of Science and Technology sponsored a hands-on training workshop exclusively for Tribes on **BASINS** (Better Assessment Science Integrating Point and Nonpoint Sources) at the Utah State University campus in the City of Logan, UT. The training course was held February 9-11, 2000. This workshop was designed for water quality analysts of Tribal Nations, involved in the management of point and nonpoint sources and the related TMDL program. A total of 46 participants attended, the majority included 32 Tribal representatives from 23 different Indian Tribes. Many of the tribal representatives stated that they were impressed with the course

presentation and BASINS' capabilities and look forward to using BASINS in their work. For additional information on the **BASINS** Workshop for Indian Tribes contact Ibrahima Goodwin at 260-1308.

The training files which are used in the **BASINS** Training Course are now available on the Web. These course files will aid water quality professionals planning to use **BASINS** become better prepared for taking an actual **BASINS** course. By reviewing the course materials beforehand, participants increase their familiarity. The course training files can be obtained by logging onto http://www.epa.gov/ost/ftp/basins/training. For more information on Web-based BASINS Training contact Ed Partington at 260-3106.

Tribal Water Quality Standards Guidance Manual

EPA will publish a guidance manual in 2001 to help Indian tribes develop their water quality standards programs. EPA recognizes the need for tribes to have a single source that will offer an appropriate level of information on water quality standards. The guidance manual is constructed to help tribes who are new to the water quality standards program, by providing: 1) a general overview of water quality standards; 2) procedures through which a tribe can become qualified to administer the program; and 3) a sample template of a water quality standards regulation. The sample template will provide sample language and formatting of the individual components found in a water quality standards regulation, such as designated uses, water quality criteria, antidegradation, and general policies affecting the application and implementation of water quality standards. The manual also attempts to reach tribes that are already in the process of developing or administering a water quality standards program, by providing a compilation of EPA's current guidance on some of the more refined elements in the water quality standards program. EPA will be sending out a draft version of the guidance manual to representative tribes in order to gain tribal input, prior to issuance of the final publication.

NATIONAL WATER QUALITY STANDARDS DATA BASE

"Can I find out about the water quality standards for the Nation's surface waters over the Internet"?

The EPA is developing an Internet accessible data system that will enable EPA, states, tribes, and the public to know what the water quality standards are for the surface waters of the US. To that end, since May 1998, the Water Quality Standards Branch in coordination with other EPA offices is developing a national relational water quality standards data base (WQSDB) that will allow users to review/analyze water quality standards in both table and map formats. EPA will work with states and others over the next two fiscal years to ensure that the system functions to meet the needs of all users. All ideas and suggestions are welcome. Water quality standards are comprised of three parts: 1) designated uses (e.g., protection of aquatic life); 2) chemical, biological, and physical criteria (e.g., requirements for mercury, wildlife, and stream canopy) that support the designated uses; and 3) applicable antidegradation provisions (e.g., no new or expanded discharges to Outstanding National Resource Waters). For the mapping purposes of this project, US surface waters have been delineated into 3.2 million stream segments. Because of the large number of stream segments, only designated uses will initially be assigned to the appropriate surface water segment(s). Similarly, the WQSDB will initially contain only state defined

designated uses data.

To assist states, EPA has developed a tool, which facilitates locating streams and attaching data to each segment in a state. Additionally, for states which are unable to do this work, an Internet review site is being developed. This site will allow a state to conveniently review the water quality standards information that has been added by EPA. Major features of the site will include: zoom in/zoom out (i.e., magnify/reduce); center the viewed map on the point indicated with the cursor (i.e., pan); turn spatial data layers on/off (e.g., major roads); "click" on a stream and have information displayed in a table below the map (i.e., identify); choose a watershed and a designated use and get a display of all the waters with that designated use in that watershed (i.e., map selected designated uses); and, download any of the state water quality standards information used by the review site.

Concurrent actions are being taken to develop overarching systems that will enable the user to find out several additional pieces of water quality related information (e.g., TMDL data and monitoring data) about the water body of interest. The analytical capabilities of the WQSDB will be further enhanced through the ability to graphically display the designated use, TMDL and other information. An example of the type of query these systems could accommodate would be, "Show the water bodies with municipal dischargers that have less than fishable/swimmable use designations." (Or with a nonpoint slant... "Show the water bodies *without* municipal dischargers that have less than fishable/swimmable use designations.") A goal of these systems is to increase and enhance public access to water quality standards information.

As of September 30, 1999, the designated uses for seven states have been both loaded into the WQSDB and attached to the state stream segments. These states include: Colorado, Missouri, Arizona, Iowa, West Virginia, Oklahoma, and California. While additional states are being added to the WQSDB, the inclusion of criteria information in the WQSDB will be studied in a pilot using one state's criteria information. Addition of criteria information will enable the database to support complex queries involving criteria and designated uses on specific water bodies. An Internet based application is being developed that will not only enable interactive display of the designated use information across the country but will allow direct access into the WQSDB. While Internet accessible complete water quality standards information for all states, tribes and Territories is still a few years away, the partial information for the states that we have worked with will be made available as soon as possible.

Future issues of the Newsletter will provide progress reports on these and other WQSDB-related activities. We are open to comments and suggestions, and would be particularly interested in working with others who have already started efforts along these lines. Please feel free to call or write Jeff Bryan, (202) 260-4934, or bryan.jeffrey@epa.gov with your ideas.

EPA PUBLISHES UPDATED WATER QUALITY CRITERIA FOR AMMONIA

In November 1999, EPA published the 1999 Update of Water Quality Criteria for Ammonia (1999 Ammonia Update). In the 1999 Ammonia Update, EPA revised several elements of its recommended ammonia criteria for ammonia, including the pH and temperature relationship of the acute and chronic criteria and the averaging period of the chronic criterion. As a result of

these revisions, EPA's recommended acute criterion for ammonia is now dependent on pH and fish species, and the chronic criterion is dependent on pH and temperature. At lower temperatures, the dependency of chronic criterion is also dependent on the presence or absence of early life stages of fish.

Under the Clean Water Act, EPA is required to publish and periodically update ambient water quality criteria. These criteria reflect the latest scientific knowledge on the effects of water pollutants on public health and welfare, aquatic life, and recreation. These criteria guide states, territories, and authorized tribes in developing water quality standards and ultimately provide a basis for controlling discharges or releases of pollutants into our nation's waterways. EPA's ambient water quality criteria are based solely on data and scientific judgments on the relationship between pollutant concentrations and the effects on aquatic life, human health, and the environment. These criteria do not reflect consideration of economic impacts or the technological feasibility of reducing chemical concentrations in ambient water.

EPA's previous recommendations in the 1984 Ammonia Criteria suggested that chronic toxicity was not temperature dependent; data available at that time did not bear out a significant temperature dependency. During the past several years, EPA re-evaluated the 1984 criteria, and in doing so, considered more recent data that were not available for the 1984 criteria, including invertebrate data and additional fish data. These recent data suggest that invertebrate sensitivity to ammonia is temperature dependent and that early life stages of fish are more sensitive to ammonia than are adult fish.

Upon publication of the 1999 Ammonia Update, EPA issued a *Federal Register* notice of availability for the 1999 Ammonia Update, which summarized changes in the 1999 Ammonia Update and described EPA's recommendations for implementing the criteria.

For additional information on the 1999 Ammonia Update, contact Brian Thompson, Office of Science and Technology (OST), U.S. EPA, 401 M Street (4305), SW, Washington DC, 20460, telephone: (202) 260-3809. You may also view the full text of the Federal Register Notice on the Internet at http://www.epa.gov/ost/standards.

HEALTH AND ECOLOGICAL CRITERIA DIVISION (HECD)
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AVAILABILITY OF SEDIMENT GUIDANCE DOCUMENTS

Contaminated sediments pose both ecological and human health risks. Contaminated sediments serve as a reservoir from which fish and bottom-dwelling organisms can accumulate toxic chemicals. These may cause overt toxicity to aquatic organisms and be passed up the food chain to larger fish, birds and mammals until they accumulate to levels which may be toxic to humans. In addition, contaminated sediments create the potential for continued environmental degradation even where water column levels comply with established water quality criteria. The magnitude of the sediment contamination problem in the U.S. is evidenced by the more than 1,200 State fish advisories that have been issued against consuming fish which have accumulated toxic

bioaccumulative sediment contaminants. A majority of the Great Lakes Areas of Concern are listed for sediment contamination and the National Sediment Inventory Report to Congress identified sites nation-wide that are a potential concern for sediment contamination risks.

The EPA Contaminated Sediment Management Strategy, released in 1994, outlines specific actions the Agency will take to: 1) prevent further sediment contamination that may cause unacceptable ecological or human health risks; 2) clean-up existing sediment contamination, where practical, that adversely affects the Nation's water bodies or their uses; 3) ensure that sediment dredging and disposal is managed in an environmentally sound manner; 4) and develop and consistently apply methodologies for analyzing contaminated sediments.

A sediment research team, which consists of staff from the Office of Science and Technology (OST) and the Office of Research and Development (ORD), was formed to address the development of methodologies for assessing contaminated sediments. The collaborative efforts of this team have resulted in the production of "Equilibrium-partitioning Sediment Guidelines" (ESGs) for the protection of benthic organisms from specific chemicals and chemical mixtures. The ESG documents include a methodology for the derivation of ESGs for nonionic organic chemicals ("Technical Basis for Deriving Equilibrium-partitioning Sediment Guidelines (ESGs) for the Protection of Benthic Organisms: Nonionic Organics") as well as guidance for site-specific application of the methodology ("Methods for Deriving Site-specific Equilibrium-partitioning Sediment Guidelines (ESGs) for the Protection of Benthic Organisms"). Two individual ESG documents also have been developed for the pesticides dieldrin and endrin ("Equilibrium-partitioning Sediment Guidelines (ESGs) for the Protection of Benthic Organisms: Dieldrin; Equilibrium-partitioning Sediment Guidelines (ESGs) for the Protection of Benthic Organisms: Endrin). All of these documents have been revised and updated based upon responses to public comment, additional research and Science Advisory Board (SAB) reviews. Publication of these documents is anticipated by the end of December 2000.

Many classes of contaminants are found in sediment as mixtures. In order to provide sediment guidance which is both environmentally protective and ecologically-relevant, it is important that the toxicity of the chemical mixture be addressed. An ESG for mixtures of metals (cadmium, copper, lead, nickel, silver and zinc) was prepared and reviewed by the SAB in April 1999. The SAB Review supported the proposed approach for assessing the bioavailability and toxicity of mixtures of these five metals, which is based on the difference between the concentration of simultaneously extracted metals (SEM) and acid volatile sulfide (AVS). Final revisions, based upon the SAB Review, have been incorporated into the document and publication is anticipated by the end of FY2000. In addition, an ESG for mixtures of polycyclic aromatic hydrocarbons (PAHs) has been developed and was the subject of a consultation with the SAB in May 1997. Additional research on mixtures of PAHs has been performed since that time to address the toxicity of mixtures of PAHs with high octanol-water partitioning coefficients ($K_{ow} > 5$). The document has been revised to reflect SAB comments and is expected to go to peer review in Spring 2001. Contact: Heidi Bell at (202) 260-5464 or bell.heidi@epa.gov.

WATER QUALITY CRITERIA STEERING COMMITTEE (WQCSC)

The Health and Ecological Criteria (HECD) has continued to lead and facilitate the WQC Steering

Committee which consists of management and staff members from OST, Office of Research and Development (ORD) and the Regions. The monthly conference calls provide an opportunity for the Regions and ORD to communicate with HQ regarding specific water quality-related issues or needs. Since the genesis of the WQCSC in 1997, the Committee has been effective in identifying chemical-specific criteria needs, providing support for the EVISTRA data base (Evaluation and Interpretation of Suitable Tests in AQUIRE) and reestablishing the Office of Water/ORD partnership on aquatic life criteria. Since the release of the Criteria & Standards Plan in June 1998, the Steering Committee has worked to "manage against the plan" and identify priorities within specific areas. The WQCSC has achieved much of its original aim, to address and prioritize emerging water quality issues, and will continue with conference calls quarterly or on an as-needed basis. Contact: Heidi Bell at (202) 260-5464 or bell.heidi@epa.gov.

EMERGING WILDLIFE ISSUES

The Agency is presently without a national assessment approach and associated criteria which explicitly protect wildlife. The development of wildlife criteria or wildlife risk assessment has recently reemerged as a priority area. EPA's National Consultation with the Fish & Wildlife Service (FWS) on endangered species has resulted in a draft Memorandum of Agreement (MOA). Identified within the draft MOA are specific commitments for the development of mercury and selenium criteria as well as wildlife criteria. The Criteria & Standards Plan also highlights new areas of need which includes the development of wildlife criteria. If wildlife criteria are developed, understanding critical issues such as stressor/ response relationships and extrapolation of stressor/ response among species must be further evaluated. Likewise, modeling of population dynamics and response as a function of stressor and landscape characteristics should be included in the problem formulation.

Recently, ORD's National Health and Environmental Effects Research Laboratory (NHEERL) developed a draft Wildlife Research Strategy in which HECD provided comment and participated in some of the discussions shaping this plan. The draft strategy identifies four key areas of research which are instrumental to improving wildlife risk assessment techniques and criteria methodology. These areas of research include: (1) extrapolation research that improves the basis for predicting responses in wildlife species and exposure scenarios of concern; (2) coordinated wildlife population biology and wildlife toxicology research to improve predictions of population dynamics in spatially-explicit habitats; (3) research to advance techniques for assessing the relative risk of chemical and non-chemical stressors on wildlife populations; and (4) research to define appropriate geographical regions/spatial scales for wildlife risk assessments. HECD will continue to participate in the ORD/NHEERL Wildlife Research Strategy and include this information in the MOA commitments. Contact: Heidi Bell at (202) 260-5464 or bell.heidi@epa.gov.

AMPHIBIAN MALFORMATIONS

Amphibians with various malformations or declines in amphibian populations continue to be a problem throughout the United States and in many other countries. HECD has participated in the "Task Force for Amphibian Declines & Deformities" (TADD) organized under the direction of Secretary of the Interior, Bruce Babbitt. The TADD was formed to coordinate a cross-agency

effort on the multifaceted issues surrounding global declines and deformities of amphibian populations. HECD participation in the TADD has primarily focused on identifying available mechanisms in the Agency to access amphibian population, sensitivity or toxicity information. The ORD/Mid-Continent Ecology Division (MED) has been conducting laboratory research on the role of specific chemicals and/or ultraviolet (UV) radiation in producing hindlimb deformities. HECD remains informed of this research to share this information with the TADD. This information may lead to incorporation of amphibian toxicity data in aquatic life/wildlife criteria derivation methods. Contact: Heidi Bell at (202) 260-5464 or bell.heidi@epa.gov.

FINAL RULE REVISING HUMAN HEALTH CRITERIA FOR PCBs IN NATIONAL TOXIC RULE STATES

In 1992, EPA promulgated the National Toxics Rule (NTR) establishing numeric water quality criteria for toxic pollutants in fourteen states and jurisdictions to protect human health and aquatic life. Among the criteria promulgated were human health criteria for PCBs. General Electric Company (GE) and the American Forest and Paper Association, Inc. challenged, among other things, the human health water quality criteria for PCBs promulgated in the NTR.

When the NTR was promulgated, human health criteria for PCBs were calculated using the cancer potency factor entered in the Agency's Integrated Risk Information System (IRIS) at that time. The Agency recently reassessed the cancer potency of PCBs, and issued a final report, *PCBs: Cancer Dose-Response Assessment and Applications to Environmental Mixtures.* The Agency now adopts an approach that distinguishes among PCB mixtures by using information on environmental processes and different exposure pathways to select an appropriate slope factor from the range established in the risk assessment.

Pursuant to the "Partial Settlement Agreement" with GE, EPA agreed that within 18 months of the issuance of the final cancer reassessment, the Agency would propose a revision to the NTR human health criteria for PCBs, or publish a Federal Register notice explaining why it was not revising the NTR criteria. The Agency also committed to finalize any rulemaking within 18 months of the proposal.

Based on the reassessment, the Agency proposed revisions to the human health criteria on March 27, 1998. The final rule including response to public comments was signed by the Administrator on September 27, 1999.

The revised criteria for protection of human health from consumption of water and organisms and consumption of organisms only are both 0.00017 ug/L total PCBs. Both criteria were calculated utilizing a cancer potency factor of 2 per mg/kg-d. Contact: Cindy Roberts at (202) 260-2787 or roberts.cindy@epa.gov.

IMPLEMENTATION FRAMEWORK FOR THE USE OF EQUILIBRIUM PARTITIONING SEDIMENT GUIDELINES

EPA is currently developing a guidance document entitled, *Implementation Framework for the Use of Equilibrium Partitioning Sediment Guidelines.* This document describes how Equilibrium partitioning Sediment Guidelines (ESGs) will be used in the Water Quality Standards Program,

the National Pollutant Discharge Elimination System Permit Program, the development of Total Maximum Daily Loads, Dredge Material Management, and programs associated with the Resource Conservation and Recovery Act and the Comprehensive Environmental Response and Compensation Liability Act. The draft guidance document is expected to be published in the *Federal Register* for public comment by the end of 2000. Contact: Richard Healy at (202) 260-7812 or healy.rich@epa.gov.

DEVELOPMENT OF THE BIOTIC LIGAND MODEL FOR THE ACUTE TOXICITY OF METALS

EPA has been sponsoring the development of a Biotic Ligand Model (BLM) that will allow users to better quantify the bioavailability and acute toxicity of metals in surface waters by accounting for site-specific water chemistry parameters such as calcium, pH, alkalinity, and dissolvied organic carbon. EPA expects the BLM to address the concerns of the regulated community, States, Regions, environmental groups, and academia that aquatic life criteria fro certain metals may not accurately reflect the toxicity of metals in ambient waters. Currently, model developers have calibrated the BLM to predict acute LC50s of copper and silver for freshwater fish and cladocerans. Development of the BLM for cadmium is also underway.

In April 1999, the Science Advisory Board (SAB) reviewed the BLM and its application to both copper and silver. The SAB Review Report (EPA-SAB-EPEC-00-006) was issued in February 2000, and can be accessed at: www.epa.gov/sab/fiscal00.htm. Based on the SAB's comments, EPA has been coordinating research efforts on the copper BLM to validate the model for wider variety of aquatic organisms over a broader range of water chemistry. The results of these validation efforts are becoming available now, and EPA is evaluating them to determine whether the BLM should be used in a revision of the natinally recommended aquatic life criteria for copper at this time.

For further information about the BLM for copper or silver, contact Jennifer Mitchell at (202) 260-6101 or mitchell.jennifer@epa.gov. For more information about the BLM for cadmium, contact Cindy Roberts at (202) 260-2787 or roberts.cindy@epa.gov.

FINAL WATER QUALITY CRITERIA DOCUMENT DEVELOPED FOR TRIBUTYLTIN

A final ambient water quality criteria document for the protection of aquatic life has been issued for tributyltin (TBT). This criteria document describes the toxic effects of TBT to both freshwater and saltwater aquatic life. It provides both acute and chronic ambient water quality criteria recommendations for TBT for the protection of aquatic life. A draft TBT criteria document was proposed for public comment through a Federal Register notice which was published on August 7, 1997. The draft criteria document was also reviewed by an external peer review panel. Contact: Frank Gostomski at (202) 260-1321 or gostomski.frank@epa.gov.

FINAL WATER QUALITY CRITERIA DOCUMENT BEING DEVELOPED FOR ATRAZINE

A final ambient water quality criteria document for the protection of aquatic life is being developed for atrazine. This new criteria document describes the adverse effects of atrazine to both freshwater and saltwater aquatic life. Criteria recommendations are provided for both acute and chronic exposure conditions. The atrazine criteria document has been peer reviewed and is expected to be published in final form in fall 2000. Contact: Frank Gostomski at (202) 260-1321 or gostomski.frank@epa.gov.

AQUATIC LIFE TOXICITY DATA AND AMBIENT WATER QUALITY CRITERIA DOCUMENT BEING DEVELOPED FOR METHYL TERTIARY-BUTYL ETHER (MTBE)

A series of acute and chronic toxicity tests using both freshwater and saltwater aquatic organisms is being developed for MTBE. This testing is being conducted by several contract laboratories through funding provided by the American Petroleum Institute (API). It is expected that enough toxicity data will be generated to enable ambient water quality criteria for MTBE to be developed for both freshwater and saltwater aquatic life. A draft criteria document for MTBE will be prepared after toxicity testing is completed. The draft criteria document will be reviewed by EPA and an external peer review panel before a final ambient water quality criteria document for MTBE is published. Contact: Frank Gostomski at (202) 260-1321 or gostomski.frank@.epa.gov.

NATIONAL NUTRIENT CRITERIA PROGRAM

The National Nutrient Criteria Program recently released two technical guidance manuals. The manuals focus on lakes and reservoirs; and rivers and streams; are waterbody specific and focus on providing state/tribal water quality managers with methods for developing scientifically valid nutrient criteria. Both documents are available in pdf format on the Nutrient Criteria website (http://www.epa.gov/ost/standards/guidance/). The Nutrient Criteria Program is also currently developing two database applications that can be used by state/tribal water quality managers to derive nutrient criteria.

Nutrient Criteria Technical Guidance Manual: Lakes and Reservoirs

Cultural eutrophication of United States surface waters is a long standing problem; approximately half of the national waters reported as impaired are attributable to excess nutrients. Nitrogen and phosphorus are the primary cause of eutrophication and algal blooms are often a response to enrichment. Within lakes and reservoirs, chronic symptoms of overenrichment include low dissolved oxygen, fish kills, increased sediment accumulation, and species and abundance shifts of flora and fauna. The problem is national in scope, but varies in nature from one region of the country to another due to geographical variations in parent geology and soil types. Any criteria developed for management decision making must, therefore, be done on a ecoregional basis.

EPA has initiated the National Regional Nutrient Criteria Development Program to address enrichment problems and the *Nutrient Criteria Technical Guidance Manual: Lakes and Reservoirs* is the first of a series of water body-type specific manuals produced to assist states, and tribes in establishing ecoregionally appropriate nutrient criteria. These criteria are expected to be used to help identify problem areas, develop management responses, and evaluate relative success in reducing cultural eutrophication. The continental U.S. has been divided into 14

ecoregions of similar geography and lake/reservoir nutrient criteria will be developed for each ecoregion.

The manual describes consistent national methods and approaches to apply in developing nutrient criteria on an ecoregional basis; how to establish the criteria for each ecoregion, and how states or Tribes can use the same approach to establish their nutrient criteria in accordance with the derived ecoregional criteria values. The key variables addressed are total phosphorus, total nitrogen, chlorophyll *a*, and Secchi depth. The elements of a nutrient criterion are:

1) historical data and other information to establish perspective;
2) current reference site information;
3) models use to project existing information, when data are scarce;
4) evaluation of downstream consequences before finalizing criteria values; and
5) a panel of Regional, Federal, State and Tribal specialists to examine the information and establish criteria.

The approach taken to accomplish this for lakes and reservoirs is as follows.

- Data acquisition and review, as well as additional data gathering and processing methods.
- Classification of the lakes and reservoirs by physical characteristics.
- Reference site selection and data reduction to identify reference conditions.
- Establishment of the nutrient criteria developed in part from the reference condition data.
- Implementation of these criteria by EPA, states, and tribes to identify problem sites and respond appropriately.

These subjects are described in detail in the manual.

The manual concludes with chapters describing data models and management options that actively protect or restore lake and reservoir resources. Case histories illustrating nutrient criteria development experiences are appended with the names of individual specialists to contact for more information.

The Lakes and Reservoirs guidance document was peer reviewed during September 1999. The final document is posted on the Nutrient Criteria website (see address above). Copies may also be obtained from the Water Resource Center at (202) 260-7786. For further information, contact George Gibson at (410) 305-2618 or gibson.george@epa.gov.

Nutrient Criteria Technical Guidance Manual: Rivers and Streams

The purpose of this document is to provide scientifically defensible technical guidance to assist States and Tribes in developing regionally-based numeric nutrient and algal criteria for river and stream systems. The Clean Water Action Plan, a presidential initiative released in February 1998, includes an initiative to address the nutrient enrichment problem. Building on this initiative, the EPA developed a report entitled *National Strategy for the Development of Regional Nutrient Criteria* (USEPA 1998). The report outlined a framework for development of waterbody-specific

technical guidance that can be used to assess nutrient status and develop Region-specific numeric nutrient criteria. This technical guidance manual builds on the Strategy and provides guidance specific to rivers and streams.

A directly prescriptive approach to nutrient criteria development is not appropriate due to regional differences that exist and the lack of a clear technical understanding of the relationship between nutrients, algal growth, and other factors (e.g., flow, light, substrata). The approach chosen for criteria development must be tailored to meet the specific needs of each State or Tribe. The criteria development process described in the guidance can be divided into the following iterative steps.

1. Identify water quality needs and goals with regard to managing nutrient enrichment problems.
2. Classify rivers and streams first by type and then by trophic status.
3. Select variables for monitoring nutrients.
4. Design a sampling program for monitoring nutrients and algal biomass in rivers and streams.
5. Collect data and build a database.
6. Analyze data.
7. Develop criteria based on reference conditions and data analyses.
8. Implement nutrient control strategies.
9. Monitor effectiveness of nutrient control strategies and reassess the validity of nutrient criteria.

The intent of this document is to provide the best available scientific procedures and approaches for collecting and analyzing nutrient-related data, including examination of nutrient and algal relationships. However, a comprehensive understanding of nutrient and algal dynamics within all types of stream systems is beyond the current state of scientific knowledge. The National Nutrient Program represents a new effort and approach to criteria development. Program activities, in conjunction with efforts made by state and tribal water quality managers, will ultimately result in a heightened understanding of nutrient/algal relationships. Program success will be gauged over time as the proposed process it put into use to set new criteria. As new information is gained and obstacles overcome, the comprehensive knowledge base pertaining to nutrient and algal relationships will be expanded, justifying potential refinements to the criteria development process described in the guidance.

Appendix A of the guidance contains five criteria development case studies that represent the variability of stream systems found nationally: (1) Tennessee ecoregion streams (southeastern U.S.), (2) Clark Fork River (western forested mountains), (3) upper Midwest river basins (large river systems), (4) Bow River (northern Rockies), and (5) desert streams (arid western US). These case studies present considerations for criteria development that are unique to the system type or ecoregion in which they are found Appendices B and C provide water quality managers with information and additional references for laboratory/field methods and statistical tests/modeling tools, respectively.

The final document is posted on the Nutrient Criteria website (see address above). For further information, contact Debbi Hart at (202) 260-0905 or hart.debra@epa.gov.

National Nutrients Database

The Nutrient Criteria Program has initiated development of a National relational database application that will be used to store and analyze nutrient data. The ultimate use of these data will be to derive ecoregion- and waterbody-specific numeric nutrient criteria ranges. EPA is developing an Oracle™ application which will be populated with STORET Legacy Data, USGS NAWQA, NASQAN and Benchmark data as the primary datasets. Other relevant nutrient data from universities, States/Tribes, and additional data rich entities are being added as they are provided to the Nutrient Criteria Program. The database application is being designed to be a compatible, interactive system in an Oracle™ environment which will allow for easy web-accessibility, geo-referencing/GIS compatibility, and data analysis on both a State/Tribal, Regional, and National basis. The total amount of existing nutrient data nationally is large (>25 gigabytes), and it is anticipated that more data will be entered into the system. The Oracle™ application can easily manage large quantities of data and will provide ample room for expansion as more data are collected. The National Nutrients database application is being designed for compatibility with EPA's latest edition of STORET (STORET-X) to avoid duplication of effort for users of STORET and the Nutrients database application. Considerable efforts are also being made to assure compatibility with other database systems (e.g., WQS and RAD) currently being developed in EPA's Office of Water. The Oracle™ application will be online by the end of the calendar year in a read-only format. The application will be operational in phases, with data entry and analyses capabilities operational by the end of January 2001, and the geographical components fully operational by February 2001. For additional information, contact Ify Davis at (202) 260-6201 or davis.ifeyinwa@epa.gov.

BIOLOGICAL ASSESSMENT AND CRITERIA PROGRAM

EPA now has a web site in operation for Biological Indicators. The site contains abundant information, numerous photographs, pictures and links to other sites which provide extensive information on biological assessments and biocriteria for water resource management programs and for citizens. EPA continues to work on the site to make it even more useful for citizens and water resource managers. The site address is: http://www.epa.gov/ceisweb1/ceishome/atlas/bioindicators/ Contact: William Swietlik at (202) 260-9569 or swietlik.william@epa.gov.

EPA released the revised *Rapid Bioassessment Protocols for Use in Wadeable Streams and Rivers* (EPA 841-B-99-002) in July 1999. This document is an update of the original document, published in 1989, and features improved habitat assessment methods and new periphyton protocols, among other changes. The document is available at the biological indicators web site (http://www.epa.gov/ceisweb1/ceishome/atlas/bioindicators/). Contact: William Swietlik at (202) 260-9569 or swietlik.william@epa.gov.

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