Volume II
Section III
NOAA Guidelines and Comments

Documents in order

1. Federal Register announcement of report and request for comments
2. Comments by Robert L. Alverts for Western Wood Preservers Institute
3. Comments by Dr. Robert A. Perkins, PE, not transmitted to NOAA
4. NOAA Guidelines. (These are in a separate pdf file)

Volume II
Section III
NOAA Guidelines and Comments

1. Federal Register announcement of report and request for comments

[Federal Register: January 13, 2009 (Volume 74, Number 8)]
[Notices]
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DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

RIN 0648-XM60

Availability of Draft Guidelines for Use of Pesticide-Treated Wood Products

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Notice of availability; request for comments.

SUMMARY: NMFS is providing this notice in order to allow other agencies and the public an opportunity to review and provide comments on a draft guideline document regarding the use of pesticide-treated wood products in aquatic environments. The intent of the guidelines is to aid NMFS personnel conducting Endangered Species Act (ESA) and Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) Essential Fish Habitat (EFH) consultations in making consistent determinations regarding projects proposing to use pesticide-treated wood products in habitats utilized by NOAA trust resources. The guidelines attempt to convey a summary of information that should be considered when examining the effects determinations made by the action agency, and to direct personnel to documents containing more detailed information when needed. NMFS is requesting comment on the draft guideline document before it is finalized. All comments received before the due date will be considered before finalizing the guideline document. All comments received will become part of the public record and will be available for review upon request.

DATES: Public comments must be received on or before 5 p.m., Pacific standard time March 16, 2009.

ADDRESSES: Comments on this draft guideline may be submitted by mail to the National Marine Fisheries Service, 777 Sonoma Avenue, Suite 325, Santa Rosa, CA 95409, Attn: Water Quality Coordinator/Treated Wood Comments. Comments concerning the draft guideline may be sent via facsimile to (707) 578-3435. Comments may also be submitted electronically to SWR.treatedwood@noaa.gov.

The reports are available at http://frwebgate.access.gpo.gov/cgi-bin/leaving.cgi?from=leavingFR.html&log=linklog&to=http://swr.nmfs.noaa.gov/ or by calling the contact person listed below or by sending a request to Joseph.J.Dillon@noaa.gov. Please include appropriate contact information when requesting the documents.

FOR FURTHER INFORMATION CONTACT: Joseph Dillon, Southwest Region Water Quality Coordinator at 707-575-6093.

SUPPLEMENTARY INFORMATION: The purpose of the guidance document is to aid NMFS personnel conducting Endangered Species Act (ESA) and Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) Essential Fish Habitat (EFH) consultations to analyze the potential effects and mitigations for

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projects proposing to use pesticide-treated wood products in habitats utilized by NOAA trust resources. The guidelines summarize information that should be considered when examining the effects determinations made by an action agency and to direct personnel to documents containing more detailed information when needed. The draft guidelines focus on copper treated wood, primarily ammoniacal copper zinc arsenate (ACZA), as this is the most prominent material used on the west coast of the United States and in Alaska, and creosote treated products.

These products are being examined by NMFS to determine the risks generated by their usage to the living marine resources which NOAA is responsible for managing, referred to as NOAA's Trust Resources. These

include anadromous salmonids managed under the ESA and EFH as designated by the Magnuson-Stevens Act. The use of pesticide-treated wood in or near aquatic environments commonly requires a permit issued by the U.S. Army Corps of Engineers. Under the ESA, Federal agencies must consult with NMFS to ensure that any action authorized, funded or carried out by the Federal agency does not jeopardize the continued existence of any threatened or endangered species or result in the destruction or adverse modification of designated critical habitat. The issuance of this permit by the U.S. Army Corps of Engineers requires consultation under Section 7 of the ESA to determine whether its approval action would jeopardize federally-listed species or adversely modify designated critical habitat, and requires an EFH assessment to determine whether its approval action would adversely affect EFH. Since the use of pesticide-treated wood materials in situations that may expose aquatic ecosystems is widespread along the west coast of the United States and in Alaska, development of guidelines from the information presented in these reports should help to streamline the review of permitting processes as well as the permitting processes themselves. In some instances, these reports may be used to update existing policies regarding pesticide-treated wood.

The purpose of the ESA is to provide a means whereby the ecosystems upon which endangered and threatened species depend may be conserved, to provide a program for the conservation of threatened and endangered species and to take steps that may be appropriate to achieve this conservation. Conservation is defined in the ESA to mean using, and the use, of all methods and procedures necessary to bring any endangered or threatened species to the point at which the protections provided by the ESA are no longer necessary. It is the policy of Congress, as declared in the ESA, that all Federal departments and agencies shall seek to conserve endangered and threatened species and shall utilize their authorities in furtherance of the purposes of the ESA.

The Magnuson-Stevens Act established procedures designed to identify, conserve, and enhance EFH for those species regulated under a Federal fisheries management plan. EFH regulates an activity with an eye toward its impact on habitat characteristics. EFH is defined as those waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity. ``Waters'' include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish where appropriate; ``substrate'' includes sediment, hard bottom, structures underlying the waters, and associated biological communities; ``necessary'' means the habitat required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem; and ``spawning, breeding, feeding, or growth to maturity'' covers a species' full life cycle. EFH for salmonids includes their saltwater and fresh water ranges.

Effects of pesticide-treated wood that need to be examined during the ESA and EFH consultations include direct, indirect, and cumulative effects. An example of direct effects includes the acute and sublethal impacts of copper and polycyclic aromatic hydrocarbons to salmonids and the EFH of managed species. An example of an indirect effect includes the adverse impacts to the prey base upon which ESA-listed and EFH-managed species depend. An example of a cumulative effect includes the impacts of multiple structures and contaminants in an area with or without additional loading from urban sources, historic mining, smelters, ships' hulls or any other source. The synthesis of these effects to habitat and to individuals, coupled with local environmental conditions and specific species of concern, defines the risk of a project proposing the use of pesticide-treated wood.

Dated: January 6, 2009.

Angela Somma,

Chief, Endangered Species Division, Office of Protected Resources, National Marine Fisheries Service.

[FR Doc. E9-369 Filed 1-12-09; 8:45 am]

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Volume II
Section III
NOAA Guidelines and Comments
2.Comments by Robert L. Alverts for Western Wood Preservers Institute

Western Wood Preservers Institute

7017 N.E. Highway 99, Suite 108 Vancouver, WA 98665 360/693-9958 Fax 360/693-9967 E-Mail: info@wwpinstitute.org

March 16, 2009

National Marine Fisheries Service
777 Sonoma Avenue, Suite 325
Santa Rosa, CA 95409
Attn: Joseph Dillon, Water Quality Coordinator

Re: Treated Wood Comments

Dear Mr. Dillon,

The Western Wood Preservers Institute's Endangered Species Act (ESA) Committee is pleased to have the opportunity to provide comments on the Draft Guidelines for Use of Pesticide-Treated Wood Products, in accordance with the Federal Register Notice of January 13, 2009. We understand the chief concern National Marine Fisheries Service (NMFS) has about the use of treated wood in aquatic environments is the effects of wood preservatives on salmonids, which are managed under the ESA, and the Essential Fish Habitat (EFH) provisions of the Magnuson-Stevens Fishery Conservation and Management Act (MSA), as well as the need for guidance to assist biologists for the NMFS to better understand the issues relating to the use of preservative-treated wood in aquatic environments in order to make consistent effect determinations for projects proposing to use treated wood products.

The following comments represent the consolidated viewpoints and concerns regarding the draft guidelines from the Western Wood Preservers Institute (WWPI). The comments also reflect collective input from our national ad hoc working committee, which includes the major preservative producers, wood preserving companies, and industry organizations, including WWPI, The Southern Pressure Treaters' Association, The Timber Piling Council, Treated Wood Council, The Creosote Council III, Penta Task Force and The Railway Tie Association. While the comments represent a consensus viewpoint of the participating companies and organizations, they do not necessarily imply the full concurrence of all the participants, and separate comments may be submitted on behalf of individual entities as they may deem appropriate.

After over a decade of unresolved debate on the appropriate use of treated wood in aquatic environments, WWPI is very pleased to see the release of the Draft Guidelines. The development of treated wood guidelines has been an ongoing matter of concern for the public and government agency users and producers of treated wood products on the west coast and nationally. WWPI has always believed such guidance would be an important environmental tool and, when appropriately applied, can remove the uncertainty about the use of treated wood in certain aquatic environments. The treated wood industry has also consistently been

committed to the position that it would accept and support responsible science-based guidelines and policy.

WWPI appreciates NMFS SW Region's efforts in developing the draft guidelines and their willingness to consider scientific data and input from the industry during the review and development process. WWPI believes the issuance of the draft guidelines is a significant step forward in establishing a basis for reaching mutually acceptable guidelines, and though it does not resolve all our differences on the science, it does significantly bring the stakeholders closer to agreement on the parameters for conducting project assessments. We are also pleased that the guidelines accept the use of treated wood under certain circumstances, strongly embrace the use of the BMPs, and recognize the value of industry risk assessment models that were developed by Dr. Kenneth M. Brooks.

WWPI would like to offer the following comments that highlight our recommendation for developing a process to evaluate treated wood proposed for use in aquatic applications; a review of the science; and statements we believe are in error.

GUIDELINE RECOMMENDATIONS

Need For Evaluation Worksheet and Procedures

Over the past decade or longer, the wood preservative industry has frequently observed that the biggest barrier to the use of treated wood in aquatic environments is not the adverse environmental effects of treated wood but rather the uncertainty on the part of regulators and project proponents as to the possibility of such potential effects, and the resulting delay in processing project permits and applications that call for the use of treated wood in aquatic environments. These often-substantial delays due to uncertainty have had the practical effect of putting treated wood at a disadvantage in the marketplace in comparison to competitive products. Some project proponents find it easier to simply avoid use of treated wood in order to expedite the regulatory approval process, regardless of the relative environmental effects of treated wood and its competitors.

The NMFS Guidance document is the best and most concise effort to date to bring together the best available science on all the various factors and tools needed for evaluating and mitigating the environmental aspects of using of treated wood in aquatic applications. However, we believe it still falls short of providing sufficiently clear guidance to the regulator or project proponent that is needed to make an evaluation and issue decisions in an efficient and consistent manner. The next logical step is developing a worksheet decision tool (referred to in the NMFS Guide document as a screening level examination) for use in the field. Please see the comments of Robert Alverts, a former Department of Interior employee, who gives a case study in support of the need for such a screening tool (Attachment 2). As noted in the draft NMFS Guide there are many cases where a determination that treated wood can be used could be a simple decision, where as other cases require a more detailed evaluation with potential limitations or mitigation actions.

Field biologists are of necessity generalists who must deal with a vast array of issues on each project reviewed and cannot be expected to fully understand the various complexities of treated wood. Similarly project proponents are also not experts in treated wood, and need tools to help evaluate the appropriateness of using treated wood before submitting a project application.

The industry feels strongly that NMFS's work to date on draft guidelines have created the tools to shorten and simplify the review process by setting the stage for the development of a screening level worksheet. Such an approach would allow all parties to determine which types of treated wood are environmentally acceptable in specific cases to meet the ESA and EFH criteria, and where further review or actions are needed. The industry is requesting that NMFS initiate action to harmonize the existing guidance (such as SLOPES III), the guidance in the NMFS Guide and the Industry Guidance and Models into a screening level work sheet and evaluation procedure. The industry recognizes that this additional work may be a burden on NMFS staff and budget and, if requested, would be more than willing to provide any needed assistance.

Conceptually, we envision such a document would contain several key sections:

A. An explanation of how the worksheet should be used for ESA and EFH determinations, and to which preservative systems and project types it applies.

B. A standard condition for all projects dictating that the provisions of the Best Management Practices be required including the production, installation, certification and management of treated wood.

C. The basic project description information and specifics of treated wood to be used.

D. Identification of the Basic Environmental Parameters and related regulatory authorities that impact the use of treated wood. This could include documentation on the species of concern, fresh or aquatic application, water flow and quality data, sediment conditions, presence of other treated structures and other regulatory provisions in the area.

E. Level One Screening Examination – Depending upon the preservative system, items in C and D above might require supplementation with information on some additional variables. The user would then be provided with risk evaluation decision tools or tables combining the variables, which would determine if the project is: a) acceptable without further review; b) acceptable with special conditions; or c) requires a Level Two Risk Evaluation to determine if treated wood is appropriate.

F. Level Two Detailed Risk Evaluation. This section would provide guidance for conducting the detailed evaluation. This would include guidance for additional environmental parameter data needed; selecting the appropriate model; using the model; evaluating the model outputs; determination of project is acceptability; and/or what additional actions are dictated.

The use of this screening examination worksheet approach should facilitate prompt and accurate identification of proposed project uses of treated wood that do not raise significant environmental concerns and can proceed without further review or delay. For example, the worksheet could provide the basis for a prompt concurrence with an action agency "not likely to adversely affect" determination, terminating ESA/EFH consultation without additional formal review.

As stated previously, while development of a worksheet and guidance document may not resolve all areas of scientific disagreement, it should identify the specific contested issues that are critical to the process, and afford an opportunity to develop an acceptable resolution of concerns. It may also reveal that some areas of scientific disagreement are not in fact critical and do not constitute a barrier to a prompt and accurate review process.

Currently there is an effort underway to write and publish a peer reviewed book that captures the wealth of existing science on managing preservative treated wood in aquatic environments. Dr. Jeff Morrell of Oregon State University – Wood Science and Engineering is the managing editor of the project. In preparing the chapter on "Modeling the Environmental Risks Associated with Pressure Treated Wood Used in Sensitive Environments", Dr. Kenneth Brooks has expanded and diversified the Timber Bridge Model (Brooks 2005a) to include all eleven currently used types of wood preservatives, including creosote, pentachlorophenol, copper naphthenate, ACZA, CCA-C, CA-B™. Wolman AG™, ACQ-B or C™, Wolman µCu Azole™, MicroPro Azole™, and MicroPro Quat™. The chapter and the model are being peer-reviewed as part of the publication process. Because of the expanded capability of the updated model to evaluate overhead and immersed structures in aquatic environments, the industry recommends the completed model be recognized as a viable modeling tool, as well as including evaluation parameters for all the above mentioned preservatives in any developed screening examination worksheet.

The successful development of such a worksheet would be a great benefit to all participants. It would facilitate efficient and responsible decisions by the regulatory community. It would help proponents bring forth projects which are most likely to be accepted. It would make the responsible use of treated wood more easily available to the market where the structural and economic characteristics are needed.

<u>THE SCIENCE</u>

1. Page 8. In general, the toxicity of dissolved copper is not a great concern. Rather it is the toxicity of cupric ion (Cu2+) that is of greatest concern. Dissolved copper includes copper adsorbed to inorganic and organic molecules that have reduced bioavailability but that pass a 0.45 µM filter. Although we have not yet had the opportunity to obtain and read Hecht et al. (2007), we suspect that the responses referenced are associated with increases in cupric ion concentrations rather than dissolved copper. These are the reasons that EPA uses hardness (mg CaCO3/L) based water quality criteria for most divalent metals. NMFS has previously agreed to use the EPA WQC, which industry continues to support as a standard.

2. Page 8. Hecht et al.'s (2007) definition of background copper as having a maximum of 3 µg dissolved Cu/L is not consistent with USGS data showing background concentrations of 15 to 25 µg dissolved Cu/L in relatively pristine rivers like the Copper River in Alaska, which supports one of the most famous salmon runs in North America.

3. Page 8. While we have inferred that dCu refers to dissolved copper, we recommend inclusion of a proper definition of this acronym in the text.

   Leachate from pressure treated wood contains high concentrations of dissolved organic wood extractives which likely bind the copper reducing its bioavailability. Though we have no data to substantiate a hypothesis, we suspect that the leachate from wood preserved with copper containing preservatives contains little or no cupric ion. NMFS has not identified any evidence substantiating its inference that the leachate from pressure treated wood has any effect on salmonid olfaction. The point of this discussion is that from a technical point of view, the draft guidelines are not clear with respect to what form of copper results in compromise of olfactory responses and for how long the effect lasts. If we are, in fact, talking about concentrations of the cupric ion, then the HydroQual's Biotic Ligand Model (BLM) provides a means of speciating dissolved copper and of defining appropriate WQC. However, to be used accurately, that model requires analysis of numerous organic and inorganic constituents in water – some of which are expensive. Resolving this issue is important because the natural variability in background dissolved copper may exceed 0.79 µg/L, resulting in a denial of the use of copper based wood preservatives in or over water in the Western United States. NMFS has previously agreed to use EPA's hardness-based WQCs, which are nationally accepted criteria, for assessing treated wood projects.

4. Page 12. When citing the Vines et al. (2000) study, which found adverse effects on herring spawn associated with creosote treated wood, the report omits reference to Goyette and Brooks (1998, 2000), which found that spawn from mussels growing directly on the creosote treated piling developed normally to the trochophore stage. While it is true that fish (vertebrates) and invertebrates (with planktonic early life stages) face different contaminant pathways and therefore different challenges, we recommend that either (1) both reports should be discussed or (2) neither report should be included. We are aware that there are some concerns being raised about the protocols used in the Vines et al. study.

5. Page 13. We believe the Threshold Effects Level (TEL) and Effects Range Low (ER-L) are not appropriate sediment quality benchmarks. Washington State has published EPA-approved marine Sediment Quality Criteria (SQC) in WAC 173-204 and is currently developing freshwater Sediment Quality Values (WDOE 2002, 2003). Goyette and Brooks (1998, 2000) conducted a detailed assessment of the efficiency and protectiveness of a range of possible SQC applicable to the Sooke Basin Study. Similar to WDOE (2002, 2003) they found that the TEL and ER-L were unacceptably inefficient because they predicted far too many toxic effects in Sooke Basin Sediments when the very large bioassay database generated in that study did not find toxicity. Goyette and Brooks (1998, 2000) found that the arithmetic mean of the TEL and the Probable Effects Level (PEL) and/or the Washington State SQC were both protective and efficient. Other SQC are available, such as the Consensus SQC proposed by Swartz (1999) and we

recommend that NMFS should review these standards and consider them for inclusion in the guidelines. The reports of Goyette and Brooks (1998, 2000) are particularly appropriate for consideration here because they apply to the mixture of PAH that accumulates in sediments in association with the use of creosote treated wood.

6. Page 17. Regarding dissolved concentrations of PAH adjacent to creosote treated wood projects – it states that, "Water column concentrations were not measured at this time." Water column concentrations of dissolved PAH were measured at significant expense by the Battelle Marine Science Laboratory using semi-permeable membranes placed 15 cm from the piling. The concentrations were determined to be in the 20 nanogram/L range for the ΣPAH at the three piling stations – which was not significantly different from concentrations found at the reference location. In addition, tissue concentrations of PAH in mussels used in the in-situ bioassays were found to be only slightly elevated two weeks after construction and they were low and not elevated in either lipid rich gonadal tissue or in somatic tissue after that.

7. Page 19. It is asserted that, "Replicate samples were not taken, with the exception of artificial substrates that allowed for expeditious sampling." In our opinion this is a significant misperception of the sampling design, which included triplicate sediment (infaunal) samples collected within 0.5 meters of each of the viewing platforms' perimeters on each of the four sampling days. Two levels of control were established in this study. An upstream station provided one level of control and a Mechanical Control Structure, where an additional full suite of 28 macrofaunal samples was collected on each sampling day, provided the second level of control. In total, 192 artificial substrate samples, 192 infaunal samples and 64 vegetation samples were collected during the four sampling events at Wildwood. That is a total of 448 macrofaunal samples collected and analyzed during the eleven month study. Sediments were examined to evaluate infauna and epifauna, artificial substrates were examined to assess the drift community and vegetation samples were examined to assess the invertebrate community in that compartment. This lack of acknowledgement may be due to a misperception of the power of the regression approach taken in this study. We believe a closer review of the study design would show that triplicate samples were available from the perimeter of each viewing platform and from the perimeter of the Mechanical Control treatment on each of the sampling days – allowing for conventional t-tests or analysis of variance.

8. We recommend that NMFS include a discussion of the results of the many macrofaunal studies undertaken in an effort to understand the biological response to the use of pressure treated wood. The results of all of these studies demonstrate no decrease in the abundance or diversity of invertebrates living on or in the immediate vicinity of pressure treated wood structures. The fact is that all of these results from numerous studies demonstrated an increase in the abundance and diversity of invertebrates living on or in close proximity to treated wood structures.

   We recommend that NMFS include a discussion of the abundance and diversity of invertebrates living on creosote treated piling presented in Brooks et al. (2006). The authors observed 64 different taxa in nine 200 cm2 samples collected from the piling. These taxa included 12 mollusks, 13 arthropods and 26 annelid species. The fouling community was found to be exceptionally abundant, containing an average of 79,900

invertebrates/m2. We believe all the information should be rigorously reported in order to gain a better understanding of how a product or activity affects biological resources. In contrast, many citizens in Washington State have recognized the habitat value of creosote treated wood structures and are working vigorously to restrain the Department of Natural Resources from removing them.

GENERAL COMMENTS

1. Page 3. In the first paragraph of "Introduction", components of wood preservatives are referred to as "contaminants". We object to the use of the word "contaminants" as these products are EPA registered chemicals approved for use as a wood preservative system and are not considered "contaminants" under the registration. We request the uniform use of a neutral term.

2. Page 7. In the second sentence under "Copper Toxicity in the Water Column", there is an error in identifying the components of ACZA, it does not include Chromium.

3. Page 21. In regards to the BMPs, it states "At the basic level, this means that the pesticide-treated wood product contains no more than the minimum level of pesticide necessary, as specified by the American Wood Preserver's Association (now called the American Wood Protection Association) retention standards." While this is the stated requirement of the BMPs, in a practical sense, one needs to recognize that it is not feasible to consistently meet the minimum standards precisely to the number due to any number of variables, such as type of wood species, age of wood, moisture content, preservative used, and treatment processes. The intent of treating to the BMPs is to use the minimal amount of preservative that complies with the AWPA standards in order to produce a clean and dry product suitable for use in aquatic environment certified by a third party inspection agency. In simple terms, recommending that the maximum level of preservatives is no more than the minimum necessary to meet industry standards is an impossible criterion.

4. Page 25. It is suggested that, "Since older creosote treated wood materials were likely not produced in accordance with industry BMPs (i.e. they were likely treated to the point of refusal), they should not be reused in aquatic environments." In response, we are unaware of any documentation suggesting that prior to development of production BMPs, creosote treated piling were treated to refusal. In developing the creosote risk assessment model, Brooks (1997b) analyzed recorded creosote retention measured historically in nearly 2000 charges and determined an average retention of 22.4 pcf when 20 pcf was the target retention. The average retention is far less than treatment to refusal. Second, BMPs are designed to produce products that are clean and free of surface deposits of preservative and to insure that the preservative is "fixed" when that is a factor. BMP verification studies have shown that properly designed BMPs can be effective in significantly diminishing elevated loss rates observed shortly after immersion in non-BMP produced wood. Older piling, such as the eight year old piling used in the Weather Piling dolphin in the Sooke Basin Studies, performed nearly as well

as the BMP piling. The evidence is that older pilings removed from service have lost the initial flush of preservative and should perform similar to BMP produced piling.

5. In the title page and throughout the document there are numerous uses of the term "pesticide-treated wood", "pesticide-treated industry" or "pesticide-treated wood products". We strongly believe this choice of terminology should be abandoned in favor of a neutral term, as it is not the commonly accepted or used terminology in the marketplace or by the industry. The term is misleading because it erroneously implies wood treated with a FIFRA-registered wood preservative acts like a pesticide (i.e., controls or repels fungi, insects or other pests). To the contrary, wood is treated with a FIFRA-registered wood preservative in order to protect wood from degradation and is specifically exempt from FIFRA regulation as a pesticide under EPA's treated articles exemption. See 40 C.F.R. 152.25(a). We would recommend the terminology be changed to read "preservative-treated wood".

We greatly appreciate the opportunity to provide comment on the *Draft Guidelines for Use of Pesticide-Treated Wood Products*. Our comments are intended to further achieve what we believe is a common goal of developing guidelines that are science based, fair and appropriate for determining the use of preservative-treated wood in aquatic environments.

Sincerely,

Ted J. LaDoux
Executive Director

Attachments (2)

ATTACHMENT 1

Science References

Brooks. K.M. 1997a. Literature Review and Assessment of the Environmental Risks Associated with the Use of ACZA Treated Wood Products in Aquatic Environments. Second Edition. Prepared for the Western Wood Preservers' Institute 7017 NE Highway 99, Suite 108, Vancouver, WA 98665. 98 pp.

Brooks, K.M. 1997b. Literature Review, Computer Model and Assessment of the Potential Environmental Risks Associated With Creosote Treated Wood Products Used in Aquatic Environments. Published by the Western Wood Preservers Institute, 601 Main Street, Suite 401, Vancouver, WA 98660. 137 pp.

Brooks, K.M. 2000a. Environmental effects associated with the use of CCA-C, ACZA and ACQ-B pressure treated wood used to construct boardwalks in wetland areas. U.S. Department of Agriculture – Forest Products Laboratory, Research Paper FPL-RP-582. 126 pp. plus appendices.

Brooks, K.M. 2000b. Assessment of the environmental effects associated with wooden bridges preserved with creosote, pentachlorophenol or chromated-copper-arsenate (CCA-C). U.S. Department of Agriculture – Res. Pap. FPL-RP-587. Madison, WI: U.S. Department of Agriculture, Forest Service, Forest Products Laboratory, 100 pp.

Brooks, K.M., D. Goyette and S. Christie. 2006. Sooke Basin Creosote Evaluation – Results of the October 2005 Reconnaissance Survey. Creosote Evaluation Committee, Fisheries and Oceans Canada, Pacific Yukon Region, 201-401 Burrard Street, Vancouver, British Columbia, Canada V6C 3S5. 150 pp.

Goyette, D. and K.M. Brooks. 1998. Creosote Evaluation: Phase II. Sooke Basin Study Baseline to 535 Days Post Construction 1995 – 1996. Published by Environment Canada. 224 West Esplanade, North Vancouver, British Columbia, Canada V7M 3H7. 568 pp.

Goyette, D. and K.M. Brooks. 2000. Addendum Report – Continuation of the Sooke Basin Creosote Evaluation Study (Goyette and Brooks, 1998). Year 4 – Days 1360 and 1540. Published by Environment Canada. 224 West Esplanade, North Vancouver, British Columbia, Canada V7M 3H7. 51 pp.

Swartz, R.C. 1999. Consensus Sediment Quality Guidelines for Polycyclic Aromatic Hydrocarbon Mixtures. Environmental Toxicology and Chemistry, Vol. 18, No. 4. Pp. 780 – 787.

Vines, C.A., T. Robbins, F.J. Griffin, and G.N. Cherr. 2000. The effects of diffusible creosote-derived compounds on development in Pacific herring (*Clupea pallasi*). Aquatic Toxicology, Vol. 51, pp. 225-239.

WDOE, 2002. Development of Freshwater Sediment Quality Values for Use in Washington State. Phasse 1 Task 6: Final Report. Washington Department of Ecology Publication Number 02-09-050. 65 pp. plus appendices.

WDOE, 2003. Development of Freshwater Sediment Quality Values for Use in Washington State – Phase II Report: Development and Recommendation of SQV for Freshwater Sediments in Washington State. Washington Department of Ecology Publication Number 03-09-088.

ATTACHMENT 2

14569 SW 130th Ave.
Tigard, OR 97224
March 13, 2009

National Marine Fisheries Service
ATTN.: Joseph Dillon, Water Quality Coordinator
777 Sonoma Ave., Suite 325
Santa Rosa, CA 95409

Dear Mr. Dillon:

I am pleased to share comments with you concerning the *Draft Guidelines for Use of Pesticide-Treated Wood Products* as identified in the Federal Register Notice of January 13, 2009. I am currently a natural resources consultant, periodically assisting the Western Wood Preservers Institute (WWPI). WWPI asked me to review your document and prepare comments based on my extensive experience with the federal government.

You are to be commended for the extensive work that went into development of the guidelines intended for use by your staff and constituent interests when considering the use of treated wood. The stated purposes of the guidelines are to: 1) assist NMFS biologists understand the issues related to marine use of pesticide-treated wood and make consistent effect determinations for projects proposing to use these products, 2) outline Best Management Practices (BMPs) for projects, and 3) be used in conjunction with site-specific evaluations of other potential impacts.

Now retired, I am a forty year veteran of the US Department of the Interior, where I worked as a natural resource manager, research and monitoring coordinator, and regional science advisor. During the mid-1990s I was actively involved with implementing the Northwest Forest Plan (NFP) and serving as a member of the Regional Ecosystem Office's Research and Monitoring Committee. As a result of that experience, I see several parallels with the Northwest Forest Plan and the intent of your proposed guidelines, and some areas where I believe your guidelines need to be strengthened.

Much like your effort, the Northwest Forest Plan also included an extensive set of standards and guidelines to be used by all the management, research and regulatory agencies involved with plan implementation. While these guidelines were valuable, they were incomplete and lacked specific detail and methods needed for management agencies to consistently meet plan

goals while implementing proposed actions. As a consequence, the Interagency Advisory Committee agreed to review them and form a number of interagency-intergovernmental sub-committees to develop more detailed guidance methods and tools for NFP implementation.

These sub-committees did an excellent job, working together to develop useful tools that could be consistently applied. While taking some time initially, they helped improve agency collaboration and cooperation, increased efficiencies, and saved money and time for all involved.

After reviewing your draft document, I see the need to develop comparable additional details and tools that I believe will better assist your biologists, as well as proponents of treated wood make consistent application of your intended goals. I strongly urge you to help lead and coordinate such an effort. I believe you will find the experience invaluable for your agency and all involved stakeholder interests. And I believe it would help cut costs, workload and staff time in the long run.

I appreciate the opportunity to share some thoughts with you and look forward to seeing the successful implementation of your final guidelines.

Sincerely,

Robert L. Alverts
Science and Management Consulting

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Section III
NOAA Guidelines and Comments
3.Comments by Dr. Robert A. Perkins, PE, not transmitted to NOAA

Comments on NOAA Draft Guidelines

Dr. Robert A. Perkins, PE.

These comments were not transmitted to NOAA

Comments on NOAA's Draft Guidelines for Use of Pesticide-Treated Wood Products.

NOAA produced a guide document that became available in early January 2009. *The Use of Pesticide-Treated Wood Products in Aquatic Environments : Guidelines to NOAA Fisheies Staff for the Endangered Species Act and Essential Fish Habitat Consultations,* which I'll call "*guidelines*" in this appendix. (NOAA 2009) Public comments were solicited with the comment period closing on March 16, 2009. (FR 2009). The public notice gives a succinct purpose of the document:

> The intent of the guidelines is to aid NMFS personnel conducting Endangered Species Act (ESA) and Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) Essential Fish Habitat (EFH) consultations in making consistent determinations regarding projects proposing to use pesticide-treated wood products in habitats utilized by NOAA trust resources. The guidelines attempt to convey a summary of information that should be considered when examining the effects determinations made by the action agency and to direct personnel to documents containing more detailed information when needed.

The author was unable to get copies of the comments submitted to NOAA, however I was able to get the comments made by the WWPI, which are part of this appendix. The guidelines address all the common types of wood preservatives in use nationwide. Thus the guidelines and WWPI's comments have much that is not pertinent to Alaska. My comments are limited to creosote in Alaska.

The major finding in the conclusions of the Guidelines is:

> Overall, the use of pesticide-treated wood products in aquatic environments with the examined formulations (ACZA, CCA, and creosote) could be acceptable in many proposed projects. However, the products can not be considered categorically safe, and therefore, require project and site-specific assessment. Many projects, that still propose to use pesticide-treated wood, may pass a screen level examination and require relatively little assessment for the pesticide-treated wood impacts. These determinations require a level of local knowledge that may be applied on a case-by-case basis, or through regional watershed based procedures. The variability between locations makes it difficult to provide guidance on the scale of the entire west coast of the U.S. and Alaska.

Elsewhere the conclusions recommend BMP in all situations that involve EFH and TES and appear to limit the requirement for risk assessments to structures with over 100 piles

and further imply that if the current exceeds 10 cm/sec (roughly 0.25 mph) likewise a more detailed risk assessment is not needed. This section of the conclusions is vague and probably refers to studies with copper in the Columbia River, but in general, it fits with the WWPI recommendations.

The conclusions seem to recommend copper over creosote, although the conclusions are not specific to Alaska.

Author's Review of *Guidelines*
Because the *Guidelines* covers many situations and at times to appear to present conflicting information, and because these draft guidelines may be pressed into service in lieu of final guidelines, I will present my review of them. The WWPI review and comments that pertain to creosote are listed in this appendix. The entire Guidelines and Comments are copied in Volume II.

Page 6, end of first paragraph, says models are uncertain and therefore need to be used with site specific information – relying on Status [3, and discussed in Appendix D]. The Brooks Model [see Appendix F] has been field tested in several locals and shown to be conservative. That is, it overpredicts the sediment concentration. The Brooks Model does require site specific information.

Page 6, second paragraph, tries to determine the level of impact deduced by a screening that would not require a full risk assessment and further differentiates an ESA issue from an EFH issue. It explains that the screening is similar to an "initial review" in an ESA determination, where a finding that the action "may affect" but is "not likely to adversely affect" an endangered species. If there were established local procedures for making that determination, they could be used to screen the project. The next paragraph then refers this process to local knowledge, rather than the *guidelines*. My comment is that this "local knowledge" would refer to the species under ESA or EFH consideration, not the effects of creosote, which are established by nationwide science.

Page 7, first paragraph, states "concrete pilings are cost-competitive with pesticide-treated wood pilings over the long-term and are competing in those markets." This is often not true. In any case, the choice between wood, concrete, and steel is made by the design engineer. In general, if wood will work for structure, wood is about half the cost of concrete.

Page 12, middle paragraph has some toxicity information that needs to be clarified. Two of the most interesting studies are those of Vines (2000) and Carls (1999) [5]. The main thrust of Vines study was that toxic levels of creosote diffusible material exist in the interior of 40-year old piles. This was determined by taking pieces out of old creosote piles and placing them in static renewal chambers with herring eggs, etc. This is quite unlike the potential exposures from in situ creosote piles, since the cutting the piles into pieces for the laboratory experiment exposes new creosote faces and allows end grain transfer of PAH to the water. In order for the pile to maintain its integrity in water with marine borers, the pile must have creosote within its wood structure. Thus Vines'

findings were not unexpected. The most intriguing part of the paper, however, was not those laboratory studies, but rather a study of eggs scrapped from the exterior of old creosote piles. Compared with eggs scrapped from a nearby PVC pipe, the eggs scrapped from the pile had a very low survival. Because this was a preliminary part of the study and not controlled, the eggs may have come from different fish or been exposed to slightly different environmental conditions. However, more interesting, was that Dr. Vines did not note any fouling on the piles. (Vines 2008) Generally piles in marine waters foul very quickly, usually within a year. Lack of fouling may indicate the piles were atypical in other respects. In any case, one would expect that BMP piles underwater would have much less creosote on their surfaces than piles treated 40 years ago. The Carls study used PAHs that were leached from oil contaminated gravel and indicated toxicity in the range of 1 ppb, mostly of heavier PAHs, to salmon larvae. The methods seem quite through and the researchers are well known, thus this study is often quoted to indicate that a PAH level of 1 ppb may be toxic to salmon eggs. However I would note that Neff found levels of PAH in "pristine waters" of 1 to 2 ppb [Neff 1979]. And fish and invertebrates spawn and thrive in non-pristine waters that have much higher concentrations of PAHs. Thus, there may be a disconnect between the Carls study and nature. Two other issues are the nature of the oil and its location. In general crude oil, and certainly ANS from which the PWS oil came, is highly alkylated. Often the parent PAH is present in only very small quantities. On the other hand, creosote is often pure parent PAH and has few alkylated compounds. Alkylated PAHs are metabolized at different rates than the parent and are often assumed to more toxic. The second is that in the natural environment the heavier PAHs are bound to organic particulates or other organic matter and are not bioavailable. Also, see the "Page 12" comments from WWPI below.

Page 13, top paragraph, states that main concern is for PAHs that leach from creosote and they "accumulate in sediments and are assimilated into the food web." This implies that the PAHs that enter the sediment find their way into the food web. That is not the case. In oxygenated sediments most of the PAH are oxidized. Regardless of oxygen state, most PAH do not make it into the food web. Also misleading in that paragraph it says, "chronic and dietary exposure to the higher weight PAHs remain in sediments that cause the [harmful] effects ….[which are] more prominent in benthic species due to their frequent contact with the sediment. (Citing Stratus). The only study that purports this used a sediment that was contaminated with many things other than PAHs. True, toxic PAHs can be extracted from sediments, but this is not their course in nature. Further, that paragraph can be read that pelagic species are affected by PAH in the sediment, and that is simply not true.

Page 13, third paragraph, is key to risk assessment, since it strives to present sediment levels that may be harmful. This analysis for PAHs is always limited, because PAH is not a chemical, but a mixture of many chemicals, all of differing chemical, physical, and toxicity characteristics. The paragraph is not easy to read or interpret but seems to say that levels above some very low conservative limit should not be exceeded. Several problems with that are first, that these levels are frequently encountered in harbors and other habitat that seem to have thriving marine life communities. Second, science shows

that the PAH in sediment is limited to the regions very close to the piles. Thus, regarding an EFH, the question would be, "even if the entire area beneath the structure were removed from the fishery habitat, would it affect the fishery?"

Page 20, middle paragraph, again repeats the tumors from sediment issue that is not accurate. It says that if the water body is "impaired" additional PAH from piles should not be permitted. Certainly if the water body is impaired by PAHs, creosote should not be used. This is stated in all the risk assessment paradigms. The third paragraph is particularly poor science. It extrapolates from the work of Vines to pelagic concentrations of creosote, but actual measurements of the pelagic concentration of PAH are essentially zero after a few weeks. It then goes on to cite the Corps of Engineers in Los Angles requiring wrapping of creosote piles, which has no relevance – is not science-based. The last paragraph seems to say that a region could adopt a standard number of piles, below which a risk assessment is not needed. The reference quoted, SLOPES III, used 50 piles as the cut off. That is, a project with less than 50 piles was considered not to require a full consultation – the Corps could grant the permit without NMFS consultations.

Page 22, first sentence, says copper-based and creosote treatments are interchangeable. This is not true in Alaska, as discussed in Chapter 4. Also, they discuss use of creosote in fresh water, which is not recommended anywhere, but is not allowed in Alaska.

Page 25, second paragraph, is erroneous. It seems to recommend coating piles with wraps in projects proposed for "sensitive locations" and could have been written by a supplier of coated piles. It cites "unnecessary environmental risk" which misuses both the words "unnecessary and "risk." Coatings or wraps are expensive and should not be used unless there is a demonstration that the EFH or ES would be harmed if they were not used. If the currents are slow, sediment anoxic, or background PAH are high, they may be a useful alterative. True Pacific herring may spawn onto wood, but they spawn everywhere, especially on eel grass in Alaska. Only a minuscule proportion would land on piles. The last part about pile replacement does not fit. If they are only replacing a few piles, they will not matter.

Coatings are fine also, but only if somewhere is demonstrated if they are not coated there would be some problem. This section of the guidelines is not science-based.

Page 27, second paragraph, is not appropriate. If another material will be more cost effective, the engineer will specify it. This says nothing and implies that concrete is comparative. If it is, it will be used. It is generally not comparable in Alaska.

Page 28, first paragraph, regarding costs - Status in not competent to estimate prices, which will vary with location. In general treated wood will last a long time. Wood is much more resilient than concrete. Concrete life is quite variable. Intact it may last forever. If it is damaged, the rebar will corrode and the pile may not last long. Steel is more resilient, but needs cathodic protection or coating which may not be benign. In

addition, steel needs repainting or coating and this is an operation that can contaminate the environment.

Page 32, first paragraph of Conclusions, says “leaching stays at easily detectable levels.” The word “easily” is a poor word choice. PAH can be detected, but “easily” implies there is a lot, which in fact there is not. It is at very low levels. In the Sooke Basin study, which was in a pristine area, the PAH after a year was not different than background, by the most sensitive methods. In the last sentence again implies that PAH from sediment is “most often associated with impacts to benthic species,” this not correct. PAH can cause those effects in all species, but there is little evidence that the low levels from creosote in a natural sediment can cause them.. The tests they cite were done in sediment contaminated with other chemicals and/or with PAH extracted from the sediments.

Page 33, top paragraph again refers to Vines study which we discuss above. Effect would at worst be seen in unfouled piles with eggs laid directly on the wood. The next sentence is incorrect. Heitz et al (1999) dealt with weathered crude oil extracted from gravels not marine sediments. There is no connection between the work of Heintz and the creosote contamination under piles, which diminishes with time.

Page 33, second paragraphs, says models did not over- or underpredict. The model of Brooks consistently overpredicted the concentrations at Sooke and several other sites. In addition all the models take some “site specific” data to work.

Page 35, last paragraph of Conclusions, express a preference for copper over creosote. This would assume that the benefits of either treatment are the same. That is not true for Alaska, where creosote has a much longer service life for most applications. However it does say, “the limited available information shows that, in some specific instances, the proper use of creosote-treated products may not impact ESA listed salmonids in a manner that can be meaningfully measured, detected or evaluated. “

Volume II
Section III
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4.NOAA Guidelines