

Seafood Internet Resources for Food and Health Educators: Overview

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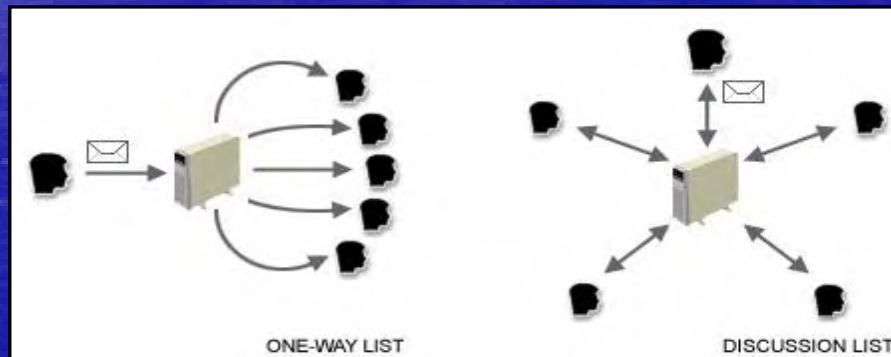
**Fish Safety Update for Agriculture, Community, Health, and Nutrition Educators
November 2, 2006
UC Cooperative Extension Yolo County Office
Woodland, CA**

Presentation Outline

- Internet Mailing Lists
- Species Information
- How to Identify Seafood Hazards
- Select Seafood Safety Web Resources
- Credible Web Site Tips

California Mailing Lists

- CA-Seafood - UC Sea Grant →
- Rapid Alert System - CDHS →



(Image Source: www.isoftware.com)

CA Seafood Announcements Mailing List


<http://ucce.ucdavis.edu/survey/survey.cfm?surveynumber=832&back=none>

California Seafood Announcements Mailing List - Mozilla Firefox

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California Seafood Announcements Mailing List

NOTE: For the international seafood HACCP and processing discussion mailing list subscribe here:
[Seafood HACCP and Processing Discussion List Subscription Site.](#)

The California Seafood Announcements Mailing List (CA-Seafood@ucdavis.edu) shares training and regulatory update information of primary interest to the California seafood industry.

This electronic announcement list is a public service sponsored by the University of California Sea Grant Extension Program.

For assistance with the mailing list, contact the [List Owner](#)

* = **REQUIRED**

Question	Response
* Please enter your first and last name:	<input type="text"/>
* E-mail address:	<input type="text"/>
Company Name	<input type="text"/>
City, State	<input type="text"/>
* Affiliation:	<input type="radio"/> Consultant <input type="radio"/> Educator <input type="radio"/> Fisherman <input type="radio"/> Food Service <input type="radio"/> Importer/Exporter <input type="radio"/> Inspection - County, State, Federal or Private (Audit) <input type="radio"/> Military <input type="radio"/> Processor <input type="radio"/> Retailer <input type="radio"/> Wholesaler <input type="radio"/> Other: (Please specify below):
Other Affiliation:	<input type="text"/>
<input type="button" value="Save Survey Information"/>	

Done

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CDHS Rapid Alert System

<http://www.envoyprofiles.com/CDOHS/>

The screenshot shows a web browser window titled "CDHS-DFDRS Rapid Alert System - Welcome to the CDHS-DFDRS Rapid Alert System - Mozilla Firefox". The address bar shows the URL "http://www.envoyprofiles.com/CDOHS/". The page content includes the California Department of Health Services logo and text: "California Department of Health Services", "Division of Food, Drug, and Radiation Safety", "Food and Drug Branch", and "Rapid Alert System". Below this, it says "Welcome to the CDHS-DFDRS Rapid Alert System" with links for "Sign Up", "Try It!", and "Log In". A paragraph explains that the system delivers instant notices of food, drug, and medical device issues in California, free of charge. A list of alert broadcast methods is provided: Fax, Pager, Phone, Cell Phone, and E-mail. A note advises users to select "Log In" to access subscription information and that the information is confidential. At the bottom, there are links for "privacy policy (Standard) (EU)" and "terms of service", and a copyright notice for EnvoyWorldWide, a PAR3 Company, dated 2006. The browser's taskbar at the bottom shows various open applications and the system clock at 4:43 PM.

CDHS-DFDRS Rapid Alert System - Welcome to the CDHS-DFDRS Rapid Alert System - Mozilla Firefox

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http://www.envoyprofiles.com/CDOHS/

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California Department of Health Services

Division of Food, Drug, and Radiation Safety
Food and Drug Branch

Rapid Alert System

Welcome to the CDHS-DFDRS Rapid Alert System

[Sign Up](#) | [Try It!](#) | [Log In](#)

The Rapid Alert System delivers instant notices of food, drug, and medical device issues in California. This service is provided free of charge and can be individually customized.

Alerts can be broadcast through:

- Fax
- Pager
- Phone
- Cell Phone
- E-mail

Select [Log In](#) to access your subscription information.

The information you provide is confidential and will not be distributed. Each individual is responsible for updating their information in the RAS database. Failure to maintain current numbers or email addresses may result in removal from this system.

[privacy policy \(Standard\) \(EU\)](#) | [terms of service](#)

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envoy

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National and International Mailing Lists

<http://seafood.ucdavis.edu/pubs/onlinenews.htm>

- EdNET, National Food Safety Educators Network - US FDA →
- FoodHACCP.com – WSU →
- FOODSAFE (formerly USDA) and now several sponsors ↔
- FSNET-L - U. of Guelph →
- Seafood HACCP - UC Sea Grant ↔

FDA EDNET-L, Food Safety Educators Network

<http://www.cfsan.fda.gov/~dms/nutrsub.html>

The screenshot shows a web browser window titled "FDA/CFSAN Food and Nutrition Listserv Lists - Mozilla Firefox". The address bar shows the URL "http://www.cfsan.fda.gov/~dms/nutrsub.html". The page header includes the FDA logo, the text "U.S. Food and Drug Administration", and "CENTER FOR FOOD SAFETY AND APPLIED NUTRITION". Below the header, the page is titled "Library of Food and Nutrition Listservs".

The main content area contains the following text and form elements:

This form enables you to easily subscribe and unsubscribe to an e-mail discussion list. You will receive e-mail confirming your request from the list. This process may take up to a day or two, so please be patient and wait before attempting to subscribe a second time.

Important: when unsubscribing, use exactly the same address you used when you subscribed.

Mailing list you wish to subscribe to:
EDNET-L -- National Food Safety Educator's Network

☒ Subscribe ☐ Unsubscribe ☐ Information

Your Full Name:

Your Email Address:

If you subscribe to a CFSAN Listserv, CFSAN considers your e-mail address confidential and it will not be released under FOI. For your convenience, you can subscribe to other government and non-government Listservs from our site. Each Listserv has its own privacy policy which you should check prior to subscribing.

At the bottom of the page, there are links for "Chemistry", "Biology", "Resources", and "Web Search". Below these are links for "CFSAN Home", "CFSAN Search/Subject Index", "CFSAN Disclaimers & Privacy Policy", "CFSAN Accessibility/Help", "FDA Home Page", "Search FDA Site", "FDA A-Z Index", and "Contact FDA".

The footer of the page states: "FDA/Center for Food Safety & Applied Nutrition Hypertext updated by mkl/gma January 27, 2004".

WSU FoodHACCP.Com

<http://www.foodhaccp.com/>

Food Safety and Foodborne Pathogen Main Site - FoodHACCP.com - Mozilla Firefox

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https://www.foodhaccp.com/

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Welcome to
FoodHACCP.com
Food Safety Information Website

Sponsors

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CHARM SCIENCES INC	DUPONT Qualicon	HARDY DIAGNOSTICS	WSPIC
FoodSafety magazine	hygieno	MicroBiology	MADE IN CALIF
remel	SanitationTools.com	SDS	WARNEX

[Sponsorship Q/A](#)

1st International Conference for
Food Safety and Quality
Organized by FoodHACCP.com -
November 7-9, San Francisco, CA

1st International Conference for
Food Safety and Quality
Organized by FoodHACCP.com -
November 7-9, San Francisco, CA

FoodHACCP.com is the website for
FoodSafety Information.
FoodHACCP.com has more than 10,000
members around the world.
You have to apply membership to access
the main site for information.

Apply for
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If you are Member, click on here
MEMBER ONLY

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FOODSAFE

<http://www.foodsafetyweb.info/foodsafef/>

Foodsafe Discussion Group - Mozilla Firefox

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[http://www.foodsafetyweb.info/foodsafef/](#)

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FOOD SAFETY WEB

→ Home → About Us → Resources → FoodSafe → Contact

Foodsafe Discussion Group

Welcome to Foodsafe
The networking and information sharing tool for food safety professionals

- Sponsor Foodsafe
- Join or Leave Foodsafe List
- Change Your Foodsafe Settings
- Search Foodsafe Archives
- Foodsafe Frequently Asked Questions
- Sponsor Foodsafe



Foodsafe is an international discussion group mainly for food safety professionals, but also for others who have questions about the topic. It connects those interested in food safety to each other, and to information. The purpose of the list is to share knowledge, experiences, and ideas to make food safer around the world.

Cindy Roberts has managed the list since 1997, first at the USDA/FDA Foodborne Illness Education Information Center, and since 2005, at Food Safety Web.

Foodsafe owes its existence to the generous support of the following sponsors:

 **Triple Fork**

- **Marler Clark** A Seattle-based law firm dedicated to representing victims of foodborne illness outbreaks across the country. www.marlerclark.com
- **Silliker, Inc.** Protecting Your Company and Customers Around the Clock, Around the Globe. silliker.com

 **Double Fork**

- **Bactrol** Manufacturers of detergents and disinfectants for the food industry. www.bactrol.co.uk
- **Eastern Mass Food Safety** Play it safe... Eat well... Be healthy! www.easternmassfoodsafety.com
- **Food Protection Report** The monthly report of current developments in food protection. www.foodprotectionreport.com
- **Food Safety Education Conference** Reaching At-Risk Audiences and Today's Other Food Safety Challenges, in Denver, Colorado, September 27-29, 2006. www.fsiss.usda.gov/Denver2006/

<http://www.fsiss.usda.gov/Denver2006/>

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U. Guelph FSNET-L

<http://www.foodsafetynetwork.ca/en/page.php?s=4&ss=22>

Food Safety Network

About Us > Listservs > Subscribe

Jump to page:

to subscribe to the html versions of the listservs
to subscribe to the html versions of Agnst, FSnet, Animalnet, or Functional FoodNet, send an email message to: listserv@listserv.kau.edu
Leave the subject line blank, and in the body of the message type:
subscribe listname (your name)
(*NOTE: replace listname with either "fanet-L", "agnst-L", "animalnet", or "ffnet-L" as desired)
for example, if you wanted to subscribe to the html version of FSnet, you would send an email to: listserv@listserv.kau.edu

Subject line (blank)
in the body of the email message
subscribe fanet-L Doug Powell
(please replace "Doug Powell" with your name when you send the message)
Please send a separate message for each "net" you wish to subscribe to
You will receive a message from the listserv server that you must reply to in order to acknowledge that you wish to be subscribed to the listserv.
Once you acknowledge that, you will begin to receive the listserv on a regular basis.

to subscribe to the text versions of the listservs
to subscribe to the text versions of Agnst, FSnet, Animalnet, or Functional FoodNet, send an email message to: listserv@listserv.uoguelph.ca
Leave the subject line blank, and in the body of the message type:
subscribe listname (your name)
(*NOTE: replace listname with either "fanettext", "agnsttext", "animalnet", or "ffnettext" as desired)
for example, if you wanted to subscribe to the text version of FSnet, you would send an email to: listserv@listserv.uoguelph.ca

Subject line (blank)
in the body of the email message
subscribe fanettext Doug Powell
(please replace "Doug Powell" with your name when you send the message)
Please send a separate message for each "net" you wish to subscribe to
You will receive a message from the listserv server that you must reply to in order to acknowledge that you wish to be subscribed to the listserv.
Once you acknowledge that, you will begin to receive the listserv on a regular basis.

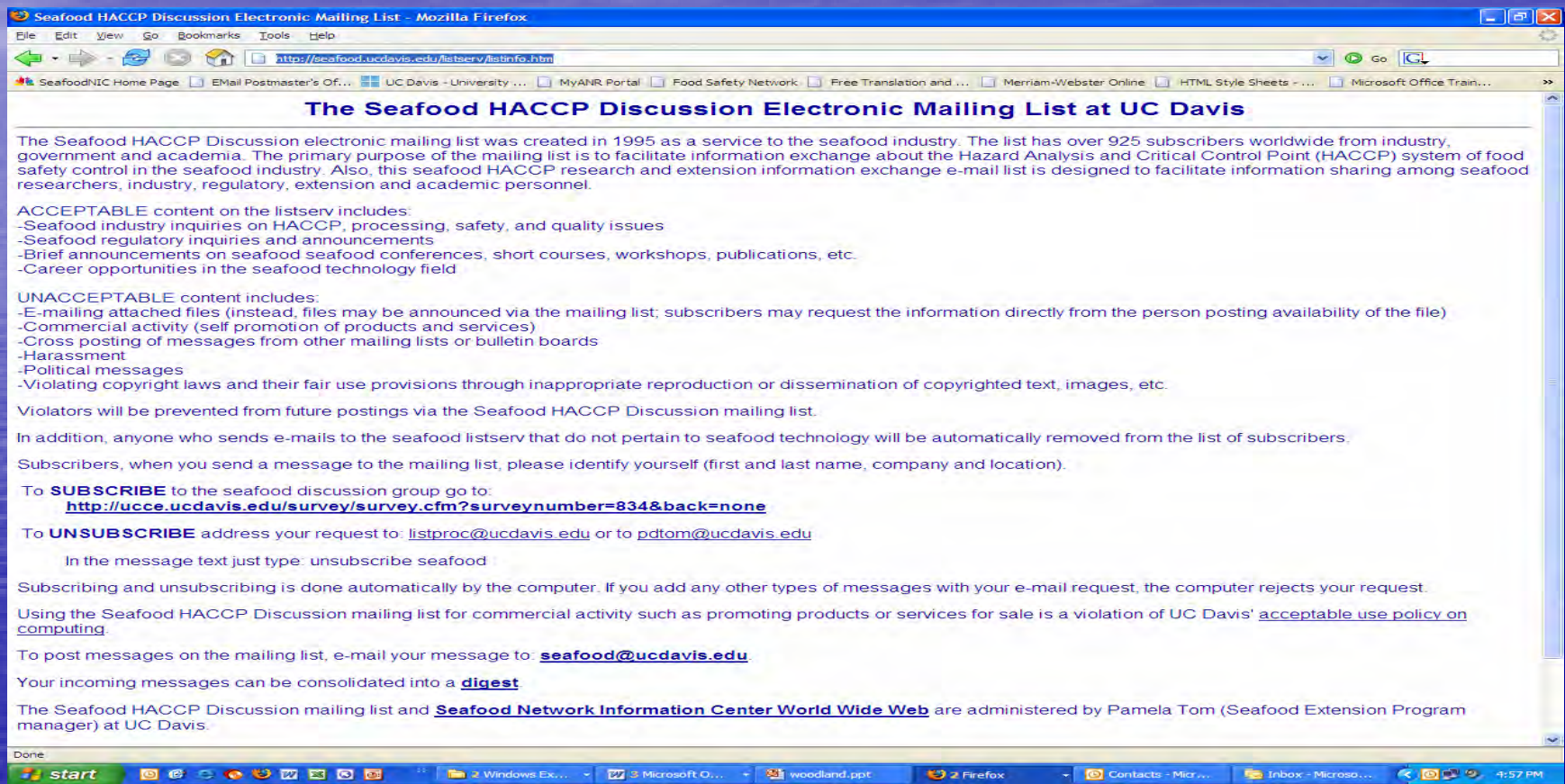
To unsubscribe from the html listservs
Send an email to listserv@listserv.kau.edu
leave the subject line blank, and in the body of the message type:
signoff listname
(the listname being one of agnst-L, fsnet-L, animalnet or ffnet-L).

To unsubscribe from the text listservs
Send an email to listserv@listserv.uoguelph.ca
leave the subject line blank, and in the body of the message type:
signoff listname
(the listname being one of fanettext, agnsttext, animalnet, or ffnettext)

Infosheets
The Food Safety Network offers smaller information summaries delivered either by email or fax. The sheets are one page summaries of current food

UC Seafood HACCP Mailing List

<http://seafood.ucdavis.edu/listserv/listinfo.htm>



The Seafood HACCP Discussion Electronic Mailing List at UC Davis

The Seafood HACCP Discussion electronic mailing list was created in 1995 as a service to the seafood industry. The list has over 925 subscribers worldwide from industry, government and academia. The primary purpose of the mailing list is to facilitate information exchange about the Hazard Analysis and Critical Control Point (HACCP) system of food safety control in the seafood industry. Also, this seafood HACCP research and extension information exchange e-mail list is designed to facilitate information sharing among seafood researchers, industry, regulatory, extension and academic personnel.

ACCEPTABLE content on the listserv includes:

- Seafood industry inquiries on HACCP, processing, safety, and quality issues
- Seafood regulatory inquiries and announcements
- Brief announcements on seafood conferences, short courses, workshops, publications, etc.
- Career opportunities in the seafood technology field

UNACCEPTABLE content includes:

- E-mailing attached files (Instead, files may be announced via the mailing list; subscribers may request the information directly from the person posting availability of the file)
- Commercial activity (self promotion of products and services)
- Cross posting of messages from other mailing lists or bulletin boards
- Harassment
- Political messages
- Violating copyright laws and their fair use provisions through inappropriate reproduction or dissemination of copyrighted text, images, etc.

Violators will be prevented from future postings via the Seafood HACCP Discussion mailing list.

In addition, anyone who sends e-mails to the seafood listserv that do not pertain to seafood technology will be automatically removed from the list of subscribers.

Subscribers, when you send a message to the mailing list, please identify yourself (first and last name, company and location).

To **SUBSCRIBE** to the seafood discussion group go to:
<http://ucce.ucdavis.edu/survey/survey.cfm?surveynumber=834&back=none>

To **UNSUBSCRIBE** address your request to: listproc@ucdavis.edu or to pdtom@ucdavis.edu

In the message text just type: unsubscribe seafood

Subscribing and unsubscribing is done automatically by the computer. If you add any other types of messages with your e-mail request, the computer rejects your request.

Using the Seafood HACCP Discussion mailing list for commercial activity such as promoting products or services for sale is a violation of UC Davis' [acceptable use policy on computing](#).

To post messages on the mailing list, e-mail your message to: seafood@ucdavis.edu

Your incoming messages can be consolidated into a **digest**

The Seafood HACCP Discussion mailing list and [Seafood Network Information Center World Wide Web](#) are administered by Pamela Tom (Seafood Extension Program manager) at UC Davis.

> 1,500 Commercial Fish Species

Meat	Poultry	Fish

FDA Seafood List

<http://www.cfsan.fda.gov/~frf/seaintro.html>

Seafood List Introduction - Mozilla Firefox

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http://www.cfsan.fda.gov/~frf/seaintro.html

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U. S. Food and Drug Administration
Center for Food Safety & Applied Nutrition
2002 Seafood List - Modified 1998-2002 from the 1993 Edition (Print Version)

Search the Seafood List

"The Seafood List" is a compilation of existing acceptable market names for imported and domestically available seafood as well as scientific names, common names, and known vernacular or regional names.

For Forms-based browsers, type the name of the fish or shellfish of interest in the form below and click on the "Search" button. You will receive a list of matches for all entries in the Seafood List that contain that name.

Search the List:

Certain Seafood List entries contain links to the [Regulatory Fish Encyclopedia](#). Selection of those links will take you to a page containing high resolution images and other information for that species. The Regulatory Fish Encyclopedia (RFE) is an experimental resource developed by the Seafood Products Research Center and Science Branch, Seattle District; the Office of Seafood, Center for Food Safety and Applied Nutrition; and the Seafood Laboratory and Science Branch, San Francisco District.

"The Seafood List" is a compilation of existing acceptable market names for imported and domestically available seafood. It is advisable to use either the Acceptable Market Name or the Common Name in labeling seafood products which will help assure that identity labeling of the seafood will comply with FDA and NMFS regulations. **Use of the vernacular name is not encouraged, and may cause the seafood to be misbranded.** For additional information regarding the list please contact Spring Randolph (srandolph@cfsan.fda.gov), Office of Seafood.

"The Seafood List" is a compilation of existing acceptable market names for imported and domestically available seafood. The list was developed by the Food and Drug Administration (FDA), in cooperation with the National Marine Fisheries Service (NMFS). Its purpose is to promote uniformity in the use of FDA acceptable market names by the fish industry, and to provide consistent advice on these names. The list represents an extensive, although not necessarily complete, listing of seafood commonly sold in the United States.

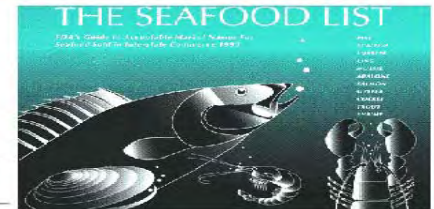
In determining which seafood species would be included, and what market names would be acceptable, the following criteria were used:

1. The seafood species is currently sold in interstate commerce in the United States or has a strong potential for sale.
2. The seafood species is not listed as endangered.
3. The seafood species is not prohibited by law from sale in interstate commerce.
4. Common and/or market names already prescribed by federal regulation have been incorporated into the list.

The references used in determining scientific and common names included the American Fisheries Society Publications, [Common and Scientific Names of Fishes from the United States and Canada](#), [World Fishes Important to North America, Exclusive of Species from Continental Waters of the United States and Canada](#), and [Common and Scientific Names of Aquatic Invertebrates from the United States and Canada for Mollusk and Decapod Crustacean, Lobsters of the World](#), Dr. Austin B. Williams; Food and Agriculture Organization (FAO) species catalogs and or species identifications sheets and source

Done

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Salmon Varieties

Market Name: *Species Name*

1. King, Chinook or Spring: *Oncorhynchus tshawytscha*
2. Coho, Silver or Medium Red: *Oncorhynchus kisutch*
3. Sockeye or Red: *Oncorhynchus nerka*
4. Chum or Silverbright or Dog: *Oncorhynchus keta*
5. Pink or Humpback: *Oncorhynchus gorbuscha*
6. Steelhead: *Oncorhynchus mykiss*
7. Atlantic: *Salmo salar*

Salmon Species Names



- **Market name (s)**
 - Salmon, Chinook or King or Spring
- **Scientific name**
 - *Oncorhynchus tshawytscha*
- **Common name**
 - Chinook Salmon
- **Vernacular name (s)**
 - Tee Salmon
 - Winter Salmon
 - Quinnat Salmon
 - King Salmon
 - Spring Salmon



- **Market name (s)**
 - Salmon, Atlantic
- **Scientific name**
 - *Salmo salar*
- **Common name**
 - Atlantic Salmon
- **Vernacular name (s)**
 - Sea Salmon
 - Kennebec
 - Sebago Salmon
 - Black Salmon

Seafood Hazards Addressed by Hazard Analysis and Critical Control Point (HACCP)

- Biological
- Chemical
- Physical



FDA Hazards Guide

<http://www.cfsan.fda.gov/~comm/haccp4.html>

The screenshot shows a web browser window with the title "FDA/CFSAN Fish and Fisheries Products Hazards and Controls Guidance: 3rd Ed., Table of Contents - Mozilla Firefox". The address bar shows the URL "http://www.cfsan.fda.gov/~comm/haccp4.html". The page content includes the title "U.S. Food & Drug Administration Center for Food Safety & Applied Nutrition FISH AND FISHERIES PRODUCTS HAZARDS AND CONTROLS GUIDANCE Third Edition June 2001" and a "TABLE OF CONTENTS" section. Below the table of contents, a disclaimer states: "This guidance represents the agency's current thinking on the hazards associated with fish and fishery products and appropriate controls for those hazards. It does not create or confer any rights for or on any person and does not operate to bind FDA or the public. An alternative approach may be used if such approach satisfies the requirements of the applicable statute and regulations." The table of contents lists 18 chapters, each with a link to the full document (e.g., "Introduction", "Steps in Developing Your HACCP Plan", "Potential Species -Related & Process-Related Hazards", etc.).

**U.S. Food & Drug Administration
Center for Food Safety & Applied Nutrition
FISH AND FISHERIES PRODUCTS
HAZARDS AND CONTROLS GUIDANCE
Third Edition June 2001**

TABLE OF CONTENTS

This guidance represents the agency's current thinking on the hazards associated with fish and fishery products and appropriate controls for those hazards. It does not create or confer any rights for or on any person and does not operate to bind FDA or the public. An alternative approach may be used if such approach satisfies the requirements of the applicable statute and regulations.

Chapter 1:	Introduction	(also available in PDF)
Chapter 2:	Steps in Developing Your HACCP Plan	(also available in PDF)
Chapter 3:	Potential Species -Related & Process-Related Hazards	(also available in PDF)
Chapter 4:	Pathogens From the Harvest Area	(also available in PDF)
Chapter 5:	Parasites	(also available in PDF)
Chapter 6:	Natural Toxins	(also available in PDF)
Chapter 7:	Scombrototoxin (Histamine) Formation	(also available in PDF)
Chapter 8:	Other Decomposition-Related Hazards	(also available in PDF)
Chapter 9:	Environmental Chemical Contaminants & Pesticides	(also available in PDF)
Chapter 10:	Methyl Mercury	(also available in PDF)
Chapter 11:	Aquaculture Drugs	(also available in PDF)
Chapter 12:	Pathogen Growth & Toxin Formation (Other than <i>Clostridium botulinum</i>) as a Result of Time/Temperature Abuse	(also available in PDF)
Chapter 13:	Clostridium botulinum Toxin Formation	(also available in PDF)
Chapter 14:	Pathogen Growth & Toxin Formation as a Result of Inadequate Drying	(also available in PDF)
Chapter 15:	Staphylococcus aureus Toxin Formation in Hydrated Batter Mixes	(also available in PDF)
Chapter 16:	Pathogen Survival Through Cooking	(also available in PDF)
Chapter 17:	Pathogen Survival Through Pasteurization	(also available in PDF)
Chapter 18:	Introduction of Pathogens After Pasteurization and Specialized Cooking Processes	(also available in PDF)

FDA Hazards Guide Vertebrates

<http://www.cfsan.fda.gov/~comm/haccp4c1.html>

FDA/CFSAN Fish and Fisheries Products Hazards & Controls Guidance: 3rd Ed., Table 3-1; Potential Vertebrate Species Related Hazards - Mozilla Firefox

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Go <http://www.cfsan.fda.gov/~comm/haccp4c1.html>

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University of California: Fish Update Program FDA/CFSAN Fish and Fisheries Products

U.S. Food & Drug Administration
Center for Food Safety & Applied Nutrition
**FISH AND FISHERIES PRODUCTS
HAZARDS AND CONTROLS GUIDANCE:**
Third Edition June 2001

CHAPTER 3

Potential Species-Related & Process-Related Hazards

(Return to [table of contents](#).)

TABLE 3-1

POTENTIAL VERTEBRATE SPECIES RELATED HAZARDS

Note: ASP = amnesic shellfish poison; CFP = ciguatera fish poison; G = gempylotoxin; PSP = paralytic shellfish poison; T = tetrodotoxin.

Note: This table does not provide information about methyl mercury, which may be a potential species related hazard in some species of vertebrate fish. FDA policy concerning this matter is under re-evaluation. See Chapter 10 (Methyl Mercury) for further information.

MARKET NAMES	LATIN NAMES	HAZARDS				
		BIOLOGICAL	CHEMICAL			
		Parasites	Natural Toxins	Histamine	Chemical	Drugs
		CHP 5	CHP 6 CFP	CHP 7	CHP 9	CHP 11
AHOLEHOLE	<i>Kuhlia spp.</i>					
ALEWIFE or RIVER HERRING	<i>Alosa pseudoharengus</i>			x	x	
ALFONSINO	<i>Beryx spp.</i>					
	<i>Trachichthodes spp.</i>					
ALLIGATOR	<i>Alligator mississippiensis</i>				x	
	<i>Alligator sienensis</i>				x	
ALLIGATOR AQUACULTURED	<i>Alligator mississippiensis</i>				x	x
	<i>Alligator sienensis</i>				x	x
AMBERJACK or YELLOWTAIL	<i>Seriola spp.</i>		CFP	x		
	<i>Anchoa spp.</i>		ASP ⁽⁶⁾	x		
	<i>Anchoviella spp.</i>		ASP ⁽⁶⁾	x		

Done

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FDA Hazards Guide Invertebrates

<http://www.cfsan.fda.gov/~comm/haccp4c2.html>

FDA/CFSAN Fish and Fisheries Products Hazards & Controls Guidance: 3rd Ed., Table 3-2; Potential Invertebrate Species Related Hazards - Mozilla Firefox

http://www.cfsan.fda.gov/~comm/haccp4c2.html

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University of California: Fish Update Program | FDA/CFSAN Fish and Fisheries Produc...

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Center for Food Safety & Applied Nutrition
**FISH AND FISHERIES PRODUCTS
HAZARDS AND CONTROLS GUIDANCE:**
Third Edition June 2001

CHAPTER 3
Potential Species-Related & Process-Related Hazards
(Return to [table of contents](#).)
TABLE 3-2
POTENTIAL INVERTEBRATE SPECIES RELATED HAZARDS

MARKET NAMES	LATIN NAMES	HAZARDS				
		BIOLOGICAL		CHEMICAL		
		Pathogens CHP 4	Parasites CHP 5	Natural Toxins CHP 6	Chemical CHP 9	Drugs CHP 11
ABALONE	<i>Haliotis spp</i>				x	
	<i>Marinaurris roei</i>				x	
	<i>Notohaliotis ruber</i>				x	
	<i>Schismotis laevigata</i>				x	
AQUACULTURED INVERTEBRATES	ALL SPECIES	x		x	x	x
ARKSHELL	<i>Anadara subcrenata</i>	x		x	x	
	<i>Arca spp.</i>	x		x	x	
CLAM, BENTNOSE	<i>Macoma nasuta</i>	x		x	x	
CLAM BUTTER	<i>Saxidomus spp.</i>	x		x	x	
CLAM, CALICO	<i>Macrocallista maculata</i>	x		x	x	
CLAM, GEODUCK	<i>Panopea abrupta</i>	x		x	x	
	<i>Panopea bitruncata</i>	x		x	x	
	<i>Arctica islandica</i>	x		x	x	
CLAM, HARD	<i>Meretricinae spp.</i>	x		x	x	
	<i>Mytilus spp.</i>	x		x	x	

Done

start | 11 Mic... | EXT_250... | 3 Firefox | Microsoft... | 3 Micros... | Species I...

3:30 PM

FDA Hazards Guide

FDA & EPA Safety Levels in Regulations and Guidance

<http://www.cfsan.fda.gov/~comm/haccp4x5.html>

U.S. Food & Drug Administration
Center for Food Safety & Applied Nutrition
**FISH AND FISHERIES PRODUCTS
HAZARDS AND CONTROLS GUIDANCE:**
Third Edition June 2001

APPENDIX 5

FDA & EPA Safety Levels in Regulations and Guidance

(Return to [table of contents](#).)

This appendix contains a listing of FDA and EPA levels relating to safety attributes of fish and fishery products published in regulations and guidance. In many cases, these levels represent the point at or above which the agency will take legal action to remove products from the market. Consequently, the levels contained in this table may not always be suitable for critical limits.

Table A-5

FDA & EPA Safety Levels in Regulations and Guidance

Product	Level	Reference
Ready to eat fishery products (minimal cooking by consumer)	Enterotoxigenic <i>Escherichia coli</i> (ETEC) - 1×10^3 ETEC/g, LT or ST positive.	Compliance Program 7303.842
Ready to eat fishery products (minimal cooking by consumer)	<i>Listeria monocytogenes</i> -presence of organism.	Compliance Program 7303.842
All fish	<i>Salmonella</i> species- presence of organism.	Sec 555.300 Compliance Policy Guide
All fish	1. <i>Staphylococcus aureus</i> - positive for staphylococcal enterotoxin, or 2. <i>Staphylococcus aureus</i> level is equal to or greater than 10^4 /g (MPN).	Compliance Program 7303.842
Ready to eat fishery products (minimal cooking by consumer)	<i>Vibrio cholerae</i> - presence of toxigenic O1 or non-O1.	Compliance Program 7303.842
Ready to eat fishery products (minimal cooking by consumer)	<i>Vibrio parahaemolyticus</i> -levels equal to or greater than 1×10^4 /g (Kanagawa positive or negative).	Compliance Program 7303.842

How Small is "Small"

"Chasing 'Zero' in Chemical Contaminant Analysis"

by J. W. DeVries, Food Safety Magazine, August/September 2006

Unit	1 ppm	1 ppb	1 ppt
Length	1 inch/16 miles	1 inch/16,000 miles	1 inch/16 million miles
Time	1 minute/2 years	1 second/32 years	1 second/320 centuries
Money	1 cent/\$10,000	1 cent/\$10 million	1 cent/\$10 billion
Area	1 foot ² /23 acres	1 foot ² /36 miles ²	1 inch ² /250 miles ²
Volume	1 drop vermouth in 80 liters gin	1 drop/500 barrels gin	1 drop/pool of gin covering football field 43 feet deep

Compendium of Fish and Fishery Product Processes Hazards and Controls

<http://seafood.ucdavis.edu/haccp/compendium/compend.htm>

Compendium of Fish and Fishery Product Processes, Hazards, and Controls

National Seafood HACCP Alliance for Training and Education

Home -> Seafood HACCP -> Compendium of Fish and Fishery Product Processes, Hazards, and Controls

Introduction: The "Compendium of Fish and Fishery Product Processing Methods, Hazards and Controls" is designed as a companion document to the U.S. Food and Drug Administration's "Fish and Fishery Products Hazards and Controls Guide" and the Seafood HACCP Alliance's "HACCP: Hazard Analysis Critical Control Point Training Curriculum." The Alliance intends to revise and reissue this Compendium from time to time as the state of knowledge advances relative to fish and fishery product processes, hazards and controls.

Seafood Processes and Controls

- Chapter 1: Acidified, Fermented, and Salted Fish and Fisheries Products (9/2/03)
- Chapter 2: Battered Fish and Fisheries Products (6/27/02)
- Chapter 3: Cooked Fish and Fishery Products (6/22/04)
- Chapter 4: Dried Fish and Fishery Products (6/28/02)
- Chapter 5: Pasteurized Fish and Fisheries Products (9/2/03)
- Chapter 6: Refrigerated Fish and Fisheries Products (7/1/02)
- Chapter 7: Smoked Fish and Fisheries Products (7/1/02)
- Chapter 8: Vacuum and Modified Atmosphere Packaged Fish and Fisheries Products (7/2/02)

Biological Hazards and Controls

- Chapter 9: Aerobic Plate Count (6/21/04)
- Chapter 10: *Bacillus cereus* (9/2/03)
- Chapter 11: *Campylobacter* spp. (9/2/03)
- Chapter 12: *Clostridium botulinum* (9/10/03)
- Chapter 13: *Clostridium perfringens* (9/2/03)
- Chapter 14: Coliforms, Fecal Coliforms, and *Escherichia coli* (6/21/04)
- Chapter 15: *Listeria monocytogenes* (9/2/03)
- Chapter 16: Parasites (9/2/03)
- Chapter 17: *Salmonella* spp. (9/2/03)
- Chapter 18: *Shigella* spp. (9/2/03)
- Chapter 19: *Staphylococcus aureus* (9/2/03)
- Chapter 20: *Vibrio* spp. (9/2/03)
- Chapter 21: *Yersinia enterocolitica* (9/2/03)

Chemical Hazards and Controls

- Chapter 22: Aquaculture Drugs (3/9/06)
- Chapter 23: Environmental Chemical Contaminants and Pesticides (5/8/03)
- Chapter 24: Food and Color Additives (7/3/02)
- Chapter 25: Methyl Mercury (7/3/02)
- Chapter 26: Natural Toxins (11/28/05)
- Chapter 27: Scombrototoxin (Histamine) Formation (11/11/04)

National Seafood Resource Sites

- Centers for Disease Control
 - Disease Listing; Marine Toxins; Parasitic Disease
- National Fisheries Institute
- National Sea Grant Library
- SafeOysters.org
- US Environmental Protection Agency
- US Food and Drug Administration
 - Seafood; Library of FDA and Non-FDA Resources; Bad Bug Book

CDC Disease Listing

<http://www.cdc.gov/ncidod/dbmd/diseaseinfo/>

The screenshot shows a Mozilla Firefox browser window displaying the CDC Disease Listing page. The address bar shows the URL <http://www.cdc.gov/ncidod/dbmd/diseaseinfo/>. The page header includes the CDC logo and the text "Department of Health and Human Services Centers for Disease Control and Prevention". A navigation bar contains links such as "Home", "About CDC", "Press Room", "Funding", "A-Z Index", "Centers, Institute & Offices", "Training & Employment", and "Contact Us". A search bar is also present. The main content area is titled "Division of Bacterial and Mycotic Diseases" and "Disease Listing". It features a sidebar with "Program Contents" (Topic Home, Programs, Offices, Disease Listing) and "Quick Links" (Get Smart on the Farm, CDC Foundation interview with Tom Chiller, etc.). The main content area lists diseases under the heading "A" (Active Bacterial Core Surveillance (ABCs), Anthrax, Antibiotic Resistance, Aspergillosis) and "B" (Bacterial Meningitis, Blastomycosis, Botulism, Brainerd Diarrhea, Brucellosis). Each disease entry includes links for "General Information", "Technical Information", and "Additional Information". A "Back to Top" link is also visible. The browser's status bar at the bottom shows the time as 4:40 PM.

CDC Marine Toxins

http://www.cdc.gov/ncidod/dbmd/diseaseinfo/marinetoxins_g.htm

The screenshot shows a Mozilla Firefox browser window displaying the CDC website. The address bar shows the URL: http://www.cdc.gov/ncidod/dbmd/diseaseinfo/marinetoxins_g.htm. The page title is "Disease Listing, Marine Toxins, General Information | CDC Bacterial, Mycotic Diseases". The CDC logo is visible, along with the text "Department of Health and Human Services" and "Centers for Disease Control and Prevention". A search bar is present. The main content area is titled "Division of Bacterial and Mycotic Diseases" and "Marine Toxins". It includes a "Frequently Asked Questions" section with links to various topics, a "What are marine toxins?" section, and a "What sort of diseases do marine toxins cause?" section. The "What are marine toxins?" section states: "Marine toxins are naturally occurring chemicals that can contaminate certain seafood. The seafood contaminated with these chemicals frequently looks, smells, and tastes normal. When humans eat such seafood, disease can result." The "What sort of diseases do marine toxins cause?" section states: "The most common diseases caused by marine toxins in United States in order of incidence are scombrotic fish poisoning, ciguatera poisoning, paralytic shellfish poisoning, neurotoxic shellfish poisoning and amnesic shellfish poisoning." The "Scombrotic fish poisoning" section states: "Scombrotic fish poisoning also known as scombroid or histamine fish poisoning, is caused by bacterial spoilage of certain finfish such as tuna, mackerel, bonito, and, rarely, other fish. As bacteria break down fish proteins, byproducts such as histamine and other substances that block histamine breakdown build up in fish. Eating spoiled fish that have high levels of these histamines can cause in human disease. Symptoms begin within 2 minutes to 2 hours after eating the fish." The browser's taskbar at the bottom shows various open applications, including Microsoft Office Word, Microsoft PowerPoint, and the Disease Listing page.

Disease Listing, Marine Toxins, General Information | CDC Bacterial, Mycotic Diseases - Mozilla Firefox

File Edit View Go Bookmarks Tools Help

http://www.cdc.gov/ncidod/dbmd/diseaseinfo/marinetoxins_g.htm

SeafoodNIC Home Page | Email Postmaster's Of... | UC Davis - University... | MyAHR Portal | Food Safety Network | Free Translation and... | Merriam-Webster Online | HTML Style Sheets -... | Microsoft Office Train...

Centers for Disease Control and Prevention | Main, Graduate School of Public Health, San... | Disease Listing, Marine Toxins, Gener...

Home | About CDC | Press Room | Funding | A-Z Index | Centers, Institute & Offices | Training & Employment | Contact Us

CDC Department of Health and Human Services
Centers for Disease Control and Prevention

Search:

Health & Safety Topics | **Publications & Products** | **Data & Statistics** | **Conferences & Events**

Program Contents

- > [Topic Home](#)
- > [Programs](#)
- > [Offices](#)
- > [Disease Listing](#)

Quick Links

Get Smart on the Farm
11 Aug 2005
CDC Foundation interview with Tom Chiller, epidemiologist and medical director of CDC's Get Smart on the Farm program.

Contact Info
1600 Clifton Road NE, MS-D63
Atlanta, GA 30333
Phone: + 1-800-311-3435
[Email Us](#)

Division of Bacterial and Mycotic Diseases

[Home](#) > [Home](#) > [Disease Listing](#) > [Marine Toxins](#)

Marine Toxins

[Disease Listing](#) | [General Information](#) | [Technical Information](#) | [Additional Information](#)

Frequently Asked Questions

- [What are marine toxins?](#)
- [What sort of diseases do marine toxins cause?](#)
- [How can these diseases be diagnosed?](#)
- [How can these diseases be treated?](#)
- [Are there long-term consequences to these diseases?](#)
- [How common are these diseases?](#)
- [What can I do to prevent poisoning by marine toxins?](#)
- [What is the government doing about these diseases?](#)
- [What else can be done to prevent these diseases?](#)
- [How can I learn more about this and other public health problems?](#)

What are marine toxins?

Marine toxins are naturally occurring chemicals that can contaminate certain seafood. The seafood contaminated with these chemicals frequently looks, smells, and tastes normal. When humans eat such seafood, disease can result.

What sort of diseases do marine toxins cause?

The most common diseases caused by marine toxins in United States in order of incidence are scombrotic fish poisoning, ciguatera poisoning, paralytic shellfish poisoning, neurotoxic shellfish poisoning and amnesic shellfish poisoning.

Scombrotic fish poisoning also known as scombroid or histamine fish poisoning, is caused by bacterial spoilage of certain finfish such as tuna, mackerel, bonito, and, rarely, other fish. As bacteria break down fish proteins, byproducts such as histamine and other substances that block histamine breakdown build up in fish. Eating spoiled fish that have high levels of these histamines can cause in human disease. Symptoms begin within 2 minutes to 2 hours after eating the fish.

Find: public he

Done

start | Microsoft Office Word | EXT_250GB (G:) | 2006-07 Media... | K Willey Nomina... | Microsoft Powe... | Disease Listing,...

2:24 PM

CDC Parasitic Disease Information

<http://www.cdc.gov/NCIDOD/DPD/parasites/listing.htm>

The screenshot shows a Microsoft Internet Explorer browser window displaying the CDC Parasitic Disease Information website. The address bar shows the URL <http://www.cdc.gov/NCIDOD/DPD/parasites/listing.htm>. The website header includes the CDC logo and the text "Division of Parasitic Diseases" and "Parasitic Disease Information". A navigation menu on the left lists links such as Home, Professional Info, Public Info, About DPD, Announcements, Recent Publications, DPD Search, and DPDx-Lab Assist. The main content area is titled "Alphabetical Listing" and includes a link to "Travel". Below this, a bold instruction states: "For more information on a particular parasitic disease, please select from the list below." A row of letters (A through Z) is displayed, with 'A' highlighted. Under the 'A' section, three links are listed: "Acanthamoeba Infection", "African Sleeping Sickness (Trypanosomiasis, Sleeping Sickness)", and "Alveolar Echinococcosis". The taskbar at the bottom shows the Start button and several open applications, including TRAVEL, Microsoft Excel, Microsoft PowerPoint, and Internet Explorer. The system clock indicates 10:07 AM.

Division of Parasitic Diseases - Alphabetical Listing - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Search Favorites

Address <http://www.cdc.gov/NCIDOD/DPD/parasites/listing.htm> Go Links

CDC
SAFER • HEALTHIER • PEOPLE™

DPD

Home
Professional Info
Public Info
About DPD
Announcements
Recent Publications
DPD Search
DPDx-Lab Assist.

Division of Parasitic Diseases
Parasitic Disease Information

Alphabetical Listing | [Travel](#)

Alphabetical Listing

For more information on a particular parasitic disease, please select from the list below.

[A](#) [B](#) [C](#) [D](#) [E](#) [F](#) [G](#) [H](#) [I](#) [J](#) [K](#) [L](#) [M](#) [N](#) [O](#) [P](#) [Q](#) [R](#) [S](#) [T](#) [U](#) [V](#)
[W](#) [X](#) [Y](#) [Z](#)

A

[Acanthamoeba Infection](#)

[African Sleeping Sickness](#) (Trypanosomiasis, Sleeping Sickness)

[Alveolar Echinococcosis](#)

Done Internet

start TRAVEL Microsoft Excel - Co... Microsoft PowerPoin... Internet Explorer 10:07 AM

National Fisheries Institute

<http://www.aboutseafood.com>



National Fisheries Institute

<http://www.aboutseafood.com/media/media.cfm>



National Sea Grant

<http://www.seagrants.noaa.gov/colleges/colleges.html>



National Sea Grant Library

<http://nsgl.gso.uri.edu/search>



SafeOysters.org

<http://safeoysters.org>

SafeOysters.org - Raw Oyster Safety and Marine-Related Wound Exposure to *V. vulnificus* - Mozilla Firefox

File Edit View Go Bookmarks Tools Help

http://safeoysters.org/

SeafoodNIC Home Page EMail Postmaster's Of... UC Davis - University ... MyANR Portal Food Safety Network Free Translation and ... Merriam-Webster Online NewsVoyager.com Team in Training

SafeOysters.org

Vibrio vulnificus infection from consumption of raw shellfish or marine-related wounds

Health Care Professionals

Introduction • Diagnosis • High-Risk Patients • Modes of Infection • Prevention • Public Health Impact • Resources • Symptoms • Treatment

MEETINGS: Visit our exhibit (booth #111) at the 57th Annual Meeting of the American Association for the Study of Liver Diseases, Oct. 27-31, 2006, Boston, MA

Food and Health Educators

Introduction • Resources

MEETINGS: Visit our exhibit and booth at the Reaching At-Risk Audiences Food Safety Education Conference, Sept. 27-29, 2006, Denver, CO

Consumers

Introduction • Buying • Storing • Cooking • Eating • PHP Oysters

Translated into: Spanish • Vietnamese

Fishermen

Introduction • Recreational Shellfishing

Translated into: Spanish • Vietnamese

Health Alerts: *Vibrio* spp.: Two species of *Vibrio* (*Vibrio vulnificus* and *Vibrio parahaemolyticus*) are in the news. SafeOysters.org focuses on *Vibrio vulnificus*. While *V. vulnificus* and *V. parahaemolyticus* can cause mild gastrointestinal disorders in healthy individuals, older persons and those with weak immune systems are at greater risk for serious illness, such as septicemia (infection of the blood system). SafeOysters.org serves as a primary resource on *Vibrio vulnificus*.

- FDA Updates Consumer Advisory to Avoid Certain Raw Shellfish from the Pacific Northwest (US Food and Drug Administration, Aug. 11, 2006)
- Rhode Island Department of Health reports first case of *Vibrio vulnificus* infection from marine water and issues consumer advisory (RIDH, Aug. 8, 2006)
- *Vibrio parahaemolyticus* Infections Associated with Consumption of Raw Shellfish - Three States, 2006 (CDC, Aug. 8, 2006)

Done

start [taskbar icons] 4:43 PM

US Environmental Protection Agency

<http://www.epa.gov/mercury/advisories.htm>

The screenshot shows a web browser window titled "EPA: Mercury: Fish Consumption Advisories - Mozilla Firefox". The address bar displays the URL "http://www.epa.gov/mercury/advisories.htm". The page features the EPA logo and the text "U.S. Environmental Protection Agency". A search bar is present with the text "Mercury" and a "GO" button. Below the search bar, there are navigation tabs for "Mercury Home", "Consumers", "Parents", "Schools", "Health Care Providers", "Business & Industry", and "En español". The main heading is "Fish Consumption Advisories". The text explains that fish are important in a healthy diet but may contain methylmercury or other harmful chemicals. It provides information on how to get the positive health benefits from eating fish and shellfish while minimizing mercury exposure. Links are provided for "HTML version", "PDF version", "EPA's Fish Consumption Advisories Web site", "National Listing of Fish and Wildlife Advisories", "Seafood Information and Resources", "Seafood Consumer Advice", "Mercury Update: Impact on Fish Advisories", "The Mercury Study Report to Congress", and "Great Lakes Information Network's Fish Consumption Advisories". The footer includes "EPA Home | Privacy and Security Notice | Contact Us" and "Last updated on Wednesday, July 5th, 2006".

Mercury

[Contact Us](#) | [Print Version](#) | Search:

[EPA Home](#) > [Mercury](#) > Fish Consumption Advisories

[Mercury Home](#) | [Consumers](#) | [Parents](#) | [Schools](#) | [Health Care Providers](#) | [Business & Industry](#) | [En español](#)

Fish Consumption Advisories

Fish are important in a healthy diet. They are a lean, low-calorie source of protein. However, some fish may contain methylmercury or other harmful chemicals at sufficiently high levels to be a concern. Federal, state and local governments issue fish consumption advisories when the fish are unsafe to eat. The advisories may suggest that people avoid eating certain kinds or certain amounts of fish. Some advisories apply to specific water types (like lakes). Some may focus on groups of particularly sensitive people. Some advisories include notices of "no restriction" to tell us that certain fish are safe to eat. As states increase the waters they monitor for contaminated fish, both the number of advisories and the waters where it is safe to eat fish are increasing. Visit the links below to learn more about mercury in fish, fish consumption advisories, and state fish advisories.

If you are concerned for your health or your family's as a result of exposure to mercury, get in touch with your health care provider. They will be able to tell you if mercury exposure is a problem for you and what to do about it.

EPA-FDA Joint Federal Advisory for Mercury in Fish: "What You Need to Know About Mercury in Fish and Shellfish" - The purpose of the advisory is to inform women who may become pregnant, pregnant women, nursing mothers and the parents of young children on how to get the positive health benefits from eating fish and shellfish, while minimizing their mercury exposure.

- [HTML version](#)
- [PDF version](#) (2 pp., 234K, [About PDF Files](#))

[EPA's Fish Consumption Advisories Web site](#) - This site provides general information on fish advisories, public information materials, technical guidance documents, and related links. The site includes a state-by-state map that provides links to [state, tribal and territorial fish advisory programs](#).

[National Listing of Fish and Wildlife Advisories](#) - This detailed and technical database contains information on specific bodies of water, contaminants, and species of fish. The database includes a [state-by-state list of contacts and Web sites](#) that can provide you with more information.

[Seafood Information and Resources](#) - U.S. Food and Drug Administration's food information about the risks of methylmercury in fish and shellfish. You can also access this information toll-free at 1-888-SAFEFOOD.

[Seafood Consumer Advice](#) - FoodSafety.gov, the gateway to government food safety information, provides general information on seafood safety.

[Mercury Update: Impact on Fish Advisories](#) (PDF, 10pp., 69K) - Note: This mercury fact sheet is provided for reference purposes only. Although the information provided here was accurate and current when created in June 2001, it is now outdated. We plan to update this fact sheet in 2005.

[The Mercury Study Report to Congress \(Volume IV: An Assessment of Exposure to Mercury in the United States\)](#) (PDF, 293 pp., 1MB) - EPA prepared this report to fulfill requirements of the Clean Air Act Amendments of 1990. Published in 1997, it is an eight volume assessment of the magnitude of U.S. mercury emissions by source, the health and environmental impacts of those emissions; and the availability and cost of control technologies.

[Great Lakes Information Network's Fish Consumption Advisories](#) [\[EXIT Disclaimer\]](#)

[Top of page](#)

[EPA Home](#) | [Privacy and Security Notice](#) | [Contact Us](#)

Last updated on Wednesday, July 5th, 2006
URL: <http://www.epa.gov/mercury/advisories.htm>

FDA Seafood Information

<http://www.cfsan.fda.gov/seafood1.html>

The screenshot shows a Mozilla Firefox browser window displaying the "US FDA/CFSAN Seafood Information and Resources" page. The address bar shows the URL <http://www.cfsan.fda.gov/seafood1.html>. The page header includes the FDA logo, the text "U.S. Food and Drug Administration", and "CENTER FOR FOOD SAFETY AND APPLIED NUTRITION". Below the header, there are navigation links: "FDA Home Page", "CFSAN Home", "Search/Subject Index", "Q & A", and "Help". The main heading is "Seafood Information and Resources". Underneath, there are links for "Background", "Foodborne Pathogens and Contaminants (including Methylmercury & *Vibrio vulnificus* and *parahaemolyticus*)", "HACCP", "Inspections, Compliance, Imports and Exports", "Federal State Programs", and "Other Sources". The "Background" section is expanded, showing a list of links: "Definition of Seafood", "Overview of Seafood Program (also available in other languages)", "Office of Seafood Organization", "Consumer Advice and Toll Free Information Line: 1-888-SAFEFOOD", and "Testimony May 22, 1996 before Subcommittee on Livestock, Dairy and Poultry, Committee on Agriculture US House of Representatives". The "Foodborne Pathogens and Contaminants" section is also expanded, showing a list of links: "Fresh and Frozen Seafood: Selecting and Serving it Safely August 2006 NEW", "Methylmercury", "FDA and EPA Announce the Revised Consumer Advisory on Methylmercury in Fish March 19, 2004", "What You Need to Know About Mercury in Fish and Shellfish March 19, 2004 (also available as a brochure)", "Backgrounder for the 2004 FDA/EPA Consumer Advisory: What You Need to Know About Mercury in Fish and Shellfish March 19, 2004", "Mercury Levels in Commercial Fish and Shellfish March 19, 2004; Updated January 2006", "Mercury in Fish: FDA Monitoring Program (1990-2004) March 19, 2004; Updated January 2006", "Methylmercury in Fish - Summary of Key Findings from Focus Groups about the Methylmercury Advisory March 2005", "FDA Announces Comprehensive Foods Advisory on Methylmercury December 10, 2003", "Draft Advice for Women Who are Pregnant, or Who Might Become Pregnant, and Nursing Mothers, about Avoiding Harm to Your Baby or Young Child From Mercury in Fish and Shellfish December 2003", "Overview of the Draft FDA/EPA Methylmercury (MeHg) Consumer Advisory December 2003", "Peer Review of 'An Intervention Analysis of Exposure to Methylmercury for Consumption of Seafood' August 2003", "An Intervention Analysis for the Reduction of Exposure to Methylmercury from the Consumption of Seafood by Women of Child-bearing Age (available in PDF and Word) November 2003", "FDA and EPA Development of a Joint Advisory for Methylmercury-containing Fish Consumption for Women of Childbearing Age and Children -- July 29-31, 2003", "Summary of the Main Comments from the Four Meetings", "Slide Presentation at the Meeting", and "List of Meeting Attendees". The browser's taskbar at the bottom shows various open applications and the system clock indicating 4:41 PM.

US FDA/CFSAN Seafood Information and Resources - Mozilla Firefox

File Edit View Go Bookmarks Tools Help

<http://www.cfsan.fda.gov/seafood1.html>

SeafoodNIC Home Page | Email Postmaster's Of... | UC Davis - University... | MyANR Portal | Food Safety Network | Free Translation and... | Merriam-Webster Online | NewsVoyager.com | Team in Training

Gmail - Inbox (1) | US FDA/CFSAN Seafood Information ...

U.S. Food and Drug Administration
CENTER FOR FOOD SAFETY AND APPLIED NUTRITION

[FDA Home Page](#) | [CFSAN Home](#) | [Search/Subject Index](#) | [Q & A](#) | [Help](#)

Seafood Information and Resources

[Background](#) | [Foodborne Pathogens and Contaminants \(including Methylmercury & *Vibrio vulnificus* and *parahaemolyticus*\)](#) | [HACCP](#) | [Inspections, Compliance, Imports and Exports](#) | [Federal State Programs](#) | [Other Sources](#)

Background

- [Definition](#) of Seafood
- [Overview of Seafood Program](#) (also available in [other languages](#))
- [Office of Seafood Organization](#)
- [Consumer Advice](#) and Toll Free Information Line: 1-888-SAFEFOOD
- [Testimony May 22, 1996](#) before Subcommittee on Livestock, Dairy and Poultry, Committee on Agriculture US House of Representatives

Foodborne Pathogens and Contaminants

- [Fresh and Frozen Seafood: Selecting and Serving it Safely](#) August 2006 **NEW**
- **Methylmercury**
 - [FDA and EPA Announce the Revised Consumer Advisory on Methylmercury in Fish](#) March 19, 2004
 - [What You Need to Know About Mercury in Fish and Shellfish](#) March 19, 2004 (also available as a [brochure](#))
 - [Backgrounder for the 2004 FDA/EPA Consumer Advisory: What You Need to Know About Mercury in Fish and Shellfish](#) March 19, 2004
 - [Mercury Levels in Commercial Fish and Shellfish](#) March 19, 2004; Updated January 2006
 - [Mercury in Fish: FDA Monitoring Program \(1990-2004\)](#) March 19, 2004; Updated January 2006
 - [Methylmercury in Fish - Summary of Key Findings from Focus Groups about the Methylmercury Advisory](#) March 2005
 - [FDA Announces Comprehensive Foods Advisory on Methylmercury](#) December 10, 2003
 - [Draft Advice for Women Who are Pregnant, or Who Might Become Pregnant, and Nursing Mothers, about Avoiding Harm to Your Baby or Young Child From Mercury in Fish and Shellfish](#) December 2003
 - [Overview of the Draft FDA/EPA Methylmercury \(MeHg\) Consumer Advisory](#) December 2003
 - [Peer Review of "An Intervention Analysis of Exposure to Methylmercury for Consumption of Seafood"](#) August 2003
 - [An Intervention Analysis for the Reduction of Exposure to Methylmercury from the Consumption of Seafood by Women of Child-bearing Age](#) (available in [PDF](#) and [Word](#)) November 2003
 - [FDA and EPA Development of a Joint Advisory for Methylmercury-containing Fish Consumption for Women of Childbearing Age and Children -- July 29-31, 2003](#)
 - [Summary of the Main Comments from the Four Meetings](#)
 - [Slide Presentation at the Meeting](#)
 - [List of Meeting Attendees](#)

FDA and Non-FDA Seafood Resources

<http://www.cfsan.fda.gov/~frf/sfinfo.html>

The screenshot shows a Mozilla Firefox browser window displaying the FDA/CFSAN website. The address bar shows the URL <http://www.cfsan.fda.gov/~frf/sfinfo.html>. The website header features the FDA logo, the text "U.S. Food and Drug Administration", and "CENTER FOR FOOD SAFETY AND APPLIED NUTRITION". Below the header, the page title is "Library of FDA and Non-FDA Seafood, Seafood Safety, and Ichthyology Resources". The main content area is titled "FDA Seafood and Seafood Safety Resources" and contains a list of links: "FDA's Information for FDA-Regulated Industry and Industry Portal", "FDA Guidance Documents and Publications for Seafood", "FDA/CFSAN Seafood HACCP Information", "FDA/CFSAN Seafood Information page", "FDA/CFSAN Searchable Seafood List", "FDA's Regulatory Fish Encyclopedia (RFE)", and "USDA/FDA Foodborne Illness Education Information Center". A note indicates that the site replaces FDA's Publication 2 or "The Blue Book" which has been discontinued as of October 2002. Below the links, there is a "Please Read this DISCLAIMER" link. The page also includes sections for "Non-FDA Seafood and Ichthyology Resources and Guest Images" and "Meetings and Conferences on Seafood and Seafood Safety", with a link to "Harmful Algae Management and Mitigation". The bottom of the browser window shows the Windows taskbar with various application icons and the system clock displaying 4:42 PM.

FDA/CFSAN - Library of FDA and Non-FDA Seafood and Ichthyology Resources - Mozilla Firefox

File Edit View Go Bookmarks Tools Help

<http://www.cfsan.fda.gov/~frf/sfinfo.html>

SeafoodNIC Home Page | Email Postmaster's Of... | UC Davis - University ... | MyANR Portal | Food Safety Network | Free Translation and ... | Merriam-Webster Online | NewsVoyager.com | Team in Training

Gmail - Inbox (1) | FDA/CFSAN - Library of FDA and Non-...

U.S. Food and Drug Administration
CENTER FOR FOOD SAFETY AND APPLIED NUTRITION

[FDA Home Page](#) | [CFSAN Home](#) | [Search/Subject Index](#) | [Q & A](#) | [Help](#)

**Library of FDA and Non-FDA
Seafood, Seafood Safety, and Ichthyology Resources**

FDA Seafood and Seafood Safety Resources

- [FDA's Information for FDA-Regulated Industry and Industry Portal](#)
Note: This site replaces FDA's Publication 2 or "The Blue Book" which has been discontinued as of October 2002)
- [FDA Guidance Documents and Publications for Seafood](#)
- [FDA/CFSAN Seafood HACCP Information](#)
- [FDA/CFSAN Seafood Information page](#)
- [FDA/CFSAN Searchable Seafood List](#)
- [FDA's Regulatory Fish Encyclopedia \(RFE\)](#): Fish and Marketed Product Form Images, Species Identification Tools, and Taxonomic Information
- [USDA/FDA Foodborne Illness Education Information Center](#): Extensive HACCP information and other seafood information sites. Co-sponsored by USDA, FDA, NAL, and FSIS

Please Read this [DISCLAIMER](#).

Non-FDA Seafood and Ichthyology Resources and Guest Images

Meetings and Conferences on Seafood and Seafood Safety

- [Harmful Algae Management and Mitigation](#)
Program and Abstracts for the Second International Conference, 12-16 November 2001, Qingdao, China
Program and Abstracts for the First International Conference, 10-14 May 1999, Subic Bay, Philippines

Done

start | 10 M... | 5 Fi... | 3 Mi... | meet... | Food... | Adob... | W... | Micro... | Micro... | 4:42 PM

FDA Bad Bug Book

<http://www.cfsan.fda.gov/~mow/intro.html>

The screenshot shows a Mozilla Firefox browser window displaying the FDA Bad Bug Book website. The browser's address bar shows the URL <http://www.cfsan.fda.gov/~mow/intro.html>. The website header features the FDA Centennial logo (1905-2005) and the text "U.S. Food and Drug Administration" and "CENTER FOR FOOD SAFETY AND APPLIED NUTRITION". Below this, a light blue box contains the text "Bad Bug Book" and "Foodborne Pathogenic Microorganisms and Natural Toxins Handbook". The main heading is "The 'Bad Bug Book'", with a link to "Print Entire Document". A paragraph of text follows, stating that the handbook provides basic facts on foodborne pathogens and toxins, and that recent articles from Morbidity and Mortality Weekly Reports have been added. A section titled "PATHOGENIC BACTERIA" lists various bacteria, including *Salmonella* spp., *Clostridium botulinum*, *Staphylococcus aureus*, *Campylobacter jejuni*, *Yersinia enterocolitica* and *Yersinia pseudotuberculosis*, *Listeria monocytogenes*, *Vibrio cholerae* O1, *Vibrio cholerae* non-O1, *Vibrio parahaemolyticus* and other vibrios, *Vibrio vulnificus*, *Clostridium perfringens*, *Bacillus cereus*, *Aeromonas hydrophila* and other spp., *Plesiomonas shigelloides*, *Shigella* spp., *Miscellaneous enterics*, and *Streptococcus*. Below this list, the heading "ENTEROVIRULENT ESCHERICHIA COLI GROUP (EEC Group)" is visible. The browser's taskbar at the bottom shows several open applications, including Microsoft Word, Adobe Acrobat, and Microsoft Excel, along with the system clock showing 12:10 PM.

US FDA/CFSAN - Bad Bug Book: Introduction to Foodborne Pathogenic Microorganisms and Natural Toxins - Mozilla Firefox

File Edit View Go Bookmarks Tools Help

<http://www.cfsan.fda.gov/~mow/intro.html>

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Bad Bug Book

Foodborne Pathogenic Microorganisms and Natural Toxins Handbook

The "Bad Bug Book"
[Print Entire Document](#)

This handbook provides basic facts regarding foodborne pathogenic microorganisms and natural toxins. It brings together in one place information from the Food & Drug Administration, the Centers for Disease Control & Prevention, the USDA Food Safety Inspection Service, and the National Institutes of Health.

Some technical terms have been linked to the National Library of Medicine's Entrez glossary. Recent articles from Morbidity and Mortality Weekly Reports have been added to selected chapters to update the handbook with information on later outbreaks or incidents of foodborne disease. At the end of selected chapters on pathogenic microorganisms, hypertext links are included to relevant Entrez abstracts and GenBank genetic loci. A more complete description of the handbook may be found in the [Preface](#).

PATHOGENIC BACTERIA

- [Salmonella](#) spp.
- [Clostridium botulinum](#)
- [Staphylococcus aureus](#)
- [Campylobacter jejuni](#)
- [Yersinia enterocolitica](#) and [Yersinia pseudotuberculosis](#)
- [Listeria monocytogenes](#)
- [Vibrio cholerae](#) O1
- [Vibrio cholerae](#) non-O1
- [Vibrio parahaemolyticus](#) and other vibrios
- [Vibrio vulnificus](#)
- [Clostridium perfringens](#)
- [Bacillus cereus](#)
- [Aeromonas hydrophila](#) and other spp.
- [Plesiomonas shigelloides](#)
- [Shigella](#) spp.
- [Miscellaneous enterics](#)
- [Streptococcus](#)

ENTEROVIRULENT ESCHERICHIA COLI GROUP (EEC Group)

Done

start |  | 12:10 PM

Key California Seafood Resource Sites

- **California Aquaculture**
- **California Dept. of Health Services:**
 - **F&D Branch Food Safety Program**
 - **Office of Environmental Health Hazard Assessment**
- **Seafood Network Information Center**

Aquaculture Information

<http://aqua.ucdavis.edu>



The screenshot shows a web browser window titled "California Aquaculture - Mozilla Firefox". The address bar displays "http://aqua.ucdavis.edu/". The website has a light blue background with a subtle water ripple pattern. On the left, there is a small graphic of a fish. The main heading reads "California Aquaculture University of California Davis". Below this, a paragraph states: "The American Veterinary Medical Assn. has launched a free online database of aquatic animal veterinarians and diagnostic laboratories, including coverage for aquaculture." To the right of this text is the University of California seal. Further down, a paragraph mentions "Aquavets.com (www.aquavets.com) database users can search by categories, such as species type or disease, and scan the 2,300 veterinarians and 110 diagnostic laboratories in the system. Search for Vets in California!". The website features two columns of navigation buttons. The left column includes "SPECIAL TOPICS" (with sub-links: GETTING STARTED IN AQUACULTURE, SELECTED AQUACULTURE SUBJECTS, FARM POND MANAGEMENT, AQUATIC WEED CONTROL, SELECTED AQUATIC SPECIES), "AQUACULTURE EDUCATION", "GOVERNMENT AGENCIES", and "REGIONAL CENTERS & ORGANIZATIONS". The right column includes "AQUACULTURE PUBLICATIONS", "UNIT CONVERTERS & CALCULATORS", "LIBRARIES AND REFERENCE DATABASES", "AQUACULTURE RELATED LINKS", "KOI & WATER GARDENS", "ABOUT OUR SITE", "FTP SITE INFORMATION AND TOOLS", and "SEARCH OUR SITE". At the bottom, there is a "Quick Links to:" section with links to the "California Aquaculture Association (CAA)" and the "California Farm Bureau Federation (CFBF) Center for Aquatic Biology & Aquaculture (CABA)". A "Webmaster's Mailbox" link is also present. The browser's status bar at the bottom shows "Done" and a taskbar with various application icons and the time "5:02 PM".

California Aquaculture - Mozilla Firefox

File Edit View Go Bookmarks Tools Help

http://aqua.ucdavis.edu/

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California Aquaculture
University of California Davis

The American Veterinary Medical Assn. has launched a free online database of aquatic animal veterinarians and diagnostic laboratories, including coverage for aquaculture.

Aquavets.com (www.aquavets.com) database users can search by categories, such as species type or disease, and scan the 2,300 veterinarians and 110 diagnostic laboratories in the system. Search for Vets in California!

SPECIAL TOPICS

GETTING STARTED IN AQUACULTURE

SELECTED AQUACULTURE SUBJECTS

FARM POND MANAGEMENT

AQUATIC WEED CONTROL

SELECTED AQUATIC SPECIES

AQUACULTURE EDUCATION

GOVERNMENT AGENCIES

REGIONAL CENTERS & ORGANIZATIONS

AQUACULTURE PUBLICATIONS

UNIT CONVERTERS & CALCULATORS

LIBRARIES AND REFERENCE DATABASES

AQUACULTURE RELATED LINKS

KOI & WATER GARDENS

ABOUT OUR SITE

FTP SITE INFORMATION AND TOOLS

SEARCH OUR SITE

Quick Links to:

California Aquaculture Association (CAA)

California Farm Bureau Federation (CFBF)
Center for Aquatic Biology & Aquaculture (CABA)

Webmaster's Mailbox

Done

start 10 M. 5 Fi... 3 M... meet... Food... Adob... 2 W... Micro... Micro... 5:02 PM

CDHS, Food and Drug Branch Food Safety Program

<http://www.dhs.ca.gov/fdb/HTML/Food/indexfoo.htm>

The screenshot shows a web browser window titled "Food and Drug Branch - Food Safety Program - Mozilla Firefox". The address bar displays the URL <http://www.dhs.ca.gov/fdb/HTML/Food/indexfoo.htm>. The browser's toolbar includes buttons for Back, Forward, Home, Stop, Reload, and a search bar. The website's header features a navigation menu with links: California Home, CDHS Home, CDHS Comments, CDHS Search, and CDHS Organization. A "Welcome to California" banner is prominently displayed. Below the banner, the page is organized into several sections. On the left, a sidebar lists various programs and documents, including "CDHS Home", "Printer Friendly Version", "Drug Safety Program", "Export Document Program", "Organic Processed Products Program", "Food Safety Program", "Home Medical Device Retail Program", "Medical Device Safety Program", "S.T.A.K.E. Program", "Sherman Food, Drug, and Cosmetic Law (pdf)", "Application Instructions and Forms", "Consumer Complaints", and "Comments and Questions". The main content area is titled "Food and Drug Branch" and "Food Safety Program". It includes a "VISION" statement, a "MISSION" statement, and a list of "Food Program Contacts" with names and phone numbers. A right-hand sidebar contains links to various programs and documents, such as "Cannery Inspection Program", "Processed Food Registration Program", "Bottled and Vended Water Q&A", "Food Guideline Documents", "Food Defense/Security Guidance", "Industry Education & Training Resources", "Food Safety Notices", "Environmental Investigation Reports", and "Links to other Food Safety Sites". The bottom of the browser window shows the Windows taskbar with various application icons and the system clock indicating 5:00 PM.

Food and Drug Branch - Food Safety Program - Mozilla Firefox

File Edit View Go Bookmarks Tools Help

http://www.dhs.ca.gov/fdb/HTML/Food/indexfoo.htm

SeafoodNIC Home Page Email Postmaster's Of... UC Davis - University ... MyANR Portal Food Safety Network Free Translation and ... Merriam-Webster Online NewsVoyager.com Team in Training

WHO WHO | Five keys to safer food poster Gmail - Command confirmation request (1D2... ESMIS - View Document Info Food and Drug Branch - Food Safety ...

California Home CDHS Home CDHS Comments CDHS Search CDHS Organization Saturday, October 07, 2006

Welcome to *California*

CDHS Home
[Printer Friendly Version](#)
[Drug Safety Program](#)
[Export Document Program](#)
[Organic Processed Products Program](#)
[Food Safety Program](#)
[Home Medical Device Retail Program](#)
[Medical Device Safety Program](#)
[S.T.A.K.E. Program](#)
[Sherman Food, Drug, and Cosmetic Law \(pdf\)](#)
[Application Instructions and Forms](#)
[Consumer Complaints](#)
[Comments and Questions](#)

Get Adobe Reader
The Adobe Reader is required to view several documents contained on this website

California Department of Health Services

Food and Drug Branch

Food Safety Program

VISION
The Food Safety Program Team will be a world leader and trusted voice in farm to table food safety.

MISSION
To protect and improve the health of consumers by assuring foods are safe, and are not adulterated, misbranded, or falsely advertised. We accomplish our mission through sound investigations and enforcement based upon valid scientific principles and specific legal authority. We strive to provide efficient, fair, and continually improving quality service through enforcement, communication, education, and cooperation.

Food Program Contacts

- Dr. Jeff Farrar, Chief (916) 650-6590
- Emergency Response (Foodborne Illness Outbreaks) - Benson Yee (916) 650-6616
- Food Processor Inspection, Patrick Kennelly (916) 650-6598
- Food Processor Registration - Jennie Nunez (916) 650-6516
- Seafood Processor Inspection, Shellfish - Michael Hernandez (916) 650-6595
- Retail Food Program - Susan Strong (916) 650-6617
- Low Acid Canned Foods Inspection - Michael Gutierrez (916) 650-6593
- Bottled, Vended Water Program, Biosolids - Dr. Chang-Rae Lee (916) 650-6601
- Food Safety Industry Training - Michael Hernandez (916) 650-6595

"National Food Safety System - Multistate Foodborne Outbreaks - Guidelines for Improving Coordination and Communication" http://www.fda.gov/ora/fed_state/NFSS/Outbreak_Coordination.pdf

FDA New Requirements

- [What You Need to Know about Registration of Food Facilities \(pdf\)](#)
- [What You Need to Know about Prior Notice of Imported Food Shipments \(pdf\)](#)
- [Guidance for Industry Retail Food Stores and Food Service Establishments: Food Security Preventive Measures Guidance](#)

[Cannery Inspection Program](#)
[Processed Food Registration Program](#)
[Bottled and Vended Water Q&A](#)
[Food Guideline Documents](#)
[Food Defense/Security Guidance](#)
[Industry Education & Training Resources](#)
[Food Safety Notices](#)
[Environmental Investigation Reports](#)
[Links to other Food Safety Sites](#)

Done

start 10 M... 5 F... 3 M... meet... Food... Adob... 2 W... Micro... Micro... 5:00 PM

CDHS, Office of Environmental Health Hazard Assessment

<http://www.oehha.ca.gov/fish.html>

The screenshot shows a web browser window titled "OEHA: Fish (Fish Advisory Information) - Mozilla Firefox". The address bar displays "http://www.oehha.ca.gov/fish.html". The page content includes a "Welcome to California" banner, the OEHA logo, and a section titled "FISH ADVISORIES". The text explains that fish are nutritious but can contain toxic chemicals, and provides general advice on safe consumption. A map of California is shown with a legend for "Water Bodies with Fish Consumption Advisories". The right sidebar contains a search bar and a list of links including "Fish Site Links", "Advisories on Sport Fish Contamination in California", "Advisory Information for Specific Water Bodies", "Advice for Women of Childbearing Years and Children", "Fish Consumption Advice in Languages Other than English", "Guidance Tissue Levels and Screening Values for Contaminants in Sport Fish", "Mercury in Fish", "PCBs in Fish", "Other Chemicals of Concern in Fish", "Fish Consumption in California and US", "Angler Survey", "Reports and Notices", and "Fishy Links". The bottom of the page includes a copyright notice for 2003 State of California and a link to "Conditions of Use/Privacy".

OEHA: Fish (Fish Advisory Information) - Mozilla Firefox

File Edit View Go Bookmarks Tools Help

http://www.oehha.ca.gov/fish.html

SeafoodNIC Home Page Email Postmaster's Office UC Davis - University ... MyANR Portal Food Safety Network Free Translation and ... Merriam-Webster Online NewsVoyager.com Team in Training

California Home Friday, October 6, 2006

Welcome to California

OEHA Home

Air

About OEHA

Children's Health

Ecotoxicology

Education

Emergency Response

Fish

Pesticides

Proposition 65

Public Information

Risk Assessment

Water

Reference Links

Help!

Site Map

OEHA Listserver

Prop. 65 Listserver

Public Records Act Requests

Contact OEHA Staff

OEHA
Office of Environmental Health Hazard Assessment

FISH ADVISORIES

Fish are nutritious and good for you to eat. But some fish you catch may take in toxic chemicals from the water they live in and the food they eat. Some of these chemicals build up in the fish - and in you - over time. Although the chemical levels are usually low, it's a good idea to follow a few precautions in consuming fish, particularly if you eat fish often.

The Fish and Water Quality Evaluation Unit in OEHA provides specific consumption advice for fish taken in areas where high levels of chemicals have been found in fish. In addition, because contamination levels are unknown for many locations, OEHA also provides general advice on how to reduce your exposure to chemicals in noncommercial fish, referred to as sport fish, which you and your family or friends catch.

These fish advisories are not intended to discourage you from eating fish entirely. Fish are nutritious and an excellent source of protein. The advisories should be followed to make your sport fish eating safer.

Water Bodies with Fish Consumption Advisories
(click to enlarge map)

Use the links on the right side of this page to navigate and find more information about safe fish consumption.

(c) 2003 State of California Conditions of Use/Privacy

search

OEHA My CA

Southern California Fire Response

Fish Site Links

Advisories on Sport Fish Contamination in California

Advisory Information for Specific Water Bodies

Advice for Women of Childbearing Years and Children

Fish Consumption Advice in Languages Other than English

Guidance Tissue Levels and Screening Values for Contaminants in Sport Fish

Mercury in Fish

PCBs in Fish

Other Chemicals of Concern in Fish

Fish Consumption in California and US

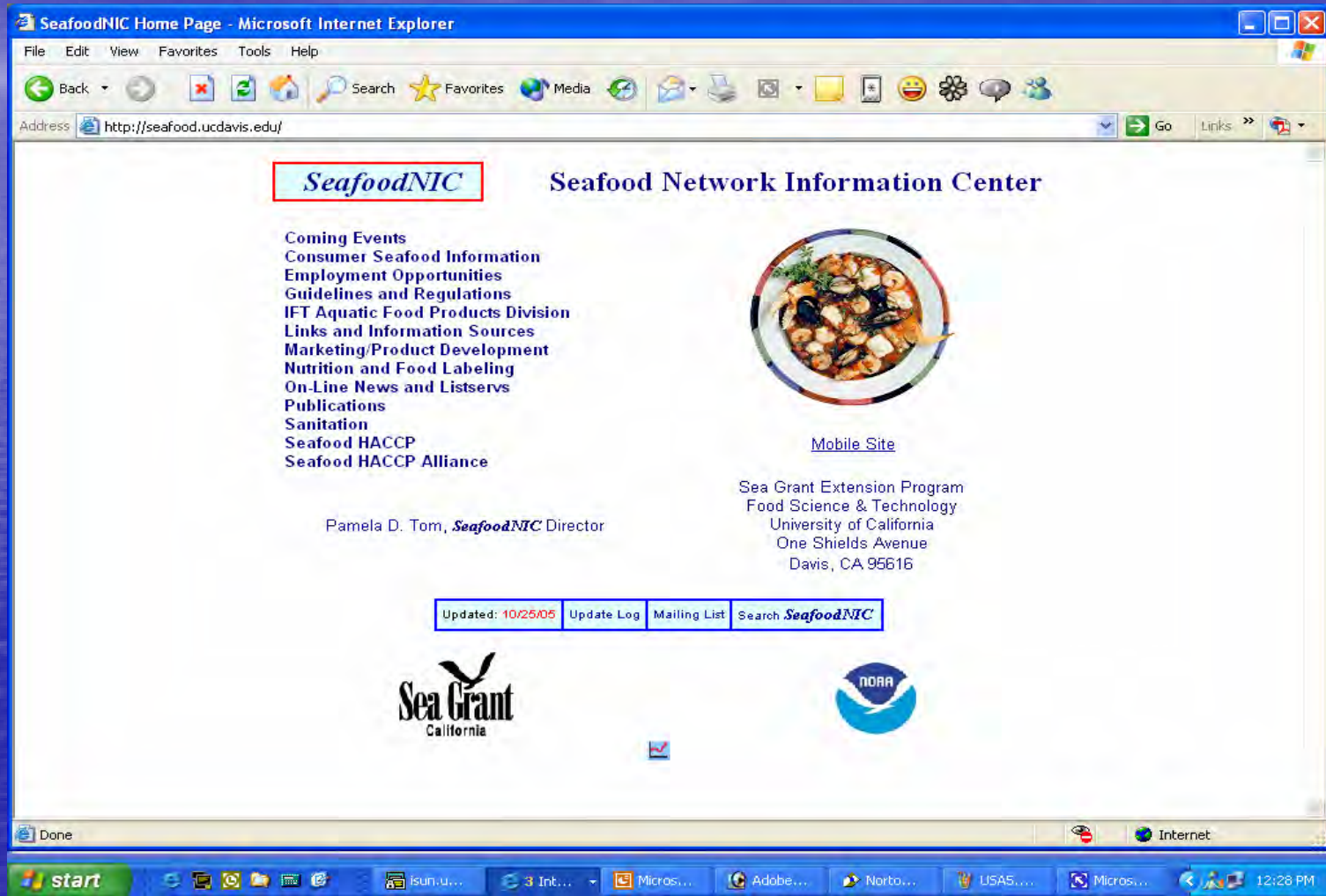
Angler Survey

Reports and Notices

Fishy Links

Seafood Network Information Center

<http://seafood.ucdavis.edu>



SeafoodNIC Information Pages

- Aquaculture
- Contaminants and Heavy Metals
- Consumer Information
- Guidelines and Regulations
- Sanitation
- Species, Quality, and Processing
- Seafood Safety and HACCP
- Sustainability

Web Page Credibility Points to Consider

- **Authorship**
- **Publisher or organization**
- **Factual, opinion or biased**
- **References other sources**
- **Accuracy or verification**
- **Current information**

"Evaluating Information Found on the Internet," Johns Hopkins University, Sheridan Libraries (2004)

Summary

- There are numerous species and issues related to seafood safety.
- Seafood hazards are classified as biological, chemical and physical.
- To help you do your job, the Internet can offer sound free information from agencies, universities and experts.

References

- "Conversion Factors Useful in Field Plot Work," Cornell University Pesticide Management Education Program
<http://pmep.cce.cornell.edu/facts-slides-self/facts/gen-peapp-conv-table.html>
- "Evaluating Information Found on the Internet," Johns Hopkins University, Sheridan Libraries (2004)
<http://www.library.jhu.edu/researchhelp/general/evaluating/>
- "Farmed Salmon: Caught in a Numbers Game," C. R. Santerre, Food Technology (2004), Vol. 58, No. 2, p. 108
<http://seafood.ucdavis.edu/organize/santerresalmon.pdf>
- "Global Assessment of Organic Contaminants in Farmed Salmon," Hites, et. al., Science (2004), Vol. 303, p. 226-229
http://www.pewtrust.org/pdf/salmon_study.pdf
- NY Sea Grant Salmon Images by Peter Thompson
<http://www.dnr.cornell.edu/ext/fish/salmon/speciesdescriptions.htm>

Thank you!

<http://www-csgc.ucsd.edu/EXTENSION/SeafoodTechnology/pantom.html>

