

Evaluation of Advisory Messages

California Department of Public Health
Environmental Health Investigations Branch



Fish Mercury Project 2004-2008

- Collaboration between CDPH, OEHHA, DFG, UC Davis, and San Francisco Estuary Institute
- Monitor sport fish for mercury
- CDPH role: stakeholder involvement and risk communication



Why undertake evaluation?

- Focus groups with diverse populations
 - Poor comprehension of advisories
 - Consumption limits difficult to follow
 - Want to know “safe” locations
 - “Limit” and “Eat in moderation” not understood
 - Personal beliefs
 - Mistrust of government
- Science Review Panel recommended further evaluation of advisory messages

Advisory Evaluation Objectives

- Explore how target audiences perceive and understand sport fish consumption advisories
- Identify barriers to communication
- Identify effective communication methods (concepts and visual tools) that can be used in risk communication materials
- Create an advisory brochure for OEHHA to communicate advisories to diverse populations

Methods

- Qualitative approach
 - Perceptions, attitudes, underlying beliefs
 - Level of comprehension
 - Willingness to accept information
- Collaboration
 - OEHHA
 - Stakeholders/community groups

Methods

- Tools:
 - Key informant interviews (N=46)
 - Focus groups (9 focus groups, N=77)
 - Short interviews (N=40)



Methods

Key Informant Interviews and Focus Groups

- Written interview guide with open-ended questions and probing
- Participants represented diverse ethnicities and income levels
- Stipends provided
- 21/28 long interviews and 8/9 focus groups were transcribed, along with detailed notes and memos
- Analysis
 - Data coded independently by two staff
 - Categorize codes to generate themes and theories
 - Saturation—range of responses exhausted

Key Informant Interviews

- Explored interpretation of advisories from California and other states
- Explored portion sizes
- Identified barriers to communication
- Identified more effective approaches

SAFE EATING GUIDELINES

Based on mercury in fish from the
SAN JOAQUIN RIVER
From the Port of Stockton to Friant Dam



Women of Childbearing Age,
Pregnant and Breastfeeding Women,
and Children 17 Years and Younger



Women Beyond Childbearing Age
and Men

Best Choices

Bluegill and other sunfish, or crayfish
Eat up to 4 servings* a week
(Total of 12 ounces cooked fish a week)

Best Choices

Bluegill or other sunfish
Daily
(Total of 21 ounces cooked fish a week)
OR
Crayfish, crappie, or carp
Eat up to 6 servings* a week
(Total of 18 ounces cooked fish a week)
OR
Catfish or sucker
Eat up to 4 servings* a week
(Total of 12 ounces cooked fish a week)

OR

Good Choices

Catfish, crappie, carp, or sucker
Eat up to 2 servings* a week
(Total of 6 ounces cooked fish a week)

OR

Good Choices

Largemouth, smallmouth, or spotted bass
Eat up to 2 servings* a week
(Total of 6 ounces cooked fish a week)

Avoid

Largemouth, smallmouth, or spotted bass
Do Not Eat

Follow the "No Consumption" warnings where signs are posted for the Port of Stockton area

* The recommended serving size for adults is three ounces of cooked fish (four ounces prior to cooking)

For more information, call OEHHA at (510) 622-3170 or visit www.oehha.ca.gov and click on "Fish"

Symbols

Names for population groups

Category headings and Color schemes

Portion sizes

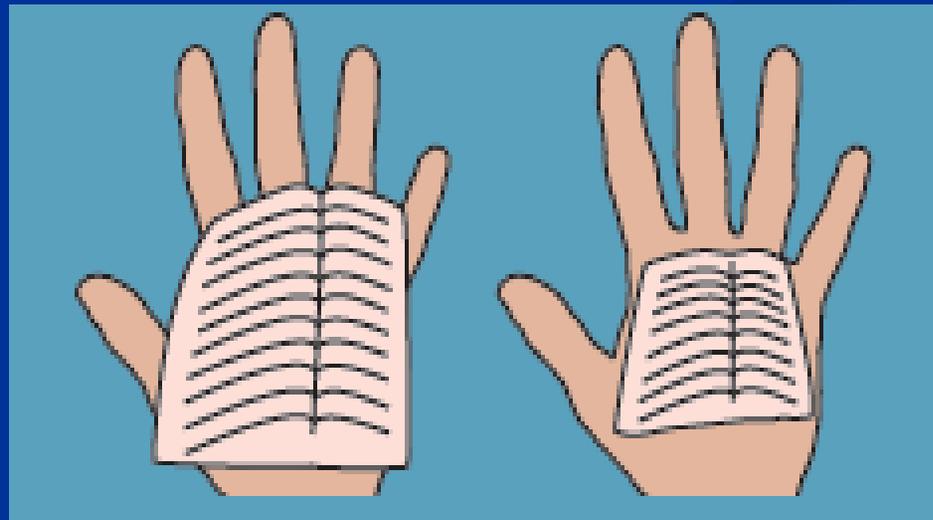
Characterizing fish species

Portion Sizes

- Decisions on portion sizes based on hunger and other factors
- Advice that defines portions differently than consumer behavior not likely to be heeded
- Most consumers cannot relate the quantity they eat at one time eat to ounces

Portion Sizes

- Recommendations:
 - Base advice on typical consumer portion sizes
 - Regulate intake through frequency of consumption (e.g., servings/week)
 - Provide a visual reference, especially to convey concept of smaller portions for children



For Adults

For children

Influence of Personal Beliefs

- Commonly held health beliefs that influence fish consumption
 - Locations: industrial areas are less clean
 - Avoiding contamination:
 - soaking fish or cooking at high heat removes chemicals
 - fish can be visually inspected to determine safety
 - Fish biology/behavior:
 - bottom feeders are more contaminated
 - Larger, older fish are more contaminated
- Sources: past experience, trusted sources, not government-issued advice

Influence of Personal Beliefs

- Consumers consider advice in terms of their beliefs
- Consumers skeptical of advice that contradicts their beliefs
- Recommendation:
 - Don't give advice without explanation
 - Provide information about contamination levels
- Consistent with research by others

Barriers to Communication

■ Terminology

■ “Women of childbearing age”

- Poorly understood
- Active desire or current efforts to become pregnant
- Preferred term: “women 18-45”

■ “Anglers”

- Elite fishermen who use fancy gear and boats, or fish in tournaments
- Preferred term: “fishermen”

Barriers to Communication

■ Terminology

■ “Omega-3 fatty acids”

- Poorly understood
- “fatty acids” had negative connotation
- Preferred term: “High in Omega-3s” along with use of pink heart graphic



■ “Uncooked”

- Interpreted as raw fish, so information not applicable to them because they do not eat raw fish
- Preferred term: refer to fish as “cooked”

Barriers to Communication

- Visual tools
 - Very influential, noticed first
 - Silhouette images were misunderstood
- Different advice for different populations side by side
 - Difficult to figure out which advice to follow
 - Same fish in different categories was inconsistent and lacked credibility

OEHA California Environmental Protection Agency • Office of Environmental Health Hazard Assessment

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Best Choices

Bluegill and other sunfish, or crayfish
Eat up to 4 servings* a week
(Total of 12 ounces cooked fish a week)

OR

Good Choices

Catfish, crappie, carp, or sucker
Eat up to 2 servings* a week
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Avoid

Largemouth, smallmouth, or spotted bass
Do Not Eat

Women Beyond Childbearing Age and Men

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Follow the "No Consumption" warnings where signs are posted for the Port of Stockton area
* The recommended serving size for adults is three ounces of cooked fish (four ounces prior to cooking)
For more information, call OEHA at (510) 622-3179 or visit www.oehha.ca.gov and click on "Fish"

Barriers to Communication

- Misleading category headings
 - “avoid” is understood but “best” or “good” choice is not
 - Recommendations in heading not understood
- Missing fish
 - Fish must be safe
 - Information is not credible

2 meals a week

Bluegill or other sunfish, Trout

1 meals a week

Catfish, Sacramento Blackfish

1 meal a month

Largemouth, smallmouth, spotted bass

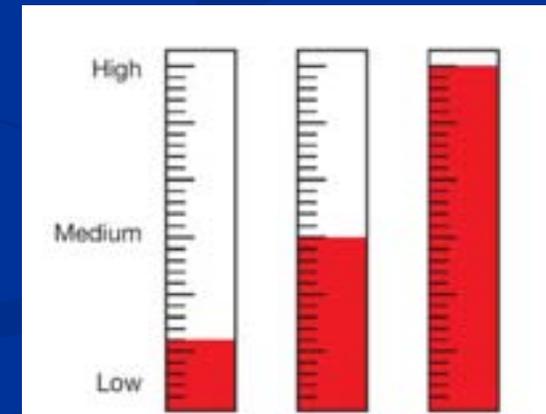
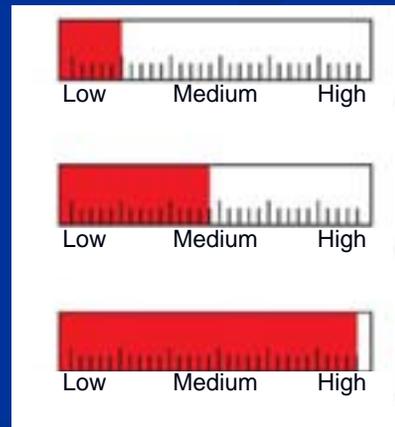
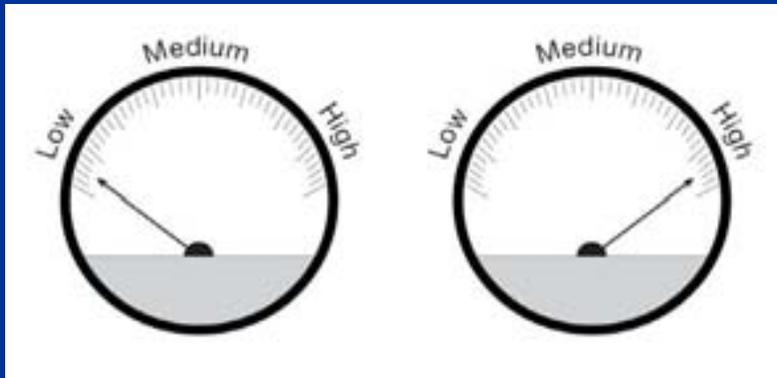
Effective Methods

- Fish pictures

- Very influential, noticed first
- Non-anglers could identify fish even if they didn't know the names

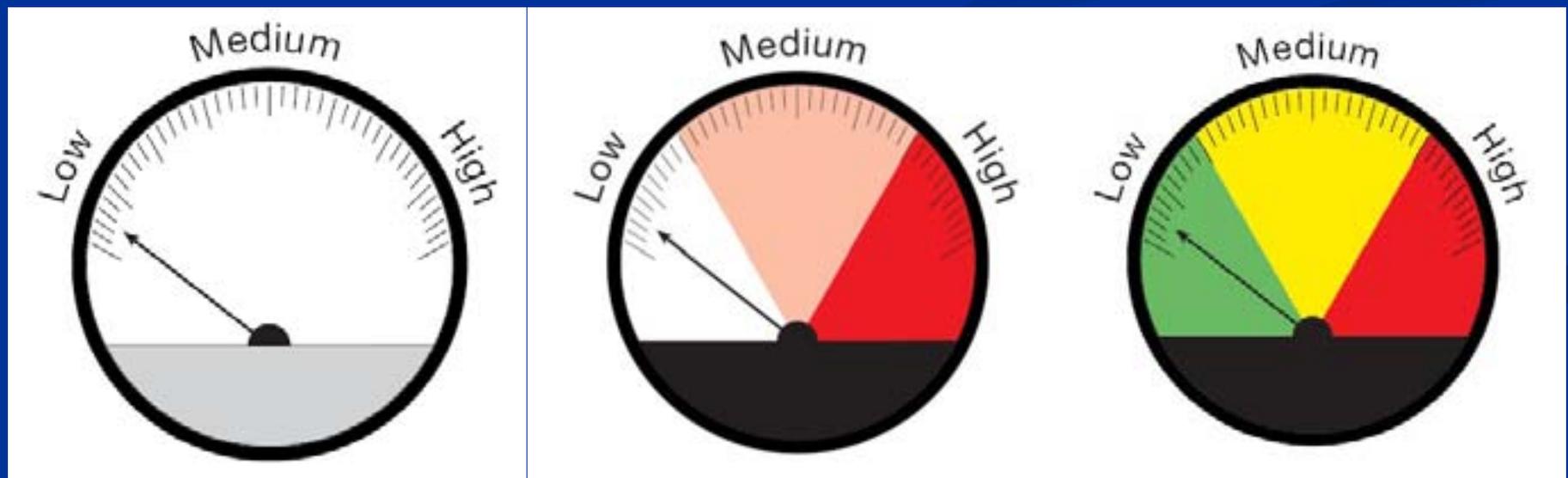


- Mercury meters



Effective Methods

- Three categories
 - High, medium, low
- Color schemes
 - Red, yellow, green

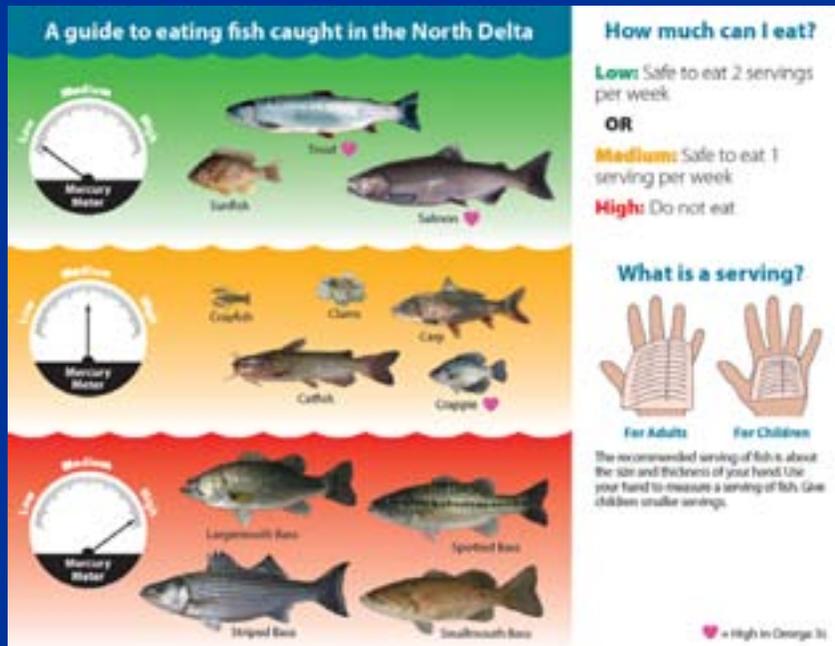
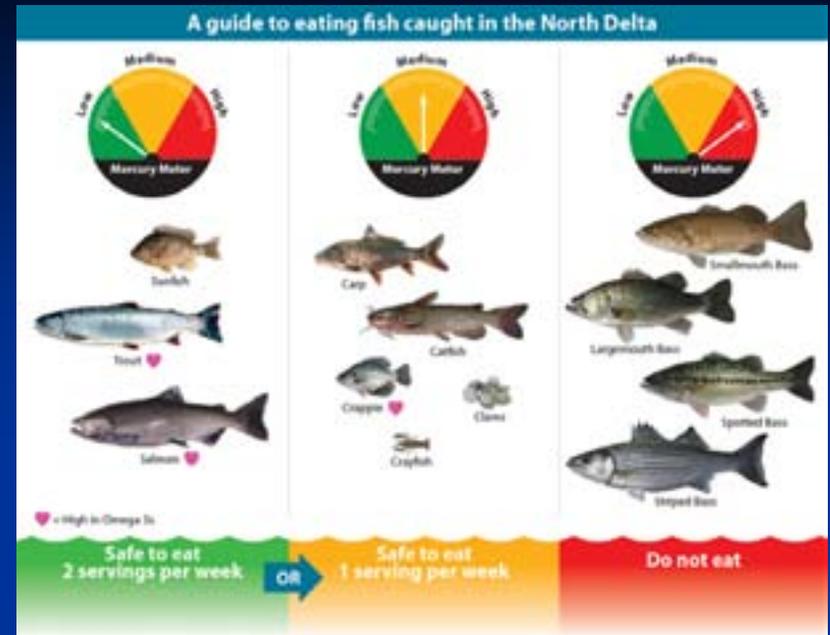


Focus Group

- Incorporated findings from key informant interviews into three test brochures
- Explored integration of concepts, layout, visual images
- Reactions, comprehension, and intentions
- Developed draft advisory brochure

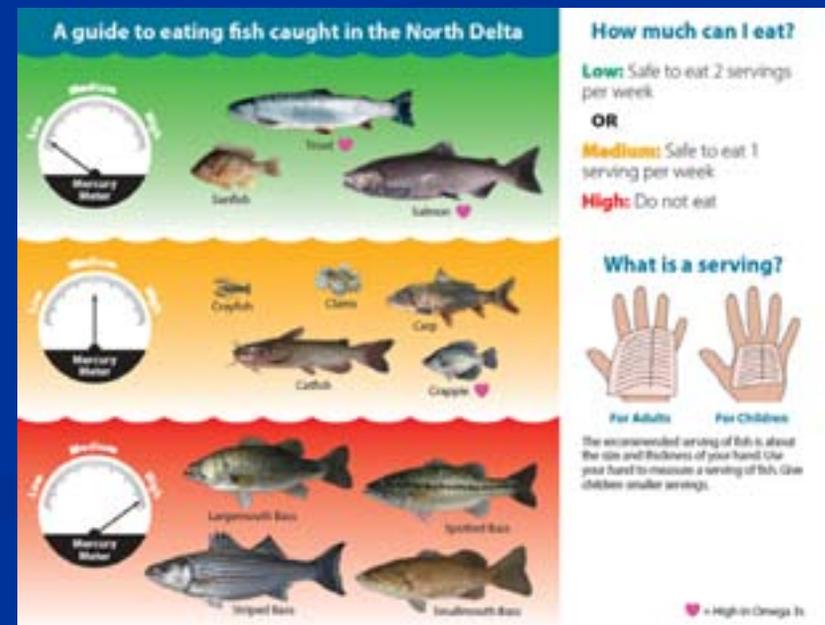
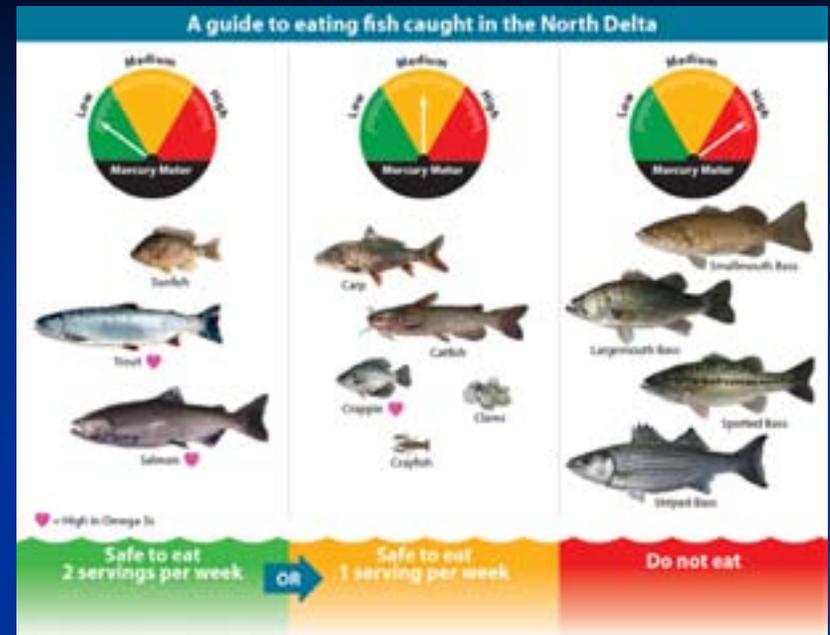
Effective Methods

- Simple, uncluttered presentation
- Vertical preferred over horizontal presentation



Effective Methods

- Advice categories
 - Directly linking advice to mercury level using layout and color
 - Don't use a key
- Pink hearts

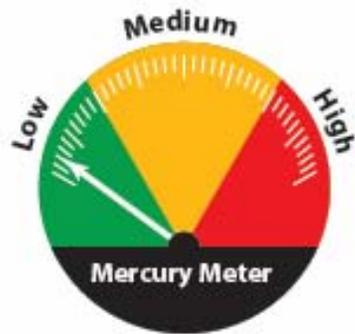


Intentions

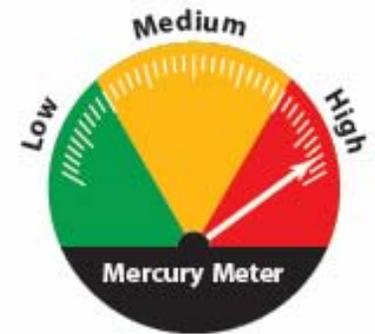
- How participants intended to use the information
 - Reject advice/no changes
 - Created distance for themselves
 - Concern for others
 - Accept advice/no changes
 - Were within guidelines; no changes necessary
 - Accept advice /make changes
 - Above guidelines
 - Intended to decrease consumption or change species
 - Some indicated they needed to eat more high Omega -3 fish
- Comprehension does not always result in compliance
- Need other communications approaches to change behavior

A guide to eating fish caught in the Sacramento River and Northern Delta

Women 18 - 45, especially those who are pregnant or breastfeeding, and children 1 - 17



♡ = High in Omega-3s



Safe to eat
3 servings per week

OR

Safe to eat
1 serving per week

Do not eat

except striped bass under 27 inches or sturgeon — safe to eat 1 serving per month

Short Interviews

- Field tested and revised draft brochure (pier, medical clinic, WIC clinic)
- Refined additional information on brochure
 - Advice for men/women 45+
 - Commercial fish (back cover)
 - Front cover
- Explored overall impressions and comprehension of main point of brochure

Men over 17 and women over 45 can safely eat more fish

- Safe to eat 7 servings per week
- Safe to eat 3 servings per week
- Safe to eat 2 servings per month except largemouth bass and pikeminnow — safe to eat 1 serving per week

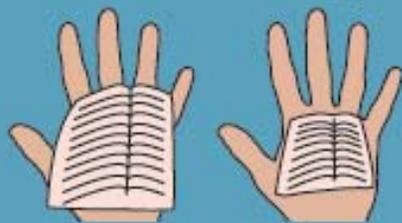
♥ Why eat fish?

Eating fish is good for your health. Fish have Omega-3s that can reduce your risk for heart disease and improve how the brain develops in unborn babies and children.

What is the concern?

Some fish have high levels of mercury that can negatively affect how the brain develops in unborn babies and children.

What is a serving?



For Adults

For Children

The recommended serving of fish is about the size and thickness of your hand. Give children smaller servings.

Fish buying guidelines for women 18 – 45 and children 1 – 17

Do not eat fish caught by family or friends in the same week that you eat fish bought in a store or restaurant. For fish that you buy:

- Safe to eat 2 servings per week of low mercury fish such as salmon ♥, pollock, catfish, tilapia, shrimp, anchovies ♥, sardines ♥, trout ♥, and canned chunk-light tuna



OR

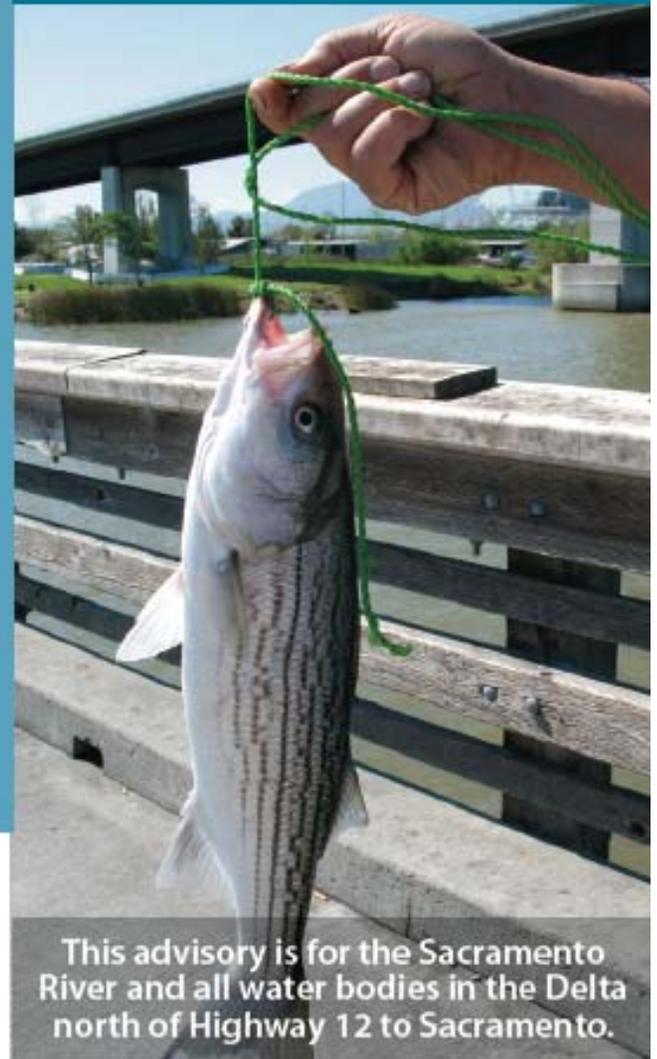
- Safe to eat 1 serving per week of medium-mercury fish such as canned albacore (white) tuna ♥



- Do not eat shark, swordfish, tilefish, or king mackerel



Guide to Eating Fish Caught in the Sacramento River and Northern Delta



This advisory is for the Sacramento River and all water bodies in the Delta north of Highway 12 to Sacramento.

California Office of Environmental Health Hazard Assessment

www.oehha.ca.gov/fish.html

(916) 327-7319 or (510) 622-3170

Topics Needing Further Investigation

- Comprehension of the term “Or”
- How best to convey advice based on fish length
- Comprehension of sport fish advice along side commercial fish advice
- Utility and comprehension of a map
- Written descriptions of geographic areas

Limitations

- Can we generalize?
 - Not all ethnic groups and angler types included
- Focus group setting vs. reality
 - How information is received is important

Recommendations

- Understand target audience
- Use visual images to convey information
- Use “effective methods”
- Field test concepts and materials

Acknowledgements

- CDPH/EHIB staff (past and present): May Lynn Tan, Lani Kent, Ilinisa Hendrickson, Lauren Wohl-Sanchez
- Office of Environmental Health Hazard Assessment: Bob Brodberg, Susan Klasing, Margy Gassel
- Local Stakeholder Advisory Group
- Mini-grant groups
- Food Stamp Nutrition Education Program
- Expanded Food and Nutrition Education Program
- Women, Infants, and Children (WIC) Program
- California Striped Bass Association
- Oroville Hatchery