

TEACHERS' GUIDE for: "YOUR BABY EATS THE FISH YOU EAT!"

People who go fishing and crabbing in the Newark Bay area continue to eat catch that has been contaminated with harmful chemicals, despite the fact that state health advisories urge them not to do so. Women of childbearing age and their children are the group at highest risk from consuming contaminated fish and crabs from this and other sources. This lesson will give them the information they need to avoid these risks and make healthy choices about the fish they eat.

Goal:

* To reduce the amount of chemically contaminated fish consumed by women of childbearing age

Audience:

Women of childbearing age, pregnant and breastfeeding mothers in particular

Learning Objectives

After completing this lesson, participants will be able to:

- Explain why most fish are good to eat
- Explain why they should not eat some fish and crabs caught in the Newark Bay area
- Identify 6 ways to avoid the harmful chemicals in fish, including:
- Recognize 6 types of fish & crab from the Newark Bay area that they should not eat
- List cooking techniques that reduce the amounts of harmful chemicals
- State several ways to make sure the fish they buy are safe to eat

Time 15-30 minutes -- or longer, if the ideas for expansion are used (see final section)

Materials

- Blackboard and chalk, or blank flipchart and pens (optional)
- 6-ounce can of tuna
- Handouts (copies of brochure, "Your Baby Eats the Fish You Eat")
- PowerPoint projector, computer, PowerPoint presentation file, Teachers' Guide printout, *or*
- Overhead projector, transparencies printed out from PowerPoint file, and Teachers' Guide
- Flip chart of PowerPoint presentation file

Directions

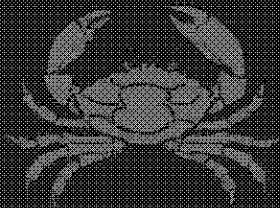
The PowerPoint file containing this lesson can be found at <http://aesop.rutgers.edu/~cec/fish.html>. If you select "Notes Page" under the View menu, you will see this Teachers' Guide. It provides suggestions for discussion to go with each slide and additional information for the instructor. If you do not already have one, it would be best to print out a copy of this Guide to review in advance, and if you wish, follow along during the lesson, turning the pages as you advance through the slides.

Display each slide and discuss before proceeding to the next one. In the Guide, the text in **bold type** provides suggested wording for the instructor. You should feel free to use different language in order to respond to what the participants say and to keep up a conversational flow. Sometimes a suggested question is followed by "target answers" in *italics*. These are some of the responses you would like to hear from the participants. Leave plenty of time for participants to volunteer answers. Then, if you do not hear any responses like the target answers, you can suggest them yourself. See final section, following the last slide, for ideas for expanding the lesson.

This sign indicates actions for you to take.



- Do you eat fish?
 - What are your favorite kinds?
 - Who likes to go fishing?
- or crabbing?



☞ Instructor opens the discussion by asking questions of the group (starting with those on the slide).

Do you eat fish? (Who here eats fish?)

What are your favorite kinds of fish to eat?

Who likes to go fishing, or has a family member who does?

Where do they (or you) like to fish?

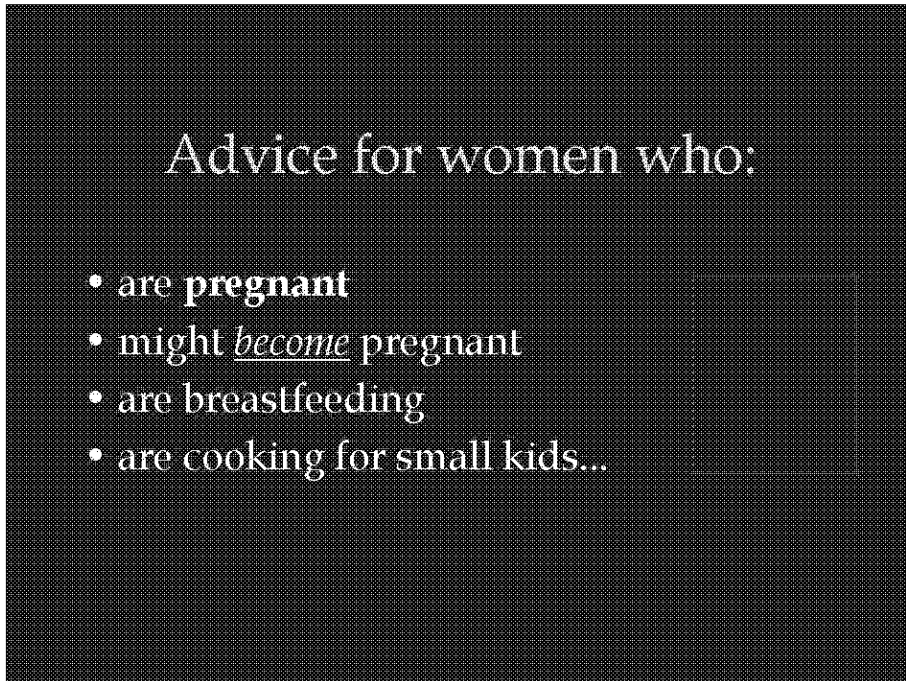
What kinds of fish that they (or you) catch do you like to eat?

****Does anyone catch crabs?**

Where?

Most fish are very good for you to eat. But today we are going to learn that *some* of the fish and crabs your family or friends might catch have things in them that can be bad for you..

The advice we will give is for women who ...



The advice we will learn today is for all women of child-bearing age ... and for children. That includes women who are:

- are pregnant
- might become pregnant someday*
- are breastfeeding
- are preparing food for small kids.

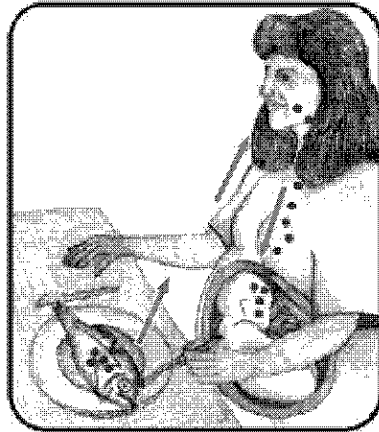
Why is what you eat when
you are pregnant
important?

Target answer: *Because the baby (fetus) gets its food from the mother.*

Listen to responses before showing next slide.



What do you think this picture is showing?



- ☞ Encourage a volunteer to explain what the picture is showing, or if necessary, explain yourself:

Target answer:

The food that is digested by the mother goes into her blood and then across the placenta to feed the baby (fetus). The red dots in the picture could be good things, like nutrients, or they could be bad things -- both will get into the baby.

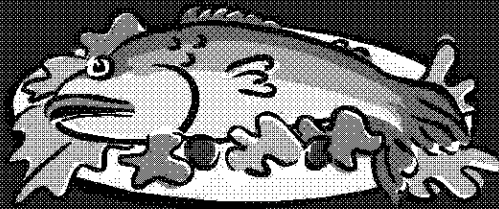
What about mothers who are breastfeeding?

Target answer: *What the mother eats goes into the milk which feeds her baby.*

So, while it's always a good idea to eat healthy food, it is especially important when we are pregnant or breastfeeding. We want to give our babies the best start in life!

One kind of food that is usually very good for us to eat is FISH.

Why are fish good for us to eat?




Why are fish good for us to eat?

- ☞ Wait for answers before going on to the next slide.
- ☞ (You may wish to write them up on a flipchart or blackboard).

Fish are good to eat because:

- high in protein
- lots of vitamins and minerals
- low fat and cholesterol
- protect your heart

 Go over points on slide.

As you do, be sure and acknowledge the correct answers that participants have given, e.g., “Just like Maria said, fish have lots of protein...”


We encourage you to teach your children that fish are part of a healthy diet.

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+More info: There are certain kinds of fish that are particularly low in fat. Some other kinds (such as salmon) contain a type of oil (fatty acid) that is believed to protect against heart attacks.

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- What do you think about fish that people catch in the Port?
- Do you think they are good to eat?
- Why or why not?

 Lead a brief discussion about whether or not it is a good idea to eat fish from the Port (of Elizabeth, or any other city on the Newark Bay).

Be sensitive to the fact that some women or their families may fish in the Port area. Explain that *some* fish that are caught in the Port are OK to eat, but that others may be harmful -- and that this lesson will teach us which types we should avoid.

Some fish live in polluted places like the Port.

Some get harmful chemicals in them.

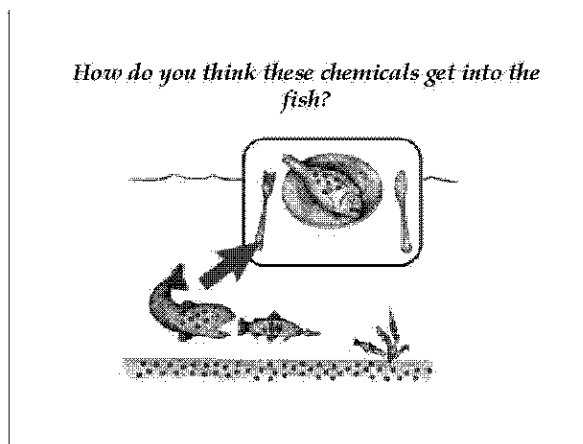


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+More info: Why are some fish from the Port safe to eat and others not? Because some types of fish have much higher levels of harmful chemicals in them due to a number of different factors. (The next slide illustrates some of these points):

- 1) some older and larger fish have more chemicals in them because they have had a longer time to accumulate them;
- 2) fish that are higher on the food chain have concentrated amounts of chemicals from all the smaller fish and other things they have eaten;
- 3) some fish spend a longer time in polluted areas;
- 4) some fish feed off the bottom, where the chemicals have settled;
- 5) some fish have higher fat content, and certain harmful chemicals are stored in fat, etc.

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What do you think is happening in this picture?

How do the harmful chemicals get into the fish?

Target Answers:

The red dots are harmful chemicals.

The fish are eating the chemicals.

The big fish are eating the little fish.

The big fish have more chemicals than the little fish.

If necessary ask additional questions:

What is going to happen to the fish on the plate?

Target answer: *Someone is going to eat that fish.*

What will happen to the harmful chemicals in that fish?

Target answer: *The person who eats the fish will get chemicals in them.*

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+More info: The harmful chemicals came from pollution. Most of it was produced by factories years ago. The chemicals were discharged from the factories, and from there they got into the water and sediments (mud and sand) at the bottom of the rivers and bay. They will stay there for a very long time.

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Harmful chemicals in some fish:

- PCBs (polychlorinated biphenyls)
- Dioxin
- Mercury

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+*More info:* All of these chemicals are toxic, or bad for human health.

+PCBs are a group of chemicals that once were used in electrical and other industrial equipment. PCBs were banned in 1979. However, because these chemicals break down in the environment very slowly, there are still lots of them around.

+Dioxins are another group of toxic chemicals. They are produced as a by-product of industrial processes. They also last a long time in the environment.

+Mercury is a chemical element. (In its pure form, it is the silvery stuff found in a glass thermometer). While some mercury occurs naturally in the environment, it is also spread by industry (for example, by burning coal).

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If a baby gets these chemicals from its mother they can:

These chemicals can:

- hurt Baby's brain and nervous system
- cause learning problems
- cause other problems.

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+More info: Scientists and others suspect that PCBs and dioxin also cause several other health problems. It is very difficult to *prove* for sure what is the cause of these health problems.

Some of the other problems that PCBs and dioxin are suspected of causing include:

- babies born with smaller head and body size
- cancer in adults
- problems in reproductive, thyroid, liver, and immune functions.

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Some chemicals are stored in
your body for a long time...

so even fish you eat now
may affect the baby you
will have much later.

Some of these harmful chemicals are stored in the body for a long time -- first in the fish, then in you. This means that even if you become pregnant a long time later, those chemicals can go from your body into your baby.

So the advice that we are learning about today is important for all girls and women who may have a baby someday later -- not just for women who are pregnant today.


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+More info: PCBs and dioxin are stored in fat and can last a very long time (more than 20 years in some cases). Mercury, however, is stored in muscle and does not stay in the body as long. You or your baby would not get sick right away from eating fish with these chemicals, but the harmful effects will build up over time.

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How can you tell if a fish is
bad to eat?

What are some ways you can tell if a fish is bad to eat?

 (You might wish to list participants' responses on a blackboard or flipchart).

These are all good ways to tell if a fish was sick or if it has spoiled since being caught. But it is very important to understand that...

Fish or crabs that have harmful chemicals in them..

- do *not* look, smell, or taste different.

We cannot tell from looking at them which fish or crabs have harmful chemicals in them! For example, these chemicals do not make a fish look sick or smell spoiled. Therefore it is really important to know *which kinds* of fish to eat and which kind not to eat. We are going to learn about that next...

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*+More info: Why are some fish from the Port safe to eat and others not?
See page 9.*

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How can I avoid
harmful chemicals in
fish?

6 Ways ...

**#1: Do not eat
6 kinds of fish and crabs,
if they are caught
in these places...
(see map) →**

The first of the six ways to avoid harmful chemicals in fish is not to eat six different kinds of fish, if they are caught from anywhere shown this map (see next slide)..

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+*More info:* The state of New Jersey has put out warnings, called health advisories, telling people not to eat more than a certain amount of certain kinds of fish and crabs caught in certain places. These warnings are about fish that people catch, not for fish you buy.

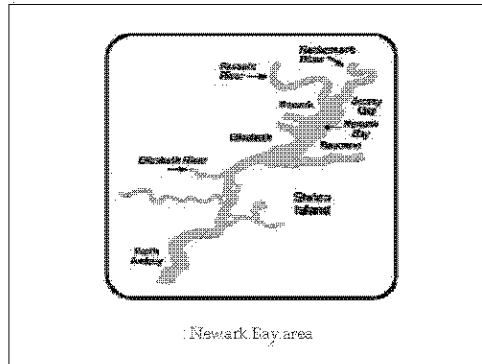
These warnings are different for different areas. This lesson covers the rules for the Port area of Elizabeth and other areas around Newark Bay (see map in next slide).

If you would like to learn about the health advisories for other areas in New Jersey, you can check the website of the Department of Environmental Protection (DEP):

www.state.nj.us/dep/dsr/njmain.fish.htm

The website shows how the bays, rivers, and coastline of the state is divided into different areas. For each area the health advisory tells which fish you should not eat at all, or how much it is safe to eat of certain fish how often. The warnings are more strict for the "high-risk" group, that is, for women of childbearing age and children under age 15. This lesson covers this group. (Check the DEP website for guidelines for other family members.)

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These warnings about which fish to avoid are *only* for fish and crabs that people catch from the area on this map.

(There are different warnings for fish that you buy.)

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+More info: This is one of the most polluted areas in the state, and so it has the strictest regulations. It is *illegal* to buy or sell blue crabs, striped bass, or American eel from this area.

Because it has the highest level of contamination within this area, the guidelines advise against eating *any* fish or crabs that are caught in the Passaic River (downstream of the Dundee Dam) . It is illegal to sell any fish or crabs from this portion of the Passaic.

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What is the area shown in this map?

What are some places you recognize?

Target answers:

The area around the Newark Bay.

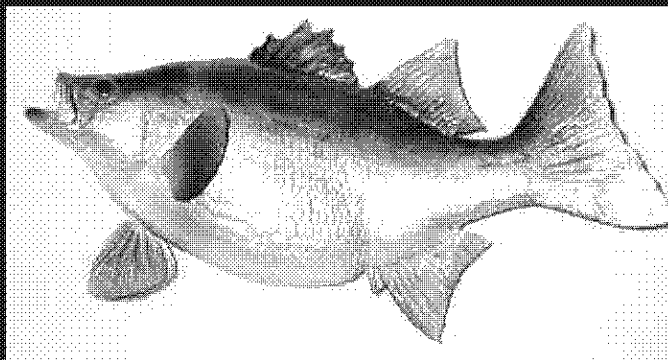
Elizabeth, etc.

Point out the **Newark Bay** on the map.

Point out areas near to where participants live.

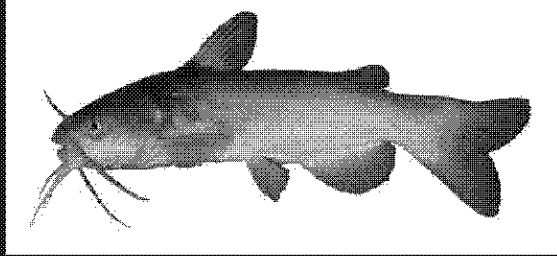


Do Not Eat:



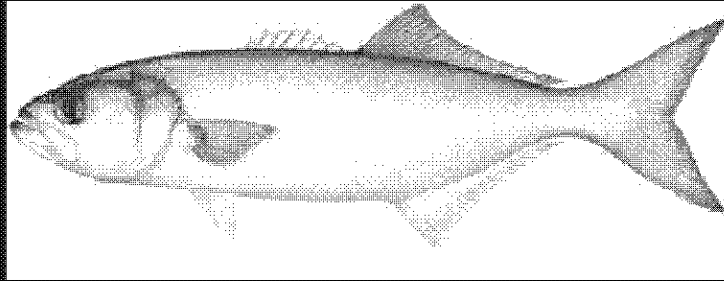
White Perch

Do Not Eat:



White Catfish

Do Not Eat:



Bluefish over 6 lb.

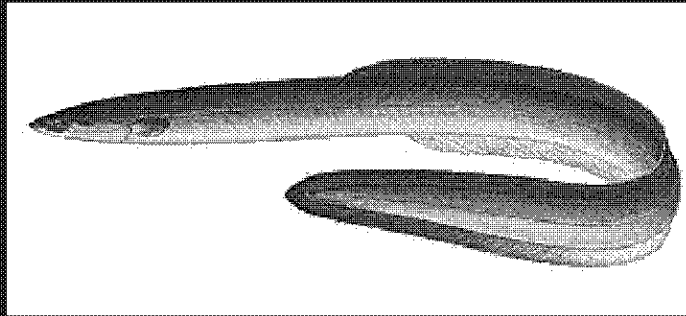
You only need to avoid eating the *big* bluefish -- those that are over six pounds. You should not eat these large bluefish caught anywhere in New Jersey, not just the Newark Bay area.

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+More info: This is because the big fish are older fish, so they have had more time to store up harmful chemicals. Since some of these chemicals take a very long time to get broken down or excreted from the fishes' bodies (or yours!), all the chemicals the fish (or you!) have eaten build up over a lifetime.

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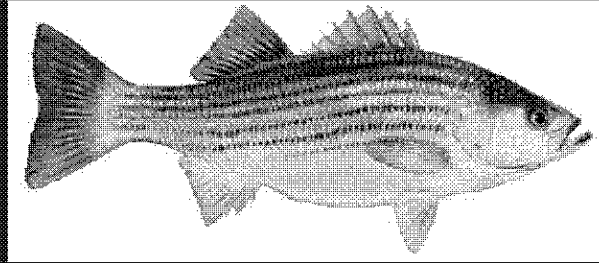
Do Not Eat:



American Eel

You should not eat American eels caught anywhere in New Jersey, not just the Newark Bay area.

Do Not Eat:



Striped Bass

The striped bass caught in the Port and other parts of Newark Bay are so full of harmful chemicals that *no one* should eat them. That goes for all members of your family, including adult men.

Do Not Eat:



Blue Crab

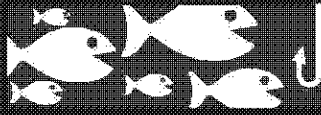
The blue crabs caught in the Port and other parts of Newark Bay are also so full of harmful chemicals that *no one* should eat them. That goes for all members of your family, including adult men.

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+More info: It is illegal to catch blue crabs in the Newark Bay Complex. It is also illegal to harvest clams, mussels, or oysters in this area. It is not safe to eat them.

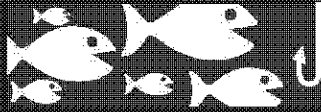
Note that the blue crabs turn *red* when you cook them.

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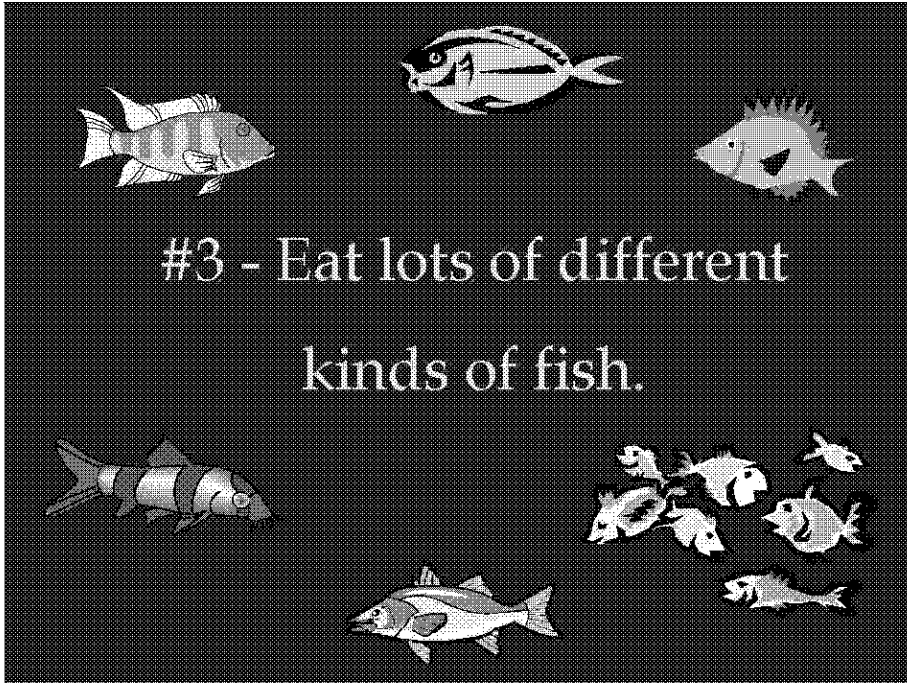
#2 - Eat smaller sizes of fish

-- they have fewer harmful chemicals in them.



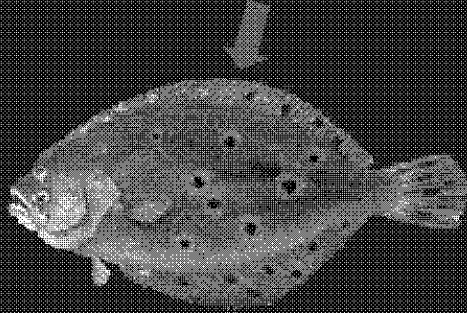
Besides not eating these kinds of fish and crabs, there are other ways you can avoid eating harmful chemicals in fish, such as method #2:

Eat smaller sizes of fish -- they have fewer harmful chemicals in them.



Eat small amounts of many different kinds of fish, instead of eating a lot of just one kind.

#4 - It's OK to eat *some* fish
your family and friends catch,
like:
Porgies, Black Sea Bass, Blackfish
and FLUKE



These are also some kinds of fish that people can catch in the Port area. They are believed to be safe to eat one or two times a week even if you are pregnant. They are lower in fat and have much, much lower amounts of chemicals in them.

(The picture is of a fluke, which is also called summer flounder.)

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*+More info: Why are some fish from the Port safe to eat and others not?
See page 9.*

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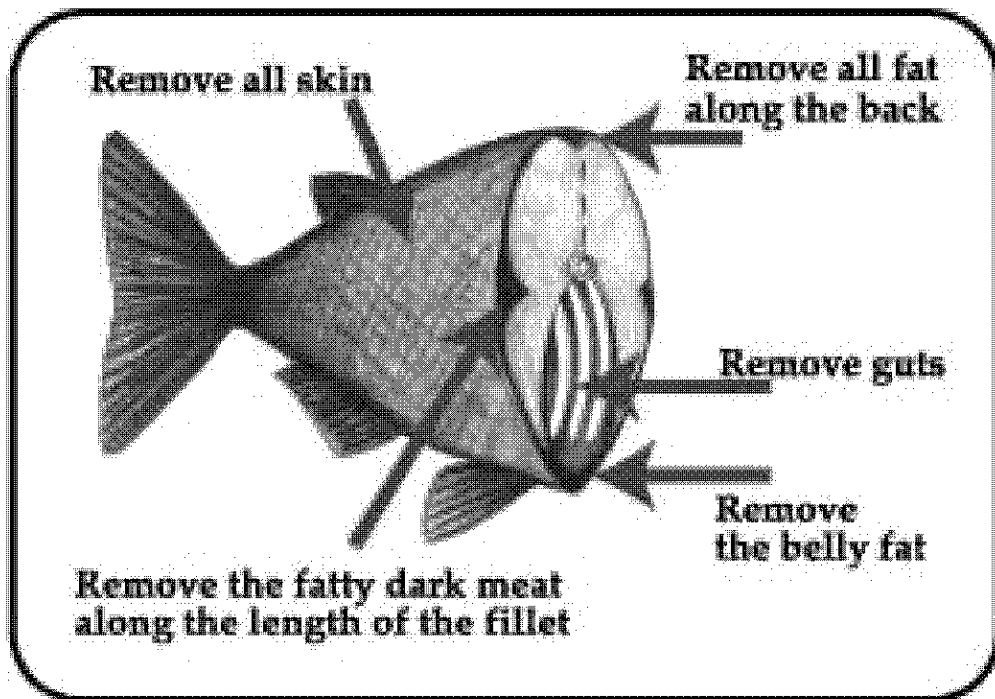
There is NO safe way to cook the 6 different kinds of fish and crabs from the Port area that we just showed you. However, there are some tips you can choose to follow in preparing and cooking other fish you catch.

Some harmful chemicals are stored in fat -- in fish and in people. If we can get rid of some of the fat from the fish, we can decrease the amount of these harmful chemicals.

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+More info: Some of the fish you catch in the Newark Bay area may have only very low levels of chemicals in them, so it may not be necessary to follow these cooking guidelines. However, you may wish to follow these tips as a precautionary measure.

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Before you cook the fish, wash it and cut away all the fatty parts, as shown in this picture.

 Discuss instructions on slide.

Then you cook the fish in a way that gets rid of as much fat as possible. This is how... (next slide).

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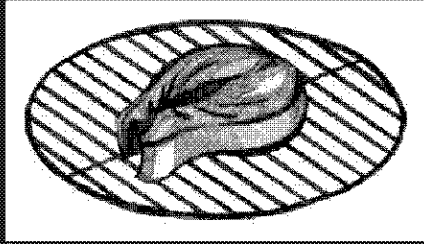
+More info: It is important to remove and throw away the head as well as the guts (intestines, etc.) of these fish also. Harmful chemicals are also concentrated in the brain and organs of the fish.

Note that different species of fish will look different from the kind shown in the diagram. For example, the strip of darker meat running along the length of the fillet (called the lateral line) may not be so prominent in some fish (e.g., fluke) as in others (e.g, bluefish).

There is no way to prepare or cook fish that will get rid of mercury (unlike PCBs and dioxin).

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- Broil, grill, bake or steam the fish on a rack.



Cooking on a rack allows the fat (with the harmful chemicals in it) to drip away.

Cooking for a long time does *not* get rid of the chemicals.

- Throw away the drippings and juice.
- Do not use drippings, fish, or fish heads in soup or sauce.
- Do not coat the fish in batter or breading.

Throw away the drippings and juice -- that's where the chemicals went. Do not make soup or sauce out of these types of fish, including the drippings or fish heads.

Don't coat the fish, because breading and batter hold the harmful chemicals (and fat) in.

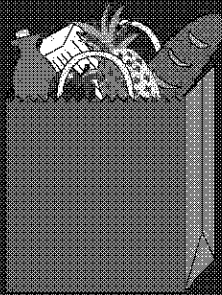
Reducing the fat in the food we eat is generally a good idea. So these are good tips for cooking *any* type of fish in a healthy way.

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+More info: It is not necessary to follow these precautions for fish that are bought in a store, that are caught in clean waters, or that are thought to be unlikely to contain harmful chemicals. In most cases the chemical levels are unknown.

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#6 - Eat fish you buy from a grocery store or market.



Another way to help ensure the fish are safe is to buy them. Stores and markets that sell fish have to follow rules that say where the fish should come from and how they should be treated. They are not allowed to sell fish that come from the Port or other areas around the Newark Bay. But just to make sure...

- Ask where the fish you buy came from.

???

→ Make sure it did not come from the Port area (or any place on the map).

• Women of childbearing age &
young kids
do not buy or eat:

- Swordfish
- King Mackerel
- Tilefish
- Shark

These types of fish may be sold in stores because they are O.K. for grown men and older women. However, they have too much *mercury* in them for little kids and for women of childbearing age.



When you are pregnant or breastfeeding it is very good for you to eat fish -- up to 12 oz. (ounces) per week of cooked fish.

One portion can be anywhere from as little as 3 ounces to well over 6 ounces, depending on your appetite!

☞ Show the class a 6 oz. can of tuna, and explain:

A standard, medium-sized can of tuna holds 6 ounces. So each week you can eat up to two cans of tuna, or two servings of fish that are about this size (or an equal amount of smaller servings).

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+More info: Remember, the rule to avoid the 6 types of fish and crabs is for fish that people catch themselves. The advice on this slide, however, is about store-bought fish. It is based on an advisory from the Food and Drug Administration (FDA). To find out more, see www.efsa.gov or call 1-888-SAFEFOOD.

There is also an advisory from the Environmental Protection Agency (EPA) about fish that people catch. It warns women who are or may become pregnant and breastfeeding mothers not to eat more than 6 oz. per week of cooked fish that was caught in freshwater rivers and lakes. For young children the limit is 2 oz. per week. (See www.epa.gov/ost/fish). This is a general rule for the whole country. It is better to follow the local advisory about freshwater sport fish for specific areas, if there is one. For New Jersey you can find out about local advisories by calling the Department of Environmental Protection (DEP) at 609-984-6070, or checking their website (www.state.nj.us/dep/dsr/njmainfish.htm).

Some types of fish and other seafood that it is safer for women of childbearing age and children to eat include: Pacific salmon, haddock, fish sticks, shrimp, and most farm-raised and canned fish.

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We can also avoid harmful chemicals
in fish by cleaning up our waters,
and keeping them clean...



Clean water is our right!

It should be our right to fish and swim and enjoy clean waters in our own backyard. Our waters became unsafe from years of industrial pollution and bad practices by developers and ordinary people (who do things like dumping oil in the drains or trash into the water). We can urge corporations to clean up their waste, and ask government officials to make sure they do. And we should clean up our own acts too!

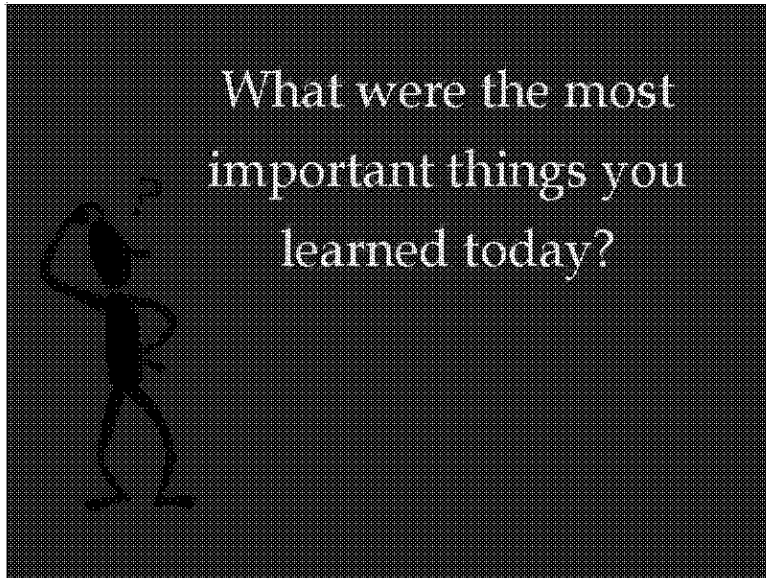
Unfortunately, the harmful chemicals that are already in the water will stay there a long time. So in the meantime, we should follow the rules about eating fish you learned today.

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+More info: If you want to get involved in cleaning up our waters, or if you would like to learn more, one place you can contact is:

NY/NJ Harbor Estuary Program. Call 212-637-3816 or check www.harborestuary.org.

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That just about covers it for today.

Does anyone have any questions?

Did anyone learn anything new today?

What?

☞ Write up on blackboard or flipchart.

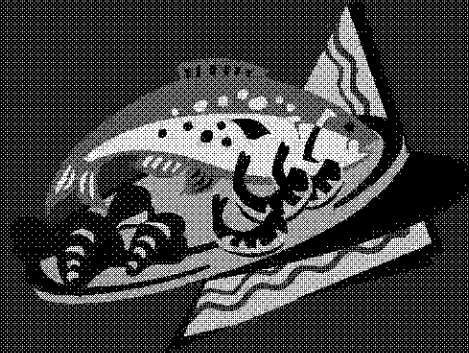
Are there any other important points we discussed?

☞ Add to list as necessary. If not mentioned, ask:

Can anyone remember the 6 types of fish you should not eat from the Port?

Target answer: *Striped Bass, Bluefish over 6 lb., White Catfish, White Perch, American Eel, and Blue Crab*

Most fish are good
to eat!



Remember, most fish are very healthy for your and your baby to eat! Just choose the right kinds!

Your baby eats the fish you eat! So...

- Do not eat 6 types of fish and crabs caught in the Port or Newark Bay area.
- Cook the fish you catch safely. Get rid of fat.
- Ask where the fish you buy came from.

So, to sum up: This is the advice you need to follow if you are pregnant, might become pregnant, or are breastfeeding your baby or feeding young children...

■ Ask for a volunteer to read the slide, or read it yourself.

■ You can end the class here, or go on to the next two slides. If this is the last slide, now is the time to hand out the brochures.

This brochure contains most of the information we talked about today. On the back it also lists some phone numbers or websites you can contact if you have other questions. You can also contact the Department of Environmental Protection (second number on the brochure) if you would like to know the health advisory rules for fishing in other parts of New Jersey, or for other members of your family.

Close with a *thank you*, or go on to last two slides.

(This slide and following slide are optional.)

Here are some places you can find out more. The names of these organizations and their phone numbers and websites are listed in the brochure.

Thank you very much for your participation. I hope you'll share what you learned with others.

Hand out brochures.

EXPANDING THE LESSON

The following are some of ideas you can use to expand upon this lesson if you have the time, or if you wish to conduct this lesson over several sessions, and/or develop additional lessons concerning safe and healthy fish and seafood selection, preparation, and consumption.

- 1) Bring in one or more of the fish on the list to avoid (slides 19-24, 35).
- 2) Bring in a fresh fish or a model and show parts to be removed. Better yet, demonstrate the safe way to prepare and cook fish (slide 30).
- 3) Provide a recipe that incorporates the safe cooking techniques (slides 30-32). One excellent idea would be to show how to change a traditional recipe over to one that uses risk-reducing techniques (e.g., convert frying to baking). If possible, demonstrate.
- 4) Describe the following case study and have participants either discuss what advice they'd give Maria, or act it out as a role play (add characters). "Maria is pregnant and has two little kids. One day Maria's husband Tony brings home his catch from a day spent fishing with his buddies at the Port in Elizabeth: a large Striped Bass, several Porgies, and a half-dozen blue crabs. He asks her to cook them up for dinner. What should she do? Should she cook his catch? All of it, or just part of it? How? Who can safely eat what? What can she say to Tony to explain her choices?"

5) Develop an additional lesson on food safety rules for preparing and cooking fish (e.g., keep fish refrigerated or on ice, how to identify fresh fish). You can check with the FDA (slide 41) for reference materials.

6) When discussing slide 30 on safe ways to cook fish, you can begin by drawing out the participants' own experience and ideas. For example,

What are some of the ways you like to cook fish?

Write answers up on blackboard or flip chart.

Which of the ways of cooking fish we listed are low-fat methods?

Target Answers: *broiling, grilling, baking, or steaming*

Circle these items as people mention them.

If they do not list all of these methods, ask:

Can you think of any other low-fat ways of cooking?

Add to list if necessary. Make sure that breading and frying are excluded. This would be a good time to discuss recipes.

7) Develop a game that helps participants recall the names and appearance of fish to avoid, e.g.:

- Make cards or cut-outs with the images of the fish to avoid (slides 19-24, 35) plus a number of "safe" fish (e.g., fluke, porgies, salmon, shrimp, fish sticks). Have a participant draw one out of a "hat." She then announces whether she will eat it or if she should throw it back (for fish caught in the Newark Bay area) or return it (for store-bought fish). Everyone can have a turn.

- Prepare a sheet with three columns:

- 1) pictures of the fish to avoid (slides 19-24) plus the fluke and the can of tuna; (Either cut and paste images on the computer or clip from a printout of the "handout" view of the presentation. If possible add images you find or create of the fish mentioned on slide 35);

- 2) names of these fish in scrambled order; and

- 3) the lines "Eat this!" and "Return it!"

Participants can then draw lines connecting the fish image with its name and the instruction whether to eat it or return it.

• Introduce an acronym to help remember the names of the 6 fish to avoid. Volunteers can practice saying the acronym and then recalling out loud the corresponding fish names. You can use the following, or the class can make up one of its own:

<u>B</u> e	☆ <u>B</u> lue
<u>C</u> areful of	<u>C</u> rab
<u>W</u> hat	⌚ <u>W</u> hite
<u>C</u> ooking	<u>C</u> atfish
<u>A</u> <u>M</u> other	⌚ <u>A</u> merican
<u>E</u> ats	<u>E</u> el
<u>S</u> o	⌚ <u>S</u> triped
<u>B</u> eautiful	<u>B</u> ass
<u>B</u> aby's	⌚ <u>B</u> luefish
<u>W</u> ell	⌚ <u>W</u> hite
<u>P</u> rotected!!!	<u>P</u> erch

8) The NJ Department of Environmental Protection (DEP) website contains the complete health advisory for fishing in the state of New Jersey. You can go over this material to explain which fish are safe to eat from where as it applies to other regions of the state, and to other family members (e.g., men). You can locate some of the low-risk areas where participants could go fishing and safely eat their catch (e.g., along the New Jersey Shore, south of Barnegat Bay).

9) Do something about it! The public owns our waterways. We all have a right to clean water for drinking and for fishing, swimming, and other kinds of fun. So if our water is not clean, and our fish are contaminated, how did that happen? And what can we do about it now? Brainstorm with participants. Write up their ideas on a blackboard or flip chart. For ideas for teaching about or acting on environmental issues consult the DEP (see slide 41) and the NY/NJ Harbor Estuary Program (slide 36). Call to ask, or look on the websites, for:

Fishing for Answers in an Urban Estuary, NJDEP/NJ Audubon Society

A Teachers' Guide to Water Education Resources in the NY-NJ Harbor Estuary Region, NY/NJ Harbor Estuary Program

These publications contain extensive lists of educational sources and of organizations concerned with environmental protection and clean-up.

CREDITS

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