ATSDR
AGENCY FOR TOXIC SUBSTANCES AND DISEASE REGISTRY

The Agency for Toxic Substances and Disease Registry (ATSDR) is a federal public health agency of the U.S. Department of Health and Human Services. It was created by the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (also known as the Superfund legislation). ATSDR's mission is to serve the public by using the best science, taking responsive public health actions, and providing trusted health information to prevent harmful exposures and disease related to toxic substances.

Environmental Health

Exposure Investigation on Blue Crab from the St. Louis Bay, DeLisle, Mississippi

Results of Exposure Investigation

Background

The Agency for Toxic Substances and Disease Registry (ATSDR) has been working in the DeLisle, Mississippi area in response to community concerns about environmental contamination and health.

In May 2006, ATSDR checked to see if soil and sediment tested after Hurricane Katrina, could cause a health risk to residents living near the DuPont DeLisle Titanium Plant in DeLisle. To complete this work, ATSDR reviewed environmental data from the Sierra Club and the U.S. Environmental Protection Agency (EPA).

After analyzing this information, ATSDR determined that people living near the plant were not at risk for health problems due to soil and sediment contamination from Katrina.

Next, ATSDR conducted an exposure investigation (EI) to determine if blue crabs from St. Louis Bay contained higher than usual levels of dioxins.

Purpose

This fact sheet provides residents updated information about ATSDR's exposure investigation (EI) on blue crabs from St. Louis Bay. The EI was done in response to community concerns about dioxins in local crabs.

ATSDR's exposure investigation

As part of its EI, ATSDR:

- Measured dioxin levels in crabs and sediments from seven areas in St. Louis Bay, and
- Compared blue crab and sediment dioxin levels from Heron Bay with those of St. Louis Bay.

What is an Exposure Investigation?

An exposure investigation involves collecting and analyzing information so that scientists can learn:

- Whether high levels of chemicals can be found in a particular place
- If people have come in contact with the chemicals (exposure), and
- If the level of exposure could cause health problems.

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Blue crab meat is safe to eat in moderation

Based on the data collected and analyzed during the exposure investigation, ATSDR found that:

- Levels of dioxins are slightly elevated in blue crabs from St. Louis Bay as compared to those from Heron Bay.
- Blue-crab meat from the St. Louis Bay is safe to eat in moderation.
- Eating meat from 4-6 crabs per day, on average, is unlikely to cause health problems.

NOTE:

The type of dioxins found at elevated levels in blue crabs from St. Louis Bay does not match the dioxins associated with the DeLisle DuPont plant.

Dioxin levels are highest in certain parts of the crab

Dioxins accumulate in the hepatopancreas, or "mustard," of the blue crab.

The hepatopancreas:

- Contain higher levels of dioxins than the rest of the crab meat.
- It is made of soft green tissue. It is also called mustard, or tomalley. (See Figures 1 & 2)

ATSDR discourages eating the "mustard" of blue crab. Eating this part of crab increases the amount of dioxins that people ingest and increases the risk of health effects associated with dioxins.

People who eat the mustard along with the crab meat should limit their intake to an average of two crabs a day

Estimated cancer risk

Many people are concerned about dioxins causing cancer. While the Environmental Protection Agency has identified dioxins as chemicals "likely to cause cancer in humans," scientists have been unable to link dioxins exposure to a specific type of cancer. As part of the exposure investigation, ATSDR:

- Estimated the average amount of blue crab that people are likely to eat from St. Louis Bay
- Calculated the amount of dioxins that people would consume if they ate the typical or average amount of blue crab from the bay, and
- Estimated the cancer risk associated with eating the average amount of crab meat from the bay.

Based on this information, ATSDR estimates that most people who eat an average amount of St. Louis Bay blue crab have an estimated increased risk of developing cancer of less than 1 in 10,000 people.

Estimated Cancer Risk

Scientists often lack the data necessary to determine actual or true risks for developing cancer from exposure to low levels of chemicals.

As a result, to determine cancer risks from low-level exposures they must refer to information from animal and human studies that used much higher exposure levels.

When using those high-dose studies to estimate cancer risk, the resulting estimated risk is often much higher than the actual risk for developing cancer in everyday-life settings.

Information about Dioxins

Overview

ATSDR determined that dioxin levels in blue crab meat from St. Louis Bay are not likely to cause health problems for people who eat only meat (no "mustard") from 4-6 crabs per day. This section provides answers to questions ATSDR has received about dioxins.

Where are dioxins found?

Dioxins are found everywhere in the environment. This means that everyone has been exposed to low levels of these chemicals. Dioxins are produced mostly by human activities, such as burning trash or by natural sources such as forest fires. In the area of DeLisle, dioxins are emitted from the DuPont plant as a by product of manufacturing of titanium dioxide.

Why do dioxins raise concerns?

Dioxins in the environment raise concerns because they:

- Remain in the environment for a long period of time
- Can build up in the fatty tissues of humans and animals, and
- Can cross the placenta in pregnant women and can be present in breast milk.

While the presence of dioxins does raise concerns, the amount of these chemicals found in humans and in the environment is declining. This is the result of improvements in industrial technologies.

Do dioxins cause health problems?

Many questions exist about possible health effects following dioxin exposure. Scientists have associated some health problems with these exposures, but much remains unknown. Scientists are working to learn more about these chemicals.

Should women avoid dioxins?

Scientists and doctors are concerned about the possibility of reproductive and developmental defects in children whose mothers are exposed to dioxins during pregnancy. As a result, women are advised to avoid contact with dioxins by limiting the amount of animal fat that they eat. This includes the mustard of the blue crab, which is fatty tissue. This advisory applies to:

- Young girls
- Pregnant women and women of childbearing ages, and
- Breastfeeding mothers.

What are the signs of exposure to high levels dioxins?

Chloracne is a classic sign of exposure to high levels of dioxins.

Chloracne is:

- A skin condition that looks like a severe acne outbreak, with lesions more common in the cheeks, behind the ears, in the armpits, and in the groin
- More difficult to cure and can cause more scarring than regular acne, and
- Very rare and should be treated by a doctor or healthcare provider.

Does high dioxin exposure cause other health problems?

More scientific work is needed to identify all the health problems associated with exposure to high levels of dioxins. However, there is some evidence that exposure to high levels of dioxins is linked to:

- Reduced liver function
- An increased risk for developing type 2 diabetes
- Changes in the immune system or the body's ability to fight disease, and
- Increased risk of cancer.

Note: Blue crab meat from St. Louis Bay when eaten in moderation is not likely to cause health problems. ATSDR recommends that people not eat the mustard of the crab.

For More Information

If you would like additional information about dioxins, contact:

- **James Durant, Environmental Health Scientist**
  ATSDR, Atlanta, GA,
  Office 404-498-0449 or toll free at 1-800-CDC-INFO (1-800-232-4637)
- **Lourdes Rosales-Guevara, M.D.**
  ATSDR, Atlanta, GA,
  Office 404-498-0499 or toll free at 1-800-CDC-INFO (1-800-232-4637)

When calling ATSDR's toll-free number, please ask for one of the individuals above and mention the DuPont DeLisle site.

Additional information about dioxins and dioxin-like compounds can be found on the Internet at:

- Chlorinated dibenzo-p-dioxins (http://www.atsdr.cdc.gov/toxprofiles/tp104.html)
- Chlorinated dibenzofurans (http://www.atsdr.cdc.gov/toxprofiles/tp32.html)
- Chlorinated EPA draft Risk Assessment for Dioxins:
  http://cfpub.epa.gov/ncea/cfm/recordisplay.cfm?deid=55264

Fig. 1

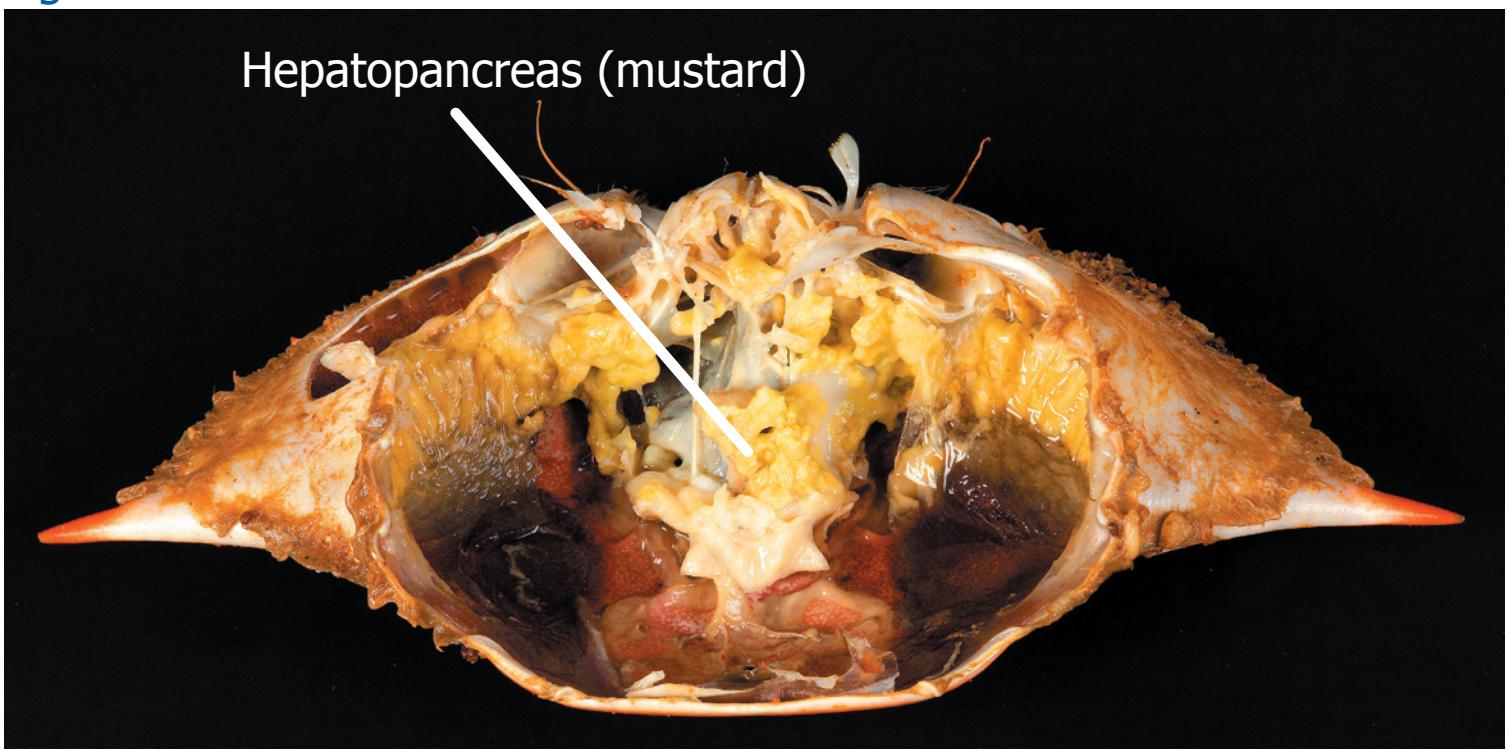
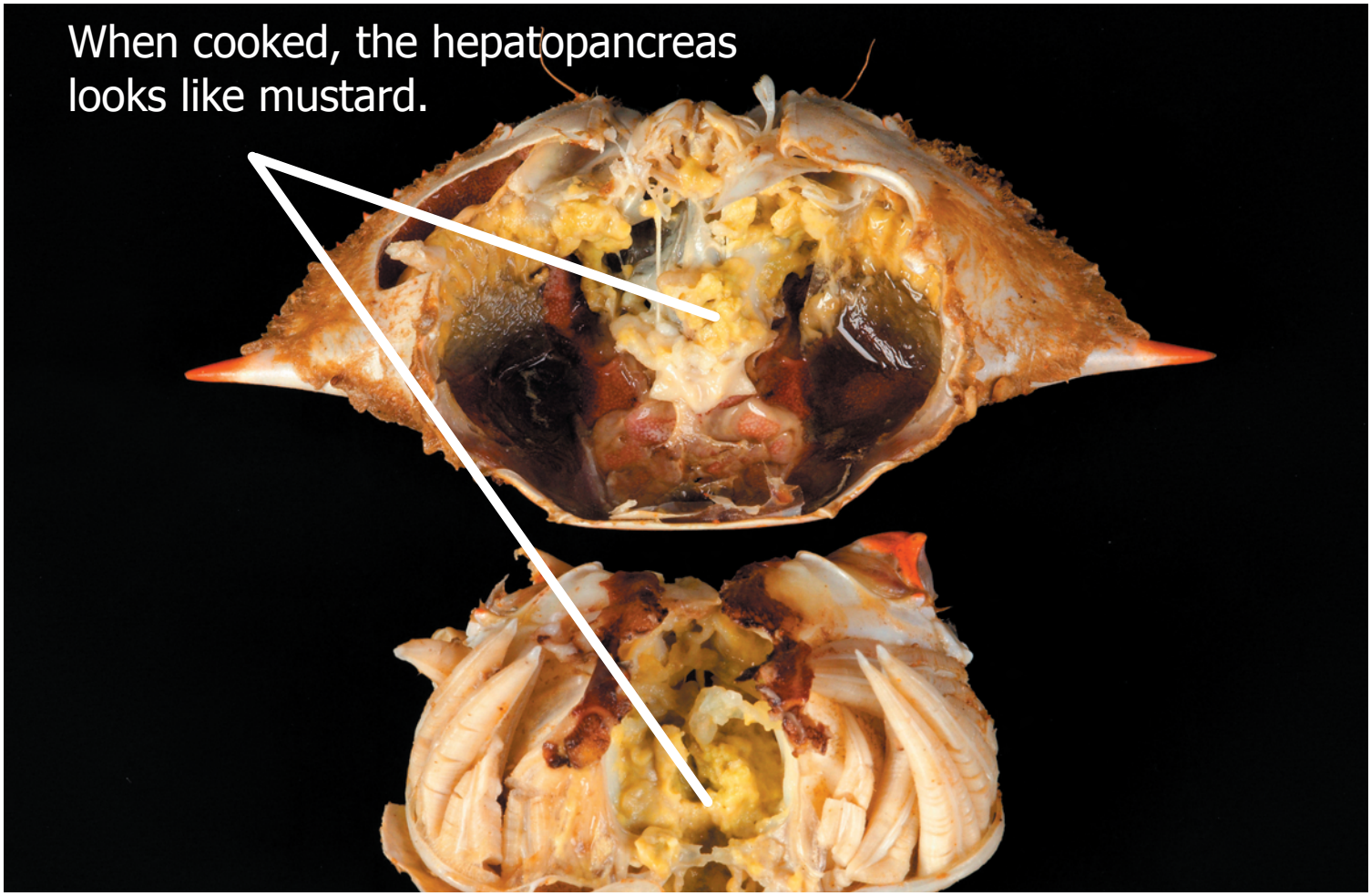


Fig. 2



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