

SEAFOOD SAFETY

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Outline

- ▣ What is food and seafood safety
- ▣ Who controls food versus seafood
- ▣ Oil spills and seafood safety
- ▣ What is the risk
- ▣ Screening for contamination
- ▣ When you hear Gulf Seafood is Safe, what does this mean

What is food safety?

- ▣ Chemical contamination
- ▣ Substandard ingredients
- ▣ Bacterial contamination
 - *E. coli*
 - *Salmonella*
 - *Vibrio*
- ▣ Recalls
- ▣ Closures
- ▣ Import controls

Who controls food safety?

- ▣ United States Department of Agriculture (USDA)
 - Food Safety and Inspection Service
- ▣ U. S. Food and Drug Administration (FDA)
 - U.S. Dept. of Health and Human Services
- ▣ <http://www.foodsafety.gov/>
- ▣ Hazard Analysis and Critical Control Point (HACCP)

National Oceanic and Atmospheric Administration (NOAA)

- ▣ Department of Commerce
- ▣ National Seafood Inspection Program
 - Lab in Mississippi
 - Voluntary
 - Fee-for-service
 - US Grade “A”
 - <http://www.seafood.nmfs.noaa.gov/>
- ▣ Seafood HACCP
- ▣ States departments can also do voluntary testing



Oil spills and seafood

- ▣ Determination
 - USFDA
- ▣ Testing
 - NOAA
- ▣ Polycyclic aromatic hydrocarbons (PAH)
 - ▣ Carcinogen
 - Benzo[a]pyrene
- ▣ Thresholds of exposure
 - Mercury
 - Asbestos
 - Lifetime

Calculating the risk:

Six major factors are taken into consideration to determine the exposure and threat to human health. These are:

1. Acceptable Risk Level (RL): The maximum level of carcinogenic risk versus the average risk of cancer in a population.
2. Body weight (BW): The body weight of the average individual consumer
3. Average Time (AT): The average length of a human lifetime
4. BAP Cancer slope factor (SF): Using known toxicity studies, what amount of BaP, per weight of human, per day is a conservative cancer risk
5. Exposure Duration (ED): How long is the carcinogen a risk, or what is the duration of the spill event.
6. Seafood Consumption Rate (CR): The quantity of seafood the average individual consumes per day.

Oil spill closures

- ▣ Precautionary- stage 1
- ▣ FDA: prohibits adulterated food to enter interstate commerce
- ▣ NOAA: National Marine Fisheries Service: 3-200 miles offshore closures
- ▣ LA Department of Wildlife and Fisheries (LDWF): shoreline – 3 miles

Oil spill testing

- ▣ Assurance- stage 2
- ▣ FDA determines “allowable levels”
- ▣ NOAA determines actual contamination
- ▣ All must pass:
 1. Smell test (raw and cooked)
 2. Taste test
 3. Chemical analysis
- ▣ 10 person panel
- ▣ 1 failure fails whole sample

“Nose knows”

- ▣ USDC Seafood Petroleum Contamination Workshop State Screener Training
- ▣ Intense training
 - Understand the various roles your sense play
 - Recognize misleading sensory cues
 - Identify various petroleum products
 - Familiarize with tainted samples at known quantities
- ▣ Level of sensitivity
 - For field inspector- 10 ppm
 - Trained NOAA lab expert- 0.5 ppm

Watermelon

Orange

Lemon

Strawberry

Grape

Lime

Blueberry

Apple

Watermelon

Orange

Lemon

Strawberry

Grape

Lime

Blueberry

Apple

Misconceptions: our senses lie

- ▣ Senses interact
- ▣ Smell influences taste
- ▣ Visual colors can mislead assumed taste or smell
- ▣ Common smells can invoke memories which help mask the identity

How does oil smell?

- ▣ All petroleum products smell unique
 - Louisianan light crude (sweet)
 - Alaskan crude
 - Motor oil
 - Gasoline
 - Diesel

- ▣ Oil does not smell like oil
 - Smells dirty, grassy, earthy, etc.
 - Need to put descriptors to the smell
 - Intensity affects the same smell

Sniff training

- ▣ “bunny sniffs”
- ▣ Lift lid slightly
- ▣ Sensory overload
- ▣ Refreshers
 - Fresh cucumber
 - Canned corn
 - Fresh watermelon
- ▣ Train on known 10, 20, and 40 ppm
- ▣ Oysters, finfish, and shrimp

Gulf coast seafood:

- ▣ Very few samples had trace amounts of oil or dispersant residue, and all FAR below levels of concern.
- ▣ Levels detected allow the average person to eat 365 days a year for 5 years:
 - 63 lbs. of peeled shrimp (1,575 jumbo shrimp); OR
 - 5 lbs. of oyster meat (130 individual oysters); OR
 - 9 lbs. of fish (18 8-ounce fish filets).

How much seafood is tainted?

- ▣ NONE !
- ▣ If tainted, then does not enter the market



Resources

- ▣ <http://www.seafood.nmfs.noaa.gov/>
- ▣ <http://response.restoration.noaa.gov/oilands/pdfs/seafood2.pdf>
- ▣ <http://www.foodsafety.gov/>