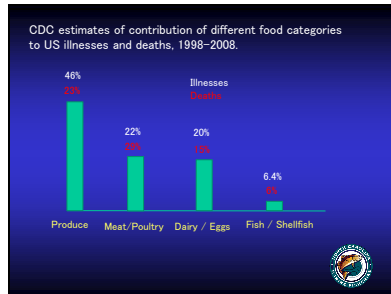


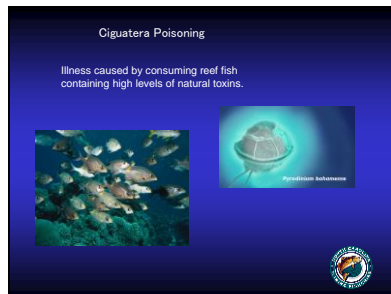
Slide 1



Slide 2



Slide 3



Slide 4

Symptoms

Typically occurring within 6 hours: Gastrointestinal issues, neurological effects including numbness / tingling of the teeth, itching, myalgia, headache, and acute sensitivity to heat and cold. Cardiac complications can occur in severe cases.

Symptoms often decline within a few days, but neurological symptoms can persist for months and may re-occur for years usually following consumption of fish, alcohol, caffeine, or nuts.




CDC estimates 50k-500k cases annually worldwide, but incidence in US is unknown with cases likely under-reported.




Slide 5


Primary species associated with Ciguatera poisoning




Barracuda



Grouper



Amberjack



Slide 6

Controls for Ciguatera

Approved source. Obtain ciguatera prone fish from commercial, reputable sources.




Avoid consumption of large (6lbs. +) tropical reef fish, especially during warmer months.

Contaminated fish will not show outward signs of contamination, and cannot be made safe through cooking, freezing, etc.



Slide 7


Scombrototoxin (Histamine) Poisoning



Naturally occurring Histidine present on certain fish.













Heat allows bacterial action to produce an enzyme that converts histidine to histamine.


Fish may not show outward signs of contamination.



Slide 8

Species Responsible for Scombrototoxin Poisoning

Amberjack	Jacks	Sardines
		
		
		
		




Slide 9

Symptoms

Onset of symptoms can occur within minutes up to a few hours:
tingling / burning around mouth and throat, upper body rash, GI issues, low BP, asthma-like airway constriction, respiratory distress, heart palpitations.

CDC reported 380 scombrototoxin outbreaks involving 1730 people from 1990-2007, but cases are likely under-reported.



Slide 10



Controls for Scombrototoxin

Approved source. Obtain fish from commercial, reputable sources only.

Examine fish for condition and temperature at receipt, keep fish cold (40F or below) until immediately prior to preparing and serving.

Avoid comingling scombroid fish with other fish or seafood products and avoid cross contamination to food contact surfaces or ready to eat foods.

Contaminated fish cannot be made safe by cooking, freezing, etc.






Slide 11

Gempylotoxin

Gempylotoxin is an indigestible wax found in Escolar or Oil Fish.

Consumption of these fish can cause *unusual* digestive problems.



Slide 12

Symptoms

Onset of symptoms within a few hours. Diarrhea, often consisting of an oily orange or brownish-green discharge (kerorrhoea), without major fluid loss; abdominal cramps; nausea; headache; and vomiting.

Mortality: None known...but you'd probably think you were going to die!



FDA recommends against the sale of this fish in the US.



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Gempylotoxin Controls

Typical "source" of illnesses are in cases of species substitution.
Escobar are often marketed and sold as: White Tuna, Butterfish, Taiwanese Sea Bass.

Substitutions most often found in sushi bars or similar.

Menu items should match products found in storage or listed on invoices!

Note: Escobar are also histamine-prone; temperature control is important.




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Molluscan Shellfish Hazards

Bacterial Pathogens
Salmonella
C. botulinum
Listeria
Vibrio vulnificus
Vibrio parahaemolyticus


Viruses
Hepatitis A
Hepatitis E
Rotavirus
Norwalk

Natural Toxins
PSP
ASP
NSP



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Vibrio vulnificus & parahaemolyticus




Naturally occurring bacteria in warm estuarine waters (23ppt).

Typically two possible routes of infection: consumption of raw or undercooked shellfish and wound infections.

Occurrences: Less than 100 Vv cases per year, with 35-50% mortality rate.

Estimated 45,000 Vp cases per year, with 2% mortality rate.



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Symptoms

Onset of symptoms: 12 hours-21 days (gastroenteritis); 2-4 days (septicemia)

Individuals with weakened immune systems are at risk for serious complications such as septicemia as evidenced by large blister-like lesions (bullae).



Pre-existing conditions such as liver disease, diabetes, stomach or blood disorders, alcoholism, AIDS, and lowered levels of stomach acid are of special concern.



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Slide 18



Man dies after contracting vibrio from eating oysters at North Carolina coast: Friends



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Vibrio Controls

Approved source. Molluscan shellfish should only be received in properly labeled or tagged containers.


Thorough cooking is the only effective control to eliminate the hazard. Holding raw shellfish at 40F or below will limit the growth of Vibrios.

Avoid cross contamination of surfaces or ready to eat products with raw shellfish.

Adequate consumer notification is required and essential!


CONSUMER ADVISORY

Eating raw, or undercooked oysters, clams or mussels may cause severe illness. People with the following conditions are at especially high risk: liver disease, alcoholism, diabetes, cancer, stomach or blood disorders, or weakened immune system. Ask your doctor if you are unsure of your risk. If you eat raw, or undercooked shellfish and become sick, see a doctor immediately.



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FDA through ISSC has instituted much stricter controls on time to refrigeration for shellstock in warmer months to try to control increase in Vp cases.






New requirements will result in harvesting modifications and shipping documentation, but will not affect retailers.





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When following up on potential illnesses, check for:

- Approved sources: Invoices, receipts, tags, labels, etc.
- Proper storage/handling: temperature control, cross contamination control, cooking processes, product condition, etc.
- Species identification: Does the menu match the stock?
- Engage, notify other agencies.







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Take Home Message: Remain Vigilant!

When seafood related complaints / illness reports come in pay attention to:

Products involved (oysters, mahi, sushi, etc.)

Symptoms involved (rash, temperature sensitivity, orange discharge)

Source of products involved: restaurant, market, festival, personal...