Pearls of Wisdom… for Seafood Consumers
Seafood is Good for Health

- High in protein
- Most species low in calories & fat
- Low in saturated ("bad") fat
- Contains omega-3 fatty acids which:
  - Decrease inflammation (as in arthritis)
  - Reduce risk of strokes & heart attacks
  - May reduce risk of Alzheimer’s disease
  - Lower incidence of cancer & aid treatment
- American Heart Assoc. recommends 2 or more servings of seafood per week
Additional Attributes

- Easy to chew and digest
  - for consumers who have dentures, few teeth, or swallowing problems (elderly, toddlers)
- Easy to prepare; cooks quickly
- Available in single or multiple servings
- Variety - many species of fish & shellfish
- Available fresh, frozen, canned
Bivalve Molluscan Shellfish

- Have two shells hinged together
- Cannot swim or move around
- Filter nutrients from surrounding water
- Examples: oysters, clams, mussels
- Nutritional benefits:
  - 5 grams or less of fat in 3-ounce cooked serving
  - Contain omega-3 fatty acids
  - Good source of iron, zinc, iodine, magnesium, selenium, & other minerals
Bivalves are Unique

- Entire animal is eaten, including stomach & intestines
- Usually consumed raw or lightly cooked
- Except scallops:
  - Usually cooked
  - Only abductor muscle is eaten
Most foods from animals (beef, poultry, eggs, fish, pork) are cooked prior to consumption. However, oysters, clams, & mussels are often consumed raw or partially cooked.

Illnesses sometimes occur from eating raw bivalves, and although most are typically not life threatening, incidences of serious illness and death have been reported.

Eating **raw** bivalves can increase risk of illness – cooking can reduce the risk of illness.
Ensuring Safety

Because bivalves may be eaten raw, extra precautions are taken by federal, state, & local agencies to ensure safety.

- Bivalve meats & growing waters are tested for microbial & chemical contamination.
- Waters are either approved or closed to harvesting according to test results.
- Seafood dealers that handle, process, or sell raw bivalves are licensed, certified, & inspected.
Role of Consumers

- Obtain oysters, clams, or mussels from stores or people with valid business licenses.

- Do not take shellfish from areas that are closed or not approved for harvesting.

- Do not eat bivalves that die prior to cooking or shucking.

- If you have health conditions that make you susceptible to infection, eat cooked bivalves, and avoid eating them raw.
Vibrio vulnificus Bacteria

- Naturally present in seawater & bivalves, especially in warm climates & weather
- Not a result of pollution or contamination
- May cause illness in some consumers (average 95 U.S. cases/year)
- Rarely infects healthy people
- Thorough cooking kills bacteria
Health Conditions that increase risk of *Vibrio vulnificus* infection

- Liver disease
- Diabetes
- Cancer
- AIDS / HIV
- Iron overload disease
- Stomach disorders
- Alcoholism
- Chronic kidney disease or failure
- Weakened immune system

If you are unsure of your risk, consult your doctor.
Modes of *Vibrio vulnificus* Infection

- **Seafood (50% cases)**
  - Eating raw or undercooked seafood, especially oysters

- **Wounds (50% cases)**
  - Exposing pre-existing wound or sore to seawater or raw seafood
    - Swimming, wading, fishing, handling raw seafood
  - Obtaining wound from marine-related activity
Vibrio vulnificus Infection in High-Risk Consumers

- Symptoms often occur within 3 to 48 hours
- Illness quickly becomes severe
- Requires immediate medical treatment
- Death may occur in as few as 1 or 2 days
- Average food case fatality rate is 50%
  - 61% in alcoholic consumers
  - 60% in consumers with liver disease
Symptoms of *Vibrio vulnificus* Infection may include:

- Fever / chills
- Stomach pain/ nausea/ vomiting
- Diarrhea
- Red skin lesions - may develop into blisters, sometimes filled with blood
- Shock (sharp drop in blood pressure)
- Swelling, pain, redness, blisters, &/or dead tissue around wound
Preventing Infection is Easy

High-risk consumers (those with one or more health conditions) should take the following precautions to avoid *Vibrio vulnificus* infection:

- Do not expose wounds or sores to seawater or raw seafood
- Avoid eating raw or undercooked seafood, especially oysters
- Eat thoroughly cooked bivalves
### Cooking Guidelines

**Food & Drug Administration recommendations**

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<thead>
<tr>
<th>for live bivalves:</th>
<th>for shucked bivalves:</th>
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<tbody>
<tr>
<td>Discard dead bivalves</td>
<td>Boil or simmer for 3 minutes</td>
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<tr>
<td>Use small pots &amp; don’t overload</td>
<td>Broil 3 inches from heat for 3 minutes</td>
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<td>Boil for 3 to 5 minutes after shells open</td>
<td>Deep fry at 375°F for at least 3 minutes</td>
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<tr>
<td>Steam for 4 to 9 minutes in pot with boiling water</td>
<td>Bake 10 minutes at 450°F</td>
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<td>Increase times for large quantities or recipes with additional ingredients</td>
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Industry Efforts to Improve Safety

The Gulf oyster industry is currently using three federally approved processes that reduce *Vibrio vulnificus* bacteria to non-detectable levels in oysters after they are harvested. In addition, they are researching other effective post-harvest processes.

Although these processes effectively kill *Vibrio* bacteria, they have not been validated to remove all other harmful bacteria or viruses. Thus, it is not recommended that high-risk consumers eat raw post-harvest processed oysters.
Summary

- Seafood is nutritious & heart healthy

- Do not stop eating seafood, but make safe choices based on your health conditions
  - Consumers at high risk for infection should eat thoroughly cooked bivalves and avoid raw or undercooked seafood (also meat, fish, poultry, & eggs)
For more information, including recipes, please visit the web site SafeOysters.org which has consumer and fishermen information in English, Spanish, & Vietnamese.
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