Shellfish Safety
Biotoxins and Red Tide

Megan Hintz & Taylor Solomon
Lummi Nation
Annual Fishers Meeting
June 24th 2019
Harmful Algae Blooms (HABs)
Toxic algae can make you sick

**Toxic algae bloom**
- Ideal water conditions for algae blooms include sunlight, nutrients for plant growth, and warm water temperatures.

**Shellfish eat algae**
- Shellfish that feed on toxic algae blooms become toxic and unsafe to consume.

**People eat shellfish**
- Toxic shellfish are eaten. Possibly making consumers sick in anywhere from minutes to 24 hours.
3 Types of HABs / Biotoxins

- Paralytic Shellfish Poisoning (PSP)
- Diarrhetic Shellfish Poisoning (DSP)
- Amnesic Shellfish Poisoning (ASP) (Domoic acid)
Paralytic Shellfish Poisoning (PSP)
Diarrhetic Shellfish Poisoning (DSP)

• 1\textsuperscript{st} confirmed US cases at Sequim Bay in 2011

< Short term

Long term >
Amnesic Shellfish Poisoning (ASP)

DOMOIC ACID

This beach closed to razor clam digging.

LETHAL

Crab with a smile.

Cyanobacteria in the water.
Biotoxin History in WA

PSP testing in WA started 1930

PSP deaths 1942
3 events
6 illness,
3 deaths

PSP outbreak in BC 1957

Widespread PSP toxicity in WA 1978
3 events
17 illnesses
40% required hospitalization

First PSP closure in South Sound 1988
1980s
4 events
10 illnesses

1991
5 illnesses

2000s
2010s
Biotoxin History in WA

- **1900s**: PSP testing in WA started 1930
- **1940s**: PSP deaths 1942, 3 events, 6 illness, 3 deaths
- **1950s**: PSP outbreak in BC 1957
- **1960s**: Widespread PSP toxicity in WA 1978, 3 events, 17 illnesses, 40% required hospitalization
- **1970s**: First PSP closure in South Sound 1988, 1980s, 4 events, 10 illnesses
- **1980s**: 1991 5 illnesses, 1991, 5 illnesses
- **1990s**: First DSP illness in WA 2011, 2011, 7 hospitalizations
- **2000s**: 2012 3 events, 9 illnesses, 2012 3 events, 9 illnesses
- **2010s**: West Coast ASP event 2015, 2015
- **2020s**: First Domoic Acid Closure in Puget Sound 2003, 2003
- **Now**: Domoic Acid (ASP) detected on the West Coast 1991, 1991
- **1900**: PSP deaths 1942, 3 events, 6 illness, 3 deaths
- **1950s**: PSP outbreak in BC 1957
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- **Now**: First Domoic Acid Closure in Puget Sound 2003, 2003
Red tide / biotoxin risk is increasing

- Unusual time of year
- Longer closures
- **HIGHER** toxin levels
- Multiple blooms in a year
- **NEW** BIOTOXINS
Safely harvesting shellfish

The only way to know if shellfish are safe to eat is by testing them in a lab

- Myths
- Health risks
- Check for closures

Check for closures

Lummi 24-hr fishery hotline: (360) 380-6899

WA Department of Health Hotline: 1-800-562-5632
www.doh.wa.gov/ShellfishSafety

Lummi Natural Resources Website: www.lummi-nsn.gov

Lummi Natural Resources Office (360) 384-7119
LNR takes action

Increased monitoring and information

**BIOTOXIN CLOSURES**

*Updated: 6/20/2019*

Where is it safe to harvest shellfish?

<table>
<thead>
<tr>
<th>On Reservation:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>✖ Lummi Bay</td>
<td>CLOSED to all species, PSP</td>
</tr>
<tr>
<td>✔ Portage Bay</td>
<td>OPEN to all species</td>
</tr>
</tbody>
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<tr>
<td>✖ Bellingham Bay</td>
<td>CLOSED to all Butter and Varnish clams, PSP</td>
</tr>
<tr>
<td>✔</td>
<td>OPEN to all other species</td>
</tr>
<tr>
<td>✖ Birch Bay</td>
<td>CLOSED to all species, PSP</td>
</tr>
<tr>
<td>✖ Drayton Harbor</td>
<td>CLOSED to all species, PSP</td>
</tr>
</tbody>
</table>

For more information contact:
Dolly January: (360) 312-2305
Megan Harte: (360) 312-2313
Lummi Hotline: (360) 312-4999
WA DNR: 1-800-562-5632
www.dnr.wa.gov/ShellfishSafety

Shellfish Biotoxins & Red Tide:  
Risks and how to safely harvest

“*When the tide is out, the table is set*”

LUMMI NATURAL RESOURCES DEPARTMENT  
HARVEST MANAGEMENT DIVISION  
FISHERY HOTLINE: (360) 380-6899
New beach signage

**OPEN**
for Shellfish Harvesting
Shellfish are safe to eat.

**CLOSED**
for Shellfish Harvesting
Biotoxin (red tide) levels are high; shellfish are unsafe to eat.
Thank you!

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Megan Hintz
MeganH@lummi-nsn.gov
360-312-2213