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Vibrio parahaemolyticus: Risk Assessment Purpose and Need

Washington State Department of Health VpAC Meeting

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Outline

- Purpose
- Serving Size vs. Infective Dose
- Oyster Inclusion
- Landings Report
- Example
- Process
- Public Health Rationale

Purpose

- Establish relative risk for each growing area in order to:
  - Foster proactive *Vp* management strategies in all areas
  - Concentrate monitoring efforts in risk-prone areas
  - Propose tiered proactive controls based on the level of risk

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… and the Purpose is Not to

- Weed out ‘bad’ harvesters
- Lead to enforcement actions against harvesters
- Be a one time deal
- Be a silver bullet for *Vp* management
- Eliminate other management strategies
- Prove the relative risk of Vibriosis is low (or high)

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Serving Size vs. Infective Dose

- Serving size:
  - FDA serving: 12 oysters (200 g.) based on Gulf Coast survey (Vp and Vv)
  - No similar data for Washington
    - Consumption ranges from one to more than two dozen oysters
- Infective exposure:
  - One oyster
  - Agreement that it may only take one oyster to make you sick

Benefits of using one oyster as the infective exposure for the risk assessment:

- Keeps math simple
- Represents the risk of Vibriosis from oyster consumption

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Oyster Sizes Associated with Illness

	X-small*	Small**	Medium***	Large	Jumbo	Shucked	no tags/no size listed
2012	2	6	3	0	0	1	5
2011	2	8	3	0	0	3	6
2010	7	4	5	0	0	2	13
TOTAL	11	18	11	0	0	6	24

* Includes Kumamoto

** Includes Blue Pool, Penn Cove Select, and Shigoku

*** Includes #4 and BBQ size

Data based review of 2010-2012 single source commercial illnesses where tags with size information were available.

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Oyster Inclusion

- Include all in shell x-small, small and medium oysters
- Exclude all in shell large and jumbo oysters
- Exclude all shucked product and all post-harvest processed product

Landings Report

- Number of oysters harvested by month and by growing area for *Vp* Control Months:
  - May 1-September 30 (Hood Canal and Puget Sound)
  - July 1- August 31 (outer Coast)

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Oyster Landings Report															
Growing Area	2010					2011					2012				
	May	June	July	August	Sept	May	June	July	August	Sept	May	June	July	August	Sept
Bay Center	NA	NA			NA	NA	NA			NA	NA	NA			NA
Bruceport	NA	NA			NA	NA	NA			NA	NA	NA			NA
Cedar River	NA	NA			NA	NA	NA			NA	NA	NA			NA
Grays Harbor	NA	NA			NA	NA	NA			NA	NA	NA			NA
Nahcotta	NA	NA			NA	NA	NA			NA	NA	NA			NA
Nemah River	NA	NA			NA	NA	NA			NA	NA	NA			NA
Stony Point	NA	NA			NA	NA	NA			NA	NA	NA			NA
COASTAL TOTAL	**NA**	**NA**	**0**	**0**	**NA**	**NA**	**NA**	**0**	**0**	**NA**	**NA**	**NA**	**0**	**0**	**NA**
Annas Bay															
Dabob Bay															
Hood Canal 1															
Hood Canal 2															
Hood Canal 3															
Hood Canal 4															
Hood Canal 5															
Hood Canal 6															
Hood Canal 7															
Hood Canal 8															
Hood Canal 9															
Port Gamble															
Quilcene Bay															
HOOD CANAL TOTAL	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Buck Bay															
Discovery Bay															
Kilisut Harbor															
Mystery Bay															
Samish Bay															
Westcott Bay															
NORTH PUGET SOUND TOTAL	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
East Sound															
Eld Inlet															
Hammersley Inlet															
Henderson Bay															
Nisqually															
North Bay															
Oakland Bay															
Peale Passage															
Pickering Passage															
Reach Island															
Rocky Bay															
Scow Bay															
Shoal Bay															
Skookum Inlet															
Stretch Island															
Totten Inlet															
SOUTH PUGET SOUND TOTAL	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

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Example

Harvesters report landings, DOH records

Oyster Landings Report						
Growing Area	2010		2011		2012	
	July	August	July	August	July	August
Oyster Cove	1000000	2000000	1000000	5000000	5000000	2000000
Risk Bay	10	50	200	100	200	200
Assessment Harbor	2000	3000	3000	4000	3000	1000
TOTAL	**1002010**	**2003050**	**1003200**	**5004100**	**5003200**	**2001200**

DOH compiles and records illnesses

Vibrio Illness Report						
Growing Area	2010		2011		2012	
	July	August	July	August	July	August
Oyster Cove	1	2	0	6	0	1
Risk Bay	0	1	2	0	1	0
Assessment Harbor	0	1	0	1	0	0
TOTAL	**1**	**4**	**2**	**7**	**1**	**1**

DOH divides illnesses/harvest x 100,000

Relative Risk Assessment						
Growing Area	2010		2011		2012	
	July	August	July	August	July	August
Oyster Cove	0.1	0.1	0	0.12	0	0.05
Risk Bay	0	2000	1000	0	500	0
Assessment Harbor	0	33.33	-	25.00	0	0

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DOH adds monthly totals and interprets results

Annual Risk Assessment Summary			
Growing Area	**2010**	**2011**	**2012**
Oyster Cove	0.2	0.12	0.05
Risk Bay	2000	1000	500
Assessment Harbor	33.33	25.00	-

Oyster Cove:

- Steadily reduced risk in three years, always below 1 in 100,000

Risk Bay:

- Reducing risk, but still high risk area

Assessment Harbor:

- High risk, but dropped to 0 due to no 2012 illnesses

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DOH compiles landings and illnesses by growing area and month

DOH calculates relative risk of Vibriosis by growing area

Results are shared with oyster harvesters

DOH updates *Vp* sampling

Harvesters update *Vp* management strategies

New Season

Harvesters provide landings data to DOH

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Public Health Rationale

- Provide a quantitative measure of risk
- Gain the ability to assess *risk by infective exposure* and *risk by growing area* rather than simply total illnesses
- Compare risk between years objectively
- Understand how risk patterns emerge and change over time

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