



PUBLIC HEALTH

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Vibrio parahaemolyticus:

Environmental Indicators and Harvest Conditions

Washington State Department of Health VpAC Meeting

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Outline

- Goals
- Potential role of environmental factors
- Approach
 - Minimum standards
 - Tiered management
- Potential environmental factors
- Discussion of additional factors
- Review of supporting data
- Discussion
 - Policy recommendations
 - Additional data to research

Goals

- Move from reactive to proactive management
- Multi-pronged management approach:
 - Risk assessment
 - Based on illness risk
 - Tiered controls
 - Based on known/expected risk
 - Research studies
 - Learn more about V_p growth and its preferred environments

Potential Role of Environmental Factors

- Complementary to a risk assessment, not dependent on a risk assessment
- Closes areas when they need to be closed and opens areas when they are safe for harvest
 - Helps to ensure public health protection
 - Responsive to industry needs

Approach

- Set minimum standards for harvest in Vp control months
- Develop tiered controls

Potential Factors to Determine Appropriate Harvest Conditions

Every site is unique so we need to consider a host of factors...

Considered and have data on:

- Water temperature
- Tidal exposure
- *tlh, tdh, trh* (April 20th meeting topic)

Considered, but do not have enough (or the right/manageable) data on:

- Ambient air temperature (may be relevant for post harvest activities)
- Tidal movement/water flow
- Geology and bathymetry
- Weather
- Salinity
- pH balance

Discussion of Additional Factors

Review of Supporting Data: Water Temperature

t-Test: Results

t= -3.20

sdev= 6.72

degrees of freedom = 71

The probability of this result, assuming the null hypothesis, is 0.0021

Coastal: Number of items= 28

55.0 55.0 57.0 58.0 58.0 58.0 59.0 59.0 59.0 60.0 60.0 61.0 61.0 62.0 62.0 63.0 63.0 63.0
63.0 64.0 64.0 65.0 65.0 65.0 66.0 67.0 67.0 69.0 Mean = 61.7

95% confidence interval for Mean: 59.18 thru 64.25

Standard Deviation = 3.65

Hi = 69.0 Low = 55.0

Median = 62.0

Average Absolute Deviation from Median = 3.00

Inland: Number of items= 45

52.0 56.0 58.0 59.0 59.0 60.0 60.0 60.0 60.0 60.0 61.0 62.0 62.0 62.0 63.0 63.0 64.0 64.0
64.0 65.0 65.0 65.0 66.0 67.0 67.0 67.0 67.0 67.0 68.0 68.0 68.0 68.0 68.0 69.0 70.0 70.0

70.0 71.0 74.0 76.0 78.0 86.0 87.0 87.0 87.0 Mean = 66.9

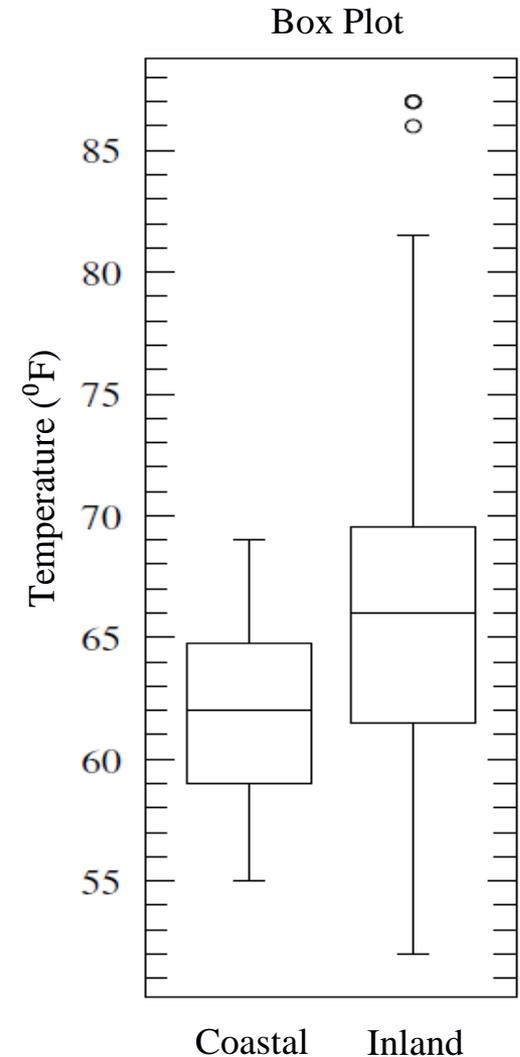
95% confidence interval for Mean: 64.89 thru 68.89

Standard Deviation = 8.04

Hi = 87.0 Low = 52.0

Median = 66.0

Average Absolute Deviation from Median = 5.69



source of variation	sum of squares	d.f	Mean squares	F
between	473.7	2	236.8	5.189
error	3,195.00	70	45.64	
total	3,668.00	72		

ANOVA: Results

The probability of this result, assuming the null hypothesis, is 0.0079

Coastal: Number of items= 28

55.0 55.0 57.0 58.0 58.0 58.0 59.0 59.0 59.0 60.0 60.0 61.0 61.0 62.0 62.0 63.0 63.0

63.0 63.0 64.0 64.0 65.0 65.0 65.0 66.0 67.0 67.0 69.0

Mean = 61.714

95% confidence interval for Mean: 59.17 thru 64.26

Standard Deviation = 3.65

High = 69.00 Low = 55.00

Median = 62.00

Average Absolute Deviation from Median = 3.00

Puget Sound: Number of items= 11

56.0 60.0 62.0 62.0 65.0 65.0 66.0 67.0 67.0 69.0 87.0

Mean = 66.000

95% confidence interval for Mean: 61.94 thru 70.06

Standard Deviation = 7.89

High = 87.00 Low = 56.00

Median = 65.00

Average Absolute Deviation from Median = 4.64

Hood Canal: Number of items= 34

52.0 58.0 59.0 59.0 60.0 60.0 60.0 60.0 61.0 62.0 63.0 63.0 64.0 64.0 64.0 65.0 67.0

67.0 67.0 68.0 68.0 68.0 68.0 68.0 70.0 70.0 70.0 71.0 74.0 76.0 78.0 86.0 87.0 87.0

Mean = 67.176

95% confidence interval for Mean: 64.87 thru 69.49

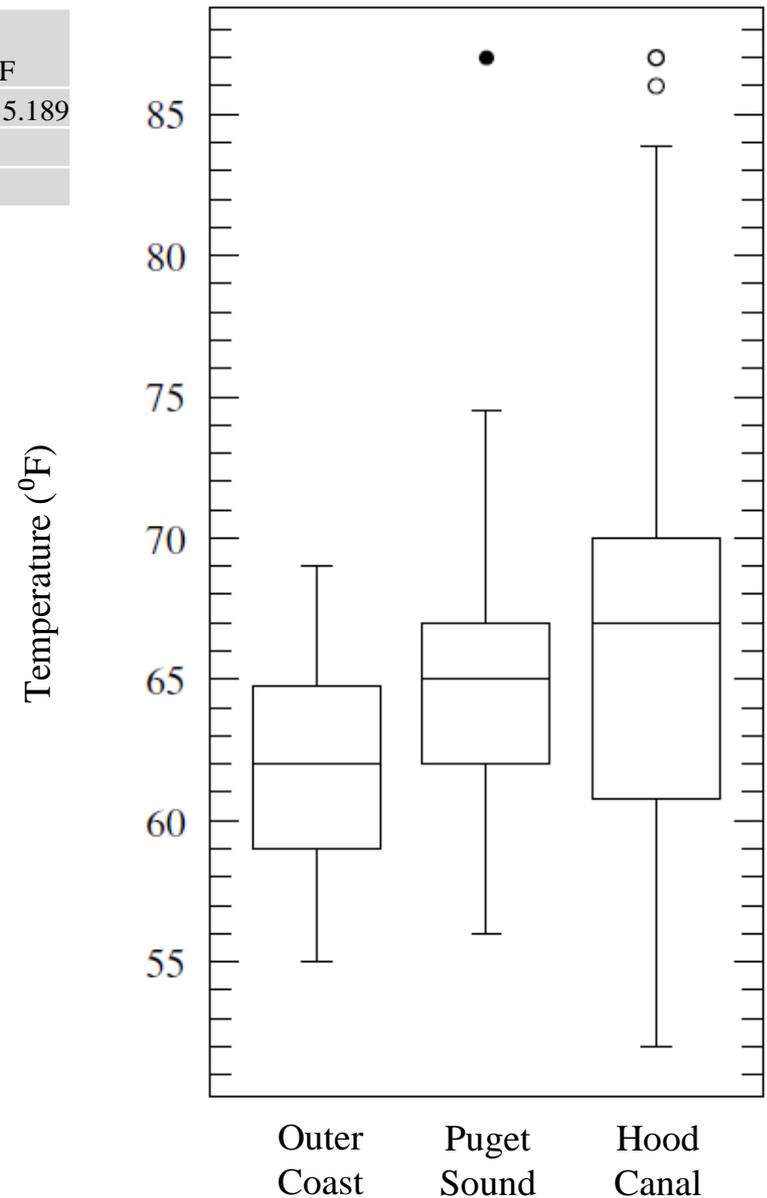
Standard Deviation = 8.19

High = 87.00 Low = 52.00

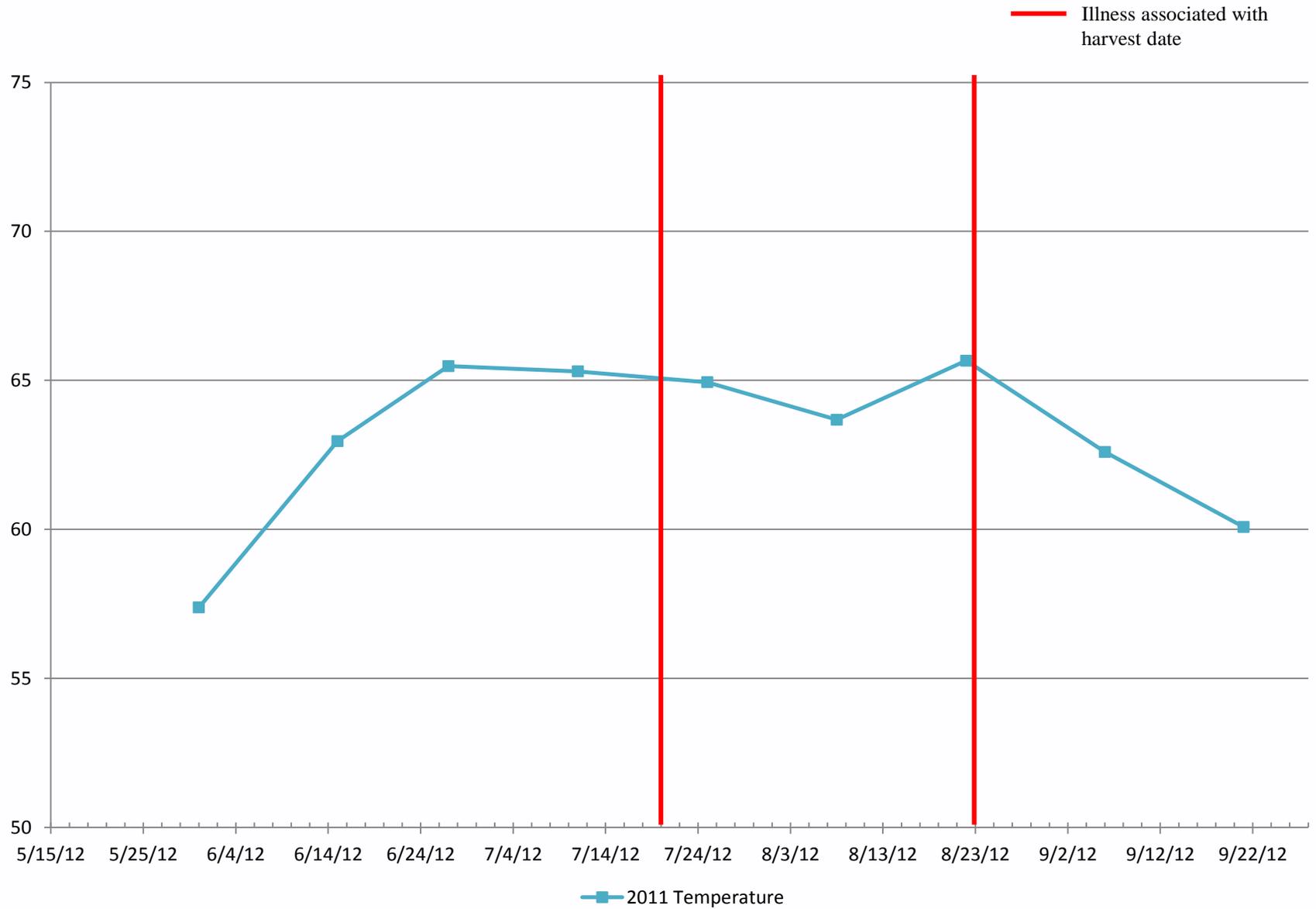
Median = 67.00

Average Absolute Deviation from Median = 5.94

Box Plot

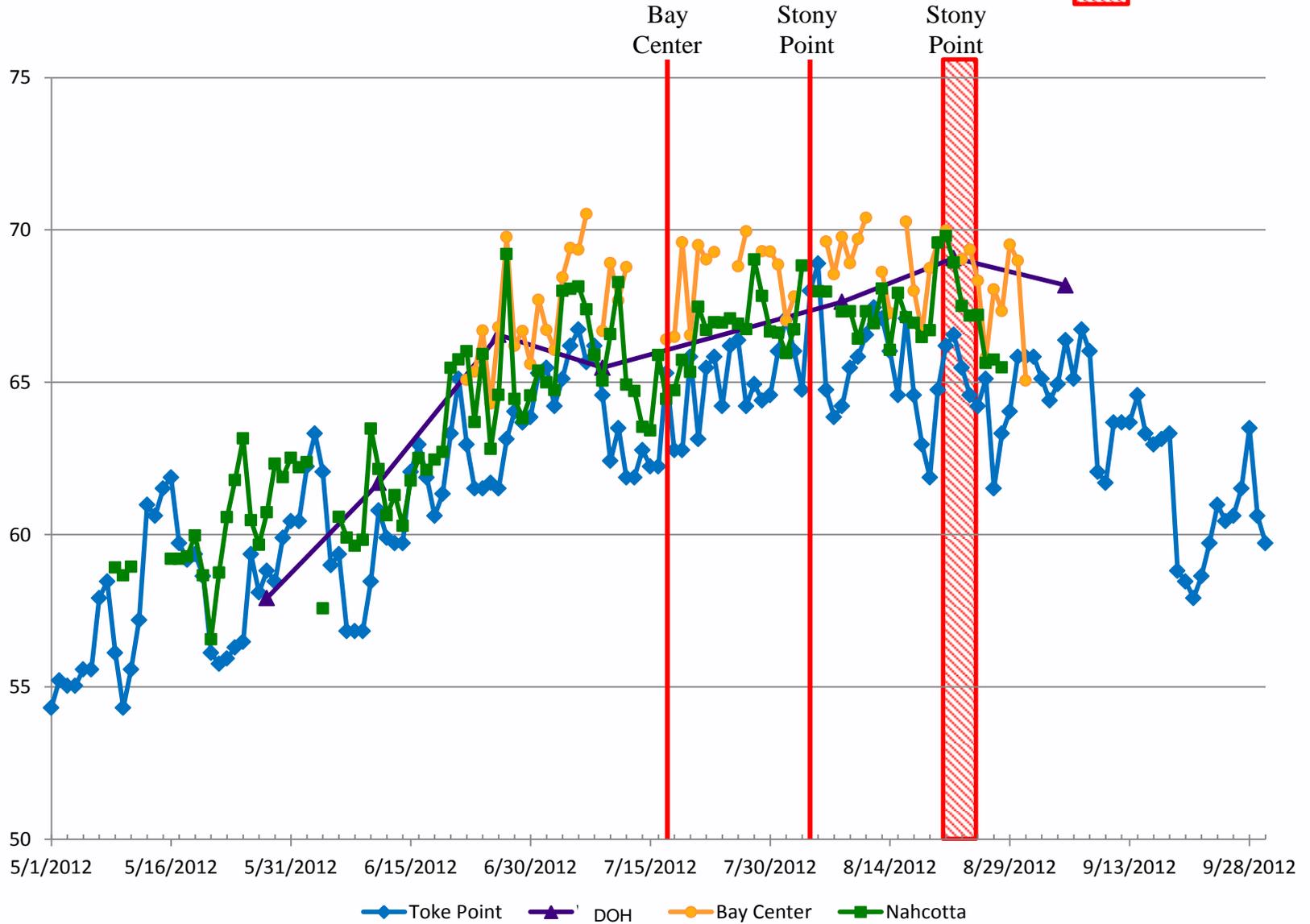


Samish Bay Water Temperature and Illnesses

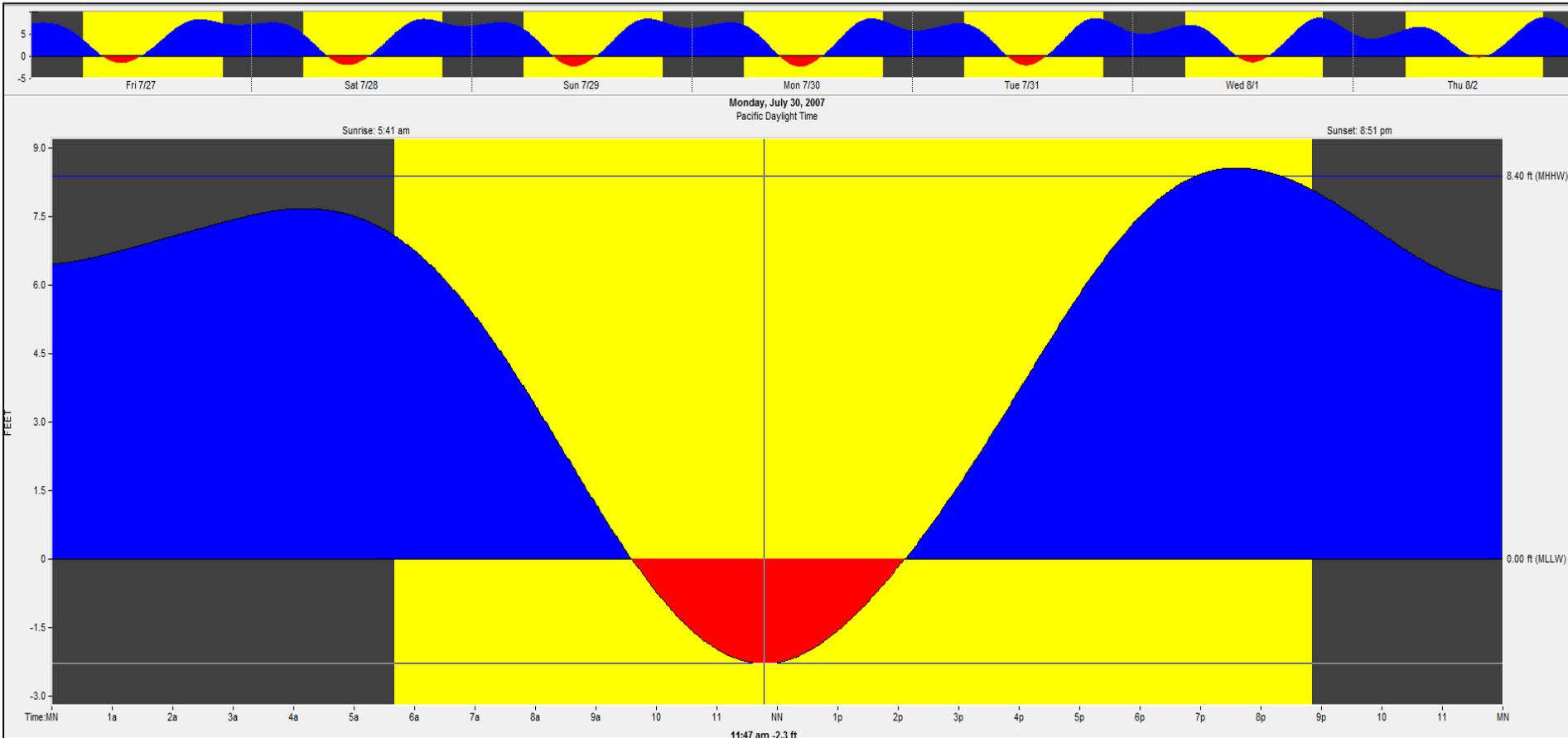


Willapa Bay Water Temperature and Illnesses

- Illness associated with harvest date
- Product in wet storage



Review of Supporting Data: Tidal Exposure



Discussion

- Are there policy recommendations based on the data considered today?
- Are there additional data we should consider?
(and is it realistic to use for policy decisions?)

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