# Recreational Use Criteria: Preliminary Decisions

Bryson Finch
Water Quality Program

# Overview

- Rulemaking Timeline
- Current Recreational Use Criteria
- EPA 2012 Recommendations
- Ecology's Preliminary Decisions for this Rule
- Implementation Considerations

# Rulemaking Timeline

- Announce rulemaking (CR-101): August 16th, 2017 ✓
  - Begin stakeholder/public process
    - Kick-off webinar (Oct 2017) ✓
    - Technical Team Meetings (Feb - Mar 2018) ✓
      - 16 external & 10 internal participants
      - Included counties, cities, conservation districts, PUDs, tribal representative, agriculture representative, EPA, environmental groups, & state agencies
  - Preliminary decisions webinar (June 2018) *today!*
  - Regulatory analysis (May-July 2018) *in progress*
  - SEPA analysis (May-July 2018) *in progress*

# Rulemaking Timeline

- Publish proposed rule (CR-102): July 2018
  - Hold 2-4 public hearings (Aug / Sept 2018)
  - Respond to comments
  - Finalize rule (~Dec. 2018)

- Adopt rule within 180 days of proposed rule

# Why Now?

- **BEACH Act (2000)**
  - Required coastal states to adopt new EPA recommendations within 36 months
  - Ecology attempted to update criteria in 2003 but postponed due to concerns about shellfish protection among other issues

- 2012 EPA recommendations for recreational criteria
  - Coastal states required to examine new criteria

- Increased interest from the regulated community to move to a better indicator

# Current Recreational Criteria

| | Geometric Mean (cfu/100 mL) | STV (cfu/100 mL) |
|---|---|---|
| FRESH WATER (fecal coliform): | | |
| **Extraordinary** Primary Contact | 50 | 100 |
| **Primary** Contact | 100 | 200 |
| **Secondary** Contact | 200 | 400 |
| MARINE WATER: | | |
| **Primary** Contact (fecal coliform) | 14 | 43 |
| **Secondary** Contact (enterococci) | 70 | 208 |
| Shellfish Harvesting Criteria | 14 | 43 |

Note: extraordinary primary contact for marine waters was removed in a 2003 rulemaking

**Not recreational criteria**

# EPA 2012 Recommendations

| CRITERIA ELEMENTS | Recommendation 1 Illness Rate: 36/1,000 recreators | | | Recommendation 2 Illness Rate: 32/1,000 recreators | |
|---|---|---|---|---|---|
| **Indicator** | GM (cfu/100 mL) | STV (cfu/100 mL) | | GM (cfu/100 mL) | STV (cfu/100 mL) |
| **Enterococci (fresh & marine)** | 35 | 130 | **OR** | 30 | 110 |
| **E. coli (fresh)** | 126 | 410 | | 100 | 320 |

Magnitude and Duration: The waterbody GM should not be greater than the selected GM magnitude in any 30-day interval. There should not be greater than a ten percent excursion frequency of the selected STV magnitude in the same 30-day interval.

# Other State and Tribal Fresh Water Recreational Criteria

- **Western States' Freshwater Criteria**
  - E. coli: OR, ID, WY, MT, NV, UT, CO, AZ, NM, AK, CA
  - Enterococci: HI, CA
  - Fecal coliform: WA, CA

- **Washington Tribal Recreational Criteria**

| Indicator | Tribe | Geometric Mean Criteria (CFU/100 mL) |
|---|---|---|
| **E. coli** | Kalispel<br>Port Gamble S'Klallam<br>Swinomish<br>Spokane | 126<br>126<br>100<br>126 |
| **Enterococci** | Colville<br>Lummi<br>Makah<br>Swinomish | 8/16/33<br>33<br>33/165<br>30 |
| **Fecal coliform** | Chehalis<br>Lummi<br>Puyallup | 50/100/200<br>50/100/200<br>50/100/200 |

# Preliminary Decision: Selecting Bacterial Indicators

# Bacterial Indicators

- Option: E. coli or enterococci for fresh waters

- Preliminary decision:
  - **E. coli for fresh waters**
    - Similar analytical methods as fecal coliform
    - Lower laboratory costs
    - Strong correlation with gastrointestinal illnesses in fresh water
    - Relationship with fecal coliform
    - Compatible with neighboring states
    - Changes to treatment technologies not needed
    - Decision supported by the technical team

  - **Enterococci for marine waters**
    - Only indicator EPA recommends
    - Strong correlation with gastrointestinal illnesses in marine waters

# Preliminary Decision: Recreational Use Classes

# Recreational Use Classes

- Preliminary Decision: only include the **primary use class**
  - Waters currently designated as extraordinary and secondary contact will be changed to primary contact recreation

- **Reasoning**:
  - Secondary contact uses no longer approved by EPA
  - Extraordinary use class criteria was a policy decision in 1967 and was not based on a scientifically derived illness rate
  - Provides equal protection for all waters
  - Provides continuity between fresh and marine water use classes
  - EPA recommendations are for primary contact only
  - Decision supported by the majority of the technical team

# Preliminary Decision: Selecting a Illness Rate

# EPA 2012 Recommendations

| CRITERIA ELEMENTS | Recommendation 1 Illness Rate: 36/1,000 recreators | | OR | Recommendation 2 Illness Rate 32/1,000 recreators | |
|---|---|---|---|---|---|
| **Indicator** | GM (cfu/100 mL) | STV (cfu/100 mL) | | GM (cfu/100 mL) | STV (cfu/100 mL) |
| **Enterococci (fresh & marine)** | 35 | 130 | | 30 | 110 |
| **E. coli (fresh)** | 126 | 410 | | 100 | 320 |

Magnitude and Duration: The waterbody GM should not be greater than the selected GM magnitude in any 30-day interval. There should not be greater than a ten percent excursion frequency of the selected STV magnitude in the same 30-day interval.

# Selecting an Illness Rate

- Preliminary decision:
  - **32 illnesses per 1,000 primary contact recreators**
    - E. coli (***100*** GM / ***320*** STV; CFU/100 mL)
    - Enterococci (***30*** GM / ***110*** STV; CFU/100 mL)

- **Reasoning:**
  - More protective recommendation
  - Decision supported by the technical team
  - Protective of all water types and conditions

# Preliminary Decisions: Averaging Period Duration

# Averaging Period

- *Current averaging period*:
  - Preferable to average by season
  - The period of averaging should not exceed 12 months
  - Averaging beyond 30-days is not permitted when averaging would skew data so as to mask noncompliance periods

# Averaging Periods

- Preliminary decision:
  - **Effluent monitoring**: geometric mean to be calculated within a *30-day* rolling averaging period
  - **Ambient monitoring**: geometric mean to be calculated within a *90-day* rolling averaging period

- **Reasoning**:
  - EPA requires the geometric mean be calculated within a 30-day averaging period for permit compliance purposes
  - Ambient monitoring averaging period up to 90 days provides flexibility for low frequency monitoring programs

# Preliminary Decision:
# Sample Size used for Averaging

# Sample Size for Averaging

- *Current sample size recommendations*:
  - No minimum sample size but….
    - Preferable to include 5 or more data collection events

- Preliminary decision:
  - A **minimum of 3 samples** are required to calculate the geometric mean

- **Reasoning**:
  - A minimum of 3 samples is required to calculate variability around the geometric mean

# Preliminary Decision: Units of Measure

# Units of Measure

- *Current units*: colony forming units (CFU) per 100 mL
- Preliminary decision: change to **CFU or most probable number (MPN) per 100 mL**
- **Reasoning**:
  - Both CFU and MPN are units for methods approved by EPA for measuring bacterial indicators
  - Methods that result in MPNs have been used for decades (this is considered a clarification)

# What is not changing?

# Marine Shellfish Harvesting (no changes to criteria)

- **Fecal coliform will remain the indicator for shellfish harvesting**
  - Based on Federal Drug Administration's National Shellfish Sanitation Program
  - Fecal coliform criteria: *GM: 14 CFU/100 mL; STV: 43 CFU/100 mL*

- Shellfish criteria applies to the majority of WA marine waters
  - **Current** marine bacteria criteria (2 uses, 1 set of criteria)
    - Shellfish harvesting and recreational uses have the same criteria (14/43 cfu)
  - **New** marine bacteria criteria (2 uses, 2 sets of criteria)
    - Shellfish harvesting criteria will not be changed
    - Recreational criteria now uses enterococci indicator

# Current Recreational Criteria

**2 designated uses;**
**one set of criteria (14/43)**

**FRESH WATER**

Recreation

*fecal coliform criteria*

**MARINE WATER**

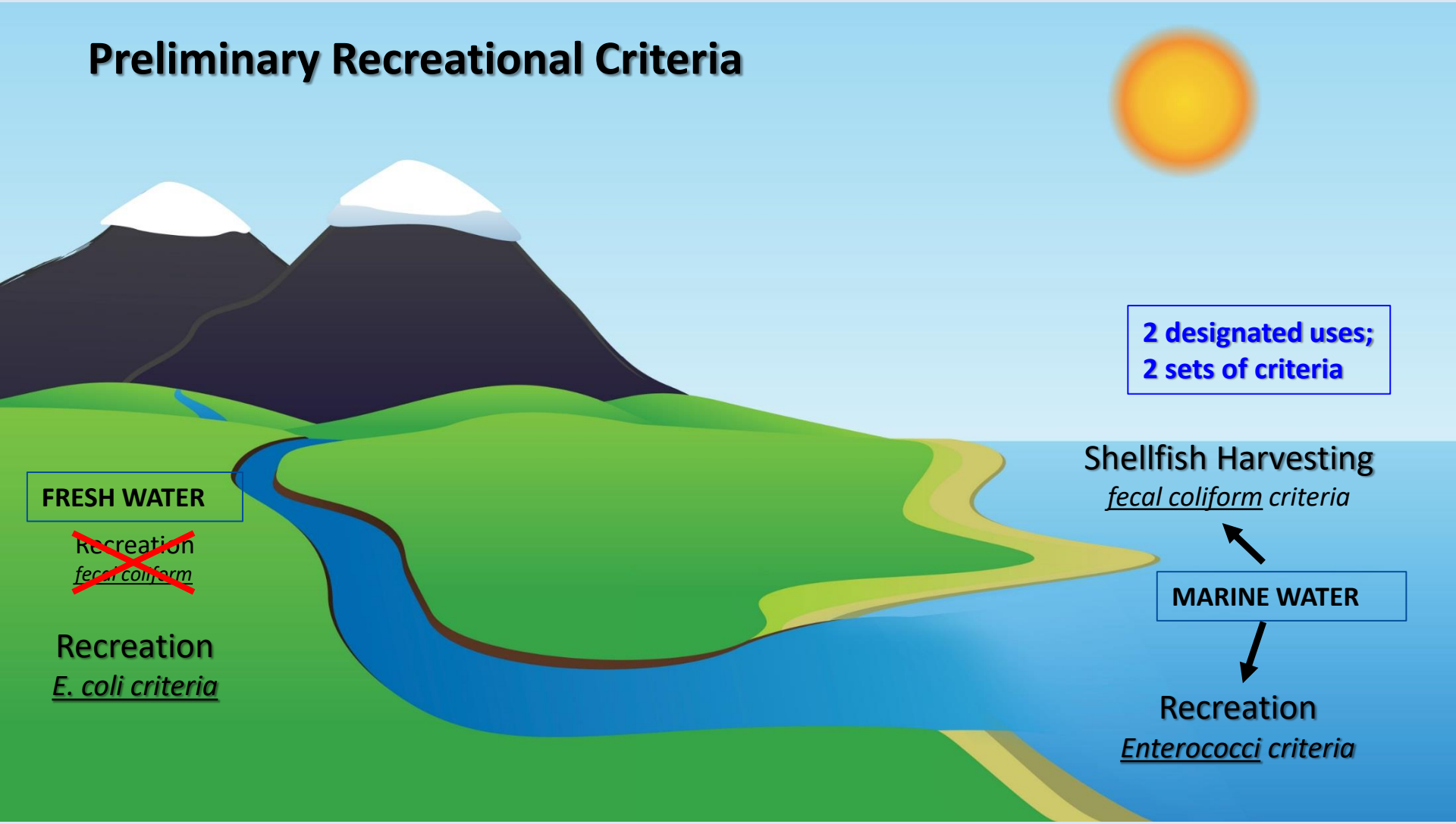
Shellfish Harvesting

&

Recreation

*fecal coliform criteria*

# Preliminary Recreational Criteria



# Summary of Preliminary Decisions

| | Geometric mean | 10% NTEV STV |
|---|---|---|
| FRESH WATER (E. coli): | (cfu/100 mL) | (cfu/100 mL) |
| **Primary** Contact | 100 | 320 |
| MARINE WATER (enterococci): | | |
| **Primary** Contact | 30 | 110 |
| SHELLFISH CONSUMPTION (fecal coliform) | | |
| Shellfish Harvesting | 14 | 43 |

**No change proposed**

**STV = statistical threshold value**
**NTEV = not-to-exceed value**

**Ecology uses a 10% NTEV over a STV**

**STV = sample values cannot exceed the 90th percentile of the water quality distribution**

**10% NTEV: no more than 10% of all samples can exceed this value**

# Implementation Considerations

# Transition Period

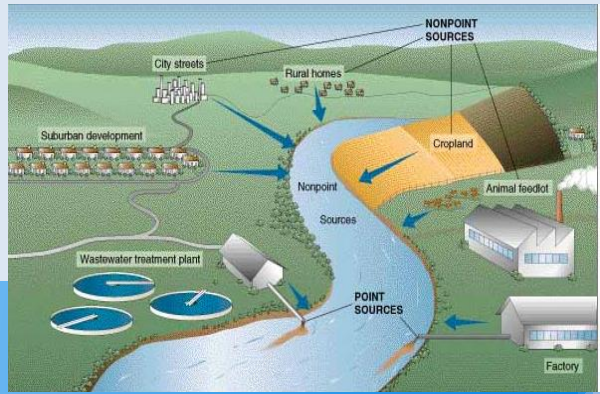
- Preliminary decision:
  - **Both** E. coli / enterococci or fecal coliform criteria can be used for compliance purposes during the transition period
  - Use of fecal coliform criteria to determine compliance will **expire December 31, 2020**

- **Reasoning**:
  - Allows permittees/ambient monitoring programs to adopt new laboratory methods and adjust treatment technologies if needed
  - Allows more time for laboratories to become accredited for new bacterial indicators and methods

# Existing Permits & TMDLs

- Permitting:
  - Update during 5-year renewals
  - Use of fecal coliform indicator allowed until Dec. 31, 2020

- Total Maximum Daily Loads (TMDLs)
  - Existing fecal coliform TMDLs will not change
    - May consider updating allocations on a case-by-case basis if necessary to determine attainment of designated uses
    - TMDLs set to protect downstream shellfish uses will not change



# Other Updates to the Chapter

# Updates to Use Designation Tables

- All surface waters of the state have designated uses assigned to them for protection under this chapter.
- Tables 602 and 612 list special conditions and notes for specific fresh and marine waters.
- The special conditions and notes in Tables 602 and 612 take precedence over the general criteria for same parameter.

# Table 602

- Recreational use changed to primary contact for all waters
- Location information added to help identify where site-specific standards apply
- Added reference for waters with additional criteria requirements
  - (specifically, easier access to supplemental spawning temperature criteria information that was added in 2006)

# Table 602 – Old Format

| TABLE 602 | Aquatic Life Uses | | | | | | Recreation Uses | | | Water Supply Uses | | | | Misc. Uses | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Use Designations for Fresh Waters by Water Resource Inventory Area (WRIA) | Char Spawning /Rearing | Core Summer Habitat | Spawning/Rearing | Rearing/Migration Only | Redband Trout | Warm Water Species | Ex Primary Cont | Primary Cont | Secondary Cont | Domestic Water | Industrial Water | Agricultural Water | Stock Water | Wildlife Habitat | Harvesting | Commerce/Navigation | Boating | Aesthetics |
| **COLUMBIA RIVER** | | | | | | | | | | | | | | | | | | |
| Columbia River from mouth to the Washington-Oregon border (river mile 309.3).[1] | | | X | | | | | X | | X | X | X | X | X | X | X | X | X |
| Columbia River from Washington-Oregon border (river mile 309.3) to Grand Coulee Dam (river mile 596.6).[2,3] | | | X | | | | | X | | X | X | X | X | X | X | X | X | X |
| Columbia River from Grand Coulee Dam (river mile 596.6) to Canadian border (river mile 745.0). | | X | | | | | X | | | X | X | X | X | X | X | X | X | X |
| **Notes for Columbia River:** | | | | | | | | | | | | | | | | | | |
| 1. Temperature shall not exceed a 1-day maximum (1-DMax) of 20.0°C due to human activities. When natural conditions exceed a 1-DMax of 20.0°C, no temperature increase will be allowed which will raise the receiving water temperature by greater than 0.3°C; nor shall such temperature increases, at any time, exceed 0.3°C due to any single source or 1.1°C due to all such activities combined. Dissolved oxygen shall exceed 90 percent of saturation. Special condition - special fish passage exemption as described in WAC 173-201A-200 (1)(f). | | | | | | | | | | | | | | | | | | |
| 2. From Washington-Oregon border (river mile 309.3) to Priest Rapids Dam (river mile 397.1). Temperature shall not exceed a 1-DMax of 20.0°C due to human activities. When natural conditions exceed a 1-DMax of 20.0°C, no temperature increase will be allowed which will raise the receiving water temperature by greater than 0.3°C; nor shall such temperature increases, at any time, exceed t = 34/(T + 9). | | | | | | | | | | | | | | | | | | |
| 3. From Washington-Oregon border (river mile 309.3) to Grand Coulee Dam (river mile 596.6). Special condition - special fish passage exemption as described in WAC 173-201A-200 (1)(f). | | | | | | | | | | | | | | | | | | |
| **WRIA 1 - Nooksack** | | | | | | | | | | | | | | | | | | |
| Bertrand Creek from mouth to Canadian border | | X | | | | | | X | | X | X | X | X | X | X | X | X | X |
| Breckenridge Creek and tributaries | | X | | | | | | X | | X | X | X | X | X | X | X | X | X |
| Chilliwack River and Little Chilliwack River: All waters (including tributaries) above the confluence | X | | | | | | X | | | X | X | X | X | X | X | X | X | X |

# Table 602 – New Format

| Table 602:<br>Use Designations for Fresh Waters by Water Resource Inventory Area (WRIA) | Aquatic Life Uses | Recreation Uses | Water Supply Uses | Misc. Uses | Additional info for waterbody |
|---|---|---|---|---|---|
| **COLUMBIA RIVER**<br>*Note: This WRIA contains waters requiring supplemental spawning and incubation protection for salmonid species. See WAC 173-200(1)(c)(iv).* | | | | | |
| **Columbia River:** from mouth (latitude 46.2502, longitude -124.0829) to the Washington-Oregon border (latitude 46.0002, longitude -118.9809).[1] | Spawning /Rearing | Primary Contact | All | All | - |
| **Columbia River:** from Washington-Oregon border (latitude 46.0002, longitude -118.9809) to Grand Coulee Dam (latitude 47.957, longitude -118.9825).[2,3] | Spawning /Rearing | Primary Contact | All | All | 173-200(1)(c)(iv) |
| **Columbia River:** from Grand Coulee Dam (latitude 47.957, longitude -118.9825) to Canadian border (latitude 49.007, longitude -117.6313). | Core Summer Habitat | Primary Contact | All | All | - |
| **Notes for Columbia River:**<br>1. Temperature shall not exceed a 1-day maximum (1-DMax) of 20.0°C due to human activities. When natural conditions exceed a 1-DMax of 20.0°C, no temperature increase will be allowed which will raise the receiving water temperature by greater than 0.3°C; nor shall such temperature increases, at any time, exceed 0.3°C due to any single source or 1.1°C due to all such activities combined. Dissolved oxygen shall exceed 90 percent of saturation. Special condition - special fish passage exemption as described in WAC 173-201A-200 (1)(f).<br>2. From Washington-Oregon border (latitude 46.0002, longitude -118.9809) to Priest Rapids Dam (latitude 46.6443, longitude -119.9103). Temperature shall not exceed a 1-DMax of 20.0°C due to human activities. When natural conditions exceed a 1-DMax of 20.0°C, no temperature increase will be allowed which will raise the receiving water temperature by greater than 0.3°C; nor shall such temperature increases, at any time, exceed t = 34/(T + 9).<br>3. From Washington-Oregon border (latitude 46.0002, longitude -118.9809) to Grand Coulee Dam (latitude 47.957, longitude -118.9825). Special condition - special fish passage exemption as described in WAC 173-201A-200 (1)(f). | | | | | |
| **WRIA 1 – Nooksack**<br>*Note: This WRIA contains waters requiring supplemental spawning and incubation protection for salmonid species. See WAC 173-200(1)(c)(iv).* | | | | | |
| **Bertrand Creek**: from the mouth (latitude 48.9121, longitude -122.5352) to Canadian border. | Core Summer Habitat | Primary Contact | All | All | 173-200(1)(c)(iv) |
| **Breckenridge Creek:** upstream from the mouth (latitude 48.9267, longitude -122.3129), including tributaries. | Core Summer Habitat | Primary Contact | All | All | - |
| **Chilliwack River and Little Chilliwack River**: all waters above the confluence (latitude 48.9929, longitude -121.4086), including tributaries. | Char Spawning /Rearing | Primary Contact | All | All | - |
| **Chuckanut Creek**: from the mouth (latitude 48.7002, longitude -122.4949) to headwaters. | Core Summer Habitat | Primary Contact | All | All | 173-200(1)(c)(iv) |
| **Colony Creek:** from the mouth (latitude 48.5966, longitude -122.4193) to headwaters, including tributaries. | Core Summer Habitat | Primary Contact | All | All | - |

# Table 612

- Waters with updated recreational uses:

  (*changing from secondary to primary contact*)

  - Budd Inlet (southern portion)
  - Commencement Bay (including inner portion)
  - Inner Everett Harbor
  - Grays Harbor (east of longitude 123°59'W)
  - Oakland Bay (inner Shelton harbor)

# Table 612 – Old Format

| Table 612 | Aquatic Life Uses | | | | Shellfish Harvest | Recreational Uses | | Misc. Uses | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Use Designations for Marine Waters | Extraordinary | Excellent | Good | Fair | | Primary Contact | Secondary Contact | Wildlife | Harvesting | Com/Navig. | Boating | Aesthetics |
| Budd Inlet south of latitude 47°04'N (south of Priest Point Park). | | | X | | | | X | X | X | X | X | X |
| Coastal waters: Pacific Ocean from Ilwaco to Cape Flattery. | X | | | | X | X | | X | X | X | X | X |
| Commencement Bay south and east of a line bearing 258° true from "Brown's Point" and north and west of line bearing 225° true through the Hylebos waterway light. | | X | | | X | X | | X | X | X | X | X |
| Commencement Bay, inner, south and east of a line bearing 225° true through Hylebos waterway light except the city waterway south and east of south 11th Street. | | | X | | | | X | X | X | X | X | X |
| Commencement Bay, city waterway south and east of south 11th Street. | | | | X | | | X | X | | X | X | X |

# Table 612 – New Format

| Table 612 | | | |
|---|---|---|---|
| Use Designations for Marine Waters | Aquatic Life Use | Recreational Use | Harvest Use |
| Budd Inlet south of latitude 47°04'N (south of Priest Point Park). | Good | Primary Contact | Excludes Shellfish Harvest |
| Coastal waters: Pacific Ocean from Ilwaco to Cape Flattery. | Extraordinary | Primary Contact | All |
| Commencement Bay south and east of a line bearing 258° true from "Brown's Point" and north and west of line bearing 225° true through the Hylebos waterway light. | Excellent | Primary Contact | All |
| Commencement Bay, inner, south and east of a line bearing 225° true through Hylebos waterway light except the city waterway south and east of south 11th Street. | Good | Primary Contact | Excludes Shellfish Harvest |
| Commencement Bay, city waterway south and east of south 11th Street. | Fair | Primary Contact | No Harvest Use Supported |

# Questions?

- Contact Information:

Bryson Finch
Water Quality Standards Scientist
WA Dept. of Ecology, WQ Program
bfin461@ecy.wa.gov
360.407.7158

Rulemaking website: https://ecology.wa.gov/Regulations-Permits/Laws-rules-rulemaking/Rulemaking/WAC-173-201A-Aug17