2021Citizen Science Herring Spawn Data Sheet

Email/hardcopy send with photos to Anne Shaffer anne.shaffer@coastawatershedinstitute.org, CWI, and Todd Sandell, WDFW; todd. sandell@dfw.wa.gov; Questions call Anne Shaffer 360.461.0799

Note: Quadrat should be square, 1/2 meter on a side. Photos please include at least 3 quadrat photos Name/Email/Phone:

Date:			Notes:						
Location:	Site name:		-						
	Latitude:		-						
	Longitude:								
White water	Photos	Date and time	Number taken	<u>Latitude</u>	Longitude				
Туре	-								
	Shoreline length of whitewater (number of paces)*:								
	Number of paces per 10 feet (estimate):								
On the ground	<u>Photos</u>	Date and time	<u>Number taken</u>						
Туре									
Quadrat* numb	Vegetation type	<u>Quadrat % cover</u>	Percent of	Percent of	<u>Notes</u>				
		<u>vegetation</u>	<u>quadrat with</u>	vegetation					
			<u>eggs</u>	with eggs					
]				

Examples of herring spawning events: aerial views

[Note: Herring spawn in Puget Sound mainly from January-April. One unusual stock spawn in central basin later in April, and the Cherry Point stock (Strait of Georgia) spawns very late, in April-mid June. Events similar to the ones depicted below occurring during other parts of the year are likely shellfish or other forage fish (smelt, sandlance) spawning events]

DOCUMENTED AND PEAK SPAWNING TIMES FOR WASHINGTON HERRING STOCKS.

BASIN	STOCK	=Spawning		=Peak	= Shift since 2012		
		Jan	Feb	March	April	May	June
South Puget Sound	Squaxin Pass Purdy Wollochet Bay Quartermaster Harbor						
Central Puget Sound	Elliott Bay Port Orchard-Port Madison						
Whidbey Basin	Port Susan Holmes Harbor Skagit Bay						
Hood Canal	South Hood Canal Quilcene Bay Port Gamble						
Strait of Juan de Fuca	Kilisut Harbor Discovery Bay Dungeness/Sequim Bay						
San Juan Islands/ Strait of Georgia ("North")	Interior San Juan Islands NW San Juan Island Fidalgo Bay Samish/Portage Bay Semiahmoo Bay Cherry Point						



Above: Small spawning event at Birch Head 2019



Jackson cove drone footage, Hood Canal, 2019 (extremely heavy spawn, rare in Puget Sound)



Above: small "spot spawn" at Pt Whitehorn, 2019 (picture taken from the bluff)



Above: Discovery bay spawn 2017

Examples of **false herring spawn events** (often these are wave action mixing up shoreline sediment, rainfall runoff point sources creating off-color plumes, or sometimes phytoplankton blooms. Clams and

other benthic organisms also have large scale, coordinated spawning events that can resemble herring "whitewater".



Above: SJI- algal (phytoplankton) bloom in upper left. Note greenish cast. Also, herring spawn on aquatic vegetation in the nearshore (0-20 feet in general), so events in deep water are unlikely to be herring spawn, as are events on sandy spits with no vegetation present (plumes in these locations tend to be generated by wave action).



Above: Wave action along left (South) side of Mud Bay, SJI. Not herring spawn.



Above: false spawn near Lopez ferry dock, SJI. Likely a sediment plume caused by stormwater runoffunusual to see the center of herring "whitewater" extend out into deeper water than either of the edges.



Quadrat (0.5m per side).







Herring eggs on *Gracilaria spp*, east Discovery Bay Strait of Juan de Fuca 12 April 2019. Photo by Dave Parks and CWI. All rights reserved.