Our mission: "To protect and restore marine and terrestrial ecosystems through scientific research and local community, place based partnerships."

2022 Citizen Guide to Herring Spawn and Citizen Science Data Sheet

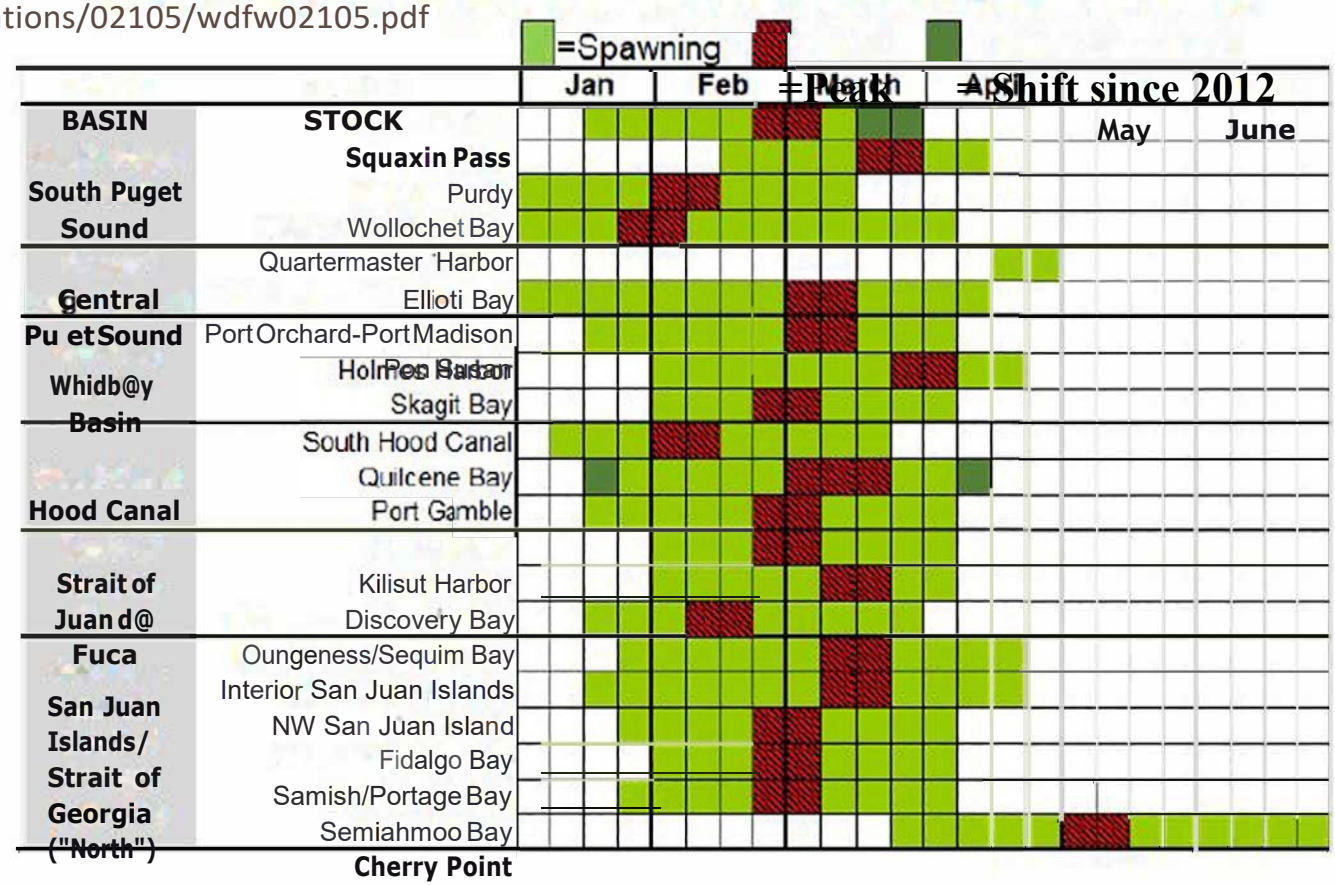
Herring are the foundation of our coastal systems. Also known as a 'forage fish' they are a critical link in our trophic system from plankton to killer whales. Herring spawn annually in the Salish Sea. The timing varies a bit by region, and year. In general herring spawning begins at the end of January and in some places continuing until June. The spawning is *briefly* marked by 'white water,' a colloquial term for the milt broadcast by males to fertilize the eggs quickly laid by females. During large spawning events, scores of marine mammals and thousands of birds congregate to feed on the herring and the thick carpets of eggs laid on eelgrass (*Zostera* spp), and seaweeds, primarily *Gracilaria*, and *Sargassum* spp. along the shore. The eggs hatch in 12 days or so, marking the beginning the 2020 spring plankton season that in turn (literally) supports the rest of our Salish Sea food chain. How do we know all this? WDFW is diligently out mapping the spawn distribution (be sure and say *thank you* to the team if you see them out sampling-look for an inflatable boat and orange coats with a grappling hook motoring along the shoreline)-for dedicated heavy lifting field work) and shoreline users that report sightings. The Coastal Watershed Institute (CWI) has been dedicated to photo documenting annual herring spawning highlights and getting the word out on the critical importance of these fish, and these spawning events. The herring eggs (and those feeding on them) can be seen at low tide -and by zooming on the attached photos. The nearshore? An uplifting time and place that brings everything together-again.

A citizen reporting data sheet is attached at the end of this document. If you see a spawning event and want to contribute please take photos of what you seen along with location and date on the data sheet - fill it out as much as you can- and email/hardcopy send with photos to Anne Shaffer, CWI, anne.shaffer@coastawatershedinstitute.org, , and Todd Sandell, WDFW; todd.sandell@dfw.wa.gov; Questions call Anne Shaffer 360.461.0799

DOCUMENTED AND PEAK SPAWNING TIMES FOR WASHINGTON HERRING STOCKS

(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]

For more information on Washington herring stocks see: https://wdfw.wa.gov/sites/default/files/publications/02105/wdfw02105.pdf



Examples of aerial images of herring spawn 'white water'-and NOT white water...

Above: Small herring 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)

Discovery bay herring 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 andother 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 runoff- unusual 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.

Citizen Science Herring Monitoring Data Sheet 2022

Fill out as much as you can- and email/hardcopy send with photos to Anne Shaffer, CWI, anne.shaffer@coastawatershedinstitute.org, and Todd Sandell, WDFW; todd.sandell@dfw.wa.gov; Questions call Anne Shaffer 360.461.0799

Instructions of note: Quadrat should be square, 1/2 (0.5) meter on a side (see example photo attached). Photos please include at least 3 eggs in quadrat photos

Reporting Person Contact info: Name/Email/Phone:

Date:

Notes:

Location: :

Latitude:

Longitude:

White water **Photos** Date and time	Number taken	Latitude	Longitude
Camera type:			

Shoreline length of whitewater (number of paces)*: Number of paces per 10 feet (estimate):

On the ground **Photos**	Date and time	Number taken			
Type					
Quadrat* numbe Vegetation type	Quadrat % cover vegetation	Percent of quadrat with eggs	Percent of vegetation with eggs	Notes	