GEODUCK HARVEST SUSTAINABILITY FORECAST



Harvest Rate Evaluation

What will the geoduck harvest look like 1, 2,3 or even 4 decades in the future?



- Shellfish Department initiated a long range forecast
 - Long tract recovery causing a "slow motion" ground truthing of the harvest model
 - Post harvest survey occur every 8 10 years to monitor recovery
 - A harvest rate reduction was implemented in 2018 (2.7 to 2.5)
 - At the previous diver meeting in 2018, it was stated that additional reductions would be needed

Vashon
Island and
adjacent
waters, 26D
geoduck
tracts



Vashon Tracts Recovery Info

		Recovery		Survey	/ Years	Survey D	Densities		Recovery Rate	years required for recovery
Tract	Name	Acreage	Pre- Fishing Density	Post- Harvest	Recovery	Post- Harvest	Recovery	years between surveys	Estimate	
1	Dolphin Point	49	0.284	1985	2014	0.098	0.191	29	0.0032	58
7	Fern Cove	183	0.190	1985	2018	0.157	0.111	33	-0.0014	
11	Point Beals	108	0.230	1985	2022	0.072	0.108	37	0.0010	158
13	Vashon East	53	0.210	1985	2017	0.054	0.119	32	0.0020	78
16	Point Heyer I	137	0.149	1989	1998	0.127	0.186	<u>(</u>	0.0066	
16	Point Heyer II	108	0.149	2005	2020	0.018	0.009	15	-0.0006	
17	Point Robinson	69	0.110	2001	2020	0.060	0.039	19	-0.0011	
	Post Harvest = survey done within a few years of recovery status Recovery= survey done after post harvest survey									

Harvest Rates in Other Regions

region	subregion	2023-24 Total annual TAC (Ibs.)	2023-24 harvest rate	mean recovery rate	notes
San Juan Islands	-	54,612	2.7%		
Eastern Strait	-	391,423	2.3%*	0.0006	* To be reduced by 0.2% a year to 1.7% in 2026-27
North Sound	Outside Whidbey	21,143	2.7%		
North Sound	Inside Whidbey	0?	No harvest?		
Hood Canal	-	843,968	2.4%*	0.0017	* To be reduced by 0.1% a year to 2% in 2027-28
Northern Central	В	0	No harvest	0.0008	
Northern Central	А	251,180	2.7%	0.0023	Bainbridge Island , to Admiralty Inlet
Southern Central	2	441,410	2.7%	0.0023	Bainbridge Island , to Admiralty Inlet
Southern Central	1	157,828	1.5%	0.0017	Bainbridge Island, to Admiralty Inlet
South Sound	Α	669,262	2.5%	0.0014	Puyallup Exclusive area, Vashon and adjacent waters
South Sound	В	236,360	2.3%	0.0050	Medicine Creek Shared
South Sound	С	279,628	1.7%	0.0038	Nisqually & Squaxin
South Sound	D	368,224	1.5%	0.0022	Squaxin

Climate Change

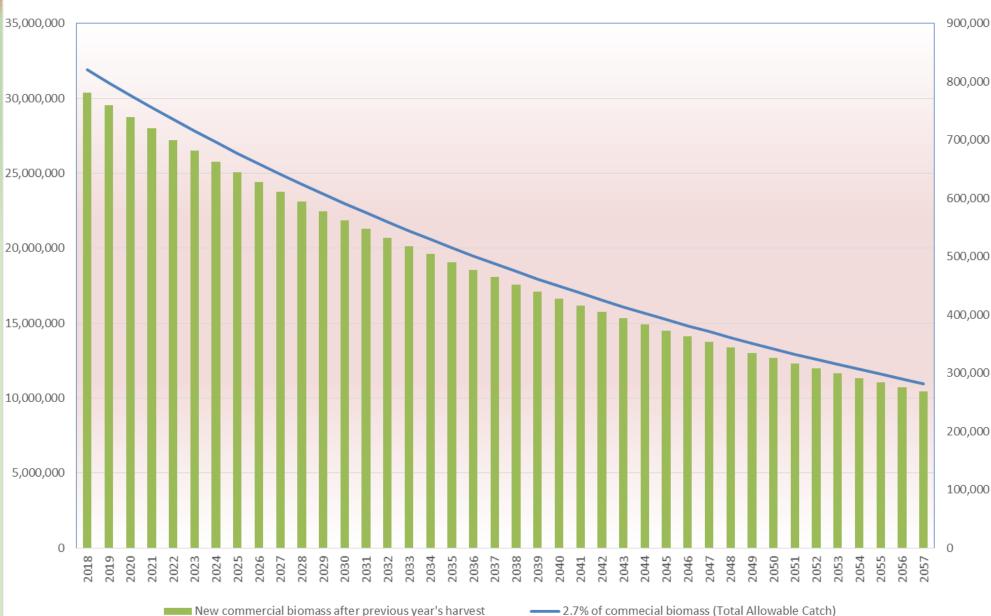
- Ocean Acidification warming oceans increases the acidity of the water which may be detrimental to vulnerable geoduck larvae
- Warming water temperatures may be detrimental to geoduck larvae
- Potential explanation for lower recovery rates.

Geoduck Forecast Assumptions

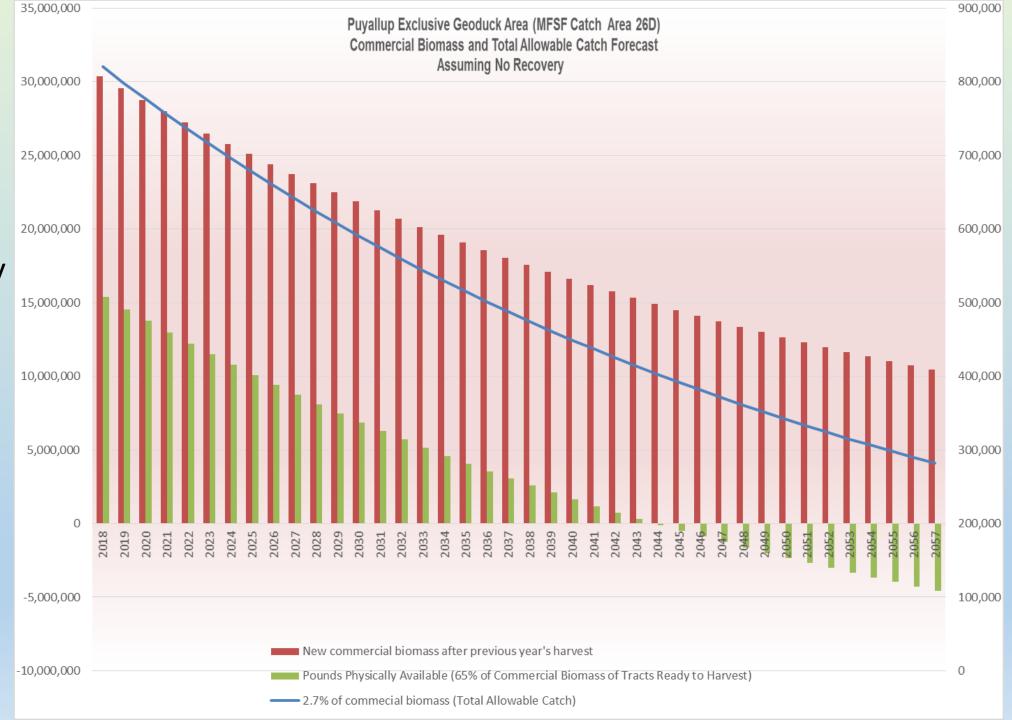
- Tracts will be fished down 65% and placed in recovery with 35% of the biomass remaining
- Tracts will recover to pre fishing density in 50 years.
- The entire annual allocation will be taken each year

Puyallup Exclusive Geoduck Area (MFSF Catch Area 26D) Commercial Biomass and Total Allowable Catch Forecast Assuming No Recovery

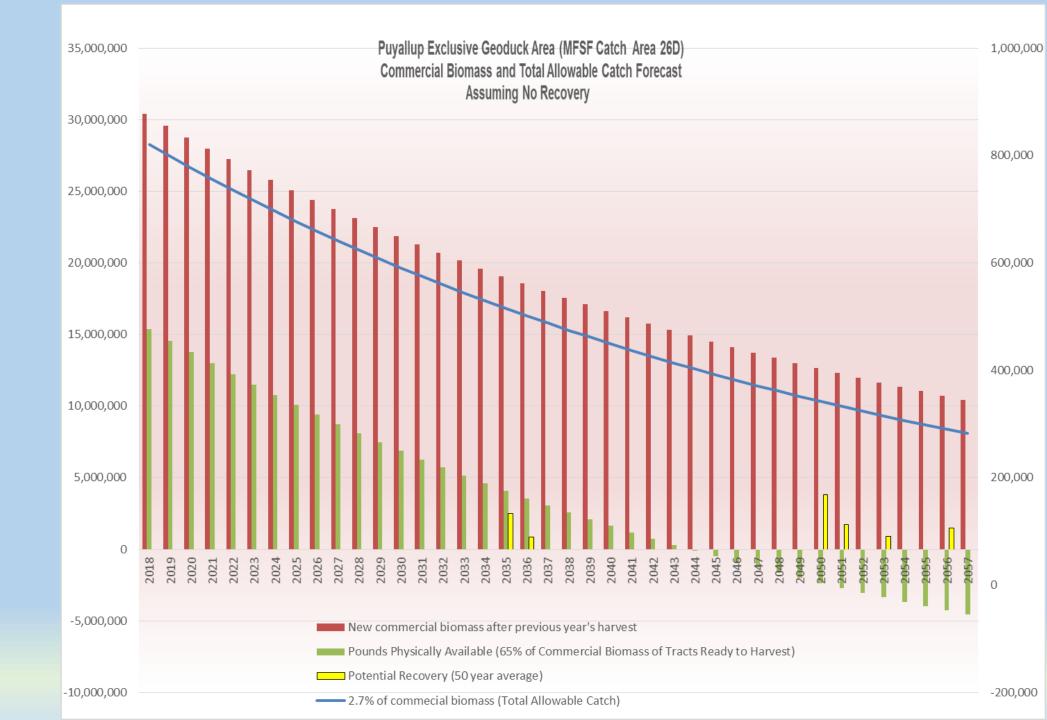
Commercial Biomass and harvest over 40 years

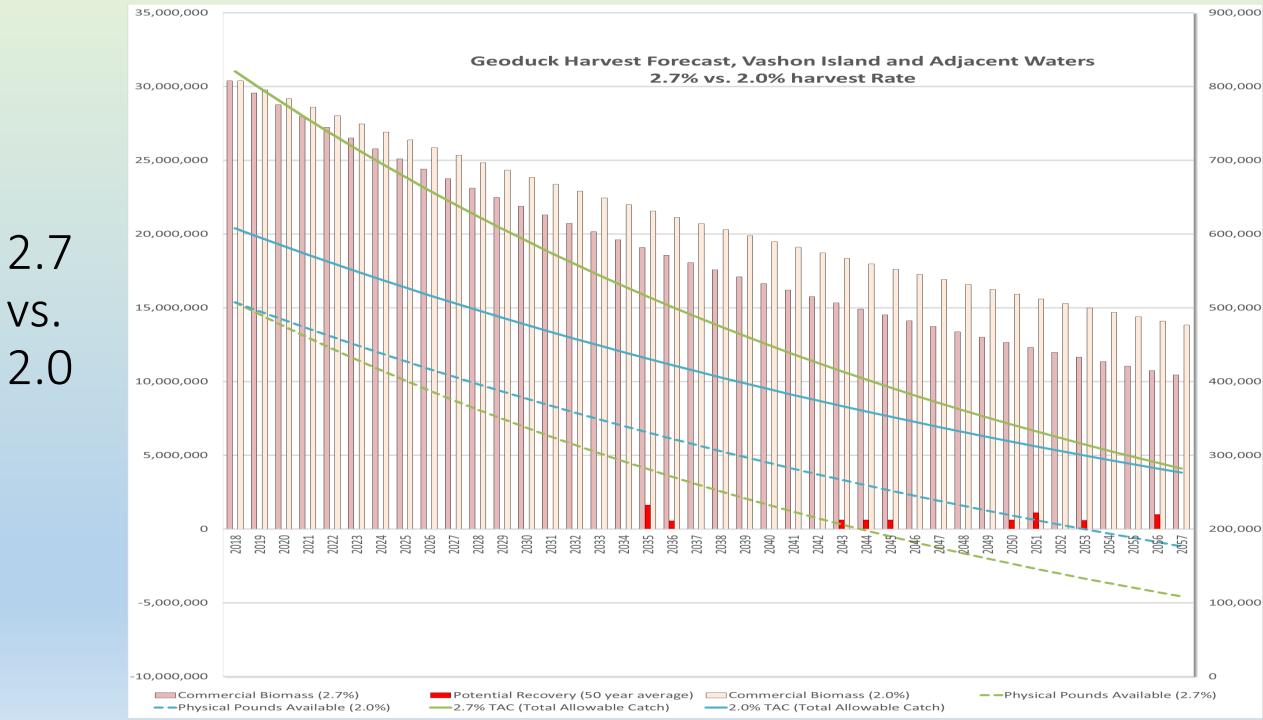


With physically available harvest sites



With potential recovery, 50 year average





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 - At the previous diver meeting in 2018, it was stated that additional reductions would be needed
 - Propose to reduce harvest rate 0.1% per year until 2.0%

What does a reduction mean for a geoduck harvester?

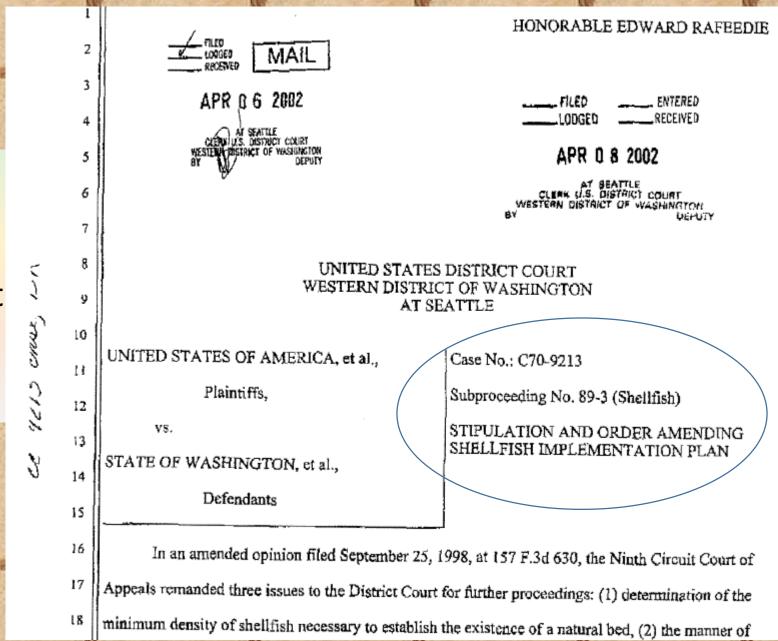
Subregion A Biomass (pounds)	Harvest Rate %	Tribal Allocation (half, excluding in-common, 190,000 pounds)	Individual diver quota per half season (using 110 divers)	Difference per half per person
27,209,120	2.5 (current)	190,000	1,727	-
27,209,120	2.4	183,254	1,666	61
27,209,120	2.3	176,452	1,604	123
27,209,120	2.2	169,650	1,542	185
27,209,120	2.1	162,847	1480	247
27,209,120	2.0	156,045	1,419	308



- Current efforts to start a pilot project to plant geoduck on recovering tracts.
 - Permit consultants are working on the project
 - Grants are being actively pursued
 - · Canadian experts are available to help
 - Potential work for dive harvesters
 - Geoduck task Force formed by legislature

Co-Management

 Section 4.6 of the Shellfish Implementation plan guides the comanagement in the event that a management plan cannot be agreed to.



4.6 Openers

- Effective date of harvest must be 14 days from the issue date
- Other party has 10 days to object

4.6 Opening A Fishery Without Agreement.

Where the State or a Tribe desires to open or enlarge a shellfishery that has been closed or adjusted pursuant to section 4.2 or 4.3, it shall comply with the following procedure (unless an interim agreement is in place):

a. Before proceeding, the State and all affected Tribes shall confer at least one time

in an effort to reach agreement regarding the proposed fishery.

b. Failing agreement, the party (Tribe(s) or State) proposing to open the fishery shall provide to the other party a proposed regulation for the fishery, in writing, at least fourteen days before the fishery is scheduled to begin. The party proposing the harvest shall be able to provide a sound fisheries management basis for a determination that a harvestable surplus exists and that a fishery can be operated that will not interfere with the sharing principles ordered by this Court. However, this is not intended to shift the burdens, described below, associated with contesting a fishery. The regulation (or other documents provided with the regulation) shall contain, at a minimum, the following information:

The dates and hours the fishery will be open;

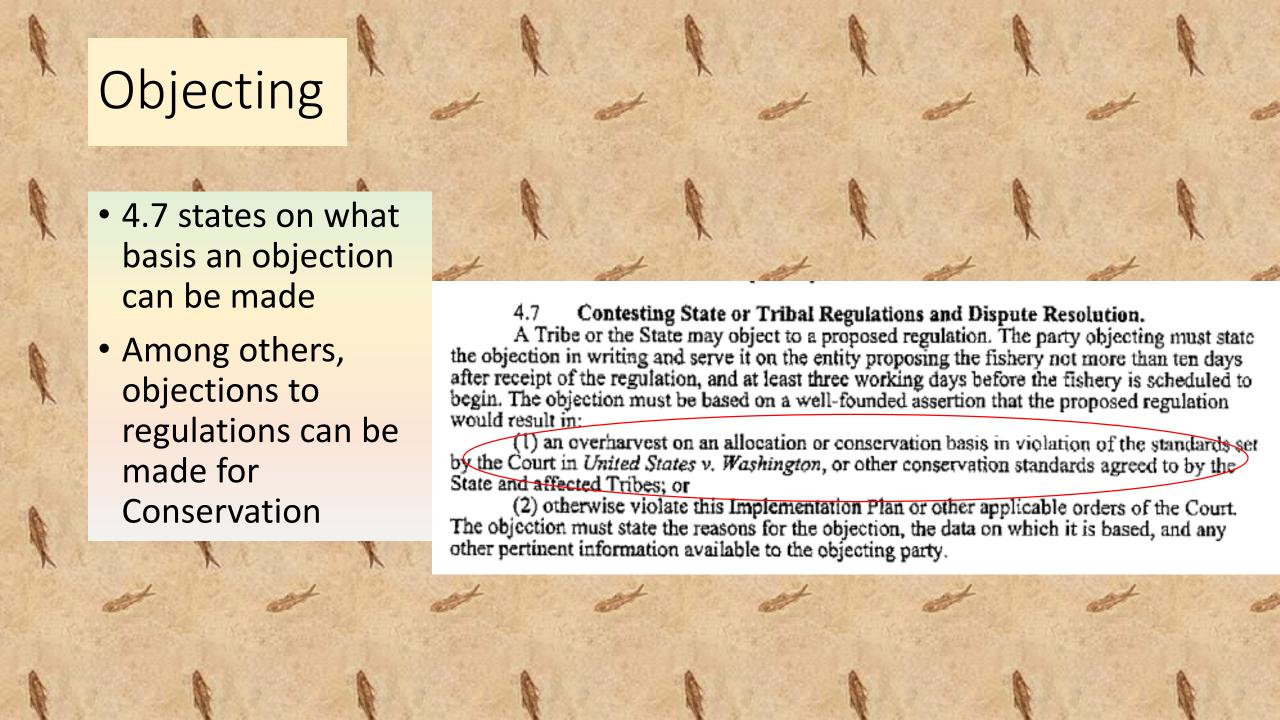
(2) The catch area(s) open for harvest;

(3) The type of fishery to be opened (commercial or non-commercial);

- (4) The species to be taken, including an estimate of or upper limit on the amount to be taken and the basis of the estimate;
 - (5) The estimated effort;

(6) The gear to be allowed;

(7) Provisions for record keeping and harvest reporting, including a schedule to ensure a timely exchange of information; and



Dispute Resolution

- 4.8
- The co-managers would argue their positions in front of a judge or technical advisor

4.8 Dispute Resolution During Interim Plan.

No contested fishery shall begin unless a decision is rendered through the dispute resolution procedures of section 9 to allow the fishery. To the extent necessary, the Magistrate Judge (or Technical Advisor, if applicable, as provided for by § 9.1.2) may order the State or affected Tribe to comply with the allocation and sharing principles described by this order. In addition, the following rules shall apply:

a. The objecting party shall arrange for a hearing to be held before the Magistrate Judge (or Technical Advisor, if applicable) no more than ten working days from the date of service of the objection (see Dispute Resolution, section 9).

b. The Magistrate Judge (or Technical Advisor, if applicable) shall render a decision no more than ten working days after the conclusion of the hearing. No fishery shall open until a decision is rendered by the Magistrate Judge (or Technical Advisor, if applicable).

c. Where an emergency exists, (for example, where the proponent's opportunity to fish may be lost by delay), the Magistrate Judge (or Technical Advisor, if applicable) may change the above time limits if the party requesting a change in the time limits has acted in a diligent and timely manner.

Conclusion and Thoughts

Long range management conservation will ensure that there is a geoduck harvest for future generations of Puyallup Tribal members.

Enhancement of the wild stock commercial tracts may be a viable way to maintain harvest rate