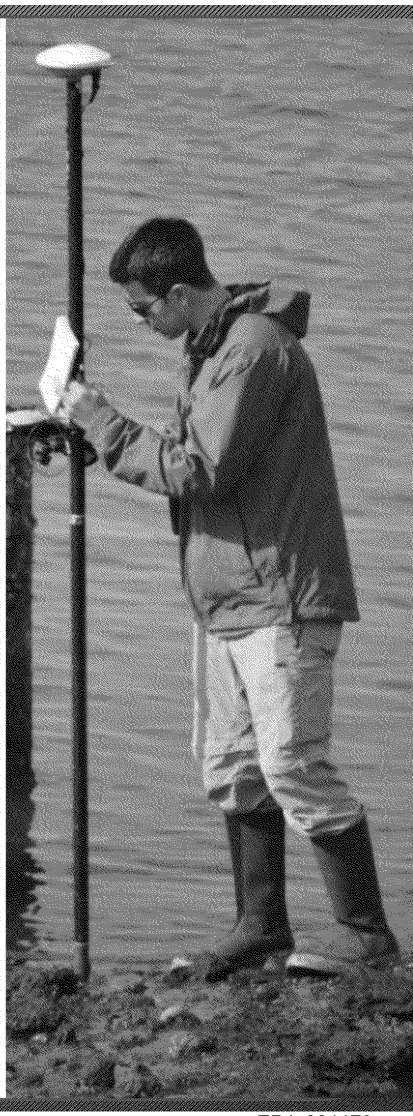
Everybody Ready?

HTL, Where Are You?

A Collaborative Investigation



Who Cares?

NWIFC
TULALIP TRIBES
EARTHJUSTICE
Because the earth needs a good lawyer

HTL = High Tide Line

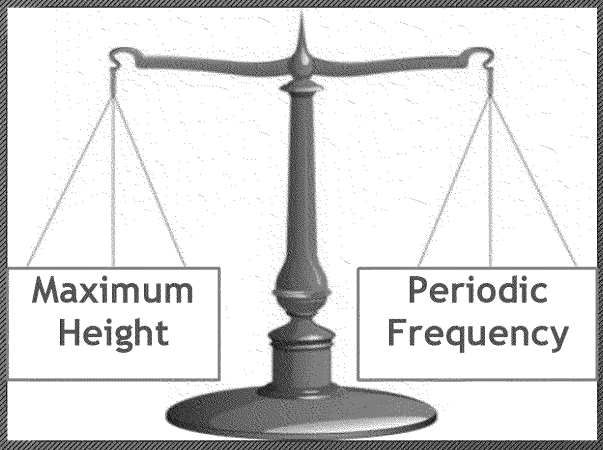
- Landward Extent of Clean Water Act Jurisdiction in Tidally Influenced WOTUS*
- Intent (from the Preamble):
  - Many types of aquatic areas along the coast are above the mean higher high mark (MHHW)
  - HTL includes those "inundated with sufficient frequency & regularity to be included as part of the aquatic resource"
- Regulatory Definition:
  - Maximum height reached by a rising tide
  - Encompasses
    - Spring high tides &
    - Other high tides that occur with periodic frequency,
  - But *not* storm surges

* Waters of the United States.

(Remember:)

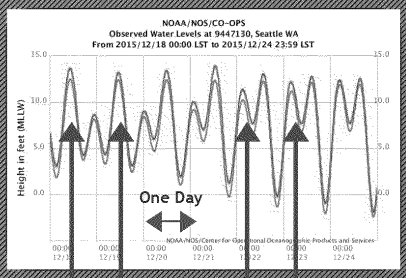
So, what's the problem?

- Not tied to a specific tidal datum
- Defined only in the Corps' regs, not EPA's
- So, how frequently maximum did they mean?



Tidal Cycles: Which high do we want?

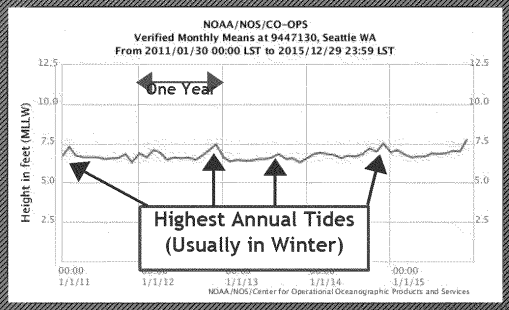
Daily (Mixed Semi-diurnal)



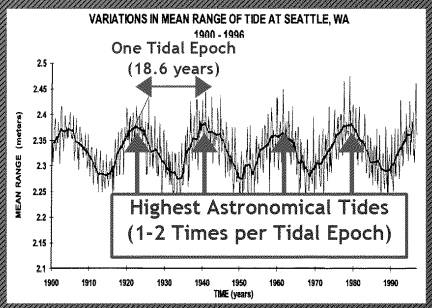
Higher Daily Highs

Lower Daily Highs

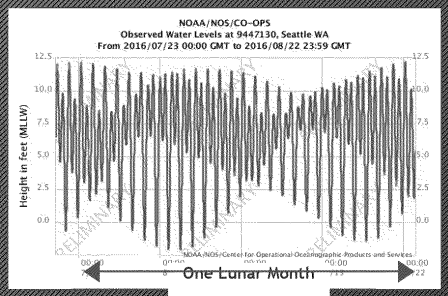
Annual



Epochal



Bi-monthly



Spring Tides
(Twice per Lunar Month)

A veritable "tide" of…

FANTASTIC TIDAL DATUMS !!!

COMIC BOOK

FANTASTIC TIDAL DATUMS

An obscure physical oceanographer entombed

in the

Ocean (Tides) and Lake Levels Division

of the

Office of Ocean and Earth Sciences

of the

National Ocean Service

of the

National Oceanic and Atmospheric Administration

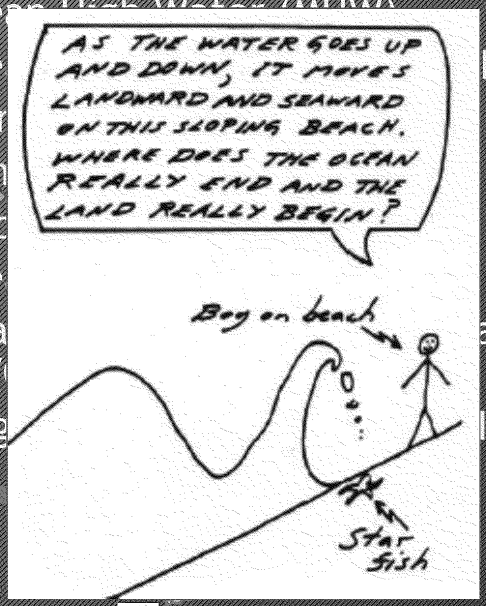
of the

U.S. Department of Commerce

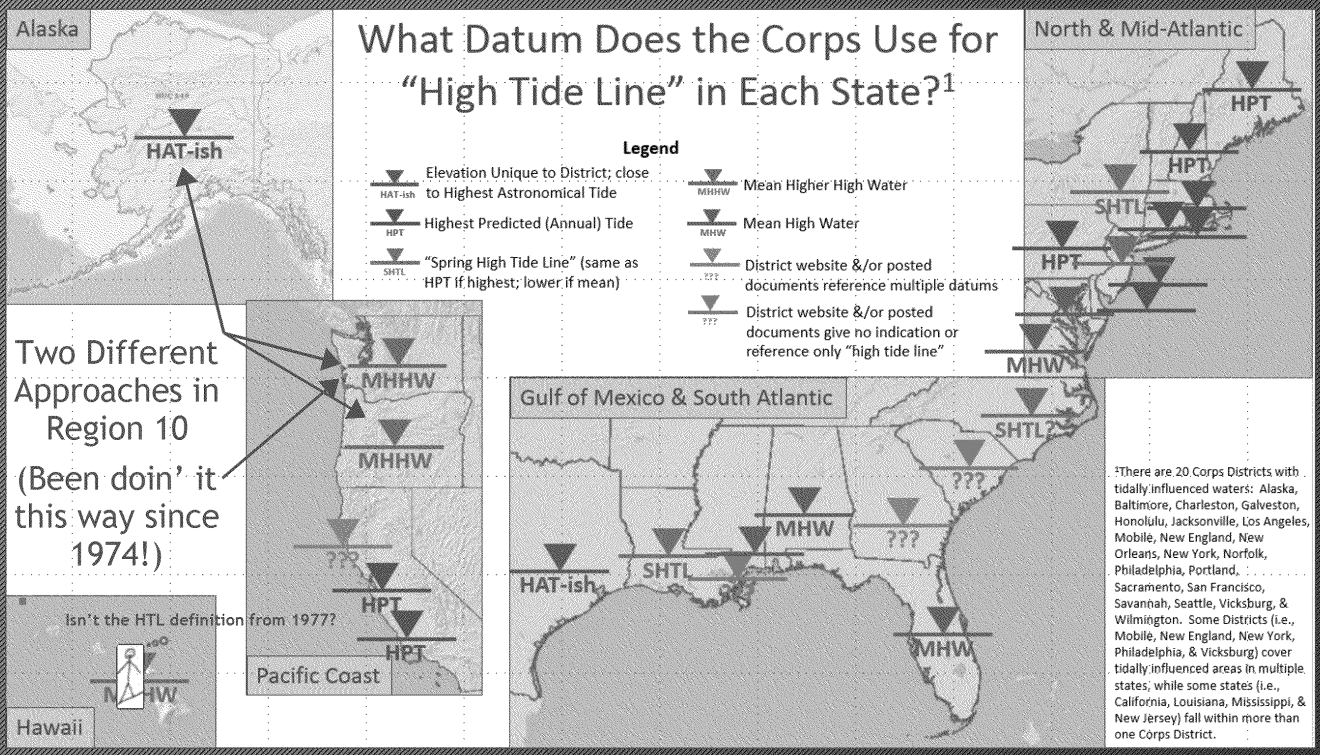
"Department of Commerce?" "Yes, Commerce!"

1988

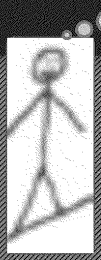
- Mean High Water (MHW)
- Me HW)
- Spr
- Kin
- Tro
- Me (MHPT)
- Wa ater Mark (W
- Hig IAT)



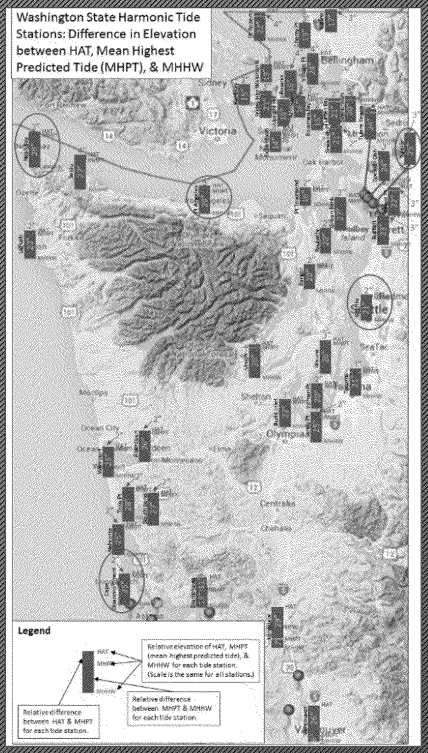
Six or More Different Answers!

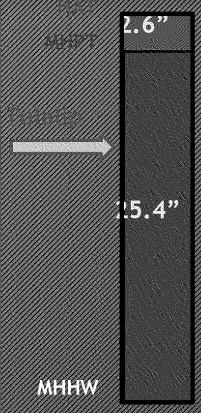


MHHW is pretty high & *really* frequent!

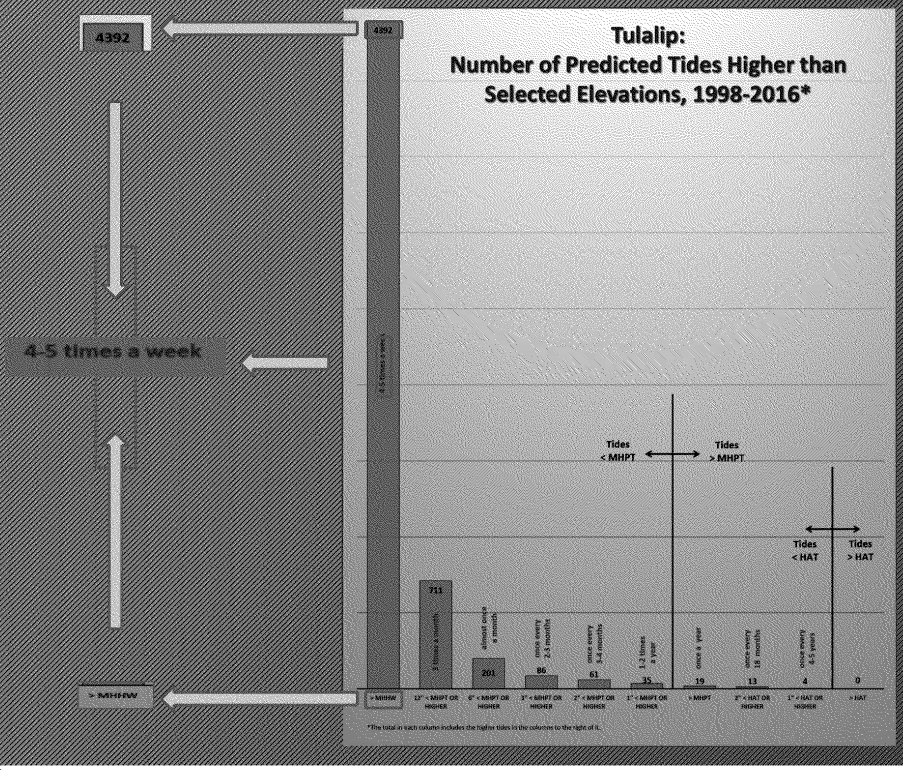


Yes, but it's <u>far</u> from the <u>maximum</u> tide…

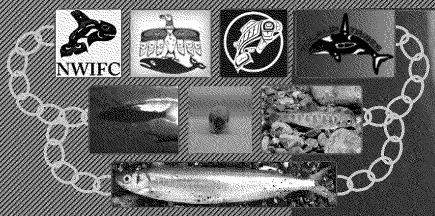




And the tide is higher than MHHW pretty frequently…



And, oh yeah…



Station Name	Station #	Elevation; referenced to MLLW			
		HAT (1983-2001)	MHPT (1998-2016)	MHHW (1983-2001)	NAVD88
Tulalip	9447775	15.35	13.17	11.06	2.04

Note: Tidal elevation lines may not directly correspond to beach features on the aerial photo background, but the relationship between the elevations is accurate

Average distance between MHHW and HAT contour lines is 3.8ft at this site

Tulalip Indian Reservation

Legend

- Highest Astronomical Tide (HAT)
- Mean Highest Predicted Tide (MHPT)
- Mean Higher High Water (MHHW)
- NAVD88 0ft

The U.S. Environmental Protection Agency (EPA) has compiled the computer representations from data or information received that may not have been verified by the EPA. The data or others data are a generic representation only, and are not to be relied upon without verification of the original data or information. The EPA does not guarantee the accuracy, completeness, or timeliness of the information shown, and assumes no liability for any direct or injury resulting from reliance upon the information shown.

Tidal Datum Comparison - Tulalip (near Tribal Center), WA

(Highest Astronomical Tide vs Mean Highest Predicted Tide vs Mean Higher High Water)

*Contours are derived from a lidar dataset using the NAVD88 datum

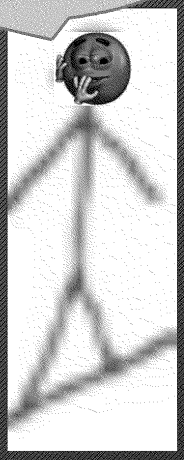
0 25 50 100 Feet

EPA Region 10 GIS Team

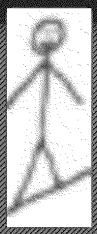
So, MHHW doesn't meet the definition & intent of HTL?

Uh….

- Maximum height reached by a rising tide
- Encompasses spring high tides
- Encompasses other high tides that o
  with periodic frequency
- Does *not* include storm surges
- Includes aquatic areas above MHHW
- Includes areas inundated with sufficient frequency & regularity to be included as part of the aquatic resource



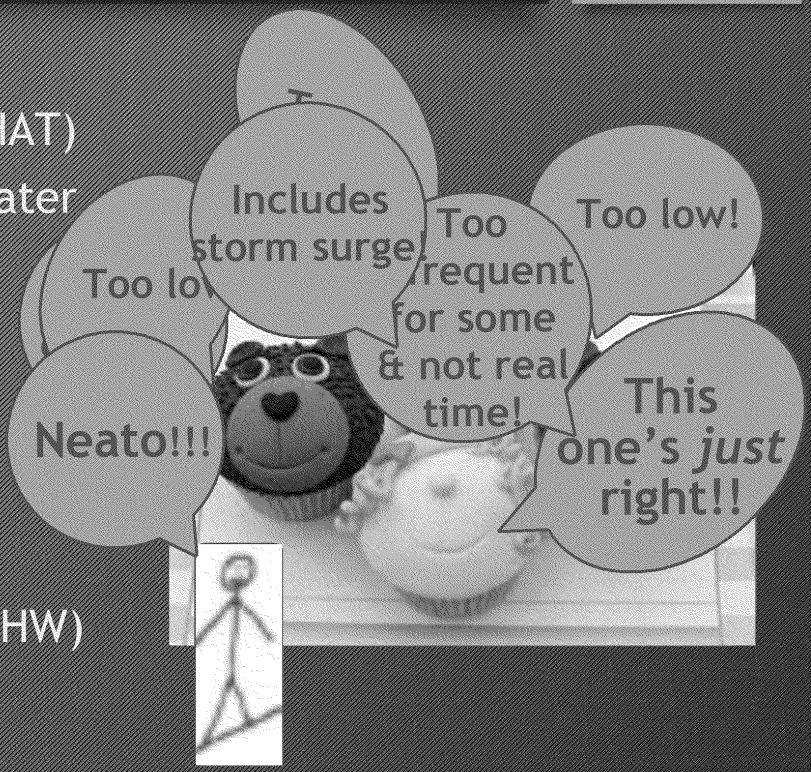
Okay, let's change it!



Interagency Workgroup

What are my choices, again?

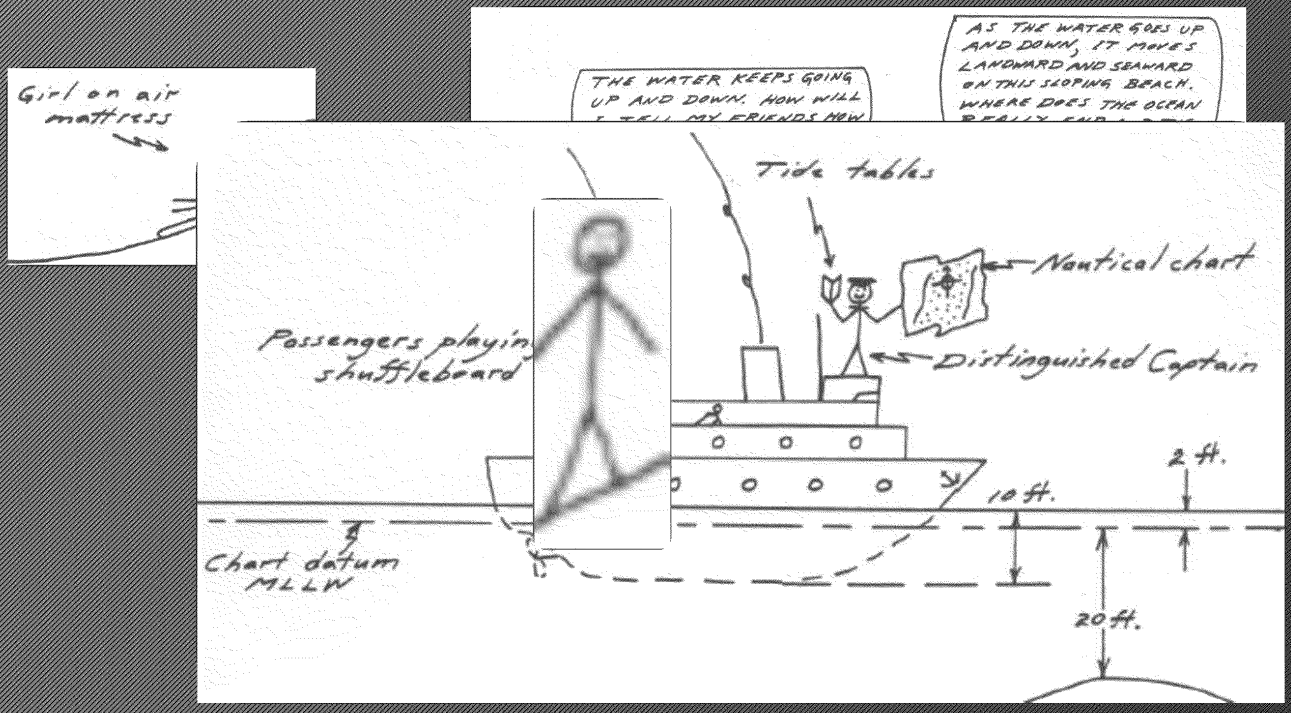
- Highest Astronomical Tide (HAT)
- Washington Ordinary High Water Mark (WOHWM)
- Mean Highest Predicted Tide (MHPT)
- Tropic Higher High Water
- Mean King Tide
- Mean Spring High Tide
- Mean Higher High Water (MHHW)
- Mean High Water (MHW)

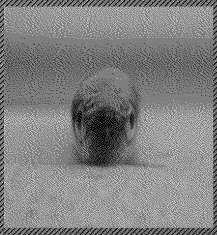


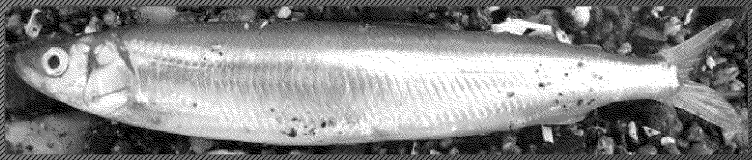
Okay, so what now?

Ex. 5 - Deliberative Process

Ex. 5 - Deliberative Process


Girl on air mattress
THE WATER KEEPS GOING UP AND DOWN. HOW WILL
AS THE WATER GOES UP AND DOWN, IT MOVES LANDWARD AND SEAWARD ON THIS SLOPING BEACH. WHERE DOES THE OCEAN
Tide tables
Nautical chart
Distinguished Captain
Passengers playing shuffleboard
2 ft.
10 ft.
20 ft.
Chart datum MLLW





Questions?