**To:** Dean, Heather[Dean.Heather@epa.gov]
**Cc:** Meyer, Susan[meyer.susan@epa.gov]
**From:** Storm, Linda
**Sent:** Wed 10/4/2017 12:34:27 AM
**Subject:** RE: can you provide me a 1-2 paragraph blerb on the MAHT approach for my meeting 10/5? FW: Draft Agenda for the October 5th HCCC ILF IRT meeting

Heather – this explanation is extremely helpful to me and I will use it at Thursday's meeting. A table and graphics would also be great to bring (if not too much trouble to send me tomorrow? Thanks so very much Heather ☺

All my best,

Linda

**Linda E. Storm, Aquatic Ecologist**

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**From:** Dean, Heather
**Sent:** Tuesday, October 03, 2017 4:11 PM
**To:** Storm, Linda <Storm.Linda@epa.gov>
**Cc:** Meyer, Susan <meyer.susan@epa.gov>
**Subject:** RE: can you provide me a 1-2 paragraph blerb on the MAHT approach for my meeting 10/5? FW: Draft Agenda for the October 5th HCCC ILF IRT meeting

Sorry I missed you; had a conference call on a CID JD.

The "datum" we recommended the Corps adopt is the "mean highest annual tide." Actually, there isn't really a "right" or "wrong" acronym on that ones, because it's not a NOAA-established datum. Ex. 5 - Deliberative Process

Ex. 5 - Deliberative Process

As the name implies, it is the average of the highest tide elevation every year over the preceding 19 years, with is the same length of time that NOAA uses for its the National Tidal Datum Epoch, with which they can compare contemporaneous data. The "elegance" of MHAT is that, unlike NOAA's official datums, it can easily be updated every year, thus keeping abreast of sea level rise (& actual tide levels) than any of them. Another is that anyone can calculate it using only a map (e.g., https://tidesandcurrents.noaa.gov/gmap3/) & NOAA's tide tables (https://tidesandcurrents.noaa.gov/tide_predictions.html?gid=1415). (How to do so doesn't jump out at you from those two sources, but, to start, you use the HAT for the nearest station (from https://tidesandcurrents.noaa.gov/stations.html?type=Datums) as a starting point to find the highest tide in the currently published & each of the previous 18 published tide tables (https://opendap.co-ops.nos.noaa.gov/axis/webservices/highlowtidepred/index.jsp), then average it. (We've actually already done that for all of the WA harmonic stations.) Then, every year, you find the new highest annual tide, drop the oldest one from the average & add the new one. Takes only minutes per tide station. In contrast, datums like HAT derive from sophisticated modelling of "harmonic constituents," of which there are a few dozen, each representing a different influence on the tide. Others, like MHHW, are "observed," rather than "predicted" tides & thus reflect extra-tidal influences such as wind & storm surge, which "high tide line" isn't supposed to reflect.

Ecologically speaking, tides exceed MHHW quite often (3-5 times a week at the six sites we studied closely), but rarely exceed MHAT, HAT, OHW. That also relates to the differences between their elevations; the latter three are within 2-4 inches of each other across the WA tide stations & are nearly two feet above MHHW. That means, of course, that the latter three all far better represent actual aquatic function, such as spawning habitat & predator refuge, than the former. (Turns out they also come far closer to matching where people go when you tell them to "stand where you think the high tide line is," which would seem to make for a stronger connection to what would make sense to "the public," as well.)

Like I mentioned, we found it to be very close to OHW. In fact, we felt all three of the higher elevations were generally so close to each as to test the precision of equipment available to the

average person & really too close to differentiate emphatically in the field, depending, of course, on the slope of the beach. Despite all of the above advocacy for MHAT, I would still say that using OHW is much more analogous to how the Corps differentiates wetlands & the limits of non-wetland freshwater. Susan, however (whom I've cc'd), is a much better source than I on it!! (Susan, please correct anything I've misstated or omitted above.)

I hope that helps. Like I said, we do have a table & some graphics that I could share, most likely tomorrow. Let me know if you still want them.

Heather

P.S. I'm signing off now.

**From:** Storm, Linda
**Sent:** Tuesday, October 03, 2017 1:22 PM
**To:** Dean, Heather <Dean.Heather@epa.gov>
**Subject:** RE: can you provide me a 1-2 paragraph blerb on the MAHT approach for my meeting 10/5? FW: Draft Agenda for the October 5th HCCC ILF IRT meeting

Heather – I just tried calling you to explain verbally, I am sure I have the acronym incorrect. What I'm wanting is a couple of paragraphs that explains/describes what the High Tide Line guidance and methods are that you developed with the Corps and NOAA (I know it went from HAT to HPT to a new term, which I clearly probably have wrong). The accurate name to reference as well as general description would be helpful. If you have a slide presentation that you've given to management or others before that you could send me I would then just pull key points from it to share verbally at my meeting on Thursday.

I hope that (and my vm) help clarify what I'm looking for – I want to speak again to the benefit of having you come to the HCCC ILF and give an overview and field demonstration/training for how to determine the HTL with this approach. I am also curious if you have anything to add to how it's a useful compliment to determining the OHWM that is in the state's regulations.

Thanks. Hope this helps ☺

Linda

**Linda E. Storm, Aquatic Ecologist**

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**From:** Dean, Heather
**Sent:** Tuesday, October 03, 2017 1:12 PM
**To:** Storm, Linda <Storm.Linda@epa.gov>
**Subject:** RE: can you provide me a 1-2 paragraph blerb on the MAHT approach for my meeting 10/5? FW: Draft Agenda for the October 5th HCCC ILF IRT meeting

I can try, Linda, but I'm not exactly sure what you're seeking. What do you mean by the MHAT "protocols"?

**From:** Storm, Linda
**Sent:** Friday, September 29, 2017 3:15 PM
**To:** Dean, Heather <Dean.Heather@epa.gov>
**Subject:** can you provide me a 1-2 paragraph blerb on the MAHT approach for my meeting 10/5? FW: Draft Agenda for the October 5th HCCC ILF IRT meeting

HI Heather;

If you have a paragraph description or two of the Mean Annual High Tide Line protocols that you could send me, I have time on next weeks agenda of the Hood Canal Coordinating Council to describe for folks what it is to inform a decision for future training with you ☺. It would help if there was an executive summary or something that I could share with folks (to at least verbally articulate it).

Again, my intention and purpose in sharing the approach with folks is to help inform our decision on where to identify the upper limit of the "intertidal zone" for purposes of impact assessment and generating required compensation to meet county, state, tribal and federal requirements through the HCCC ILF program. Right now we had decided to use the State's OHWM as the upper limit.

Thanks so very much!

Linda

**Linda E. Storm, Aquatic Ecologist**

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**From:** Patty Michak [mailto:pmichak@hccc.wa.gov]
**Sent:** Wednesday, September 20, 2017 1:44 PM
**To:** Brittany Gordon <Brittany.Gordon@dfw.wa.gov>; Chris Waldbillig <Chris.Waldbillig@dfw.wa.gov>; 'Cynthia Rossi' <crossi@pnptc.org>; 'Cyrilla Cook' <Cyrilla.Cook@dnr.wa.gov>; 'Donna Frostholm' <dfrostholm@co.jefferson.wa.us>; 'Doris Small' <doris.small@dfw.wa.gov>; 'Doug Morrill' <Doug.Morrill@elwha.nsn.us>; Erin Ryan-

Penuela <erin.ryan-penuela@psp.wa.gov>; Jennifer Quan <jennifer.quan@noaa.gov>; 'Kathlene Barnhart' <KBarnhar@co.kitsap.wa.us>; Lee Corum <lee_corum@fws.gov>; Storm, Linda <Storm.Linda@epa.gov>; Matt Goehring <Matt.Goehring@dnr.wa.gov>; 'Randy Lumper' <rlumper@Skokomish.org>; 'Roma Call' <romac@pgst.nsn.us>; 'Stacy Vynne' <stacy.vynne@psp.wa.gov>; 'Steve Todd' <stodd@Suquamish.nsn.us>; Suzanne Anderson <Suzanne.L.Anderson@usace.army.mil>
**Subject:** Draft Agenda for the October 5th HCCC ILF IRT meeting

Greetings IRT,

Please find attached a draft agenda for the October 5th IRT meeting. Navy staff will be joining us at 1pm to review the Service Pier Extension Project.

Thanks,

Patty Michak

Mitigation Program Manager

Hood Canal Coordinating Council

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