

**From:** [BrownScott, Jennifer](#)  
**To:** [Thomas, Sue](#)  
**Subject:** Fwd: [EXTERNAL] 2017 Dungeness Bay Herring Spawn  
**Date:** Monday, April 2, 2018 4:47:41 PM  
**Attachments:** [2017DungenessBayHerring.pdf](#)  
[Dung2017.xlsx](#)

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Jennifer Brown-Scott  
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Washington Maritime NWRC  
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~~Dungeness NWR~Protection Island NWR~San Juan Islands NWR~~  
~~Copalis NWR~Flattery Rocks NWR~Quillayute Needles NWR~~

----- Forwarded message -----

From: **Lindquist, Adam P (DFW)** <[Adam.Lindquist@dfw.wa.gov](mailto:Adam.Lindquist@dfw.wa.gov)>  
Date: Mon, Apr 2, 2018 at 4:30 PM  
Subject: [EXTERNAL] 2017 Dungeness Bay Herring Spawn  
To: "[jennifer\\_brownscoott@fws.gov](mailto:jennifer_brownscoott@fws.gov)" <[jennifer\\_brownscoott@fws.gov](mailto:jennifer_brownscoott@fws.gov)>  
Cc: "Dionne, Phillip E (DFW)" <[Phillip.Dionne@dfw.wa.gov](mailto:Phillip.Dionne@dfw.wa.gov)>

Hi Jennifer,

Phill Dionne forwarded me your request for info on Herring spawn in Dungeness Bay in 2017.  
See attached map and .xlsx data.

Let me know if you have any questions.

-Adam

Adam Lindquist

Forage Fish Biologist

Washington Dept. of Fish and Wildlife

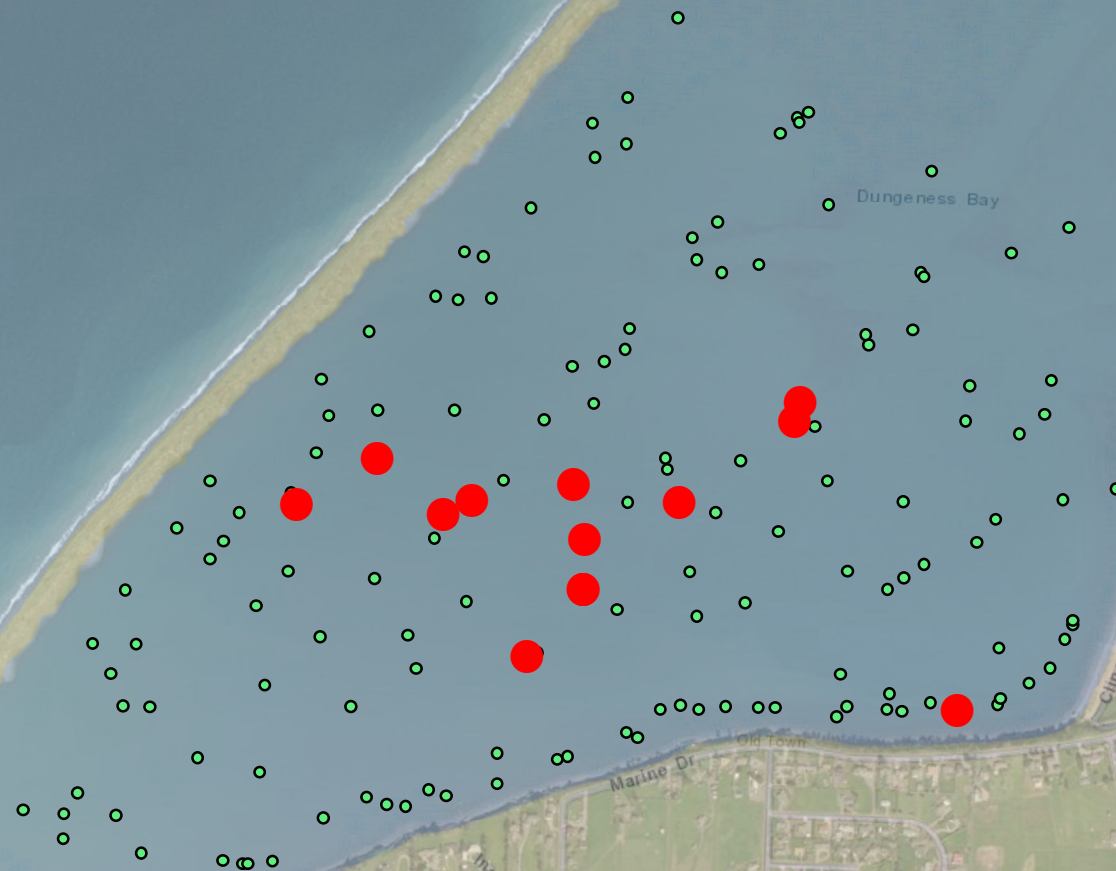
1111 Washington ST SE

Olympia, WA 98501

360-902-2704



## 2017 Dungeness Bay Herring Surveys



- No Spawn
- Spawn

Area	2017Herrin	Comments	2017Herrin Station	Nur Location	Start Depth	End Depth	Spawn Inte
Dungeness	2/23/2017	1 station vl	Thu Feb 23 1	Latitude:48 10	8		NP
Dungeness	2/23/2017	1 station vl	Thu Feb 23 2	Latitude:48 9	10		NP
Dungeness	2/23/2017	1 station vl	Thu Feb 23 3	Latitude:48 10	7		NP
Dungeness	2/23/2017	1 station vl	Thu Feb 23 4	Latitude:48 9	6		NP
Dungeness	2/23/2017	1 station vl	Thu Feb 23 5	Latitude:48 11	9		NP
Dungeness	2/23/2017	1 station vl	Thu Feb 23 6	Latitude:48 12	10		NP
Dungeness	2/23/2017	1 station vl	Thu Feb 23 7	Latitude:48 10	9		NP
Dungeness	2/23/2017	1 station vl	Thu Feb 23 8	Latitude:48 13	12		NP
Dungeness	2/23/2017	1 station vl	Thu Feb 23 9	Latitude:48 13	13		NP
Dungeness	2/23/2017	1 station vl	Thu Feb 23 10	Latitude:48 13	13		NP
Dungeness	2/23/2017	1 station vl	Thu Feb 23 11	Latitude:48 13	13		NP
Dungeness	2/23/2017	1 station vl	Thu Feb 23 12	Latitude:48 15	12		NP
Dungeness	2/23/2017	1 station vl	Thu Feb 23 13	Latitude:48 15	14		NP
Dungeness	2/23/2017	1 station vl	Thu Feb 23 14	Latitude:48 15	13		NP
Dungeness	2/23/2017	1 station vl	Thu Feb 23 15	Latitude:48 15	14		NP
Dungeness	2/23/2017	1 station vl	Thu Feb 23 16	Latitude:48 14	13		NP
Dungeness	2/23/2017	1 station vl	Thu Feb 23 17	Latitude:48 13	14		VL
Dungeness	2/23/2017	1 station vl	Thu Feb 23 18	Latitude:48 14	13		NP
Dungeness	2/23/2017	1 station vl	Thu Feb 23 19	Latitude:48 14	13		NP
Dungeness	2/23/2017	1 station vl	Thu Feb 23 20	Latitude:48 13	12		NP
Dungeness	2/23/2017	1 station vl	Thu Feb 23 21	Latitude:48 13	12		NP
Dungeness	2/23/2017	1 station vl	Thu Feb 23 22	Latitude:48 13	13		NP
Dungeness	2/23/2017	1 station vl	Thu Feb 23 23	Latitude:48 13	12		NP
Dungeness	2/23/2017	1 station vl	Thu Feb 23 24	Latitude:48 10	9		NP
Dungeness	2/23/2017	1 station vl	Thu Feb 23 25	Latitude:48 8	6		NP
Dungeness	2/13/2017	5 stations c	Mon Feb 1: 1	Latitude:48 5	7		NP
Dungeness	2/13/2017	5 stations c	Mon Feb 1: 2	Latitude:48 8	4		NP
Dungeness	2/13/2017	5 stations c	Mon Feb 1: 3	Latitude:48 8	6		NP
Dungeness	2/13/2017	5 stations c	Mon Feb 1: 4	Latitude:48 7	6		NP
Dungeness	2/13/2017	5 stations c	Mon Feb 1: 5	Latitude:48 7	6		NP
Dungeness	2/13/2017	5 stations c	Mon Feb 1: 6	Latitude:48 7	6		NP
Dungeness	2/13/2017	5 stations c	Mon Feb 1: 7	Latitude:48 7	6		NP
Dungeness	2/13/2017	5 stations c	Mon Feb 1: 8	Latitude:48 8	8		NP
Dungeness	2/13/2017	5 stations c	Mon Feb 1: 9	Latitude:48 10	10		NP
Dungeness	2/13/2017	5 stations c	Mon Feb 1: 10	Latitude:48 10	10		NP
Dungeness	2/13/2017	5 stations c	Mon Feb 1: 11	Latitude:48 11	11		VL
Dungeness	2/13/2017	5 stations c	Mon Feb 1: 12	Latitude:48 11	11		NP
Dungeness	2/13/2017	5 stations c	Mon Feb 1: 13	Latitude:48 10	10		NP
Dungeness	2/13/2017	5 stations c	Mon Feb 1: 14	Latitude:48 9	9		NP
Dungeness	2/13/2017	5 stations c	Mon Feb 1: 15	Latitude:48 7	9		NP
Dungeness	2/13/2017	5 stations c	Mon Feb 1: 16	Latitude:48 10	8		NP
Dungeness	2/13/2017	5 stations c	Mon Feb 1: 17	Latitude:48 10	10		NP
Dungeness	2/13/2017	5 stations c	Mon Feb 1: 18	Latitude:48 10	11		VL
Dungeness	2/13/2017	5 stations c	Mon Feb 1: 19	Latitude:48 11	11		NP
Dungeness	2/13/2017	5 stations c	Mon Feb 1: 20	Latitude:48 11	11		NP
Dungeness	2/13/2017	5 stations c	Mon Feb 1: 21	Latitude:48 11	11		NP

Dungeness 2/13/2017	5 stations c Mon Feb 1: 22	Latitude:48 11	10	VL
Dungeness 2/13/2017	5 stations c Mon Feb 1: 22	Latitude:48 11	10	VL
Dungeness 2/13/2017	5 stations c Mon Feb 1: 23	Latitude:48 11	6	VL
Dungeness 2/13/2017	5 stations c Mon Feb 1: 24	Latitude:48 9	9	VL
Dungeness 2/13/2017	5 stations c Mon Feb 1: 25	Latitude:48 15	12	NP
Dungeness 2/13/2017	5 stations c Mon Feb 1: 26	Latitude:48 5	5	NP
Dungeness 2/13/2017	5 stations c Mon Feb 1: 27	Latitude:48 8	9	NP
Dungeness 2/13/2017	5 stations c Mon Feb 1: 28	Latitude:48 12	12	NP
Dungeness 2/13/2017	5 stations c Mon Feb 1: 29	Latitude:48 11	11	NP
Dungeness 2/1/2017	Spawn!! 4\ Wed Feb 0: 1	Latitude:48 11	10	NP
Dungeness 2/1/2017	Spawn!! 4\ Wed Feb 0: 2	Latitude:48 11	9	NP
Dungeness 2/1/2017	Spawn!! 4\ Wed Feb 0: 3	Latitude:48 8	7	NP
Dungeness 2/1/2017	Spawn!! 4\ Wed Feb 0: 4	Latitude:48 9	8	NP
Dungeness 2/1/2017	Spawn!! 4\ Wed Feb 0: 5	Latitude:48 9	7	NP
Dungeness 2/1/2017	Spawn!! 4\ Wed Feb 0: 6	Latitude:48 8	7	NP
Dungeness 2/1/2017	Spawn!! 4\ Wed Feb 0: 7	Latitude:48 7	6	NP
Dungeness 2/1/2017	Spawn!! 4\ Wed Feb 0: 8	Latitude:48 10	10	NP
Dungeness 2/1/2017	Spawn!! 4\ Wed Feb 0: 9	Latitude:48 11	10	NP
Dungeness 2/1/2017	Spawn!! 4\ Wed Feb 0: 10	Latitude:48 10	10	VL
Dungeness 2/1/2017	Spawn!! 4\ Wed Feb 0: 11	Latitude:48 10	10	NP
Dungeness 2/1/2017	Spawn!! 4\ Wed Feb 0: 12	Latitude:48 11	12	NP
Dungeness 2/1/2017	Spawn!! 4\ Wed Feb 0: 13	Latitude:48 10	10	NP
Dungeness 2/1/2017	Spawn!! 4\ Wed Feb 0: 14	Latitude:48 12	12	NP
Dungeness 2/1/2017	Spawn!! 4\ Wed Feb 0: 15	Latitude:48 13	12	NP
Dungeness 2/1/2017	Spawn!! 4\ Wed Feb 0: 16	Latitude:48 5	4	NP
Dungeness 2/1/2017	Spawn!! 4\ Wed Feb 0: 17	Latitude:48 9	7	NP
Dungeness 2/1/2017	Spawn!! 4\ Wed Feb 0: 18	Latitude:48 10	8	VL
Dungeness 2/1/2017	Spawn!! 4\ Wed Feb 0: 19	Latitude:48 9	9	NP
Dungeness 2/1/2017	Spawn!! 4\ Wed Feb 0: 20	Latitude:48 9	7	NP
Dungeness 2/1/2017	Spawn!! 4\ Wed Feb 0: 21	Latitude:48 10	10	NP
Dungeness 2/1/2017	Spawn!! 4\ Wed Feb 0: 22	Latitude:48 11	10	VL
Dungeness 2/1/2017	Spawn!! 4\ Wed Feb 0: 23	Latitude:48 10	9	NP
Dungeness 2/1/2017	Spawn!! 4\ Wed Feb 0: 24	Latitude:48 10	10	VL
Dungeness 2/1/2017	Spawn!! 4\ Wed Feb 0: 25	Latitude:48 10	9	NP
Dungeness 2/1/2017	Spawn!! 4\ Wed Feb 0: 26	Latitude:48 7	6	VL
Dungeness 1/26/2017	Thu Jan 26 1	Latitude:48 12	10	NP
Dungeness 1/26/2017	Thu Jan 26 2	Latitude:48 12	7	NP
Dungeness 1/26/2017	Thu Jan 26 3	Latitude:48 10	9	NP
Dungeness 1/26/2017	Thu Jan 26 4	Latitude:48 10	9	NP
Dungeness 1/26/2017	Thu Jan 26 5	Latitude:48 10	9	NP
Dungeness 1/26/2017	Thu Jan 26 6	Latitude:48 11	11	NP
Dungeness 1/26/2017	Thu Jan 26 7	Latitude:48 13	12	NP
Dungeness 1/26/2017	Thu Jan 26 8	Latitude:48 12	11	NP
Dungeness 1/26/2017	Thu Jan 26 9	Latitude:48 13	13	NP
Dungeness 1/26/2017	Thu Jan 26 10	Latitude:48 13	12	NP
Dungeness 1/26/2017	Thu Jan 26 11	Latitude:48 13	11	NP
Dungeness 1/26/2017	Thu Jan 26 12	Latitude:48 8	7	NP

Dungeness 1/26/2017	Thu Jan 26 13	Latitude:48 13	12	NP
Dungeness 1/26/2017	Thu Jan 26 14	Latitude:48 10	7	NP
Dungeness 1/26/2017	Thu Jan 26 15	Latitude:48 14	13	NP
Dungeness 1/26/2017	Thu Jan 26 16	Latitude:48 14	13	NP
Dungeness 1/26/2017	Thu Jan 26 17	Latitude:48 14	14	NP
Dungeness 1/26/2017	Thu Jan 26 18	Latitude:48 14	13	NP
Dungeness 1/26/2017	Thu Jan 26 19	Latitude:48 14	14	NP
Dungeness 1/26/2017	Thu Jan 26 20	Latitude:48 15	14	NP
Dungeness 1/26/2017	Thu Jan 26 21	Latitude:48 16	15	NP
Dungeness 3/15/2017 Nospawn	Thu Mar 16 1	Latitude:48 5	5	NP
Dungeness 3/15/2017 Nospawn	Thu Mar 16 2	Latitude:48 7	6	NP
Dungeness 3/15/2017 Nospawn	Thu Mar 16 3	Latitude:48 7	6	NP
Dungeness 3/15/2017 Nospawn	Thu Mar 16 4	Latitude:48 5	3	NP
Dungeness 3/15/2017 Nospawn	Thu Mar 16 5	Latitude:48 5	3	NP
Dungeness 3/15/2017 Nospawn	Thu Mar 16 6	Latitude:48 5	3	NP
Dungeness 3/15/2017 Nospawn	Thu Mar 16 7	Latitude:48 5	3	NP
Dungeness 3/15/2017 Nospawn	Thu Mar 16 8	Latitude:48 8	8	NP
Dungeness 3/15/2017 Nospawn	Thu Mar 16 9	Latitude:48 8	8	NP
Dungeness 3/15/2017 Nospawn	Thu Mar 16 10	Latitude:48 8	8	NP
Dungeness 3/15/2017 Nospawn	Thu Mar 16 11	Latitude:48 9	9	NP
Dungeness 3/15/2017 Nospawn	Thu Mar 16 12	Latitude:48 8	8	NP
Dungeness 3/15/2017 Nospawn	Thu Mar 16 13	Latitude:48 8	7	NP
Dungeness 3/15/2017 Nospawn	Thu Mar 16 14	Latitude:48 7	6	NP
Dungeness 3/15/2017 Nospawn	Thu Mar 16 15	Latitude:48 7	7	NP
Dungeness 3/15/2017 Nospawn	Thu Mar 16 16	Latitude:48 8	8	NP
Dungeness 3/15/2017 Nospawn	Thu Mar 16 17	Latitude:48 8	8	NP
Dungeness 3/15/2017 Nospawn	Thu Mar 16 18	Latitude:48 8	8	NP
Dungeness 3/15/2017 Nospawn	Thu Mar 16 19	Latitude:48 9	9	NP
Dungeness 3/15/2017 Nospawn	Thu Mar 16 20	Latitude:48 9	9	NP
Dungeness 3/15/2017 Nospawn	Thu Mar 16 21	Latitude:48 9	8	NP
Dungeness 3/15/2017 Nospawn	Thu Mar 16 22	Latitude:48 6	6	NP
Dungeness 3/15/2017 Nospawn	Thu Mar 16 23	Latitude:48 4	3	NP
Dungeness 3/15/2017 Nospawn	Thu Mar 16 24	Latitude:48 7	6	NP
Dungeness 3/15/2017 Nospawn	Thu Mar 16 25	Latitude:48 10	10	NP
Dungeness 3/6/2017 Millard roc	Mon Mar 0 1	Latitude:48 8	9	NP
Dungeness 3/6/2017 Millard roc	Mon Mar 0 2	Latitude:48 8	7	VL
Dungeness 3/6/2017 Millard roc	Mon Mar 0 3	Latitude:48 9	8	NP
Dungeness 3/6/2017 Millard roc	Mon Mar 0 4	Latitude:48 7	6	NP
Dungeness 3/6/2017 Millard roc	Mon Mar 0 5	Latitude:48 8	7	NP
Dungeness 3/6/2017 Millard roc	Mon Mar 0 6	Latitude:48 8	6	NP
Dungeness 3/6/2017 Millard roc	Mon Mar 0 7	Latitude:48 7	6	NP
Dungeness 3/6/2017 Millard roc	Mon Mar 0 8	Latitude:48 8	7	NP
Dungeness 3/6/2017 Millard roc	Mon Mar 0 9	Latitude:48 10	10	NP
Dungeness 3/6/2017 Millard roc	Mon Mar 0 10	Latitude:48 12	12	NP
Dungeness 3/6/2017 Millard roc	Mon Mar 0 11	Latitude:48 12	12	NP
Dungeness 3/6/2017 Millard roc	Mon Mar 0 12	Latitude:48 12	12	NP
Dungeness 3/6/2017 Millard roc	Mon Mar 0 13	Latitude:48 12	12	NP

Dungeness 3/6/2017	Millard roc Mon Mar 0 14	Latitude:48 10	10	NP
Dungeness 3/6/2017	Millard roc Mon Mar 0 15	Latitude:48 11	10	NP
Dungeness 3/6/2017	Millard roc Mon Mar 0 16	Latitude:48 9	8	NP
Dungeness 3/6/2017	Millard roc Mon Mar 0 17	Latitude:48 11	11	NP
Dungeness 3/6/2017	Millard roc Mon Mar 0 18	Latitude:48 12	12	NP
Dungeness 3/6/2017	Millard roc Mon Mar 0 19	Latitude:48 12	12	NP
Dungeness 3/6/2017	Millard roc Mon Mar 0 20	Latitude:48 12	12	NP
Dungeness 3/6/2017	Millard roc Mon Mar 0 21	Latitude:48 12	12	NP
Dungeness 3/6/2017	Millard roc Mon Mar 0 22	Latitude:48 12	12	NP
Dungeness 3/6/2017	Millard roc Mon Mar 0 23	Latitude:48 14	13	NP
Dungeness 3/6/2017	Millard roc Mon Mar 0 24	Latitude:48 7	6	NP

Spawn	Fact	Yards	Tons	Eel Grass	Agardhiella	Gracillaria	Ahnfeltia	Alaria	Botryogloss:
				NP	NP	X	NP	NP	NP
				NP	X	X	NP	NP	NP
				X	NP	X	NP	NP	NP
				X	NP	X	NP	NP	NP
				NP	NP	X	NP	NP	NP
				NP	X	X	NP	NP	NP
				NP	NP	NP	NP	NP	NP
				NP	NP	X	NP	NP	NP
				NP	NP	X	NP	NP	NP
				X	NP	NP	NP	NP	NP
				NP	NP	X	NP	NP	X
				X	NP	NP	NP	NP	NP
				X	NP	X	NP	NP	NP
				NP	NP	NP	NP	NP	NP
				NP	NP	NP	NP	NP	NP
				X	NP	X	NP	NP	NP
0.024432	435.3333	10.63598		NP	VL	VL	NP	NP	VL
				X	NP	X	NP	NP	NP
				X	NP	NP	NP	NP	NP
				X	NP	X	NP	NP	NP
				X	NP	X	NP	NP	NP
				X	NP	X	NP	NP	NP
				NP	NP	X	NP	NP	NP
				X	NP	NP	NP	NP	NP
				X	NP	NP	NP	NP	NP
				NP	NP	X	NP	NP	NP
				X	NP	X	NP	NP	NP
				X	NP	X	NP	NP	NP
				X	NP	X	NP	NP	NP
				X	NP	X	NP	NP	NP
				NP	NP	X	NP	NP	NP
				NP	NP	X	NP	NP	NP
				NP	NP	X	NP	NP	NP
				NP	NP	NP	NP	NP	NP
				NP	NP	X	NP	NP	NP
0.024432	560.6667	13.6981		VL	NP	VL	NP	NP	NP
				X	NP	NP	NP	NP	NP
				X	NP	NP	NP	NP	NP
				NP	NP	NP	NP	NP	NP
				NP	NP	X	NP	NP	NP
				X	NP	X	NP	NP	NP
				X	NP	X	NP	NP	NP
0.024432	604.6667	14.7731		VL	NP	VL	NP	NP	NP
				X	NP	X	NP	NP	NP
				X	NP	X	NP	NP	NP
				NP	NP	X	NP	NP	NP



0.024432	331.3333	8.09507	VL	NP	VL	NP	NP	NP
0.024432	331.3333	8.09507	VL	NP	VL	NP	NP	NP
0.024432	756	18.47044	NP	NP	VL	NP	NP	NP
0.024432	734	17.93294	VL	NP	VL	NP	NP	NP
			X	NP	X	NP	NP	NP
			X	NP	NP	NP	NP	NP
			X	NP	X	NP	NP	NP
			X	NP	X	NP	NP	NP
			NP	NP	X	NP	NP	NP
			X	NP	X	NP	NP	NP
			X	NP	X	NP	NP	NP
			X	NP	X	NP	NP	NP
			X	NP	X	NP	NP	NP
			X	X	X	NP	NP	NP
			X	NP	X	NP	NP	NP
			X	NP	X	NP	NP	NP
			NP	NP	X	NP	NP	NP
			NP	X	NP	NP	NP	NP
0.024432	516	12.60681	X	NP	VL	NP	NP	NP
			X	NP	X	NP	NP	NP
			X	X	X	NP	NP	NP
			NP	X	NP	NP	NP	NP
			X	X	X	NP	NP	NP
			NP	NP	X	NP	NP	NP
			X	X	X	NP	NP	NP
			NP	NP	X	NP	NP	NP
0.024432	492	12.02045	VL	X	NP	NP	NP	NP
			X	X	NP	NP	NP	NP
			NP	NP	NP	NP	NP	NP
			X	NP	X	NP	NP	NP
0.024432	622.6667	15.21287	VL	NP	NP	NP	NP	NP
			X	X	NP	NP	NP	NP
0.024432	568.6667	13.89355	NP	VL	L	NP	NP	NP
			X	NP	NP	NP	NP	NP
0.024432	753.3333	18.40529	VL	NP	VL	NP	NP	NP
			X	NP	X	NP	NP	NP
			X	NP	X	NP	NP	NP
			X	NP	X	NP	NP	NP
			NP	NP	X	NP	NP	NP
			X	NP	X	NP	NP	NP
			NP	NP	X	NP	NP	NP
			NP	NP	NP	NP	NP	NP
			X	NP	NP	NP	NP	NP
			X	NP	NP	NP	NP	NP
			X	NP	NP	NP	NP	NP
			X	NP	X	NP	NP	NP
			X	NP	NP	NP	NP	NP

0.024432 219.3333 5.358708

X	NP	NP	NP	NP	NP
X	NP	X	NP	NP	NP
NP	NP	X	NP	NP	NP
NP	NP	NP	NP	NP	NP
NP	NP	X	NP	NP	NP
NP	NP	X	NP	NP	NP
NP	NP	NP	NP	NP	NP
X	X	X	NP	NP	NP
X	NP	NP	NP	NP	NP
NP	NP	X	NP	NP	NP
NP	NP	X	NP	NP	NP
X	X	X	NP	NP	NP
X	NP	X	NP	NP	NP
X	X	X	NP	NP	NP
NP	NP	X	NP	NP	NP
NP	X	X	NP	NP	NP
NP	NP	NP	NP	NP	NP
NP	NP	NP	NP	NP	NP
NP	NP	X	NP	NP	NP
X	NP	X	NP	NP	NP
NP	NP	NP	NP	NP	NP
X	NP	NP	NP	NP	NP
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NP	NP	NP	NP	NP	NP
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X	NP	X	NP	NP	NP
NP	X	NP	NP	NP	NP
NP	NP	NP	NP	NP	NP
NP	NP	NP	NP	NP	NP
NP	X	X	NP	NP	NP
X	NP	NP	NP	NP	NP
NP	NP	NP	NP	NP	NP
X	NP	X	NP	NP	NP
NP	NP	X	NP	NP	NP
NP	NP	VL	NP	NP	NP
X	NP	X	NP	NP	NP
X	NP	X	NP	NP	NP
X	NP	X	NP	NP	NP
X	NP	X	NP	NP	NP
NP	NP	X	NP	NP	NP
NP	NP	X	NP	NP	NP
NP	NP	NP	NP	NP	NP
NP	NP	X	NP	NP	NP
NP	NP	X	NP	NP	NP
X	NP	NP	NP	NP	NP
NP	NP	NP	NP	NP	NP

X	NP	X	NP	NP	NP
NP	NP	NP	NP	NP	NP
X	NP	NP	NP	NP	NP
X	NP	X	NP	NP	NP
NP	NP	X	NP	NP	NP
X	X	X	NP	NP	NP
NP	NP	NP	NP	NP	NP
X	NP	X	NP	NP	NP
X	NP	X	NP	NP	NP
X	NP	X	NP	NP	NP
X	NP	X	NP	NP	NP

[illegible]

[illegible]

[illegible]



[illegible]



[illegible]

[illegible]

[illegible]

Rhodymen	Sargassum	Ulva	Urospora	Worm Tubi	Add New V	Other Vege	Other Vege	Terrestrial
NP	NP	NP	NP	NP	No		NP	NP
NP	NP	NP	NP	NP	No		NP	NP
NP	NP	NP	NP	NP	No		NP	NP
NP	NP	NP	NP	NP	No		NP	NP
NP	NP	X	NP	NP	No		NP	NP
NP	NP	X	NP	NP	No		NP	NP
NP	NP	NP	NP	NP	No		NP	NP
NP	NP	NP	NP	NP	No		NP	NP
NP	NP	NP	NP	NP	No		NP	X
NP	NP	X	NP	NP	No		NP	NP
NP	NP	NP	NP	NP	No		NP	NP
NP	NP	NP	NP	NP	No		NP	NP
X	NP	X	NP	NP	No		NP	NP
NP	NP	X	NP	NP	No		NP	NP
NP	NP	NP	NP	NP	No		NP	NP
NP	NP	NP	NP	NP	No		NP	NP
NP	NP	X	NP	NP	No		NP	NP
NP	NP	X	NP	NP	No		NP	NP
NP	NP	NP	NP	NP	No		NP	X
NP	NP	NP	NP	NP	No		NP	NP
NP	NP	NP	NP	NP	No		NP	NP
NP	NP	NP	NP	NP	No		NP	NP
NP	NP	X	NP	NP	No		NP	NP
NP	NP	X	NP	NP	No		NP	NP
NP	NP	NP	NP	NP	No		NP	NP
NP	NP	NP	NP	NP	No		NP	NP
NP	NP	NP	NP	NP	No		NP	X
NP	NP	NP	NP	NP	No		NP	NP
NP	NP	NP	NP	NP	No		NP	NP
NP	NP	NP	NP	NP	No		NP	NP
NP	NP	NP	NP	NP	No		NP	NP
NP	NP	NP	NP	NP	No		NP	NP
NP	NP	X	NP	NP	No		NP	NP
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NP	NP	X	NP	NP	No	NP	NP
NP	NP	X	NP	NP	No	NP	X
NP	NP	NP	NP	NP	No	NP	NP

Man Made Vegetation	Eyed Eggs	Percent M <sub>c</sub> Sampled	2017Herrir Mammals/ Photo(s)	o Latitude
NP	Yes	No		48.1513020
NP	Yes	No		48.1506070
NP	Yes	No		48.1504080
NP	Yes	No		48.1494130
NP	Yes	No		48.1484390
NP	Yes	No		48.1473240
NP	No	No		48.1476170
NP	Yes	No		48.1500520
NP	Yes	No		48.1505060
NP	Yes	No		48.1514960
NP	Yes	No		48.1524650
NP	Yes	No		48.1522930
NP	Yes	No		48.1528380
NP	Yes	No		48.1543410
NP	No	No		48.1542110
NP	Yes	No		48.1538930
NP	Yes	Yes	H2017_1634	48.1543130
NP	Yes	No		48.1555840
NP	Yes	No		48.1539990
NP	Yes	No		48.1569480
NP	Yes	No		48.1584410
NP	Yes	No		48.1567790
NP	Yes	No		48.1555080
NP	Yes	No		48.1570070
NP	Yes	No		48.1595170
NP	Yes	No		48.1520930
NP	Yes	No		48.1506070
NP	Yes	No		48.1504550
NP	Yes	No		48.1504100
NP	Yes	No		48.1498850
NP	Yes	No		48.1486250
NP	Yes	No		48.1472800
NP	Yes	No		48.1484580
NP	No	No		48.1511730
NP	Yes	No		48.1532880
NP	Yes	Yes	H2017_1603	48.1537840
NP	Yes	No		48.1555360
NP	Yes	No		48.1576200
NP	Yes	No		48.1604850
NP	Yes	No		48.1611570
NP	Yes	No		48.1584450
NP	Yes	No		48.1557880
NP	Yes	No		48.1539660
NP	Yes	No		48.1525090
NP	Yes	No		48.1519410
NP	Yes	No		48.1508990



NP	Yes	Yes	H2017_1602	48.1524280
NP	Yes	Yes	H2017_1602	48.1524280
NP	Yes	No		48.1540520
NP	Yes	No		48.1555810
NP	Yes	No		48.1573030
NP	Yes	No		48.1587420
NP	Yes	No		48.1564790
NP	Yes	No		48.1539470
NP	Yes	No		48.1526210
NP	Yes	No		48.1516240
NP	Yes	No		48.1510590
NP	Yes	No		48.1504040
NP	Yes	No		48.1494360
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NP	Yes	No		48.1481150
NP	Yes	No		48.1491670
NP	Yes	No		48.1501840
NP	Yes	Yes	H2017_1651	48.1511880
NP	Yes	No		48.1520160
NP	Yes	No		48.1529230
NP	Yes	No		48.1535100
NP	Yes	No		48.1554960
NP	Yes	No		48.1583510
NP	Yes	No		48.1583800
NP	Yes	No		48.1564360
NP	Yes	Yes	H2017_1652	48.1546770
NP	Yes	No		48.1536060
NP	Yes	No		48.1521420
NP	Yes	No		48.1525730
NP	Yes	No		48.1536850
NP	Yes	No		48.1521460
NP	Yes	Yes	H2017_1653	48.1533190
NP	Yes	No		48.1546460
NP	Yes	No		48.1559300
NP	Yes	No		48.1510080
NP	Yes	No		48.1504830
NP	Yes	No		48.1503170
NP	Yes	No		48.1487380
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NP	Yes	No		48.1560520
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NP	Yes	No	48.1610630
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NP	Yes	No	48.1548430
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NP	Yes	Yes	48.1504700
NP	Yes	No	48.1504270
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NP	Yes	No	48.1480820
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NP	Yes	No	48.1527480
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NP	No	No	48.1575660

H2017\_1650

NP	Yes	No	48.1602270
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NP	Yes	No	48.1543440
NP	Yes	No	48.1514170
NP	Yes	No	48.1512630
NP	Yes	No	48.1528130
NP	Yes	No	48.1545310
NP	Yes	No	48.1563300
NP	Yes	No	48.1545660

Longitude	Water Qua 2017	Herrin Tap to scar 2017	Herrin Enter Age	Age Units	Age (hrs)	Age
-123.1538720						
-123.1570560						
-123.1625630						
-123.1667680						
-123.1716100						
-123.1759690						
-123.1802640						
-123.1787900						
-123.1749810						
-123.1711840						
-123.1666040						
-123.1621480						
-123.1578920						
-123.1536670						
-123.1579860						
-123.1630120						
-123.1668720	365	H2017_16	10	Days	240	10 Days
-123.1701290						
-123.1744560						
-123.1725040						
-123.1700130						
-123.1655930						
-123.1604160						
-123.1590420						
-123.1602380						
-123.1533100						
-123.1552360						
-123.1582150						
-123.1616770						
-123.1652020						
-123.1700020						
-123.1754280						
-123.1799290						
-123.1784850						
-123.1775110						
-123.1742980	389	H2017_16	1	Days	24	1 Days
-123.1722030						
-123.1692430						
-123.1657430						
-123.1608800						
-123.1637390						
-123.1663940						
-123.1695870						
-123.1721300						
-123.1752960						
-123.1709290						

-123.1665170	386	H2017_16C 10	Hours	10	10 Hours
-123.1665170	383	H2017_16C 3	Days	72	3 Days
-123.1640110					
-123.1609780					
-123.1578720					
-123.1552940					
-123.1540960					
-123.1554710					
-123.1583040					
-123.1552560					
-123.1595170					
-123.1637910					
-123.1686730					
-123.1732880					
-123.1781600					
-123.1813720					
-123.1767220					
-123.1726540					
-123.1679720	407	H2017_16C 3	Days	72	3 Days
-123.1634130					
-123.1594210					
-123.1559670					
-123.1548990					
-123.1577000					
-123.1620600					
-123.1670140					
-123.1721830	404	H2017_16C 4	Days	96	4 Days
-123.1758260					
-123.1788250					
-123.1744730					
-123.1703580					
-123.1696280					
-123.1665190	413	H2017_16C 2	Days	48	2 Days
-123.1643420					
-123.1608470					
-123.1544140					
-123.1593150					
-123.1643230					
-123.1704810					
-123.1752790					
-123.1802690					
-123.1796480					
-123.1766510					
-123.1737460					
-123.1695030					
-123.1666720					
-123.1644840					

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-123.1578140  
-123.1595670  
-123.1632890  
-123.1670410  
-123.1710830  
-123.1746170  
-123.1788830  
-123.1791430  
-123.1765740  
-123.1738140  
-123.1701260

371

H2017\_1656

Days

144

6 Days

-123.1665750  
-123.1616190  
-123.1638880  
-123.1661420  
-123.1687460  
-123.1735460  
-123.1676790  
-123.1636550  
-123.1600360  
-123.1562920  
-123.1522550

## Vegetation Comments

Grac      2 to 2.5 coil, dark eyes with tiny silver pupal

Eg      Cap, poorly fixed



Hyd	50% A few cells, other eggs 3 days
Hyd	3/4 coil, 50%

Grac	3/4 coil
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Eg	7/8 coil
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Grac	Yolk plug
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Grac      1.5 coil white eyes