Forage Fish Spawning Habitat Beach Survey

Samplers

Name(s)	Ashley Van Acken & Haley Tomlin
Organization	MABRRI
Date (mm/dd/yy)	12/08/17
Time (24hr)	13:45
Camera ID	Haley's iPhone

Access Database ID:

Region	Municipality	Beach	DFO Mngt Area
RDN	SH	SB	14-4

Last High Tide (12/08/17)

Time (24hr): 09:59
Elevation: 5.2m

2nd Effective High Tide

Time (24hr): --
Elevation: --

Calculating Tidal Elevation

Station		Elevation Change	Subtract Eye Height	Elevation Difference	Time	Elevation Relative to Chart Datum	Tidal Elevation (Chart Datum)
1	A	2.6m	-1.58m	1.02m	14:28	3.6m	4.62m
	B						
	C						
	D						
			Total	1.02m			

Current Conditions

Weather Conditions	Overcast; calm-light wind
Air Temp (°C)	3°C
Wind Direction	N/A
Wind Speed (km/hr)	N/A
Water Temp (°C)	8°C

Episodic Events *(determined prior to or after sampling)*

Has there been a storm event in the last week? Yes (No)

Date of Storm			
Maximum Wind Speed		Precipitation from Event (mm)	
Storm Category			

Evidence of beach wrack harvesting? Yes (No)

Site Attributes

Aspect	*Direction:* NE				*Bearing:* 40°	
Beach Slope	Flat (<5°)	(Inclined (5°-20°))	Steep (>20°)	*Slope of Beach (°):* --		
Max. Fetch Distance*	102 km (ESE)					
Exposure**	Very Protected	Protected	Semi-Protected	(Semi-Exposed)	Exposed	Very-Exposed

* Determined from chart measurements

** Determined based on Maximum Fetch Distance

Sediment Sample Collection

Sample Station #	Time (24hr)	UTM (m) (10U)	Beach	Backshore	Width (m)	Length (m)	Sample #	Landmark Object	Landmark Distance (m)	Tidal Elevation	Shading	Sample Type	Surf Smelt	Sand Lance	Photo #
1	14:02	381477 mE 5474068 mN	3	5	6.8	170	1	Chained log	14.8	4.62m	1	B	0	0	1 – 6

Comments

Forage Fish Spawn Sample Lab Analysis

Sample Station #	Sample #	Species	# of Eggs	Alive:Dead	Comments
1	1	PSL	2	--	

Processed by: Ashley Van Acken

Analyzed by: Haley Tomlin

Version: October 2019

Forage Fish Spawning Habitat Beach Survey

Samplers

Name(s)	Ashley/Haley/Brian
Organization	MABRRI
Date (mm/dd/yy)	02/01/18
Time (24hr)	12:12
Camera ID	Fuji #2

Access Database ID:

Region	Municipality	Beach	DFO Mngt Area
RDN	PK	CPB	14-1

Last High Tide (02/01/18)

Time (24hr): 06:49
Elevation: 5.1m

2nd Effective High Tide

Time (24hr): --
Elevation: --

Calculating Tidal Elevation

Station		Elevation Change	Subtract Eye Height	Elevation Difference	Time	Elevation Relative to Chart Datum	Tidal Elevation (Chart Datum)
1	A	2.4m	-1.0m	1.4m	12:07	3.1m	5.14m
	B	1.4m	-1.0m	0.4m			
	C	1.24m	-1.0m	0.24m			
	D						
			Total	2.04m			

Current Conditions

Weather Conditions	Overcast, light rain&wind
Air Temp (°C)	6°C
Wind Direction	WNW
Wind Speed (km/hr)	w km/hr
Water Temp (°C)	8°C

Episodic Events *(determined prior to or after sampling)*

Has there been a storm event in the last week? Yes (No)

Date of Storm			
Maximum Wind Speed		Precipitation from Event (mm)	
Storm Category			

Evidence of beach wrack harvesting? Yes (No)

Site Attributes

Aspect	*Direction:* NNW				*Bearing:* 350°	
Beach Slope	Flat (<5°)	(Inclined (5°-20°))	Steep (>20°)	*Slope of Beach (°):* 8.5°		
Max. Fetch Distance*	18km (NW)					
Exposure**	Very Protected	Protected	(Semi-Protected)	Semi-Exposed	Exposed	Very-Exposed

* Determined from chart measurements

** Determined based on Maximum Fetch Distance

Sediment Sample Collection

Sample Station #	Time (24hr)	UTM (m) (10U)	Beach	Backshore	Width (m)	Length (m)	Sample #	Landmark Object	Landmark Distance (m)	Tidal Elevation	Shading	Sample Type	Surf Smelt	Sand Lance	Photo #
1	12:12	404870 mE 5464492 mN	2	5	5	97	1	Shellfish sign	14.6	5.14	1	B	0	0	1 – 6

Comments There was a recent king tide – therefore, higher tide line.

Forage Fish Spawn Sample Lab Analysis

Sample Station #	Sample #	Species	# of Eggs	Alive:Dead	Comments
1	1	PSL	6	--	

Processed by: Haley Tomlin (Feb 1, 2018)

Analyzed by: Brian Timmer (Feb 2, 2018)

Version: October 2019

Forage Fish Spawning Habitat Beach Survey

Samplers

Name(s)	Ashley/Haley/Brian
Organization	MABRRI
Date (mm/dd/yy)	02/01/18
Time (24hr)	12:52
Camera ID	Fuji #2

Access Database ID:

Region	Municipality	Beach	DFO Mngt Area
RDN	PK	CPB	14-1

Last High Tide (02/01/18)

Time (24hr): 06:49
Elevation: 5.1m

2nd Effective High Tide

Time (24hr): --
Elevation: --

Calculating Tidal Elevation

Station		Elevation Change	Subtract Eye Height	Elevation Difference	Time	Elevation Relative to Chart Datum	Tidal Elevation (Chart Datum)
2	A	2.45m	-1.0m	1.45m	13:01	3.1m	5.13m
	B	1.58m	-1.0m	0.58m			
	C						
	D						
			Total	2.03m			

Current Conditions

Weather Conditions	Overcast, light rain&wind
Air Temp (°C)	6°C
Wind Direction	WNW
Wind Speed (km/hr)	2 km/hr
Water Temp (°C)	8°C

Episodic Events *(determined prior to or after sampling)*

Has there been a storm event in the last week? Yes **No**

Date of Storm			
Maximum Wind Speed		Precipitation from Event (mm)	
Storm Category			

Evidence of beach wrack harvesting? Yes **No**

Site Attributes

Aspect	*Direction:* W				*Bearing:* 280°	
Beach Slope	Flat (<5°)	**Inclined (5°-20°)**	Steep (>20°)	*Slope of Beach (°):* 7°		
Max. Fetch Distance*	17km (NW)					
Exposure**	Very Protected	Protected	**Semi-Protected**	Semi-Exposed	Exposed	Very-Exposed

* Determined from chart measurements

** Determined based on Maximum Fetch Distance

Sediment Sample Collection

Sample Station #	Time (24hr)	UTM (m) (10U)	Beach	Backshore	Width (m)	Length (m)
2	13:01	404949 mE 5464631 mN	1	5	5	22

Sample #	Landmark Object	Landmark Distance (m)	Tidal Elevation	Shading	Sample Type	Surf Smelt	Sand Lance	Photo #
1	Fence	15.1	5.13	1	B	0	0	1 – 6

Comments Transect laid only 22m because the curved topography and structure of the beach.

Forage Fish Spawn Sample Lab Analysis

Sample Station #	Sample #	Species	# of Eggs	Alive:Dead	Comments
2	1	PSL	7	--	

Processed by: Haley Tomlin (Feb 1, 2018)

Analyzed by: Brian Timmer (Feb 2, 2018)

Version: October 2019

Forage Fish Spawning Habitat Beach Survey

Samplers

Name(s)	Ashley Van Acken & Haley Tomlin
Organization	MABRRI
Date (mm/dd/yy)	02/08/18
Time (24hr)	07:17
Camera ID	Ashley's iPhone

Access Database ID:

Region	Municipality	Beach	DFO Mngt Area
RDN	PK	MB	14-1

Last High Tide (02/08/18)

Time (24hr): 00:45
Elevation: 3.8m

2nd Effective High Tide

Time (24hr): --
Elevation: --

Calculating Tidal Elevation

Station		Elevation Change	Subtract Eye Height	Elevation Difference	Time	Elevation Relative to Chart Datum	Tidal Elevation (Chart Datum)
1	A	2.3m	-1.0m	1.3m	07:17	3.5m	5.64m
	B	1.1m	-1.0m	0.1m			
	C	1.34m	-1.0m	0.34m			
	D	1.4m	-1.0m	0.4m			
			Total	2.14m			

Current Conditions

Weather Conditions	Clear sky; light wind
Air Temp (°C)	9°C
Wind Direction	W
Wind Speed (km/hr)	4 km/hr
Water Temp (°C)	8°C

Episodic Events *(determined prior to or after sampling)*

Has there been a storm event in the last week? Yes **No**

Date of Storm			
Maximum Wind Speed		Precipitation from Event (mm)	
Storm Category			

Evidence of beach wrack harvesting? Yes **No**

Site Attributes

Aspect	*Direction:* N				*Bearing:* 1°	
Beach Slope	Flat (<5°)	**Inclined (5°-20°)**	Steep (>20°)	*Slope of Beach (°):* 7°		
Max. Fetch Distance*	16 km (N)					
Exposure**	Very Protected	Protected	**Semi-Protected**	Semi-Exposed	Exposed	Very-Exposed

* Determined from chart measurements

** Determined based on Maximum Fetch Distance

Sediment Sample Collection

Sample Station #	Time (24hr)	UTM (m) (10U)	Beach	Backshore	Width (m)	Length (m)
1	07:23	404331 mE 5464201 mN	2/3	5	4.9	120
1	07:39	404332 mE 5464199 mN	3	5	4.9	120

Sample #	Landmark Object	Landmark Distance (m)	Tidal Elevation	Shading	Sample Type	Surf Smelt	Sand Lance	Photo #
1	Boardwalk	23.1	5.64	1	B	0	0	1 – 6
2	Boardwalk	26.7	5.14	1	B	0	0	7 – 12

Comments

Forage Fish Spawn Sample Lab Analysis

Sample Station #	Sample #	Species	# of Eggs	Alive:Dead	Comments
1	1	PSL	5	--	
1	2	PSL	2	--	

Processed by: Haley Tomlin (Feb 8, 2018)

Analyzed by: Brian Timmer (Feb 9, 2018)

Version: October 2019

Forage Fish Spawning Habitat Beach Survey

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Samplers

Name(s)	Ashley Van Acken & Haley Tomlin
Organization	MABRRI
Date (mm/dd/yy)	02/08/18
Time (24hr)	07:48
Camera ID	Ashley's iPhone

Access Database ID:

Region	Municipality	Beach	DFO Mngt Area
RDN	PK	MB	14-1

Last High Tide (02/08/18)

Time (24hr): 00:45
Elevation: 3.8m

2nd Effective High Tide

Time (24hr): --
Elevation: --

Calculating Tidal Elevation

Station		Elevation Change	Subtract Eye Height	Elevation Difference	Time	Elevation Relative to Chart Datum	Tidal Elevation (Chart Datum)
1	A	1.5m	-1.0m	0.5m	07:48	3.6m	4.1m
	B						
	C						
	D						
			Total	0.5m			

Current Conditions

Weather Conditions	Clear sky; light wind
Air Temp (°C)	9°C
Wind Direction	W
Wind Speed (km/hr)	4 km/hr
Water Temp (°C)	8°C

Episodic Events *(determined prior to or after sampling)*

Has there been a storm event in the last week? Yes (No)

Date of Storm			
Maximum Wind Speed		Precipitation from Event (mm)	
Storm Category			

Evidence of beach wrack harvesting? Yes (No)

Site Attributes

Aspect	*Direction:* N				*Bearing:* 1°	
Beach Slope	Flat (<5°)	(Inclined (5°-20°))	Steep (>20°)	*Slope of Beach (°):* 5°		
Max. Fetch Distance*	16 km (N)					
Exposure**	Very Protected	Protected	(Semi-Protected)	Semi-Exposed	Exposed	Very-Exposed

* Determined from chart measurements

** Determined based on Maximum Fetch Distance

Sediment Sample Collection

Sample Station #	Time (24hr)	UTM (m) (10U)	Beach	Backshore	Width (m)	Length (m)
1	07:48	404378 mE 5464210 mN	3	5	5.3	30

Sample #	Landmark Object	Landmark Distance (m)	Tidal Elevation	Shading	Sample Type	Surf Smelt	Sand Lance	Photo #
3	Boardwalk	30.7	4.1	1	B	0	0	1 – 6

Comments

Forage Fish Spawn Sample Lab Analysis

Sample Station #	Sample #	Species	# of Eggs	Alive:Dead	Comments
1	3	PSL	6	--	

Processed by: Haley Tomlin (Feb 8, 2018)

Analyzed by: Brian Timmer (Feb 9, 2018)

Version: October 2019

Forage Fish Spawning Habitat Beach Survey

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Samplers

Name(s)	Haley Tomlin & Brian Timmer
Organization	MABRRI
Date (mm/dd/yy)	02/15/18
Time (24hr)	11:47
Camera ID	Fuji #2

Access Database ID:

Region	Municipality	Beach	DFO Mngt Area
RDN	QB	MG	14-4

Last High Tide (02/15/18)

Time (24hr): 06:24
Elevation: 4.6m

2nd Effective High Tide

Time (24hr): --
Elevation: --

Calculating Tidal Elevation

Station		Elevation Change	Subtract Eye Height	Elevation Difference	Time	Elevation Relative to Chart Datum	Tidal Elevation (Chart Datum)
1	A	2.26m	-1.0m	1.26m	11:43	3.2m	4.46m
	B						
	C						
	D						
			Total	1.26m			

Current Conditions

Weather Conditions	Overcast
Air Temp (°C)	6°C
Wind Direction	E
Wind Speed (km/hr)	1 km/hr
Water Temp (°C)	8°C

Episodic Events *(determined prior to or after sampling)*

Has there been a storm event in the last week? Yes (No)

Date of Storm			
Maximum Wind Speed		Precipitation from Event (mm)	
Storm Category			

Evidence of beach wrack harvesting? Yes (No)

Site Attributes

Aspect	*Direction:* N				*Bearing:* 13°	
Beach Slope	Flat (<5°)	(Inclined (5°-20°))	Steep (>20°)	*Slope of Beach (°):* S1: 6°; S2: 7.5°		
Max. Fetch Distance*	71.5km (NW)					
Exposure**	Very Protected	Protected	Semi-Protected	(Semi-Exposed)	Exposed	Very-Exposed

* Determined from chart measurements

** Determined based on Maximum Fetch Distance

Sediment Sample Collection

Sample Station #	Time (24hr)	UTM (m) (10U)	Beach	Backshore	Width (m)	Length (m)
1	11.53	397333 mE 5468441 mN	2	2	6.8	112
1	12:08	397333 mE 5468436 mN	2	2	6.8	112

Sample #	Landmark Object	Landmark Distance (m)	Tidal Elevation	Shading	Sample Type	Surf Smelt	Sand Lance	Photo #
1	Pilings	22	4.46	3	B	0	0	1 – 6
2	Pilings	18.3	4.96	3	B	0	0	7 – 12

Comments

Forage Fish Spawn Sample Lab Analysis

Sample Station #	Sample #	Species	# of Eggs	Alive:Dead	Comments
1	1	PSL	3	--	
1	2	N/A	0		

Processed by: Haley Tomlin (Feb 15, 2018)

Analyzed by: Brian Timmer (Feb 16, 2018)

Version: October 2019

Forage Fish Spawning Habitat Beach Survey

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Samplers

Name(s)	Haley Tomlin & Kidston Short
Organization	MABRRI
Date (mm/dd/yy)	11/23/18
Time (24hr)	12:23
Camera ID	Fuji #2

Access Database ID: RDN_QB_18_14

Region	Municipality	Beach	DFO Mngt Area
RDN	QB	LQB	14-4

Last High Tide (11/23/18)

Time (24hr): 06:09
Elevation: 4.7m

2nd Effective High Tide

Time (24hr): --
Elevation: --

Calculating Tidal Elevation

Station		Elevation Change	Subtract Eye Height	Elevation Difference	Time	Elevation Relative to Chart Datum	Tidal Elevation (Chart Datum)
3	A	1.58m	-1.0m	0.58m	12:36	3.4m	3.98m
	B						
	C						
	D						
			Total	0.58m			

Current Conditions

Weather Conditions	Overcast
Air Temp (°C)	8°C
Wind Direction	ESE
Wind Speed (km/hr)	0 km/hr
Water Temp (°C)	8°C

Episodic Events (determined prior to or after sampling)

Has there been a storm event in the last week? Yes (No)

Date of Storm			
Maximum Wind Speed		Precipitation from Event (mm)	
Storm Category			

Evidence of beach wrack harvesting? Yes (No)

Site Attributes

Aspect	*Direction:* NNE			*Bearing:* 15°	
Beach Slope	Flat (<5°)	(Inclined (5°-20°))	Steep (>20°)	*Slope of Beach (°):* 7°	
Max. Fetch Distance*	66km (N)				
Exposure**	Very Protected	Protected	Semi-Protected	(Semi-Exposed)	Exposed	Very-Exposed

* Determined from chart measurements

** Determined based on Maximum Fetch Distance

Sediment Sample Collection

Sample Station #	Time (24hr)	UTM (m) (10U)	Beach	Backshore	Width (m)	Length (m)	Sample #	Landmark Object	Landmark Distance (m)	Tidal Elevation	Shading	Sample Type	Surf Smelt	Sand Lance	Photo #
3	12:23	392590 mE 5469103 mN	½	5	8.5	141	1	NW seawall corner	20	3.98	1	B	0	0	1 – 6

Comments Landmark measured from 0m with 0m at the NW end of the beach.

Forage Fish Spawn Sample Lab Analysis

Sample Station #	Sample #	Species	# of Eggs	Alive:Dead	Comments
3	1	PSL	9	--	

Processed by: Haley Tomlin (Nov 23, 2018)

Analyzed by: Chrissy Schellenberg (Nov 26, 2018)

Version: October 2019

Forage Fish Spawning Habitat Beach Survey

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Location Code (Refer to document)

Region	Municipality	Beach	DFO Mngt Area
RDN	GD	EV	17-16

Last High Tide (11/24/18)

Time (24hr): 07:10
Elevation: 4.6m

2nd Effective High Tide

Time (24hr): --
Elevation: --

Samplers

Name(s)	Kyle Clifford & Christy Wilson
Organization	Gabriola Shorekeepers
Date (mm/dd/yy)	11/24/18
Time (24hr)	12:29
Camera ID	Kyle's iPhone

Current Conditions

Air Temp (°C)	7°C
Wind Direction	N/A
Wind Speed (km/hr)	N/A
Water Temp (°C)	9°C

Sediment Sample Collection

Sample Station #	Sample #	Time (24hr)	UTM (m)	Beach	Backshore	Width (m)	Length (< or > 100m)	Landmark Object*	Landmark Distance (m)	Shading	Sample Type	Photo #
1	1	12:45	443294 mE 5442626 mN	2	5	5	> 100	Wood stair carving	4.5	1	B	1 – 6

Comments

(Examples: What does the property surrounding the sample site look like? Is there anything around the site that could negatively impact the survival of forage fish embryos? Have there been any recent storm events or human actions that could have impacted forage fish embryo survival or dispersal?)

No recent storm events.

Processed: Kyle Analyzed: Chrissy (1 PSL)

Version: October 2019

Forage Fish Spawning Habitat Beach Survey

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Samplers

Name(s)	Chrissy S & Sam P-S
Organization	MABRRI
Date (mm/dd/yy)	11/24/18
Time (24hr)	12:24
Camera ID	Fuji #2

Access Database ID:

Region	Municipality	Beach	DFO Mngt Area
RDN	PK	MB	14-1

Last High Tide (11/24/18)

Time (24hr): 06:58
Elevation: 4.9m

2nd Effective High Tide

Time (24hr): --
Elevation: --

Calculating Tidal Elevation

Station	Elevation Change		Subtract Eye Height	Elevation Difference	Time	Elevation Relative to Chart Datum	Tidal Elevation (Chart Datum)
1	A	1.74m	-1.0m	0.74m	12:38	3.5m	4.32m
	B	1.08m	-1.0m	0.08m			
	C						
	D						
			Total	0.82m			

Current Conditions

Weather Conditions	Overcast; light wind
Air Temp (°C)	8°C
Wind Direction	N
Wind Speed (km/hr)	0 km/hr
Water Temp (°C)	8°C

Episodic Events *(determined prior to or after sampling)*

Has there been a storm event in the last week? Yes (No)

Date of Storm			
Maximum Wind Speed		Precipitation from Event (mm)	
Storm Category			

Evidence of beach wrack harvesting? Yes (No)

Site Attributes

Aspect	*Direction:* NW			*Bearing:* 230°	
Beach Slope	Flat (<5°)	(Inclined (5°-20°))	Steep (>20°)	*Slope of Beach (°): 6°*	
Max. Fetch Distance*	16 km (N)				
Exposure**	Very Protected	Protected	(Semi-Protected)	Semi-Exposed	Exposed	Very-Exposed

* Determined from chart measurements

** Determined based on Maximum Fetch Distance

Sediment Sample Collection

Sample Station #	Time (24hr)	UTM (m) (10U)	Beach	Backshore	Width (m)	Length (m)	Sample #	Landmark Object	Landmark Distance (m)	Tidal Elevation	Shading	Sample Type	Surf Smelt	Sand Lance	Photo #
1	12:24	404337 mE 5464201 mN	2	5	7	149	1	Boardwalk (11th pillar)	26	4.32	1	B	0	0	1 – 6

Comments

Forage Fish Spawn Sample Lab Analysis

Sample Station #	Sample #	Species	# of Eggs	Alive:Dead	Comments
1	1	PSL	5	--	

Processed by: Haley Tomlin (Nov 25, 2018)

Analyzed by: Chrissy Schellenberg (Nov 28, 2018)

Version: October 2019

Forage Fish Spawning Habitat Beach Survey

MABRRI Mount Arrowsmith Biosphere Region Research Institute — VANCOUVER ISLAND UNIVERSITY

Location Code (Refer to document)

Region	Municipality	Beach	DFO Mngt Area
RDN	GD	SAB	17-10

Last High Tide (11/26/18)

Time (24hr): 08:40
Elevation: 4.9m

2nd Effective High Tide (11/25/18)

Time (24hr): 07:49
Elevation: 4.9m

Samplers

Name(s)	Joanna Mackenzie
Organization	Gabriola Shorekeepers
Date (mm/dd/yy)	11/26/2018
Time (24hr)	15:00
Camera ID	Joanna's cell phone

Current Conditions

Air Temp (°C)	11°C
Wind Direction	SE
Wind Speed (km/hr)	30 km/hr with gusts
Water Temp (°C)	8°C

Sediment Sample Collection

Sample Station #	Sample #	Time (24hr)	UTM (m)	Beach	Backshore	Width (m)	Length (< or > 100m)	Landmark Object*	Landmark Distance (m)	Shading	Sample Type	Photo #
1	1	15:00	440941 mE 5448409 mN	3	1	3	60	2 bare trees at veg. line (S of marsh)	4	1	B	1 – 5
1	2	15:30	440131 mE 5448964 mN	3	1	4	27	Greenhouse at NE end of marsh	4	1	2	1 – 5

Comments

(Examples: What does the property surrounding the sample site look like? Is there anything around the site that could negatively impact the survival of forage fish embryos? Have there been any recent storm events or human actions that could have impacted forage fish embryo survival or dispersal?)

Sample 1: beach changed dramatically since last sampling; much more cobble and boulder gravel. Storm surge and waves pounding beach with logs and debris.

Sample 2: same as above but more large logs and heavy seaweed clumps.

No recent storm events.

Processed: Joanna Analyzed: Chrissy – Nov 28/18 (Sample 1 = 3PSL; Sample 2 = no eggs)

Version: October 2019

Forage Fish Spawning Habitat Beach Survey

MARRI Mount Arrowsmith Biosphere Region Research Institute — VANCOUVER ISLAND UNIVERSITY

Location Code (Refer to document)

Region	Municipality	Beach	DFO Mngt Area
RDN	GD	EV	17-16

Last High Tide (12/16/18)

Time (24hr): 12:10
Elevation: 4.4m

2nd Effective High Tide

Time (24hr): --
Elevation: --

Samplers

Name(s)	Kyle Clifford & Christy Wilson
Organization	Gabriola Shorekeepers
Date (mm/dd/yy)	12/16/18
Time (24hr)	15:20
Camera ID	Kyle's iPhone

Current Conditions

Air Temp (°C)	9°C
Wind Direction	ESE
Wind Speed (km/hr)	9 km/hr
Water Temp (°C)	8°C

Sediment Sample Collection

Sample Station #	Sample #	Time (24hr)	UTM (m)	Beach	Backshore	Width (m)	Length (< or > 100m)	Landmark Object*	Landmark Distance (m)	Shading	Sample Type	Photo #
1	1	15:20	443294 mE 5442626 mN	2	5	3	> 100	Wood stair carving	4.5	1	B	1 – 6

Comments

(Examples: What does the property surrounding the sample site look like? Is there anything around the site that could negatively impact the survival of forage fish embryos? Have there been any recent storm events or human actions that could have impacted forage fish embryo survival or dispersal?)

No recent storm events.

Processed: Kyle Analyzed: Chrissy (20 PSL)

Forage Fish Spawning Habitat Beach Survey

MARRI Mount Arrowsmith Biosphere Region Research Institute — VANCOUVER ISLAND UNIVERSITY

Location Code (Refer to document)

Region	Municipality	Beach	DFO Mngt Area
RDN	GD	SAB	17-10

Last High Tide (12/16/18)

Time (24hr): 12:09
Elevation: 4.6m

2nd Effective High Tide (12/15/18)

Time (24hr): 11:32
Elevation: 4.6m

Samplers

Name(s)	Joanna Mackenzie & Dave Hendry
Organization	Gabriola Shorekeepers
Date (mm/dd/yy)	12/16/18
Time (24hr)	15:00
Camera ID	Joanna's cell phone

Current Conditions

Air Temp (°C)	10°C
Wind Direction	SE
Wind Speed (km/hr)	39 km/hr
Water Temp (°C)	7°C

Sediment Sample Collection

Sample Station #	Sample #	Time (24hr)	UTM (m)	Beach	Backshore	Width (m)	Length (< or > 100m)	Landmark Object*	Landmark Distance (m)	Shading	Sample Type	Photo #
1	1	15:00	440248 mE 5448575 mN	3	1	2	46	2 bare trees at veg. line (S of marsh)	9	1	B	1 – 5

Comments

(Examples: What does the property surrounding the sample site look like? Is there anything around the site that could negatively impact the survival of forage fish embryos? Have there been any recent storm events or human actions that could have impacted forage fish embryo survival or dispersal?)

Large waves and tide still quite high with waves pounding beach. Better sand/pea gravel visible than in November sampling. Accessibility limited because of waves.

No recent storm events.

Processed: Joanna Analyzed: Chrissy – Jan 8/19 (19 PSL)

Forage Fish Spawning Habitat Beach Survey

MABRRI — Mount Arrowsmith Biosphere Region Research Institute

VANCOUVER ISLAND UNIVERSITY

Samplers

Name(s)	Haley Tomlin & Kidston Short
Organization	MABRRI
Date (mm/dd/yy)	01/14/19
Time (24hr)	13:51
Camera ID	Fuji #2

Access Database ID: CWVRD_NC_19_01

Region	Municipality	Beach	DFO Mngt Area
CWVRD	NC	MPB	18-7

Last High Tide (01/14/19)

Time (24hr): 10:36
Elevation: 3.7m

2nd Effective High Tide (01/13/19)

Time (24hr): 10:08
Elevation: 3.8m

Calculating Tidal Elevation

Station		Elevation Change	Subtract Eye Height	Elevation Difference	Time	Elevation Relative to Chart Datum	Tidal Elevation (Chart Datum)
1	A	1.38m	-1.0m	0.38m	14:01	2.9m	3.28m
	B						
	C						
	D						
			Total	0.38m			

Current Conditions

Weather Conditions	Blue sky
Air Temp (°C)	8°C
Wind Direction	S
Wind Speed (km/hr)	3 km/hr
Water Temp (°C)	6°C

Episodic Events *(determined prior to or after sampling)*

Has there been a storm event in the last week? Yes (No)

Date of Storm			
Maximum Wind Speed		Precipitation from Event (mm)	
Storm Category			

Evidence of beach wrack harvesting? Yes (No)

Site Attributes

Aspect	*Direction:* NE				*Bearing:* 58°	
Beach Slope	Flat (<5°)	(Inclined (5°-20°))	Steep (>20°)	*Slope of Beach (°):* 10°		
Max. Fetch Distance*	7km (SE)					
Exposure**	Very Protected	(Protected)	Semi-Protected	Semi-Exposed	Exposed	Very-Exposed

* Determined from chart measurements

** Determined based on Maximum Fetch Distance

Sediment Sample Collection

Sample Station #	Time (24hr)	UTM (m) (10U)	Beach	Backshore	Width (m)	Length (m)
1	13:51	455254 mE 5407155 mN	3	5	3.5	165

Sample #	Landmark Object	Landmark Distance (m)	Tidal Elevation	Shading	Sample Type	Surf Smelt	Sand Lance	Photo #
1	"." After "C"	3.5	3.28	2	B	0	0	1 – 6

Comments First time embryos found here by MABRRI

Forage Fish Spawn Sample Lab Analysis

Sample Station #	Sample #	Species	# of Eggs	Alive:Dead	Comments
1	1	PSL	3	--	

Processed by: Haley Tomlin (Jan 15/19)

Analyzed by: Chrissy Schellenberg (Jan 19/19)

Version: October 2019

Forage Fish Spawning Habitat Beach Survey

MABRRI — Mount Arrowsmith Biosphere Region Research Institute

VANCOUVER ISLAND UNIVERSITY

Samplers

Name(s)	Haley Tomlin & Kidston Short
Organization	MABRRI
Date (mm/dd/yy)	01/14/19
Time (24hr)	14:05
Camera ID	Fuji #2

Access Database ID: CWVRD_NC_19_02

Region	Municipality	Beach	DFO Mngt Area
CWVRD	NC	MPB	18-7

Last High Tide (01/14/19)

Time (24hr): 10:36
Elevation: 3.7m

2nd Effective High Tide (01/13/19)

Time (24hr): 10:08
Elevation: 3.8m

Calculating Tidal Elevation

Station		Elevation Change	Subtract Eye Height	Elevation Difference	Time	Elevation Relative to Chart Datum	Tidal Elevation (Chart Datum)
1	A	1.35m	-1.0m	0.35m	14:10	2.8m	3.15m
	B						
	C						
	D						
			Total	0.35m			

Current Conditions

Weather Conditions	Blue sky
Air Temp (°C)	8°C
Wind Direction	S
Wind Speed (km/hr)	3 km/hr
Water Temp (°C)	6°C

Episodic Events *(determined prior to or after sampling)*

Has there been a storm event in the last week? Yes (No)

Date of Storm			
Maximum Wind Speed		Precipitation from Event (mm)	
Storm Category			

Evidence of beach wrack harvesting? Yes (No)

Site Attributes

Aspect	*Direction:* NE				*Bearing:* 58°	
Beach Slope	Flat (<5°)	(Inclined (5°-20°))	Steep (>20°)	*Slope of Beach (°):* 10°		
Max. Fetch Distance*	7km (SE)					
Exposure**	Very Protected	(Protected)	Semi-Protected	Semi-Exposed	Exposed	Very-Exposed

* Determined from chart measurements

** Determined based on Maximum Fetch Distance

Sediment Sample Collection

Sample Station #	Time (24hr)	UTM (m) (10U)	Beach	Backshore	Width (m)	Length (m)
1	14:05	455263 mE 5407208 mN	2/3	5	4.5	165

Sample #	Landmark Object	Landmark Distance (m)	Tidal Elevation	Shading	Sample Type	Surf Smelt	Sand Lance	Photo #
2	White gate	5.0	3.15	2	B	0	0	1 – 6

Comments Mix of pea gravel and pebble gravel, but primarily pea gravel.

Forage Fish Spawn Sample Lab Analysis

Sample Station #	Sample #	Species	# of Eggs	Alive:Dead	Comments
1	2	PSL	1	--	

Processed by: Haley Tomlin (Jan 15/19)

Analyzed by: Chrissy Schellenberg (Jan 19/19)

Version: October 2019

Forage Fish Spawning Habitat Beach Survey

Samplers

Name(s)	Chrissy S & Melanie L-P
Organization	MABRRI
Date (mm/dd/yy)	11/10/2019
Time (24hr)	07:15
Camera ID	Fuji #2

Access Database ID:

Region	Municipality	Beach	DFO Mngt Area
RDN	NA	DB	17-13

Last High Tide (11/10/19)

Time (24hr): 04:38
Elevation: 4.0m

2nd Effective High Tide (11/09/19)

Time (24hr): 15:26
Elevation: 4.3m

Calculating Tidal Elevation

Station		Elevation Change	Subtract Eye Height	Elevation Difference	Time	Elevation Relative to Chart Datum	Tidal Elevation (Chart Datum)
1	A	1.47m	-1.0m	0.47m	07:31	3.3m	3.77m
	B						
	C						
	D						
			Total	0.47m			

Current Conditions

Weather Conditions	Overcast; light wind
Air Temp (°C)	10°C
Wind Direction	W
Wind Speed (km/hr)	8 km/hr
Water Temp (°C)	12°C

Episodic Events *(determined prior to or after sampling)*

Has there been a storm event in the last week? Yes (No)

Date of Storm			
Maximum Wind Speed		Precipitation from Event (mm)	
Storm Category			

Evidence of beach wrack harvesting? Yes (No)

Site Attributes

Aspect	*Direction:* E				*Bearing:* 98°
Beach Slope	Flat (<5°)	(Inclined (5°-20°))	Steep (>20°)	*Slope of Beach (°): 6°*	
Max. Fetch Distance*	60km (N)				
Exposure**	Very Protected	Protected	Semi-Protected	(Semi-Exposed)	Exposed	Very-Exposed

* Determined from chart measurements

** Determined based on Maximum Fetch Distance

Sediment Sample Collection

Sample Station #	Time (24hr)	UTM (m) (10U)	Beach	Backshore	Width (m)	Length (m)	Sample #	Landmark Object	Landmark Distance (m)	Tidal Elevation	Shading	Sample Type	Surf Smelt	Sand Lance	Photo #
1	07:15	429364 mE 4350718 mN	2	5	6	300	1	Staircase pole	13	3.77	1	B	0	0	1 – 6

Comments Beach composition is consistent throughout the whole beach.

Forage Fish Spawn Sample Lab Analysis

Sample Station #	Sample #	Species	# of Eggs	Alive:Dead	Comments
1	1	PSL	1	--	

Processed by: Alanna Vivani (Nov 12, 2019)

Analyzed by: Jayme G. (Nov 12, 2019)

Version: October 2019

Forage Fish Spawning Habitat Beach Survey

Samplers

Name(s)	Alanna Vivani & Melanie L-P
Organization	MABRRI
Date (mm/dd/yy)	11/13/2019
Time (24hr)	10:51
Camera ID	Fuji #2

Access Database ID:

Region	Municipality	Beach	DFO Mngt Area
RDN	NA	DB	17-13

Last High Tide (11/13/19)

Time (24hr): 06:42
Elevation: 4.5m

2nd Effective High Tide

Time (24hr): --
Elevation: --

Calculating Tidal Elevation

Station		Elevation Change	Subtract Eye Height	Elevation Difference	Time	Elevation Relative to Chart Datum	Tidal Elevation (Chart Datum)
1	A	1.42m	-1.0m	0.42m	11:18	3.3m	4.23m
	B	1.51m	-1.0m	0.51m			
	C						
	D						
			Total	0.93m			

Current Conditions

Weather Conditions	Overcast
Air Temp (°C)	10°C
Wind Direction	ENE
Wind Speed (km/hr)	3 km/hr
Water Temp (°C)	8°C

Episodic Events *(determined prior to or after sampling)*

Has there been a storm event in the last week? Yes (No)

Date of Storm			
Maximum Wind Speed		Precipitation from Event (mm)	
Storm Category			

Evidence of beach wrack harvesting? Yes (No)

Site Attributes

Aspect	*Direction:* E				*Bearing:* 98°
Beach Slope	Flat (<5°)	(Inclined (5°-20°))	Steep (>20°)	*Slope of Beach (°): 6°*	
Max. Fetch Distance*	60km (N)				
Exposure**	Very Protected	Protected	Semi-Protected	(Semi-Exposed)	Exposed	Very-Exposed

* Determined from chart measurements

** Determined based on Maximum Fetch Distance

Sediment Sample Collection

Sample Station #	Time (24hr)	UTM (m) (10U)	Beach	Backshore	Width (m)	Length (m)	Sample #	Landmark Object	Landmark Distance (m)	Tidal Elevation	Shading	Sample Type	Surf Smelt	Sand Lance	Photo #
1	10:51	429388 mE 5450798 mN	2	5	7.5	300	1	Blue sign (wheel)	13	4.23	1	B	0	0	1 – 6

Comments Primarily pea gravel, but pebble gravel scattered throughout.

Forage Fish Spawn Sample Lab Analysis

Sample Station #	Sample #	Species	# of Eggs	Alive:Dead	Comments
1	1	PSL	1	--	

Processed by: Alanna Vivani (Nov 13, 2019)

Analyzed by: Melanie L-P (Nov 14, 2019)

Version: October 2019

Forage Fish Spawning Habitat Beach Survey

MABRRI — Mount Arrowsmith Biosphere Region Research Institute

VANCOUVER ISLAND UNIVERSITY

Samplers

Name(s)	Haley Tomlin & Alanna Vivani
Organization	MABRRI
Date (mm/dd/yy)	11/19/19
Time (24hr)	05:03
Camera ID	Fuji #2

Access Database ID:

Region	Municipality	Beach	DFO Mngt Area
RDN	NB	NWB	14-1

Last High Tide (11/18/19)

Time (24hr): 20:20
Elevation: 3.7m

2nd Effective High Tide (11/18/19)

Time (24hr): 10:31
Elevation: 4.8m

Calculating Tidal Elevation

Station		Elevation Change	Subtract Eye Height	Elevation Difference	Time	Elevation Relative to Chart Datum	Tidal Elevation (Chart Datum)
1	A	1.95m	-1.0m	0.95m	05:11	1.6m	3.78m
	B	2.23m	-1.0m	1.23m			
	C						
	D						
			Total	2.18m			

Current Conditions

Weather Conditions	Partly cloudy; light wind
Air Temp (°C)	8°C
Wind Direction	WNW
Wind Speed (km/hr)	15 km/hr
Water Temp (°C)	7°C

Episodic Events *(determined prior to or after sampling)*

Has there been a storm event in the last week? Yes (No)

Date of Storm			
Maximum Wind Speed		Precipitation from Event (mm)	
Storm Category			

Evidence of beach wrack harvesting? Yes (No)

Site Attributes

Aspect	*Direction:* NNW			*Bearing:* 330°	
Beach Slope	Flat (<5°)	(Inclined (5°-20°))	Steep (>20°)	*Slope of Beach (°):10°*	
Max. Fetch Distance*	119km (NNW)				
Exposure**	Very Protected	Protected	Semi-Protected	(Semi-Exposed)	Exposed	Very-Exposed

* Determined from chart measurements

** Determined based on Maximum Fetch Distance

Sediment Sample Collection

Sample Station #	Time (24hr)	UTM (m) (10U)	Beach	Backshore	Width (m)	Length (m)	Sample #	Landmark Object	Landmark Distance (m)	Tidal Elevation	Shading	Sample Type	Surf Smelt	Sand Lance	Photo #
1	05:03	412635 mE 5460851 mN	3	1	7	300	1	Plank on tree	13.5	3.78	3	B	0	0	1 – 2

Comments Landmark from 20m with 0m at the W end of the beach.

Forage Fish Spawn Sample Lab Analysis

Sample Station #	Sample #	Species	# of Eggs	Alive:Dead	Comments
1	1	PSL	33	--	

Processed by: Alanna Vivani (Nov 19, 2019)

Analyzed by: Chrissy Schellenberg (Nov 19, 2019)

Version: October 2019

Forage Fish Spawning Habitat Beach Survey

MABRRI — Mount Arrowsmith Biosphere Region Research Institute

VANCOUVER ISLAND UNIVERSITY

Location Code (Refer to document)

Region	Municipality	Beach	DFO Mngt Area
RDN	GD	GS-P	17-12

Last High Tide (11/24/19)

Time (24hr): 03:58
Elevation: 4.1m

2nd Effective High Tide (11/23/19)

Time (24hr): 14:30
Elevation: 4.7m

Samplers

Name(s)	Betty Kehler & Robert Pizey
Organization	Gabriola Shorekeepers
Date (mm/dd/yy)	11/24/19
Time (24hr)	10:16
Camera ID	Not collected

Current Conditions

Air Temp (°C)	11°C
Wind Direction	NE
Wind Speed (km/hr)	2 km/hr
Water Temp (°C)	9°C

Sediment Sample Collection

Sample Station #	Sample #	Time (24hr)	UTM (m)	Beach	Backshore	Width (m)	Length (< or > 100m)	Landmark Object*	Landmark Distance (m)	Shading	Sample Type	Photo #
1	1	10:16	437467 mE 5449410 mN	1	5	6	< 100	Bench	13.5	3	B	N/A

Comments

(Examples: What does the property surrounding the sample site look like? Is there anything around the site that could negatively impact the survival of forage fish embryos? Have there been any recent storm events or human actions that could have impacted forage fish embryo survival or dispersal?)

No recent storm events.

Processed: Haley Tomlin (Nov 26/19) Analyzed: Chrissy Schellenberg (Dec 8/19) (3 PSL)

Version: October 2019

Forage Fish Spawning Habitat Beach Survey

MARRI Mount Arrowsmith Biosphere Region Research Institute — VANCOUVER ISLAND UNIVERSITY

Location Code (Refer to document)

Region	Municipality	Beach	DFO Mngt Area
RDN	GD	SAB	17-10

Last High Tide (11/25/19)

Time (24hr): 04:55
Elevation: 4.4m

2nd Effective High Tide (11/24/19)

Time (24hr): 15:02
Elevation: 4.7m

Samplers

Name(s)	Joanna Mackenzie & Dave Hendry
Organization	Gabriola Shorekeepers
Date (mm/dd/yy)	11/25/19
Time (24hr)	08:45
Camera ID	Joanna's phone

Current Conditions

Air Temp (°C)	6°C
Wind Direction	NNW
Wind Speed (km/hr)	2.5 km/hr
Water Temp (°C)	6°C

Sediment Sample Collection

Sample Station #	Sample #	Time (24hr)	UTM (m)	Beach	Backshore	Width (m)	Length (< or > 100m)	Landmark Object*	Landmark Distance (m)	Shading	Sample Type	Photo #
1	1	08:45	440248 mE 5448575 mN	3	1	12	> 100	2 dead trees	17.5	1	B	1 – 5

Comments

(Examples: What does the property surrounding the sample site look like? Is there anything around the site that could negatively impact the survival of forage fish embryos? Have there been any recent storm events or human actions that could have impacted forage fish embryo survival or dispersal?)

Log boom broken up on shore. Good pea gravel outside of normal sample area and so included in sample.

No recent storm events.

Processed: Joanna & Dave (Nov 25/19) Analyzed: Chrissy (Nov 25/19) (33 PSL)

Forage Fish Spawning Habitat Beach Survey

MARRI Mount Arrowsmith Biosphere Region Research Institute — VANCOUVER ISLAND UNIVERSITY

Location Code (Refer to document)

Region	Municipality	Beach	DFO Mngt Area
RDN	GD	EV	17-16

Last High Tide (11/30/19)

Time (24hr): 09:06
Elevation: 4.8m

2nd Effective High Tide (11/29/19)

Time (24hr): 08:19
Elevation: 4.8m

Samplers

Name(s)	Kyle Clifford & Christy Wilson
Organization	Gabriola Shorekeepers
Date (mm/dd/yy)	11/30/19
Time (24hr)	15:20
Camera ID	Christy's phone

Current Conditions

Air Temp (°C)	5°C
Wind Direction	E
Wind Speed (km/hr)	0 km/hr
Water Temp (°C)	8°C

Sediment Sample Collection

Sample Station #	Sample #	Time (24hr)	UTM (m)	Beach	Backshore	Width (m)	Length (< or > 100m)	Landmark Object*	Landmark Distance (m)	Shading	Sample Type	Photo #
1	1	15:25	443294 mE 5442626 mN	2	5	5	> 100	Wood stair carving	4.5	1	B	1 – 6

Comments

(Examples: What does the property surrounding the sample site look like? Is there anything around the site that could negatively impact the survival of forage fish embryos? Have there been any recent storm events or human actions that could have impacted forage fish embryo survival or dispersal?)

No recent storm events.

Processed: Alanna Vivani (Dec 2/19) Analyzed: Brittany Milner (Dec 2/19) (56 PSL)

Forage Fish Spawning Habitat Beach Survey

MARRI Mount Arrowsmith Biosphere Region Research Institute — VANCOUVER ISLAND UNIVERSITY

Location Code (Refer to document)

Region	Municipality	Beach	DFO Mngt Area
RDN	FC	SP1	14-4

Last High Tide (12/06/19)

Time (24hr): 01:30
Elevation: 3.3m

2nd Effective High Tide (12/05/19)

Time (24hr): 12:40
Elevation: 4.6m

Samplers

Name(s)	Carl, Shelley, & Pete
Organization	MVIHES
Date (mm/dd/yy)	12/06/19
Time (24hr)	08:31
Camera ID	MVIHES Tablet

Current Conditions

Air Temp (°C)	8°C
Wind Direction	N/A
Wind Speed (km/hr)	0 km/hr
Water Temp (°C)	4°C

Sediment Sample Collection

Sample Station #	Sample #	Time (24hr)	UTM (m)	Beach	Backshore	Width (m)	Length (< or > 100m)	Landmark Object*	Landmark Distance (m)	Shading	Sample Type	Photo #
1	1	08:31	407130 mE 5464804 mN	2	5	8	> 100	NE Fence post	28.5	1	B	1 – 6

Comments

(Examples: What does the property surrounding the sample site look like? Is there anything around the site that could negatively impact the survival of forage fish embryos? Have there been any recent storm events or human actions that could have impacted forage fish embryo survival or dispersal?)

No recent storm events.

Processed: Alanna Vivani (Dec 10/19) Analyzed: Haley Tomlin (Dec 18/19) (1 PSL)

Forage Fish Spawning Habitat Beach Survey

MARRI Mount Arrowsmith Biosphere Region Research Institute — VANCOUVER ISLAND UNIVERSITY

Location Code (Refer to document)

Region	Municipality	Beach	DFO Mngt Area
RDN	FC	SP4	14-4

Last High Tide (12/06/19)

Time (24hr): 01:30
Elevation: 3.3m

2nd Effective High Tide (12/05/19)

Time (24hr): 12:40
Elevation: 4.6m

Samplers

Name(s)	Carl, Shelley, & Pete
Organization	MVIHES
Date (mm/dd/yy)	12/06/19
Time (24hr)	09:12
Camera ID	MVIHES Tablet

Current Conditions

Air Temp (°C)	8°C
Wind Direction	E
Wind Speed (km/hr)	4 km/hr
Water Temp (°C)	4°C

Sediment Sample Collection

Sample Station #	Sample #	Time (24hr)	UTM (m)	Beach	Backshore	Width (m)	Length (< or > 100m)	Landmark Object*	Landmark Distance (m)	Shading	Sample Type	Photo #
4	1	09:12	406643 mE 5465141 mN	3	5	11	> 100	Foreshore surveyor marker	21.3	1	B	1 – 6

Comments

(Examples: What does the property surrounding the sample site look like? Is there anything around the site that could negatively impact the survival of forage fish embryos? Have there been any recent storm events or human actions that could have impacted forage fish embryo survival or dispersal?)

No recent storm events.

Processed: Haley Tomlin (Dec 10/19) Analyzed: Alanna Vivani (Dec 17/19) (1 PSL)

Forage Fish Spawning Habitat Beach Survey

Location Code (Refer to document)

Region	Municipality	Beach	DFO Mngt Area
RDN	GD	EV	17-16

Last High Tide (12/07/19)

Time (24hr): 02:52
Elevation: 3.5m

2nd Effective High Tide (12/06/19)

Time (24hr): 13:17
Elevation: 4.4m

Samplers

Name(s)	Kyle Clifford
Organization	Gabriola Shorekeepers
Date (mm/dd/yy)	12/07/19
Time (24hr)	09:40
Camera ID	Kyle's phone

Current Conditions

Air Temp (°C)	9°C
Wind Direction	E
Wind Speed (km/hr)	2 km/hr
Water Temp (°C)	6°C

Sediment Sample Collection

Sample Station #	Sample #	Time (24hr)	UTM (m)	Beach	Backshore	Width (m)	Length (< or > 100m)	Landmark Object*	Landmark Distance (m)	Shading	Sample Type	Photo #
1	1	09:40	443294 mE 5442626 mN	2	5	5	> 100	Wood stair carving	4.5	1	B	1 – 6

Comments

(Examples: What does the property surrounding the sample site look like? Is there anything around the site that could negatively impact the survival of forage fish embryos? Have there been any recent storm events or human actions that could have impacted forage fish embryo survival or dispersal?)

No recent storm events.

Processed: Kyle Clifford (Dec 7/19) Analyzed: Haley Tomlin (Dec 18/19) (43 PSL)

Forage Fish Spawning Habitat Beach Survey

Location Code (Refer to document)

Region	Municipality	Beach	DFO Mngt Area
RDN	NA	IPB	17-18

Last High Tide (12/07/19)

Time (24hr): 02:52
Elevation: 3.5m

2nd Effective High Tide (12/06/19)

Time (24hr): 13:17
Elevation: 4.4m

Samplers

Name(s)	Chris Depka and students
Organization	Dover Bay Eco-Club
Date (mm/dd/yy)	12/07/19
Time (24hr)	09:15
Camera ID	Chris' phone

Current Conditions

Air Temp (°C)	8°C
Wind Direction	ENE
Wind Speed (km/hr)	5 km/hr
Water Temp (°C)	8°C

Sediment Sample Collection

Sample Station #	Sample #	Time (24hr)	UTM (m)	Beach	Backshore	Width (m)	Length (< or > 100m)	Landmark Object*	Landmark Distance (m)	Shading	Sample Type	Photo #
1	1	09:15	424822 mE 5455538 mN	3	2	3	150	Alder Tree	14	4	B	1 – 5

Comments

(Examples: What does the property surrounding the sample site look like? Is there anything around the site that could negatively impact the survival of forage fish embryos? Have there been any recent storm events or human actions that could have impacted forage fish embryo survival or dispersal?)

No recent storm events.

Processed: Chris Depka (Dec 7/19) Analyzed: Brittany Milner (Dec 16/19) (680 PSL)

Forage Fish Spawning Habitat Beach Survey

MABRRI Mount Arrowsmith Biosphere Region Research Institute — VANCOUVER ISLAND UNIVERSITY

Location Code (Refer to document)

Region	Municipality	Beach	DFO Mngt Area
RDN	GD	SAB	17-10

Last High Tide (12/07/19)

Time (24hr): 02:57
Elevation: 3.5m

2nd Effective High Tide (12/06/19)

Time (24hr): 13:06
Elevation: 4.5m

Samplers

Name(s)	Joanna Mackenzie
Organization	Gabriola Shorekeepers
Date (mm/dd/yy)	12/07/19
Time (24hr)	08:30
Camera ID	Joanna's phone

Current Conditions

Air Temp (°C)	9°C
Wind Direction	ESE
Wind Speed (km/hr)	3 km/hr
Water Temp (°C)	6°C

Sediment Sample Collection

Sample Station #	Sample #	Time (24hr)	UTM (m)	Beach	Backshore	Width (m)	Length (< or > 100m)	Landmark Object*	Landmark Distance (m)	Shading	Sample Type	Photo #
1	1	08:30	440248 mE 5448575 mN	3	1	8	300	2 dead trees	16	1	B	1 – 5

Comments

(Examples: What does the property surrounding the sample site look like? Is there anything around the site that could negatively impact the survival of forage fish embryos? Have there been any recent storm events or human actions that could have impacted forage fish embryo survival or dispersal?)

Overcast day. Large pebbles all over sampling area. Seaweed was in thick lines.

No recent storm events.

Processed: Joanna Mackenzie (Dec 7/19)

Analyzed: Haley Tomlin (Dec 18/19) (28 PSL)

Version: October 2019

MABRRI Mount Arrowsmith Biosphere Region Research Institute — VANCOUVER ISLAND UNIVERSITY

Forage Fish Spawning Habitat Beach Survey

Samplers

Name(s)	Haley Tomlin & Alanna Vivani
Organization	MABRRI
Date (mm/dd/yy)	12/09/19
Time (24hr)	18:10
Camera ID	Fuji #2

Access Database ID:

Region	Municipality	Beach	DFO Mngt Area
RDN	NA	DB	17-13

Last High Tide (12/09/19)

Time (24hr): 14:45
Elevation: 4.3m

2nd Effective High Tide (12/08/19)

Time (24hr): 14:17
Elevation: 4.3m

Calculating Tidal Elevation

Station		Elevation Change	Subtract Eye Height	Elevation Difference	Time	Elevation Relative to Chart Datum	Tidal Elevation (Chart Datum)
1	A	1.90m	-1.0m	0.90m	18:17	2.95m	4.6m
	B	1.75m	-1.0m	0.75m			
	C						
	D						
			Total	1.65m			

Current Conditions

Weather Conditions	Overcast
Air Temp (°C)	5°C
Wind Direction	SE
Wind Speed (km/hr)	0 km/hr
Water Temp (°C)	6°C

Episodic Events *(determined prior to or after sampling)*

Has there been a storm event in the last week? Yes (No)

Date of Storm			
Maximum Wind Speed		Precipitation from Event (mm)	
Storm Category			

Evidence of beach wrack harvesting? Yes (No)

Site Attributes

Aspect	*Direction:* ESE				*Bearing:* 110°
Beach Slope	Flat (<5°)	(Inclined (5°-20°))	Steep (>20°)	*Slope of Beach (°):* 8°	
Max. Fetch Distance*	60km (NE)				
Exposure**	Very Protected	Protected	Semi-Protected	(Semi-Exposed)	Exposed	Very-Exposed

* Determined from chart measurements

** Determined based on Maximum Fetch Distance

Sediment Sample Collection

Sample Station #	Time (24hr)	UTM (m) (10U)	Beach	Backshore	Width (m)	Length (m)	Sample #	Landmark Object	Landmark Distance (m)	Tidal Elevation	Shading	Sample Type	Surf Smelt	Sand Lance	Photo #
1	18:10	429380 mE 5450788 mN	3	5	8	300	1	Sign	8.5	4.6	1	B	0	0	1 – 6

Comments Pockets of sand and sand base under the pebble gravel. Landmark from 11m with 0m at E end of beach.

Forage Fish Spawn Sample Lab Analysis

Sample Station #	Sample #	Species	# of Eggs	Alive:Dead	Comments
1	1	PSL	4	--	

Processed by: Haley Tomlin (Dec 10, 2019)

Analyzed by: Alanna Vivani (Dec 19, 2019)

Version: October 2019

Forage Fish Spawning Habitat Beach Survey

Samplers

Name(s)	Haley Tomlin & Alanna Vivani
Organization	MABRRI
Date (mm/dd/yy)	12/09/19
Time (24hr)	16:45
Camera ID	Fuji #2

Access Database ID:

Region	Municipality	Beach	DFO Mngt Area
CWVRD	NC	MPB	18-7

Last High Tide (12/09/19)

Time (24hr): 14:05
Elevation: 3.5m

2nd Effective High Tide (12/08/19)

Time (24hr): 13:40
Elevation: 3.6m

Calculating Tidal Elevation

Station		Elevation Change	Subtract Eye Height	Elevation Difference	Time	Elevation Relative to Chart Datum	Tidal Elevation (Chart Datum)
1	A	1.59m	-1.0m	0.59m	16:54	2.75m	3.34m
	B						
	C						
	D						
			Total	0.59m			

Current Conditions

Weather Conditions	Partly cloudy
Air Temp (°C)	6°C
Wind Direction	ENE
Wind Speed (km/hr)	0 km/hr
Water Temp (°C)	7°C

Episodic Events *(determined prior to or after sampling)*

Has there been a storm event in the last week? Yes (No)

Date of Storm			
Maximum Wind Speed		Precipitation from Event (mm)	
Storm Category			

Evidence of beach wrack harvesting? Yes (No)

Site Attributes

Aspect	*Direction:* E				*Bearing:* 98°	
Beach Slope	Flat (<5°)	(Inclined (5°-20°))	Steep (>20°)	*Slope of Beach (°):10°*		
Max. Fetch Distance*	7km (SE)					
Exposure**	Very Protected	(Protected)	Semi-Protected	Semi-Exposed	Exposed	Very-Exposed

* Determined from chart measurements

** Determined based on Maximum Fetch Distance

Sediment Sample Collection

Sample Station #	Time (24hr)	UTM (m) (10U)	Beach	Backshore	Width (m)	Length (m)
1	16:45	455249 mE 5407157 mN	2	5	5	300

Sample #	Landmark Object	Landmark Distance (m)	Tidal Elevation	Shading	Sample Type	Surf Smelt	Sand Lance	Photo #
1	"R" on wall	3.5	3.34	1	B	0	0	1 – 6

Comments Landmark from 20m with 0m at the W end of the beach.

Forage Fish Spawn Sample Lab Analysis

Sample Station #	Sample #	Species	# of Eggs	Alive:Dead	Comments
1	1	PSL	1	--	

Processed by: Alanna Vivani (Dec 10, 2019)

Analyzed by: Haley Tomlin (Dec 13, 2019)

Version: October 2019

Forage Fish Spawning Habitat Beach Survey

Samplers

Name(s)	Haley Tomlin & Alanna Vivani
Organization	MABRRI
Date (mm/dd/yy)	12/09/19
Time (24hr)	18:45
Camera ID	Fuji #2

Access Database ID:

Region	Municipality	Beach	DFO Mngt Area
RDN	NA	MS	17-21

Last High Tide (12/09/19)

Time (24hr): 14:45
Elevation: 4.3m

2nd Effective High Tide (12/08/19)

Time (24hr): 14:17
Elevation: 4.3m

Calculating Tidal Elevation

Station		Elevation Change	Subtract Eye Height	Elevation Difference	Time	Elevation Relative to Chart Datum	Tidal Elevation (Chart Datum)
1	A	1.84m	-1.0m	0.84m	18:50	2.3m	3.1m
	B	1.96m	-1.0m	0.96m			
	C						
	D						
			Total	1.8m			

Current Conditions

Weather Conditions	Partly cloudy
Air Temp (°C)	5°C
Wind Direction	NE
Wind Speed (km/hr)	0 km/hr
Water Temp (°C)	6°C

Episodic Events *(determined prior to or after sampling)*

Has there been a storm event in the last week? Yes (No)

Date of Storm			
Maximum Wind Speed		Precipitation from Event (mm)	
Storm Category			

Evidence of beach wrack harvesting? Yes (No)

Site Attributes

Aspect	*Direction:* E				*Bearing:* 78°	
Beach Slope	Flat (<5°)	(Inclined (5°-20°))	Steep (>20°)	*Slope of Beach (°):* 9°		
Max. Fetch Distance*	37km (NE)					
Exposure**	Very Protected	Protected	(Semi-Protected)	Semi-Exposed	Exposed	Very-Exposed

* Determined from chart measurements

** Determined based on Maximum Fetch Distance

Sediment Sample Collection

Sample Station #	Time (24hr)	UTM (m) (10U)	Beach	Backshore	Width (m)	Length (m)
1	18:45	429726 mE 5453566 mN	3	5	7.5	53

Sample #	Landmark Object	Landmark Distance (m)	Tidal Elevation	Shading	Sample Type	Surf Smelt	Sand Lance	Photo #
1	Stairs	6	3.1	2	B	0	0	1 – 6

Comments Primarily pebble gravel, mix of pea gravel and sand patches. Landmark from 30m with 30m at S end of beach.

Forage Fish Spawn Sample Lab Analysis

Sample Station #	Sample #	Species	# of Eggs	Alive:Dead	Comments
1	1	PSL	12	--	

Processed by: Alanna Vivani (Dec 10, 2019)

Analyzed by: Haley Tomlin (Dec 19, 2019)

Version: October 2019

Forage Fish Spawning Habitat Beach Survey

Samplers

Name(s)	Haley Tomlin & Alanna Vivani
Organization	MABRRI
Date (mm/dd/yy)	12/09/19
Time (24hr)	19:10
Camera ID	Fuji #2

Access Database ID:

Region	Municipality	Beach	DFO Mngt Area
RDN	LA	SEB	17-18

Last High Tide (12/09/19)

Time (24hr): 14:45
Elevation: 4.3m

2nd Effective High Tide (12/08/19)

Time (24hr): 14:17
Elevation: 4.3m

Calculating Tidal Elevation

Station		Elevation Change	Subtract Eye Height	Elevation Difference	Time	Elevation Relative to Chart Datum	Tidal Elevation (Chart Datum)
1	A	2.07m	-1.0m	1.07m	19:15	2.3m	4.31m
	B	1.94m	-1.0m	0.94m			
	C						
	D						
			Total	2.01m			

Current Conditions

Weather Conditions	Partly cloudy
Air Temp (°C)	5°C
Wind Direction	SSE
Wind Speed (km/hr)	5 km/hr
Water Temp (°C)	6°C

Episodic Events *(determined prior to or after sampling)*

Has there been a storm event in the last week? Yes (No)

Date of Storm			
Maximum Wind Speed		Precipitation from Event (mm)	
Storm Category			

Evidence of beach wrack harvesting? Yes (No)

Site Attributes

Aspect	*Direction:* NE				*Bearing:* 51°	
Beach Slope	Flat (<5°)	(Inclined (5°-20°))	Steep (>20°)	*Slope of Beach (°):9°*		
Max. Fetch Distance*	59km (E)					
Exposure**	Very Protected	Protected	Semi-Protected	(Semi-Exposed)	Exposed	Very-Exposed

* Determined from chart measurements

** Determined based on Maximum Fetch Distance

Sediment Sample Collection

Sample Station #	Time (24hr)	UTM (m) (10U)	Beach	Backshore	Width (m)	Length (m)
1	19:10	421315 mE 5456451 mN	1	5	10	200

Sample #	Landmark Object	Landmark Distance (m)	Tidal Elevation	Shading	Sample Type	Surf Smelt	Sand Lance	Photo #
1	Iron gate	12.5	4.31	1	B	0	0	1 – 6

Comments Landmark from 17m with 0m at East end.

Forage Fish Spawn Sample Lab Analysis

Sample Station #	Sample #	Species	# of Eggs	Alive:Dead	Comments
1	1	PSL	1,406	--	

Processed by: Alanna Vivani (Dec 10, 2019)

Analyzed by: Haley Tomlin & Brittany Milner (Dec 20, 2019)

Version: October 2019

Forage Fish Spawning Habitat Beach Survey

Samplers

Name(s)	Haley Tomlin & Alanna Vivani
Organization	MABRRI
Date (mm/dd/yy)	12/09/19
Time (24hr)	20:35
Camera ID	Fuji #2

Access Database ID:

Region	Municipality	Beach	DFO Mngt Area
RDN	SH	SUB	14-5

Last High Tide (12/09/19)

Time (24hr): 15:00
Elevation: 4.5m

2nd Effective High Tide (12/08/19)

Time (24hr): 14:32
Elevation: 4.5m

Calculating Tidal Elevation

Station		Elevation Change	Subtract Eye Height	Elevation Difference	Time	Elevation Relative to Chart Datum	Tidal Elevation (Chart Datum)
1	A	Not collected	Tide too far	Dark			
	B						
	C						
	D						
			Total	N/A			

Current Conditions

Weather Conditions	Overcast
Air Temp (°C)	5°C
Wind Direction	WSW
Wind Speed (km/hr)	2 km/hr
Water Temp (°C)	7°C

Episodic Events *(determined prior to or after sampling)*

Has there been a storm event in the last week? Yes (No)

Date of Storm			
Maximum Wind Speed		Precipitation from Event (mm)	
Storm Category			

Evidence of beach wrack harvesting? Yes (No)

Site Attributes

Aspect	*Direction:* NE				*Bearing:* 56°	
Beach Slope	Flat (<5°)	(Inclined (5°-20°))	Steep (>20°)	*Slope of Beach (°):7°*		
Max. Fetch Distance*	102 km (ESE)					
Exposure**	Very Protected	Protected	Semi-Protected	(Semi-Exposed)	Exposed	Very-Exposed

* Determined from chart measurements

** Determined based on Maximum Fetch Distance

Sediment Sample Collection

Sample Station #	Time (24hr)	UTM (m) (10U)	Beach	Backshore	Width (m)	Length (m)
1	20:35	381479 mE 5474058 mN	½	5	10	300

Sample #	Landmark Object	Landmark Distance (m)	Tidal Elevation	Shading	Sample Type	Surf Smelt	Sand Lance	Photo #
1	Fence post	15	n/a	1	B	0	0	1 – 6

Comments Sand above, pea & pebble gravel below the transect. Landmark from 22m with 0m from N end of beach.

Forage Fish Spawn Sample Lab Analysis

Sample Station #	Sample #	Species	# of Eggs	Alive:Dead	Comments
1	1	PSL	217	--	

Processed by: Haley Tomlin (Dec 10, 2019)

Analyzed by: Alanna Vivani (Dec 18, 2019)

Version: October 2019

Forage Fish Spawning Habitat Beach Survey

Location Code (Refer to document)

Region	Municipality	Beach	DFO Mngt Area
RDN	NA	IPB	17-18

Last High Tide (12/17/19)

Time (24hr): 10:11
Elevation: 4.9m

2nd Effective High Tide (12/16/19)

Time (24hr): 09:26
Elevation: 4.9m

Samplers

Name(s)	Chris Depka and his class
Organization	Gabriola Shorekeepers
Date (mm/dd/yy)	12/17/19
Time (24hr)	15:45
Camera ID	Tian's phone

Current Conditions

Air Temp (°C)	9°C
Wind Direction	ESE
Wind Speed (km/hr)	31 km/hr
Water Temp (°C)	9°C

Sediment Sample Collection

Sample Station #	Sample #	Time (24hr)	UTM (m)	Beach	Backshore	Width (m)	Length (< or > 100m)	Landmark Object*	Landmark Distance (m)	Shading	Sample Type	Photo #
1	1	15:45	424822 mE 5455538 mN	1	2	11	100	Alder tree	18	4	B	1 – 6

Comments

(Examples: What does the property surrounding the sample site look like? Is there anything around the site that could negatively impact the survival of forage fish embryos? Have there been any recent storm events or human actions that could have impacted forage fish embryo survival or dispersal?)

No recent storm events.

Processed: Haley Tomlin (Dec 20/19) Analyzed: Alanna Vivani (Dec 20/19) (228 PSL)

Version: October 2019

Forage Fish Spawning Habitat Beach Survey

Samplers

Name(s)	Haley Tomlin & Alanna Vivani
Organization	MABRRI
Date (mm/dd/yy)	01/07/20
Time (24hr)	16:55
Camera ID	Fuji #2

Access Database ID:

Region	Municipality	Beach	DFO Mngt Area
RDN	NA	DB	17-13

***Last High Tide* 01/07/20**

Time (24hr): 13:46
Elevation: 4.3m

***2nd Effective High Tide* 01/06/20**

Time (24hr): 13:08
Elevation: 4.3m

Calculating Tidal Elevation

Station		Elevation Change	Subtract Eye Height	Elevation Difference	Time	Elevation Relative to Chart Datum	Tidal Elevation (Chart Datum)
1	A	1.98m	-1.0m	0.98m	16:58	3.2m	4.18m
	B						
	C						
	D						
			Total	0.98m			

Current Conditions

Weather Conditions	Overcast
Air Temp (°C)	9
Wind Direction	SE
Wind Speed (km/hr)	14
Water Temp (°C)	7

Episodic Events *(determined prior to or after sampling)*

Has there been a storm event in the last week? Yes (No)

Date of Storm			
Maximum Wind Speed		Precipitation from Event (mm)	
Storm Category			

Evidence of beach wrack harvesting? Yes (No)

Site Attributes

Aspect	*Direction:* ESE			*Bearing:* 102°	
Beach Slope	Flat (<5°)	(Inclined (5°-20°))	Steep (>20°)	*Slope of Beach (°):* 7°	
Max. Fetch Distance*	60 km (NE)				
Exposure**	Very Protected	Protected	Semi-Protected	(Semi-Exposed)	Exposed	Very-Exposed

* Determined from chart measurements

** Determined based on Maximum Fetch Distance

Sediment Sample Collection

Sample Station #	Time (24hr)	UTM (m)	Beach	Backshore	Width (m)	Length (m)	Sample #	Landmark Object	Landmark Distance (m)	Tidal Elevation	Shading	Sample Type	Surf Smelt	Sand Lance	Photo #
1	16:55	429380 mE 5450793 mN	1	5	10.5	300	1	Blue sign	8.5	4.18	1	B	0	0	1 – 6

Comments Landmark from 14m with 0m at the East end of the beach

Forage Fish Spawn Sample Lab Analysis

Sample Station #	Sample #	Species	# of Eggs	Alive:Dead	Comments
1	1	PSL	1	--	Confirmed Feb 3, 2020

Processed by: Alanna Vivani (January 8, 2020)

Analyzed by: Brittany Milner (January 13, 2020)

Version: October 2019

Forage Fish Spawning Habitat Beach Survey

Samplers

Name(s)	Haley Tomlin & Alanna Vivani
Organization	MABRRI
Date (mm/dd/yy)	01/07/20
Time (24hr)	15:45
Camera ID	Fuji #2

Access Database ID:

Region	Municipality	Beach	DFO Mngt Area
CWVRD	NC	MB	18-7

***Last High Tide* 01/07/20**

Time (24hr): 13:08
Elevation: 3.6m

***2nd Effective High Tide* 01/06/20**

Time (24hr): 12:25
Elevation: 3.6m

Calculating Tidal Elevation

Station		Elevation Change	Subtract Eye Height	Elevation Difference	Time	Elevation Relative to Chart Datum	Tidal Elevation (Chart Datum)
1	A	1.4m	-1.0m	0.4m	15:52	2.85m	3.25m
	B						
	C						
	D						
			Total	0.4m			

Current Conditions

Weather Conditions	Raining
Air Temp (°C)	8
Wind Direction	S
Wind Speed (km/hr)	11
Water Temp (°C)	7

Episodic Events *(determined prior to or after sampling)*

Has there been a storm event in the last week? Yes (No)

Date of Storm			
Maximum Wind Speed		Precipitation from Event (mm)	
Storm Category			

Evidence of beach wrack harvesting? Yes (No)

Site Attributes

Aspect	*Direction:* E			*Bearing:* 90°	
Beach Slope	Flat (<5°)	(Inclined (5°-20°))	Steep (>20°)	*Slope of Beach (°):* 11°	
Max. Fetch Distance*	7 km (SE)				
Exposure**	Very Protected	(Protected)	Semi-Protected	Semi-Exposed	Exposed	Very-Exposed

* Determined from chart measurements

** Determined based on Maximum Fetch Distance

Sediment Sample Collection

Sample Station #	Time (24hr)	UTM (m)	Beach	Backshore	Width (m)	Length (m)	Sample #	Landmark Object	Landmark Distance (m)	Tidal Elevation	Shading	Sample Type	Surf Smelt	Sand Lance	Photo #
1	15:45	455251 mE 5407153 mN	2/3	5	4.5	300	1	"R" on the wall	3	3.25	1	B	0	0	1 – 6

Comments

Forage Fish Spawn Sample Lab Analysis

Sample Station #	Sample #	Species	# of Eggs	Alive:Dead	Comments
1	1	PSL	9	--	Confirmed Feb 3, 2020

Processed by: Alanna Vivani (January 8, 2020)

Analyzed by: Brittany Milner (January 8, 2020)

Version: October 2019

Forage Fish Spawning Habitat Beach Survey

Location Code (Refer to document)

Region	Municipality	Beach	DFO Mngt Area
RDN	QB	JUR	14-4

***Last High Tide* 01/17/20**

Time (24hr): 10:50
Elevation: 5.0m

***2nd Effective High Tide* 01/16/20**

Time (24hr): 10:11
Elevation: 5.1m

Samplers

Name(s)	John, Keith, & Sylvia
Organization	Qualicum Beach StreamKeepers
Date (mm/dd/yy)	01/17/20
Time (24hr)	17:00
Camera ID	Sylvia's Phone

Current Conditions

Air Temp (°C)	2
Wind Direction	SE
Wind Speed (km/hr)	11
Water Temp (°C)	5

Sediment Sample Collection

Sample Station #	Sample #	Time (24hr)	UTM (m)	Beach	Backshore	Width (m)	Length (< or > 100m)	Landmark Object*	Landmark Distance (m)	Shading	Sample Type	Photo #
2	1	17:00	396003 mE 5468430 mN	3	5	7	<	Cedar trees	8	1	B	1 – 6

Comments

(Examples: What does the property surrounding the sample site look like? Is there anything around the site that could negatively impact the survival of forage fish embryos? Have there been any recent storm events or human actions that could have impacted forage fish embryo survival or dispersal?)

Landmark from 8m with 0m at the East end of the tape.

Recent storm event: January 10 – 13, 2020; max wind = 59.5 km/hr; 39.62mm of precipitation; strong wind warning

Processed: Haley Tomlin (January 21, 2020)

Analyzed: Alanna Vivani (January 28, 2020) – 1 PSL (confirmed February 3, 2020)

**Note: Your landmark distance may change each time you are at the beach depending on weather and tide conditions. Use the initial document with all the beaches as your reference for landmark.*

Version: October 2019

Forage Fish Spawning Habitat Beach Survey

MABRRI — Mount Arrowsmith Biosphere Region Research Institute

VANCOUVER ISLAND UNIVERSITY

Samplers

Name(s)	Haley Tomlin & Brittany Milner
Organization	MABRRI
Date (mm/dd/yy)	01/20/20
Time (24hr)	18:10
Camera ID	Brittany's phone

Access Database ID:

Region	Municipality	Beach	DFO Mngt Area
RDN	LA	SEB	17-18

***Last High Tide* 01/20/20**

Time (24hr): 12:58
Elevation: 4.4m

***2nd Effective High Tide* 01/19/20**

Time (24hr): 12:12
Elevation: 4.6m

Calculating Tidal Elevation

Station		Elevation Change	Subtract Eye Height	Elevation Difference	Time	Elevation Relative to Chart Datum	Tidal Elevation (Chart Datum)
1	A						Not collected – Too dark
	B						
	C						
	D						
			Total				

Current Conditions

Weather Conditions	Overcast and raining
Air Temp (°C)	7
Wind Direction	SE
Wind Speed (km/hr)	14
Water Temp (°C)	6

Episodic Events *(determined prior to or after sampling)*

Has there been a storm event in the last week? Yes (No)

Date of Storm			
Maximum Wind Speed		Precipitation from Event (mm)	
Storm Category			

Evidence of beach wrack harvesting? Yes (No)

Site Attributes

Aspect	*Direction:* ENE			*Bearing:* 62°	
Beach Slope	Flat (<5°)	(Inclined (5°-20°))	Steep (>20°)	*Slope of Beach (°):* 7°	
Max. Fetch Distance*	59 km (E)				
Exposure**	Very Protected	Protected	Semi-Protected	(Semi-Exposed)	Exposed	Very-Exposed

* Determined from chart measurements

** Determined based on Maximum Fetch Distance

Sediment Sample Collection

Sample Station #	Time (24hr)	UTM (m)	Beach	Backshore	Width (m)	Length (m)	Sample #	Landmark Object	Landmark Distance (m)	Tidal Elevation	Shading	Sample Type	Surf Smelt	Sand Lance	Photo #
1	18:10	421311 mE 5456456 mN	1	5	10.5	215	1	Iron gate	12	--	1	B	0	0	1 – 2

Comments

Forage Fish Spawn Sample Lab Analysis

Sample Station #	Sample #	Species	# of Eggs	Alive:Dead	Comments
1	1	PSL	5	--	

Processed by: Brittany Milner (January 21, 2020)

Analyzed by: Brittany Milner (February 1, 2020)

Version: October 2019

Forage Fish Spawning Habitat Beach Survey

MABRRI — Mount Arrowsmith Biosphere Region Research Institute

VANCOUVER ISLAND UNIVERSITY

Location Code (Refer to document)

Region	Municipality	Beach	DFO Mngt Area
RDN	GD	RB	17-10

***Last High Tide* 01/23/20**

Time (24hr): 5:56
Elevation: 4.7m

2nd Effective High Tide

Time (24hr): ---
Elevation: ---

Samplers

Name(s)	Ruby Chapman
Organization	Gabriola ShoreKeepers
Date (mm/dd/yy)	01/23/20
Time (24hr)	11:55
Camera ID	Ruby's Phone

Current Conditions

Air Temp (°C)	10
Wind Direction	SSE
Wind Speed (km/hr)	14
Water Temp (°C)	10

Sediment Sample Collection

Sample Station #	Sample #	Time (24hr)	UTM (m)	Beach	Backshore	Width (m)	Length (< or > 100m)	Landmark Object*	Landmark Distance (m)	Shading	Sample Type	Photo #
1	1	11:55	448504 mE 5445351 mN	2	3	5	<	Old dead tree	9	1	B	1 – 6

Comments

(Examples: What does the property surrounding the sample site look like? Is there anything around the site that could negatively impact the survival of forage fish embryos? Have there been any recent storm events or human actions that could have impacted forage fish embryo survival or dispersal?)

No recent storm event.

Processed: Ruby Chapman (January 23, 2020)

Analyzed: Brittany Milner (January 29, 2020) – 1 PSL (confirmed Feb 3, 2020)

**Note: Your landmark distance may change each time you are at the beach depending on weather and tide conditions. Use the initial document with all the beaches as your reference for landmark.*

Version: October 2019

Forage Fish Spawning Habitat Beach Survey

MARRI
Mount Arrowsmith Biosphere Region Research Institute

VANCOUVER ISLAND UNIVERSITY

Location Code (Refer to document)

Region	Municipality	Beach	DFO Mngt Area
RDN	NA	IPB	17-18

Last High Tide (01/26/20)

Time (24hr): 07:35
Elevation: 4.7m

2nd Effective High Tide (01/25/20)

Time (24hr): 07:04
Elevation: 4.7m

Samplers

Name(s)	Chris Depka and his class
Organization	Gabriola Shorekeepers
Date (mm/dd/yy)	01/26/20
Time (24hr)	12:30
Camera ID	

Current Conditions

Air Temp (°C)	10°C
Wind Direction	SE
Wind Speed (km/hr)	15 km/hr
Water Temp (°C)	7°C

Sediment Sample Collection

Sample Station #	Sample #	Time (24hr)	UTM (m)	Beach	Backshore	Width (m)	Length (< or > 100m)	Landmark Object*	Landmark Distance (m)	Shading	Sample Type	Photo #
1	1	15:45	424822 mE 5455538 mN	1	2	3	150	Alder tree	20	4	B	

Comments

(Examples: What does the property surrounding the sample site look like? Is there anything around the site that could negatively impact the survival of forage fish embryos? Have there been any recent storm events or human actions that could have impacted forage fish embryo survival or dispersal?)

No recent storm events.

Processed: Chris Depka (Jan 26/20) Analyzed: Brittany Milner (Jan 29/20) (1 PSL)