

Janes Creek, McDaniel Slough, Thence Humboldt Bay
 City of Arcata Property
January - August 2015

Monthly fish and WQ sampling was conducted to determine if resident/anadromous juvenile salmonids and other fish species utilize the estuary and lower watershed for rearing and if water quality is adequate to support juvenile salmonids. The sampling sites are located as follows: Site 1, side channel ~ 100 feet northeast of the mouth of McDaniel Slough; Site 2, the upstream side of the Samoa Blvd. bridge; Site 2.5, ~200 feet East of the bottom of the cul-de-sac on Villa Way; Site 3, the upstream side of the 11th Street crossing; Site 3.5, Cypress Grove near the corner of Q St and Zehndner Ave.; Site 4, on the downstream side of the railroad crossing adjacent to Foster Ave; Site 5, just upstream of the bike/pedestrian bridge entering Stewart Court; Site 5.5, Janes Creek Meadows about 230 feet Northwest of 2967 Janes Creek Drive, and Site 6, in the south fork of Janes Creek just upstream of the first culvert above the confluence with the north fork of Janes Creek (Figure 1). We collected information to establish baseline data about juvenile salmonids and other fish species after the opening of the levee at the mouth of McDaniel Slough. This information will help us to assess the success of estuarine habitat restoration measures in McDaniel Slough. No juvenile coho salmon were captured at our Janes Creek and McDaniel Slough sampling sites during this reporting period.

Table 0. Comparison of the number of juvenile cutthroat trout and juvenile coho salmon captured by month in Janes Creek, April 25, 2014 to August 21, 2015.

Date	Cutthroat Trout	Coho Salmon
4-25-14	5	1
5-23-14	7	0
6-27-14	12	3
8-1-14	6	2
8-29-14	12	0
9-26-14	3	0
10-24-14	2	0
11-21-14	4	0
12-12-14	2	0
1-30-15	0	0
2-20-15	3	0
3-20-15	0	0
4-17-15	5	0
5-15-15	7	0

6-19-15	1	0
6-19-15	1	0
7-24-15	0	0
8-21-15	2	0

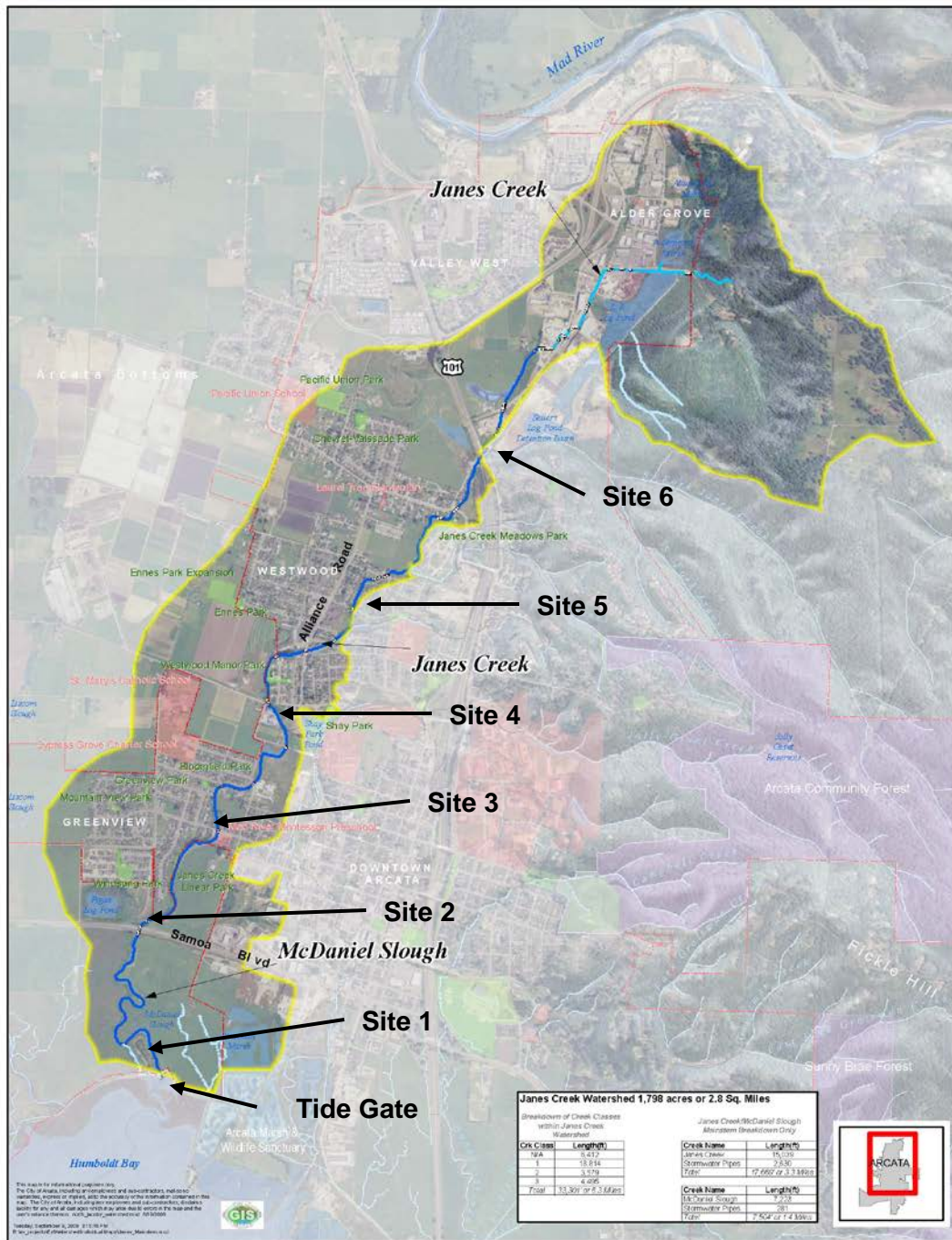


Figure 1. Approximate locations of fish and water quality sampling sites in Janes Creek basin.

January 30, 2015

Fish Sampling

We fished minnow traps baited with frozen salmon roe at nine sites in McDaniel Slough and Janes Creek and conducted a seine haul with a 30 X 4 foot beach seine at Site 1 in McDaniel Slough (Figure 1). We made a seine haul at Site 1 and captured one unidentified larval fish and one crangon shrimp. This was the only seine haul made at Site 1 during this reporting period due to crew constraints. We fished a minnow trap at Site 1 for 175 minutes and captured one yellow shore crab. We fished a minnow trap at Site 3.5 for 135 minutes and captured one threespine stickleback. We fished minnow traps at Sites 2, 2.5, 3, 4, 5, 5.5 and 6 for 125-150 minutes and captured no fish. This was the only day we fished a minnow trap at Site 2.5 during this reporting period due to crew constraints.

Water Quality Sampling

We collected water quality samples at the same locations as the fish sampling sites in McDaniel Slough and Janes Creek using a Yellow Springs Instruments Professional Plus meter (Figure 1). Janes Creek was completely fresh water at Sites 2.5-6 (Table 1). Dissolved oxygen levels were good at all sites (Table 1). WQ conditions were adequate to support juvenile salmonids at all Sites.

Table 1. Water quality measurements collected in McDaniel Slough and Janes Creek, January 30, 2015.

Time	Conductivity (uS/cm)	Salinity (ppt)	Dissolved		Depth (ft)	Site
			Oxygen (mg/L)	Temperature (C)		
9:57 AM	38090	32.87	7.7	12.3	3.5	JANES 1 BOTTOM
9:59 AM	38062	32.84	7.4	12.3	1.75	JANES 1 MIDDLE
10:00 AM	38070	32.84	7.37	12.3	0.5	JANES 1 TOP
10:38 AM	36469	31.24	5.62	12.4	4	JANES 2 UPPER BOTTOM
10:39 AM	31990	26.78	4.68	12.7	2	JANES 2 UPPER MIDDLE
10:40 AM	8454	6.46	4.87	11.8	0.5	JANES 2 UPPER TOP
10:55 AM	151.8	0.1	4.49	11.3	1	JANES 2.5 BOTTOM
11:08 AM	129	0.08	8.21	10.9	3.5	JANES 3 BOTTOM
11:09 AM	128.5	0.08	7.95	10.9	1.75	JANES 3 MIDDLE
11:10 AM	128.4	0.08	7.97	10.9	0.5	JANES 3 TOP
11:19 AM	119.1	0.08	8.91	10.8	1	JANES 3.5 BOTTOM
11:29 AM	110.4	0.07	9.31	10.6	1.5	JANES 4 BOTTOM
11:29 AM	110.5	0.07	9.12	10.6	0.5	JANES 4 TOP
11:38 AM	110.3	0.07	9.04	10.7	0.25	JANES 5 BOTTOM
11:49 AM	104	0.07	8.7	10.6	1.5	JANES 5.5 BOTTOM
11:50 AM	103.9	0.07	8.6	10.6	0.5	JANES 5.5 TOP
11:59 AM	105.2	0.07	9.77	10.2	1	JANES 6 BOTTOM

February 20, 2015

Fish Sampling

We fished minnow traps baited with frozen salmon roe at eight sites in McDaniel Slough and Janes Creek (Figure 1). We fished a minnow trap at Site 6 for 115 minutes and captured two cutthroat trout with a mean FL of 111 mm (range 105-117). We applied a PIT tag to both fish. We fished a minnow trap at Site 5.5 for 145 minutes and captured one cutthroat trout at 129 mm FL. We applied a PIT tag to this fish. We fished a minnow trap at Site 1 for 135 minutes and captured one yellow shore crab. We fished minnow traps at Sites 5, 4, 3.5, 3 and 2 for 140-155 minutes and captured no fish.

Water Quality Sampling

We collected water quality samples at the same locations as the fish sampling sites in McDaniel Slough and Janes Creek using a Yellow Springs Instruments Professional Plus meter (Figure 1). Janes Creek was completely fresh water at Sites 2-6 (Table 2). Dissolved oxygen levels were good at all Sites (Table 2). WQ conditions were adequate to support juvenile salmonids at all Sites.

Table 2. Water quality measurements collected in McDaniel Slough and Janes Creek, February 20, 2015.

Time	Conductivity (uS/cm)	Salinity (ppt)	Dissolved		Depth (ft)	Site
			Oxygen (mg/L)	Temperature (C)		
10:04 AM	101.9	0.07	10.59	9.2	1	JANES 6 BOTTOM
10:15 AM	100.3	0.07	8.87	9.9	1	JANES 5.5 BOTTOM
10:26 AM	107	0.07	9.49	10	0.5	JANES 5 BOTTOM
10:33 AM	109.2	0.07	9.3	10.1	1	JANES 4 BOTTOM
10:42 AM	118.1	0.08	9.13	10.4	1	JANES 3.5 BOTTOM
10:59 AM	126.3	0.08	8.33	10.7	3	JANES 3 BOTTOM
10:59 AM	126.2	0.08	8.31	10.7	1.5	JANES 3 MIDDLE
11:00 AM	126.1	0.08	8.29	10.7	0.5	JANES 3 TOP
11:08 AM	1008	0.68	6.46	11.9	2	JANES 2 UPPER BOTTOM
11:08 AM	639	0.42	6.52	11.9	0.5	JANES 2 UPPER TOP
11:21 AM	35009	29.18	6.61	13.3	3	JANES 1 BOTTOM
11:22 AM	34996	29.17	6.63	13.3	1.5	JANES 1 MIDDLE
11:22 AM	35000	29.16	6.66	13.3	0.5	JANES 1 TOP

March 20, 2015

Fish Sampling

We fished minnow traps baited with frozen salmon roe at eight sites in McDaniel Slough and Janes Creek (Figure 1). We fished a minnow trap at Site 2 for 120 minutes and captured <10 threespine stickleback. We fished minnow traps at Sites 6, 5.5, 5, 4, 3.5, 3 and 1 and captured no fish.

Water Quality Sampling

We collected water quality samples at the same locations as the fish sampling sites in McDaniel Slough and Janes Creek using a Yellow Springs Instruments Professional

Plus meter (Figure 1). Janes Creek was completely fresh water at Sites 2-6 (Table 3). Dissolved oxygen levels were good at all Sites (Table 3). WQ conditions were adequate to support juvenile salmonids at all Sites.

Table 3. Water quality measurements collected in McDaniel Slough and Janes Creek, March 20, 2015.

Time	Conductivity (uS/cm)	Salinity (ppt)	Dissolved		Depth (ft)	Site
			Oxygen (mg/L)	Temperature (C)		
9:28 AM	103.5	0.07	10.54	9.5	1	JANES 6 BOTTOM
9:38 AM	100.3	0.07	9.49	10.3	0.5	JANES 5.5 BOTTOM
9:51 AM	108	0.07	9.56	10.5	0.5	JANES 5 BOTTOM
10:01 AM	108.7	0.07	9.17	10.5	2	JANES 4 BOTTOM
10:02 AM	108.9	0.07	9.12	10.5	0.5	JANES 4 TOP
10:19 AM	115	0.07	9.13	10.8	1	JANES 3.5 BOTTOM
10:28 AM	126.7	0.08	8.18	11	3	JANES 3 BOTTOM
10:28 AM	125.6	0.08	7.98	11	1.5	JANES 3 MIDDLE
10:29 AM	124.3	0.08	8.02	11	0.5	JANES 3 TOP
10:37 AM	634	0.42	6.35	12.2	1.5	JANES 2 UPPER BOTTOM
10:38 AM	622	0.41	6.34	12.2	0.5	JANES 2 UPPER TOP
10:53 AM	39887	32.82	5.55	14.3	3	JANES 1 BOTTOM
10:53 AM	39876	32.81	5.61	14.3	1.5	JANES 1 MIDDLE
10:54 AM	39930	32.83	5.67	14.3	0.5	JANES 1 TOP

April 17, 2015

Fish Sampling

We fished minnow traps baited with frozen salmon roe at eight sites in McDaniel Slough and Janes Creek (Figure 1). We fished a minnow trap at Site 6 for 150 minutes and captured one cutthroat trout at 111 mm FL. We applied a PIT tag to this fish. We fished a minnow trap at Site 5.5 for 160 minutes and captured three cutthroat trout with a mean FL of 112 mm (range 103-123). We applied PIT tags to all three fish. We fished a minnow trap at Site 2 for 130 minutes and captured one cutthroat trout at 146 mm FL. We applied a PIT tag to this fish. We also captured two threespine stickleback. We fished minnow traps at Sites 5, 4, 3.5, 3 and 1 for 140-170 minutes and caught <10 threespine stickleback at Site 5 and three yellow shore crab at Site 1.

Water Quality Sampling

We collected water quality samples at the same locations as the fish sampling sites in McDaniel Slough and Janes Creek using a Yellow Springs Instruments Professional Plus meter (Figure 1). Janes Creek was completely fresh water at Sites 3-6 (Table 4). Dissolved oxygen levels were marginal at Site 2 and good at Site 1 and Sites 3-6 (Table 4). WQ conditions were adequate to support juvenile at all Sites.

Table 4. Water quality measurements collected in McDaniel Slough and Janes Creek, April 17, 2015.

Time	Conductivity (uS/cm)	Salinity (ppt)	Dissolved		Depth (ft)	Site
			Oxygen (mg/L)	Temperature (C)		
10:52 AM	101	0.07	10.82	9.9	1	JANES 6 BOTTOM
11:04 AM	94.3	0.06	8.63	10.4	1.5	JANES 5.5 BOTTOM
11:05 AM	94.2	0.06	8.63	10.4	0.5	JANES 5.5 TOP
11:19 AM	103	0.07	9.01	10.9	0.5	JANES 5 BOTTOM
11:49 AM	105.3	0.07	8.95	10.9	1.5	JANES 4 BOTTOM
11:50 AM	104.7	0.07	8.93	10.9	0.5	JANES 4 TOP
11:59 AM	111.6	0.07	8.59	11.1	1.25	JANES 3.5 BOTTOM
12:08 PM	119.5	0.08	7.81	11.2	3	JANES 3 BOTTOM
12:08 PM	119.3	0.08	7.97	11.2	1.5	JANES 3 MIDDLE
12:09 PM	119.4	0.08	7.97	11.2	0.5	JANES 3 TOP
12:21 PM	29653	23.86	4.13	13.9	3	JANES 2 UPPER BOTTOM
12:21 PM	26953	21.55	4.35	13.8	1.5	JANES 2 UPPER MIDDLE
12:22 PM	1625	1.08	4.73	13.1	0.5	JANES 2 UPPER TOP
12:36 PM	38422	30.96	6.6	15	3	JANES 1 BOTTOM
12:37 PM	38460	30.99	6.38	15	1.5	JANES 1 MIDDLE
12:38 PM	38479	30.99	6.41	15	0.5	JANES 1 TOP

May 15, 2015

Fish Sampling

We fished minnow traps baited with frozen salmon roe at eight sites in McDaniel Slough and Janes Creek (Figure 1). We fished a minnow trap at Site 6 for 175 minutes and captured three cutthroat trout with mean FL of 117 mm (range 111-127). We applied PIT tags to all three fish. We fished a minnow trap at Site 5.5 for 175 minutes and captured three cutthroat trout with a mean FL of 123 mm (range 115-128). One of these cutthroat at 128 mm FL contained a PIT tag applied by our project at this site 28 days earlier (4/17/15). While at large it grew 5 mm (0.18 mm/day). We applied PIT tags to the other two cutthroat. We fished a minnow trap at Site 3 for 175 minutes and captured one cutthroat trout at 129 mm FL. We applied a PIT tag to this fish. We fished minnow traps at Sites 5, 4, 3.5, 2 and 1 for 180-200 minutes and captured one yellow shore crab, 10-50 threespine stickleback and <10 prickly sculpin at Site 2 and 10-50 yellow shore crab at Site 1.

Water Quality Sampling

We collected water quality samples at the same locations as the fish sampling sites in McDaniel Slough and Janes Creek using a Yellow Springs Instruments Professional Plus meter (Figure 1). Janes Creek was completely fresh water at Sites 3-6 (Table 5). Dissolved oxygen levels were marginal at Site 2, and good at Sites 1 and Sites 3-6

(Table 5). WQ conditions were adequate to support juvenile salmonids at Site 1 and from upstream and including Site 3.

Table 5. Water quality measurements collected in McDaniel Slough and Janes Creek, May 15, 2015.

Time	Conductivity (uS/cm)	Salinity (ppt)	Dissolved		Depth (ft)	Site
			Oxygen (mg/L)	Temperature (C)		
9:40 AM	66.2	0.04	9.55	10.8	0.25	JANES 6 BOTTOM
9:54 AM	105.4	0.07	9.06	11.3	0.25	JANES 5.5 BOTTOM
10:11 AM	112.3	0.07	8.61	11.8	0.25	JANES 5 BOTTOM
10:29 AM	112.5	0.07	8.39	11.9	1.5	JANES 4 BOTTOM
10:30 AM	112.4	0.07	8.53	11.9	0.5	JANES 4 TOP
10:40 AM	122.8	0.08	8.2	12.1	1	JANES 3.5 BOTTOM
10:53 AM	133.4	0.08	6.54	12.3	3	JANES 3 BOTTOM
10:54 AM	133.6	0.08	6.66	12.3	1.5	JANES 3 MIDDLE
10:54 AM	133.6	0.08	6.62	12.3	0.5	JANES 3 TOP
11:06 AM	41608	32.96	3.56	16	2.5	JANES 2 UPPER BOTTOM
11:06 AM	12125	8.66	4.15	15.4	0.5	JANES 2 UPPER TOP
11:24 AM	47315	37.09	5.9	17	3	JANES 1 BOTTOM
11:24 AM	47333	37.11	6.02	17	1.5	JANES 1 MIDDLE
11:25 AM	47333	37.1	6.09	17	0.5	JANES 1 TOP

June 19, 2015

Fish Sampling

We fished minnow traps baited with frozen salmon roe at eight sites in McDaniel Slough and Janes Creek (Figure 1). We fished a minnow trap at Site 4 for 210 minutes and captured one cutthroat trout at 123 mm FL. We applied a PIT tag to this fish. We fished minnow traps at Sites 6, 5.5, 5, 3.5, 3, 2 and 1 for 205-225 minutes and captured one threespine stickleback at Site 5.5, two threespine stickleback at Site 5, one threespine stickleback and one staghorn sculpin at Site 2 and <10 prickly sculpin and <10 yellow shore crab at Site 1.

Water Quality Sampling

We collected water quality samples at the same locations as the fish sampling sites in McDaniel Slough and Janes Creek using a Yellow Springs Instruments Professional Plus meter (Figure 1). Janes Creek was completely fresh water at Sites 3-6 (Table 6). Dissolved oxygen levels were poor at Site 1 and good at Sites 2-6 (Table 6). I feel like I did not get a good DO reading at Site 5 because I was having difficulty keeping the DO probe out of the very fine sediment at the bottom of the creek at this site. WQ conditions were adequate to support juvenile salmonids from upstream and including Site 2.

Table 6. Water quality measurements collected in McDaniel Slough and Janes Creek, June 19, 2015.

Time	Conductivity (uS/cm)	Salinity (ppt)	Dissolved		Depth (ft)	Site
			Oxygen (mg/L)	Temperature (C)		
9:21 AM	110.7	0.07	9.88	11.7	0.5	JANES 6 BOTTOM
9:36 AM	111.7	0.07	9.12	12.1	0.5	JANES 5.5 BOTTOM
9:52 AM	116.3	0.07	n/a	12.7	0.25	JANES 5 BOTTOM
10:03 AM	116.2	0.07	8.04	12.7	1	JANES 4 BOTTOM
10:21 AM	125.2	0.08	8.06	12.9	0.5	JANES 3.5 BOTTOM
10:32 AM	137.6	0.08	6.74	12.9	3	JANES 3 BOTTOM
10:32 AM	137.1	0.08	6.64	13	1.5	JANES 3 MIDDLE
10:33 AM	137.3	0.08	6.55	13	0.5	JANES 3 TOP
10:53 AM	5021	3.25	5.86	16.8	0.5	JANES 2 UPPER BOTTOM
11:16 AM	51330	38.61	2.64	19.1	1	JANES 1 BOTTOM

July 24, 2015

Fish Sampling

We fished minnow traps baited with frozen salmon roe at eight sites in McDaniel Slough and Janes Creek (Figure 1). We fished minnow traps at Sites 6, 5.5, 5, 4, 3.5, 3, 2 and 1 for 160-210 minutes and captured no salmonids. We did capture one threespine stickleback at Site 3.5, two prickly sculpin at Site 3, two threespine stickleback and one prickly sculpin at Site 2 and one yellow shore crab and one prickly sculpin at Site 1.

Water Quality Sampling

We collected water quality samples at the same locations as the fish sampling sites in McDaniel Slough and Janes Creek using a Yellow Springs Instruments Professional Plus meter (Figure 1). Janes Creek was completely fresh water at Sites 3-6 (Table 7). Dissolved oxygen levels were poor at Sites 1 and 2 and good at Sites 3-6 (Table 7). WQ conditions were adequate to support juvenile salmonids from upstream and including Site 3. Conductivity was not recorded this day due to a malfunction.

Table 7. Water quality measurements collected in McDaniel Slough and Janes Creek, July 24, 2015.

Time	Conductivity (uS/cm)	Salinity (ppt)	Dissolved		Depth (ft)	Site
			Oxygen (mg/L)	Temperature (C)		
8:46 AM	n/a	0.07	8.75	12.6	0.5	JANES 6 BOTTOM
8:55 AM	n/a	0.07	8.01	13.1	0.25	JANES 5.5 BOTTOM
9:11 AM	n/a	0.07	7.24	13.6	0.25	JANES 5 BOTTOM
9:34 AM	n/a	0.07	7.35	14	1	JANES 4 BOTTOM
9:44 AM	n/a	0.08	6.88	14	0.5	JANES 3.5 BOTTOM
9:53 AM	n/a	0.09	5.55	13.8	2.5	JANES 3 BOTTOM
9:54 AM	n/a	0.09	5.61	13.8	0.5	JANES 3 TOP
10:20 AM	n/a	5.94	0.5	18	0.5	JANES 2 UPPER BOTTOM
10:36 AM	n/a	38.89	3.39	21.2	1	JANES 1 BOTTOM

August 21, 2015

Fish Sampling

We fished minnow traps baited with frozen salmon roe at eight sites in McDaniel Slough and Janes Creek (Figure 1). We fished a minnow trap at Site 4 for 155 minutes and captured two cutthroat trout with a mean FL of 135 mm (range 127-144). We applied a PIT tag to both fish. We also captured <10 prickly sculpin. We fished minnow traps at Sites 6, 5.5, 5, 3.5, 3, 2 and 1 for 140-175 minutes and captured one threespine stickleback each at Sites 5.5 and 5, <10 threespine stickleback at Site 3.5, one threespine stickleback and two yellow shore crab at Site 2 and 10-50 yellow shore crab at Site 1. Yellow shore crab are cute.

Water Quality Sampling

We collected water quality samples at the same locations as the fish sampling sites in McDaniel Slough and Janes Creek using a Yellow Springs Instruments Professional Plus meter (Figure 1). Janes Creek was completely fresh water at Sites 3-6 (Table 8). Dissolved oxygen levels were poor at Sites 1 and 2 and good at Sites 3-6 (Table 8). WQ conditions were adequate to support juvenile salmonids from upstream and including Site 3.

Table 8. Water quality measurements collected in McDaniel Slough and Janes Creek, August 21, 2015.

Time	Conductivity (uS/cm)	Salinity (ppt)	Dissolved		Depth (ft)	Site
			Oxygen (mg/L)	Temperature (C)		
8:48 AM	118.4	0.07	8.95	13.3	0.5	JANES 6 BOTTOM
8:59 AM	120.6	0.07	8.03	13.8	0.25	JANES 5.5 BOTTOM
9:17 AM	128.9	0.08	6.26	14.4	0.25	JANES 5 BOTTOM
9:29 AM	126.3	0.07	7.64	14.4	1	JANES 4 BOTTOM
9:39 AM	138.8	0.08	6.66	14.4	0.5	JANES 3.5 BOTTOM
9:50 AM	151.5	0.09	4.74	14.4	2.5	JANES 3 BOTTOM
9:51 AM	152.7	0.09	4.53	14.5	0.5	JANES 3 TOP
10:11 AM	25451	18.25	0.88	17.9	0.5	JANES 2 UPPER BOTTOM
10:37 AM	50928	38.71	2.77	18.7	1	JANES 1 BOTTOM

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Janes Creek, McDaniel Slough, Thence Humboldt Bay
City of Arcata Property
September – December 2015

Monthly fish and WQ sampling was conducted to determine if resident/anadromous juvenile salmonids and other fish species utilize the estuary and lower watershed for rearing and if water quality is adequate to support juvenile salmonids. The sampling sites are located as follows: Site 1, side channel ~ 100 feet northeast of the mouth of McDaniel Slough; Site 2, the upstream side of the Samoa Blvd. bridge; Site 2.5, ~200 feet East of the bottom of the cul-de-sac on Villa Way; Site 3, the upstream side of the 11th Street crossing; Site 3.5, Cypress Grove near the corner of Q St and Zehndner Ave.; Site 4, on the downstream side of the railroad crossing adjacent to Foster Ave; Site 5, just upstream of the bike/pedestrian bridge entering Stewart Court; Site 5.5, Janes Creek Meadows about 230 feet Northwest of 2967 Janes Creek Drive, and Site 6, in the south fork of Janes Creek just upstream of the first culvert above the confluence with the north fork of Janes Creek (Figure 1). We collected information to establish baseline data about juvenile salmonids and other fish species after the opening of the levee at the mouth of McDaniel Slough. This information will help us to assess the success of estuarine habitat restoration measures in McDaniel Slough. No juvenile coho salmon were captured at our Janes Creek and McDaniel Slough sampling sites during this reporting period.

Table 0. Comparison of the number of juvenile cutthroat trout and juvenile coho salmon captured by month in Janes Creek, April 25, 2014 to November 20, 2015.

<u>Date</u>	<u>Cutthroat Trout</u>	<u>Coho Salmon</u>
4-25-14	5	1
5-23-14	7	0
6-27-14	12	3
8-1-14	6	2
8-29-14	12	0
9-26-14	3	0
10-24-14	2	0
11-21-14	4	0
12-12-14	2	0
1-30-15	0	0
2-20-15	3	0
3-20-15	0	0
4-17-15	5	0
5-15-15	7	0

Table 0 continued. Comparison of the number of juvenile cutthroat trout and juvenile coho salmon captured by month in Janes Creek, April 25, 2014 to November 20, 2015.

<u>Date</u>	<u>Cutthroat Trout</u>	<u>Coho Salmon</u>
6-19-15	1	0
7-24-15	0	0
8-21-15	2	0
9-18-15	1	0
10-23-15	0	0
11-20-15	1	0
December—No Sampling Conducted		

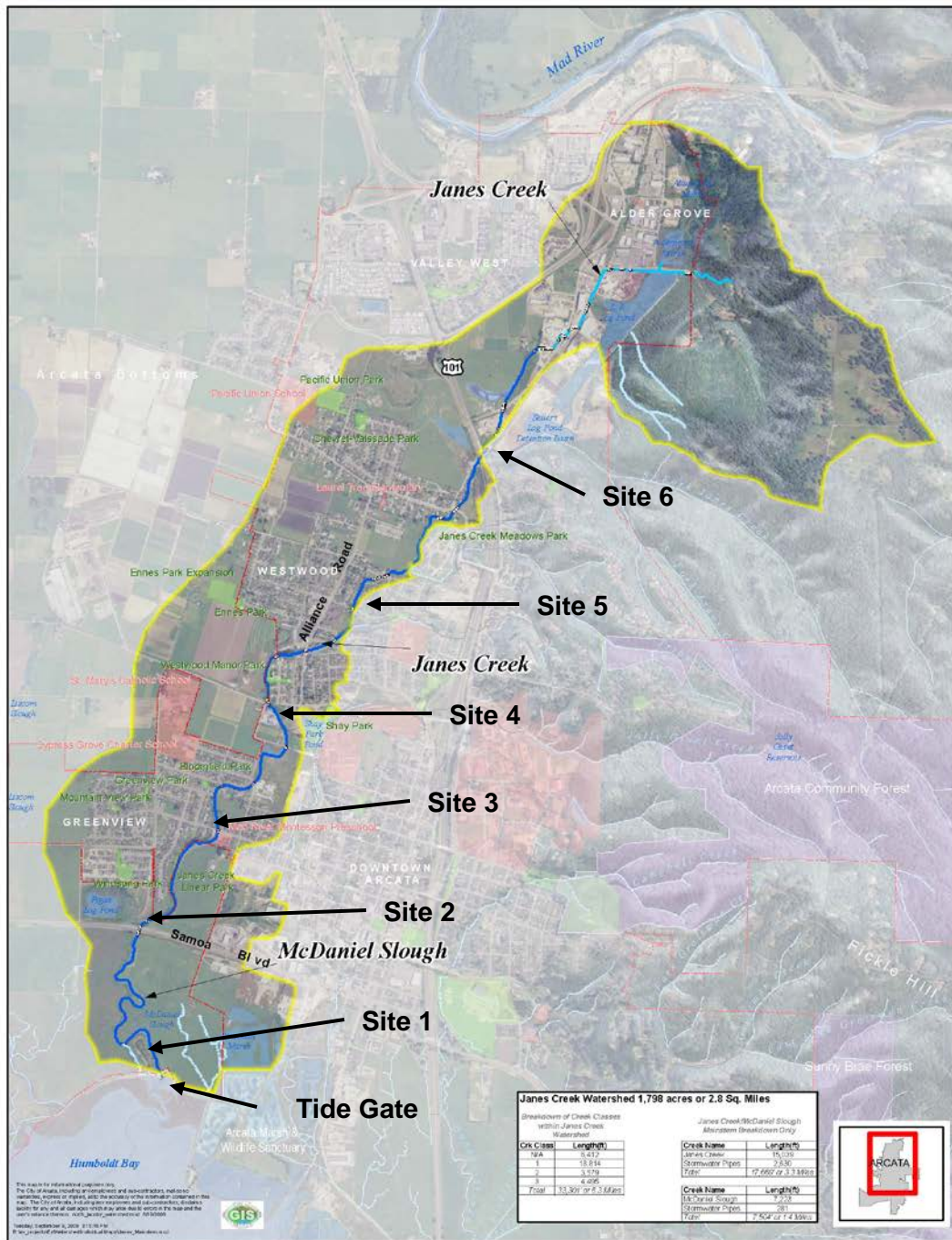


Figure 1. Approximate locations of fish and water quality sampling sites in Janes Creek basin.

September 18, 2015

Fish Sampling

We fished minnow traps baited with frozen salmon roe at seven sites in McDaniel Slough and Janes Creek (Figure 1). We fished a minnow trap at Site 5.5 for 245 minutes and captured one cutthroat trout at 98 mm FL. We applied a PIT tag to this fish. We fished minnow traps at Sites 6, 5, 3.5, 3, 2 and 1 for 215-255 minutes and captured one threespine stickleback at Site 5, <10 yellow shore crab and <10 prickly sculpin at Site 2, and at Site 1 we captured <50 yellow shore crab and <10 prickly sculpin. We set a minnow trap at Site 4, but when we returned to retrieve it, the trap was gone. I suspect it may have been removed by someone living in a tent near the sight, but I have no evidence of this.

Water Quality Sampling

We collected water quality samples at the same locations as the fish sampling sites in McDaniel Slough and Janes Creek using a Yellow Springs Instruments Professional Plus meter (Figure 1). Janes Creek was completely fresh water at Sites 3-6 (Table 1). Dissolved oxygen levels were marginal at Sites 1 and 3, poor at Site 2 and good at Sites 3.5-6 (Table 1). WQ conditions were adequate to support juvenile salmonids from upstream and including Site 3.5.

Table 1. Water quality measurements collected in McDaniel Slough and Janes Creek, September 18, 2015.

Time	Conductivity (uS/cm)	Salinity (ppt)	Dissolved		Depth (ft)	Site
			Oxygen (mg/L)	Temperature (C)		
9:09 AM	115.6	0.07	8.65	12.5	0.25	JANES 6 BOTTOM
9:29 AM	120	0.07	8.11	13.1	0.25	JANES 5.5 BOTTOM
9:52 AM	124.9	0.08	7.32	13.5	0.25	JANES 5 BOTTOM
10:02 AM	123.5	0.07	7.12	13.8	1.5	JANES 4 BOTTOM
10:03 AM	123.6	0.07	7.28	13.8	0.5	JANES 4 TOP
10:12 AM	129.8	0.08	7.09	14	0.25	JANES 3.5 BOTTOM
10:31 AM	136.7	0.08	4.3	14.1	3	JANES 3 BOTTOM
10:32 AM	137	0.08	4.03	14.1	1.5	JANES 3 MIDDLE
10:32 AM	136.7	0.08	3.73	14.2	0.5	JANES 3 TOP
10:45 AM	7586	5.11	1.99	16.3	0.25	JANES 2 UPPER BOTTOM
11:02 AM	47884	36.54	3.5	18.2	1	JANES 1 BOTTOM

October 23, 2015

Fish Sampling

We fished minnow traps baited with frozen salmon roe at seven sites in McDaniel Slough and Janes Creek (Figure 1). No salmonids were captured this day. We fished minnow traps at Sites 6, 5.5, 5, 4, 3.5, 3 and 2 for 140-160 minutes and captured three prickly sculpin at Site 4 and <50 threespine stickleback at Site 2. We did not fish a minnow trap at Site 1 due to road construction on south "I" Street which blocked our access to the site.

Water Quality Sampling

We collected water quality samples at the same locations as the fish sampling sites in McDaniel Slough and Janes Creek using a Yellow Springs Instruments Professional Plus meter (Figure 1). Janes Creek was completely fresh water at Sites 3-6 (Table 2). Dissolved oxygen levels were marginal at Sites 2 and 3, and good at Sites 3.5-6 (Table 2). WQ conditions were adequate to support juvenile salmonids from upstream and including Site 3.5.

Table 2. Water quality measurements collected in McDaniel Slough and Janes Creek, October 23, 2015.

Time	Conductivity (uS/cm)	Salinity (ppt)	Dissolved		Depth (ft)	Site
			Oxygen (mg/L)	Temperature (C)		
9:42 AM	113.5	0.07	9.23	11	0.5	JANES 6 BOTTOM
9:54 AM	113.2	0.07	8.57	11	0.25	JANES 5.5 BOTTOM
10:12 AM	119.2	0.08	7.74	11.4	0.25	JANES 5 BOTTOM
10:24 AM	118.1	0.08	8.1	11.6	1.5	JANES 4 BOTTOM
10:24 AM	117.9	0.08	8.21	11.6	0.5	JANES 4 TOP
10:34 AM	126.8	0.08	7.64	11.7	0.5	JANES 3.5 BOTTOM
10:43 AM	138	0.09	4.33	11.5	2.5	JANES 3 BOTTOM
10:44 AM	139.2	0.09	3.84	11.9	0.5	JANES 3 TOP
10:54 AM	43671	36.67	3.25	14	2	JANES 2 UPPER BOTTOM
10:55 AM	42780	35.98	3.37	13.8	0.5	JANES 2 UPPER TOP

November 20, 2015

Fish Sampling

We fished minnow traps baited with frozen salmon roe at eight sites in McDaniel Slough and Janes Creek (Figure 1). We fished a minnow trap at Site 5.5 for 145 minutes and captured one cutthroat trout at 123 mm FL. We applied a PIT tag to this fish. We fished minnow traps at Sites 1, 2, 3, 3.5, 4, 5 and 6 for 135-305 minutes and captured one prickly sculpin at Site 2 and one threespine stickleback at Site 4.

Water Quality Sampling

We collected water quality samples at the same locations as the fish sampling sites in McDaniel Slough and Janes Creek using a Yellow Springs Instruments Professional Plus meter (Figure 1). Janes Creek was completely fresh water at Sites 2-6 (Table 3). Dissolved oxygen levels were adequate at Sites 1 and 2, and good at Sites 3-6 (Table 3). WQ conditions were adequate to support juvenile salmonids at all sites.

Table 3. Water quality measurements collected in McDaniel Slough and Janes Creek, November 20, 2015.

Time	Conductivity (uS/cm)	Salinity (ppt)	Dissolved		Depth (ft)	Site
			Oxygen (mg/L)	Temperature (C)		
8:59 AM	119.4	0.08	7.76	11.1	0.5	JANES 6 BOTTOM
9:29 AM	37841	32.1	6.62	12.9	2.5	JANES 1 BOTTOM
9:30 AM	37804	32.06	6.59	12.9	0.5	JANES 1 TOP
9:45 AM	791	0.52	5.87	12.6	1.5	JANES 2 UPPER BOTTOM
9:48 AM	721	0.47	5.29	12.6	0.5	JANES 2 UPPER TOP
10:05 AM	166.6	0.1	6.12	12.5	1	JANES 2.5 BOTTOM
10:17 AM	159.3	0.1	8.37	12.1	3	JANES 3 BOTTOM
10:18 AM	159	0.1	8.19	12.1	1.5	JANES 3 MIDDLE
10:19 AM	159.6	0.1	8.09	12.1	0.5	JANES 3 TOP
10:42 AM	149.1	0.09	9.04	12	1	JANES 3.5 BOTTOM
10:54 AM	144.2	0.09	9.63	12	2	JANES 4 BOTTOM
10:55 AM	144.3	0.09	9.41	12	0.5	JANES 4 TOP
11:03 AM	140	0.09	8.66	12.1	0.25	JANES 5 BOTTOM
11:16 AM	132.7	0.08	8.19	11.8	1	JANES 5.5 BOTTOM

December 2015

Because of high flows no fish or water quality sampling was conducted in December.

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Field Crew:

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Michael McDowall, City of Arcata

Janes Creek, McDaniel Slough, Thence Humboldt Bay
 City of Arcata Property
January – May 2016

Monthly fish and WQ sampling was conducted to determine if resident/anadromous juvenile salmonids and other fish species utilize the estuary and lower watershed for rearing and if water quality is adequate to support juvenile salmonids. The sampling sites are located as follows: Site 1, side channel ~ 100 feet northeast of the mouth of McDaniel Slough; Site 2, the upstream side of the Samoa Blvd. bridge; Site 2.5, ~200 feet East of the bottom of the cul-de-sac on Villa Way; Site 3, the upstream side of the 11th Street crossing; Site 3.5, Cypress Grove near the corner of Q St and Zehndner Ave.; Site 4, on the downstream side of the railroad crossing adjacent to Foster Ave; Site 5, just upstream of the bike/pedestrian bridge entering Stewart Court; Site 5.5, Janes Creek Meadows about 230 feet Northwest of 2967 Janes Creek Drive, and Site 6, in the south fork of Janes Creek just upstream of the first culvert above the confluence with the north fork of Janes Creek (Figure 1). We collected information to establish baseline data about juvenile salmonids and other fish species after the opening of the levee at the mouth of McDaniel Slough. This information will help us to assess the success of estuarine habitat restoration measures in McDaniel Slough. One juvenile coho salmon was captured at our Janes Creek and McDaniel Slough sampling sites during this reporting period.

Table 0. Comparison of the number of juvenile cutthroat trout and juvenile coho salmon captured by month in Janes Creek, April 25, 2014 to May 13, 2016.

Date	Cutthroat Trout	Coho Salmon
4-25-14	5	1
5-23-14	7	0
6-27-14	12	3
8-1-14	6	2
8-29-14	12	0
9-26-14	3	0
10-24-14	2	0
11-21-14	4	0
12-12-14	2	0
1-30-15	0	0
2-20-15	3	0
3-20-15	0	0
4-17-15	5	0
5-15-15	7	0

Table 0 continued. Comparison of the number of juvenile cutthroat trout and juvenile coho salmon captured by month in Janes Creek, April 25, 2014 to May 13, 2016.

<u>Date</u>	<u>Cutthroat Trout</u>	<u>Coho Salmon</u>
6-19-15	1	0
6-19-15	1	0
7-24-15	0	0
8-21-15	2	0
9-18-15	1	0
10-23-15	0	0
11-20-15	1	0
No Dec 2015		
1-21-16	1	0
2-5-16	2	0
3-28-16	0	0
4-22-16	2	1
5-13-16	3	0

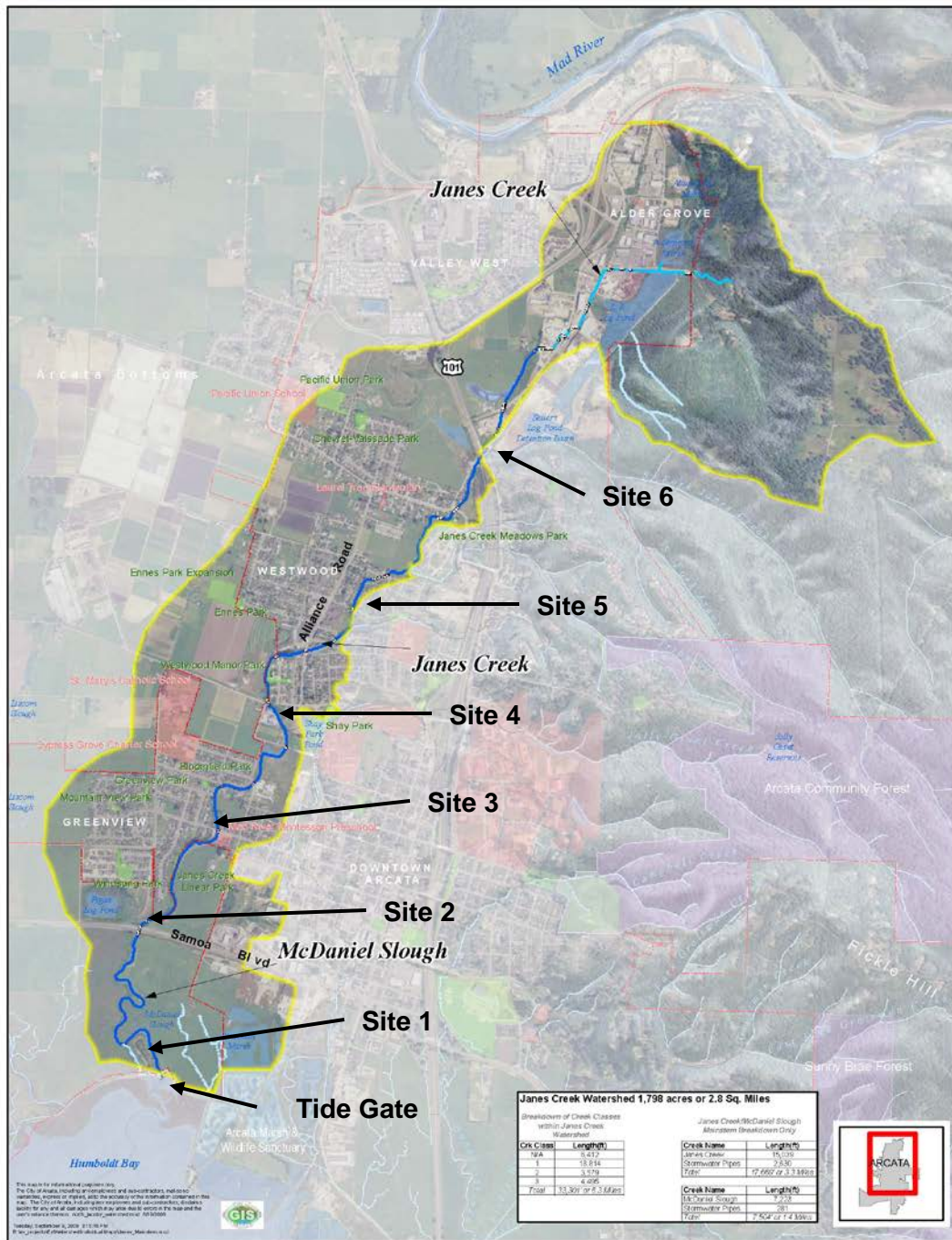


Figure 1. Approximate locations of fish and water quality sampling sites in Janes Creek basin.

January 21, 2016

Fish Sampling

We fished minnow traps baited with frozen salmon roe at eight sites in McDaniel Slough and Janes Creek (Figure 1). We fished a minnow trap at Site 5.5 for 265 minutes and captured one cutthroat trout at 98 mm FL. We applied a PIT tag to this fish. We fished minnow traps at Sites 6, 5, 4, 3.5, 3, 2 and 1 for 145-310 minutes and captured no other fish species.

Water Quality Sampling

We collected water quality samples at the same locations as the fish sampling sites in McDaniel Slough and Janes Creek using a Yellow Springs Instruments Professional Plus meter (Figure 1). Janes Creek was completely fresh water at Sites 3-6 (Table 1). Dissolved oxygen levels were good at all sites. (Table 1). WQ conditions were adequate to support juvenile salmonids from upstream and including Site 2.

Table 1. Water quality measurements collected in McDaniel Slough and Janes Creek, January 21, 2016.

Time	Conductivity (uS/cm)	Salinity (ppt)	Dissolved		Depth (ft)	Site
			Oxygen (mg/L)	Temperature (C)		
9:19 AM	93.9	0.06	8.43	10.5	1.25	JANES 6 BOTTOM
9:30 AM	87.5	0.06	7.01	10.4	1.5	JANES 5.5 BOTTOM
9:30 AM	87.6	0.06	6.86	10.4	0.5	JANES 5.5 TOP
9:44 AM	92.8	0.06	8.63	10.6	1.5	JANES 5 BOTTOM
9:44 AM	92.7	0.06	8.32	10.6	0.5	JANES 5 TOP
9:56 AM	94.8	0.06	9.06	10.7	2.75	JANES 4 BOTTOM
9:57 AM	94.6	0.06	8.84	10.7	0.5	JANES 4 TOP
10:05 AM	97.9	0.06	9.11	10.8	1.5	JANES 3.5 BOTTOM
10:06 AM	97.3	0.06	8.86	10.8	0.5	JANES 3.5 TOP
10:14 AM	100.7	0.07	8.8	10.9	4.5	JANES 3 BOTTOM
10:14 AM	100.8	0.07	8.68	10.9	2.25	JANES 3 MIDDLE
10:14 AM	100.7	0.07	8.57	10.9	0.5	JANES 3 TOP
10:24 AM	22769	19.03	7.78	11.5	5.5	JANES 2 UPPER BOTTOM
10:24 AM	19609	16.19	7.67	11.5	2.75	JANES 2 UPPER MIDDLE
10:24 AM	6342	4.79	7.88	11.4	0.5	JANES 2 UPPER TOP
10:40 AM	25404	21.3	8.13	11.8	7	JANES 1 BOTTOM
10:40 AM	25331	21.23	8.01	11.8	3.5	JANES 1 MIDDLE
10:40 AM	25310	21.22	7.96	11.8	0.5	JANES 1 TOP

February 5, 2016

Fish Sampling

We fished minnow traps baited with frozen salmon roe at eight sites in McDaniel Slough and Janes Creek (Figure 1). At Site 6 we fished a minnow trap for 155 minutes and captured one cutthroat trout at 106 mm FL. We applied a PIT tag to this fish. At Site 5.5 we fished a minnow trap for 165 minutes and captured one cutthroat trout at 103 mm FL. We applied a PIT tag to this fish. We fished minnow traps at Sites 5, 4, 3.5, 3, 2 and 1 for 160-175 minutes and captured no other fish species.

Water Quality Sampling

We collected water quality samples at the same locations as the fish sampling sites in McDaniel Slough and Janes Creek using a Yellow Springs Instruments Professional Plus meter (Figure 1). Janes Creek was completely fresh water at Sites 3-6 (Table 2). Dissolved oxygen levels were good at all sites. (Table 2). WQ conditions were adequate to support juvenile salmonids from upstream and including Site 2.

Table 2. Water quality measurements collected in McDaniel Slough and Janes Creek, February 5, 2016.

Time	Conductivity (uS/cm)	Salinity (ppt)	Dissolved		Depth (ft)	Site
			Oxygen (mg/L)	Temperature (C)		
9:04 AM	87.8	0.06	9.92	8.2	1	JANES 6 BOTTOM
9:15 AM	84.3	0.06	8.15	8.2	1	JANES 5.5 BOTTOM
9:29 AM	90.4	0.06	8.88	8.4	1	JANES 5 BOTTOM
9:38 AM	93.5	0.06	9.53	8.5	2.5	JANES 4 BOTTOM
9:39 AM	93.4	0.06	9.4	8.5	0.5	JANES 4 TOP
9:47 AM	97.8	0.07	9.97	8.6	2.5	JANES 3.5 BOTTOM
9:48 AM	97.9	0.07	9.74	8.6	0.5	JANES 3.5 TOP
9:57 AM	102	0.07	9.64	8.7	4	JANES 3 BOTTOM
9:57 AM	102.1	0.07	9.58	8.7	2	JANES 3 MIDDLE
9:58 AM	101.7	0.07	9.52	8.7	0.5	JANES 3 TOP
10:08 AM	22439	19.28	7.49	10.5	4	JANES 2 UPPER BOTTOM
10:09 AM	21720	18.58	7.09	10.5	2	JANES 2 UPPER MIDDLE
10:10 AM	477	0.34	7.62	8.8	0.5	JANES 2 UPPER TOP
10:25 AM	28271	25.44	8.47	9.6	4	JANES 1 BOTTOM
10:25 AM	28270	25.45	8.41	9.6	2	JANES 1 MIDDLE
10:26 AM	28218	25.39	8.33	9.6	0.5	JANES 1 TOP

March 28, 2016

Fish Sampling

We fished minnow traps baited with frozen salmon roe at eight sites in McDaniel Slough and Janes Creek (Figure 1). We fished a minnow trap at Sites 1, 2, 3, 3.5, 4, 5, 5.5 and 6 for 95-215 minutes and captured no fish species.

Water Quality Sampling

We collected water quality samples at the same locations as the fish sampling sites in McDaniel Slough and Janes Creek using a Yellow Springs Instruments Professional Plus meter (Figure 1). Janes Creek was completely fresh water at Sites 2-6 (Table 3). Dissolved oxygen levels were adequate at Site 1 and good at Sites 2-6 (Table 3). WQ conditions were adequate to support juvenile salmonids from upstream and including Site 2.

Table 3. Water quality measurements collected in McDaniel Slough and Janes Creek, March 28, 2016.

Time	Conductivity (uS/cm)	Salinity (ppt)	Dissolved Oxygen (mg/L)	Temperature (C)	Depth (ft)	Site
10:00 AM	90.8	0.06	10.23	8.8	0.5	JANES 6 BOTTOM
10:11 AM	87.1	0.06	8.66	9.3	1	JANES 5.5 BOTTOM
10:28 AM	92.8	0.06	9.19	9.5	1	JANES 5 BOTTOM
10:39 AM	96.8	0.06	9.33	9.7	2.75	JANES 4 BOTTOM
10:40 AM	96.9	0.06	9.2	9.7	0.5	JANES 4 TOP
10:51 AM	101	0.07	9.06	9.9	2	JANES 3.5 BOTTOM
10:51 AM	101	0.07	9.02	9.9	0.5	JANES 3.5 TOP
11:01 AM	106.8	0.07	8.58	10	3.5	JANES 3 BOTTOM
11:01 AM	106	0.07	8.73	10.1	1.75	JANES 3 MIDDLE
11:02 AM	106.1	0.07	8.66	10.1	0.5	JANES 3 TOP
11:14 AM	174.8	0.11	7.89	11.2	1	JANES 2 UPPER BOTTOM
11:28 AM	28138	23.53	4.86	12.3	2	JANES 1 BOTTOM
11:29 AM	28371	23.18	5.94	13.2	0.5	JANES 1 TOP

April 22, 2016

Fish Sampling

We fished minnow traps baited with frozen salmon roe at eight sites in McDaniel Slough and Janes Creek (Figure 1). We fished a minnow trap at Site 6 for 260 minutes and capture one cutthroat trout at 144 mm FL. We applied a PIT tag to this fish. We fished a minnow trap at Site 3 for 250 minutes and captured one cutthroat trout at 138 mm FL. We applied a PIT tag to this fish.

We fished a minnow trap at Site 2 for 250 minutes and captured one coho smolt at 109 mm FL. This fish had been previously captured and marked with a PIT tag at the Jacoby Creek Estuary, Bottom West Side Channel Site on March 17, 2016 at 103 mm FL. This coho spent 36 days from mark to recapture and grew 6 mm in FL during that time (0.17 mm/day). I was very excited to see this fish travel from one estuary enhancement project to another. We also captured <10 prickly sculpin and <10 threespine stickleback at this site.

We fished a minnow trap at Sites 1, 3.5, 4, 5, and 5.5 for 255-270 minutes and captured one shrimp species at Site 1.

Water Quality Sampling

We collected water quality samples at the same locations as the fish sampling sites in McDaniel Slough and Janes Creek using a Yellow Springs Instruments Professional Plus meter (Figure 1). Janes Creek was completely fresh water at Sites 2-6 (Table 4). Dissolved oxygen levels were adequate at Site 1 and good at Sites 2-6 (Table 4). WQ conditions were adequate to support juvenile salmonids from upstream and including Site 2.

Table 4. Water quality measurements collected in McDaniel Slough and Janes Creek, April 22, 2016.

Time	Conductivity (uS/cm)	Salinity (ppt)	Dissolved		Depth (ft)	Site
			Oxygen (mg/L)	Temperature (C)		
8:41 AM	89.7	0.06	9.07	11.5	0.5	JANES 6 BOTTOM
8:53 AM	78.1	0.05	6.87	12.7	1	JANES 5.5 BOTTOM
9:08 AM	83.4	0.05	7.8	12.8	1	JANES 5 BOTTOM
9:17 AM	84.9	0.05	8.02	12.7	2.5	JANES 4 BOTTOM
9:18 AM	84.8	0.05	7.9	12.7	0.5	JANES 4 TOP
9:35 AM	85.6	0.05	8.34	12.7	2	JANES 3.5 BOTTOM
9:36 AM	85.5	0.05	8.04	12.7	0.5	JANES 3.5 TOP
9:50 AM	90	0.06	7.66	12.9	4	JANES 3 BOTTOM
9:50 AM	90.1	0.06	7.77	12.7	2	JANES 3 MIDDLE
9:51 AM	89.9	0.06	7.66	12.7	0.5	JANES 3 TOP
10:03 AM	163.8	0.1	6.5	13.7	1	JANES 2 UPPER BOTTOM
10:18 AM	37996	30.15	5.42	15.5	1.5	JANES 1 BOTTOM
10:18 AM	31186	24.3	5.59	15.4	0.5	JANES 1 TOP

May 13, 2016

Fish Sampling

We fished minnow traps baited with frozen salmon roe at eight sites in McDaniel Slough and Janes Creek (Figure 1). We fished a minnow trap at Site 6 for 155 minutes and capture one cutthroat trout at 130 mm FL. We applied a PIT tag to this fish. We fished a minnow trap at Site 5.5 for 165 minutes and captured two cutthroat trout with a mean FL of 163 (range 142-184). We applied a PIT tag to both fish. What a big cutthroat at 184 mm FL to have caught in a minnow trap! The trap mouth was bent inward by this big strong fish. We fished a minnow trap at Sites 1, 2, 3, 3.5, 4 and 5 for 105-185 minutes and captured <10 yellow shore crab at Site 1.

Water Quality Sampling

We collected water quality samples at the same locations as the fish sampling sites in McDaniel Slough and Janes Creek using a Yellow Springs Instruments Professional Plus meter (Figure 1). Janes Creek was completely fresh water at Sites 2-6 (Table 5). Dissolved oxygen levels were adequate at Site 1 and good at Sites 2-6 (Table 5). WQ conditions were adequate to support juvenile salmonids from upstream and including Site 2.

Table 5. Water quality measurements collected in McDaniel Slough and Janes Creek, May 13, 2016.

Time	Conductivity (uS/cm)	Salinity (ppt)	Dissolved		Depth (ft)	Site
			Oxygen (mg/L)	Temperature (C)		
10:59 AM	101.5	0.07	8.94	11.2	0.25	JANES 6 BOTTOM
11:07 AM	96.7	0.06	8.37	11.7	1	JANES 5.5 BOTTOM
11:19 AM	103.1	0.06	8.58	12	0.5	JANES 5 BOTTOM
11:26 AM	106.1	0.07	8.42	12	2.25	JANES 4 BOTTOM
11:26 AM	106.2	0.07	8.33	12	0.5	JANES 4 TOP
12:39 PM	112.1	0.07	8	12.2	1	JANES 3.5 BOTTOM
12:48 PM	118.9	0.07	7.83	12.3	3.25	JANES 3 BOTTOM
12:49 PM	119	0.07	7.59	12.3	1.5	JANES 3 MIDDLE
12:49 PM	119	0.07	7.46	12.3	0.5	JANES 3 TOP
12:59 PM	575	0.35	7.16	14.4	0.5	JANES 2 UPPER BOTTOM
1:14 PM	43424	34.42	5.12	16.2	2	JANES 1 BOTTOM
1:14 PM	45290	34.76	4.56	17.7	0.5	JANES 1 TOP

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