

Janes Creek, McDaniel Slough, Thence Humboldt Bay
 City of Arcata Property
November 2010-October 2011

On November 15, 2010 CA Department of Fish and Game's (DFG) Natural Stocks Assessment Project (NSA) and City of Arcata staff conducted the first in a series of fish and water quality (WQ) sampling in McDaniel Slough and Janes Creek. This field note describes that sampling and subsequent fish and WQ sampling from December 2010 to October 2011. NOAA is funding most of this monitoring project as well as helping to fund other studies assessing habitat restoration projects around Humboldt Bay. 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, ~200 feet upstream of the tide gates on McDaniel Slough; Site 2, the upstream side of the Samoa Blvd. bridge; Site 3, the upstream side of the 11th Street crossing; Site 3.5, Cypress Grove near the corner of Q St and Zehndner Ave. (quarterly sampling per request by City of Arcata); 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 Ave., 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 are collecting information to establish baseline data about juvenile salmonids and other fish species prior to the opening of the new tide gates. This information will help us to assess the success of estuarine habitat restoration measures in McDaniel Slough.

Table 0. Comparison of the number of juvenile cutthroat trout captured by month in Janes Creek, November 15, 2010 to October 12, 2011.

<u>Date</u>	<u>Cutthroat Trout</u>
11-15-2010	2
12-13-2010	10
1-18-2011	2
2-14-2011	1
3-16-2011	0
4-12-2011	0
5-11-2011	0
6-08-2011	2
7-13-2011	3
8-11-2011	0
9-14-2011	3
10-12-2011	4

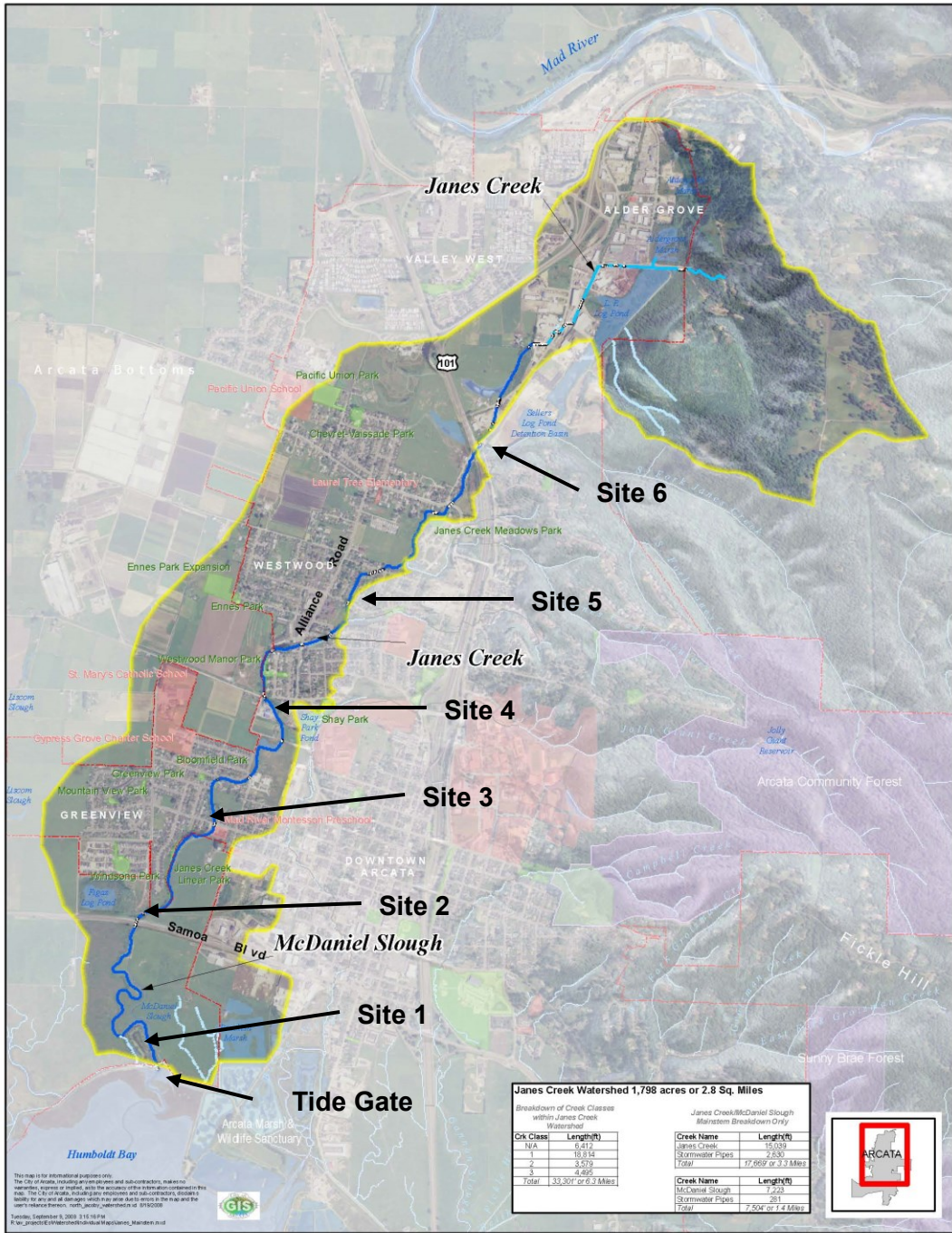


Figure 1. Approximate locations of fish and water quality sampling sites in Janes Creek basin.

November 15, 2010

Fish Sampling

We fished minnow traps baited with frozen salmon roe at six sites in McDaniel Slough and Janes Creek and conducted seine hauls with a 30 X 4 foot beach seine at Site 1 in McDaniel Slough (Figure 1). We made two seine hauls at Site 1 and captured one tidewater goby, 10-50 threespine stickleback, <10 Pacific staghorn sculpin, and <10 prickly sculpin. We fished a minnow trap at Site 4 for 140 minutes and captured one cutthroat trout. It was 125 mm FL and we applied a PIT tag to it. We fished a minnow trap at Site 5 for 145 minutes and captured one cutthroat trout. It was 131 mm FL and we applied a PIT tag to it. We fished minnow traps at Sites 1, 2, 3, and 6 for 125-155 minutes and captured no fish.

Water Quality Sampling

CDFG collected water quality samples at the same locations as the fish sampling sites in McDaniel Slough and Janes Creek using a Yellow Springs Instruments Model 85 meter (Figure 1). We detected brackish water in McDaniel Slough up to 25 ppt even though the tide gates have yet to be opened (Table 0.5). Janes Creek from was completely freshwater at Sites 2-5 (Table 0.5). Dissolved oxygen levels were quite low at Site 2, marginal at Sites 1 and 3, and good at the remaining sites (Table 0.5).

Table 0.5. Water temperature measurements collected in McDaniel Slough and Janes Creek, November 15, 2010.

Water Quality Site	Time	Depth (feet)	Water Temp (° C)	Salinity (ppt)	Conductivity (µS/cm)	Dissolved Oxygen (mg/l)
Site 1 surface bottom	1000	0.5 2.0	12.8 13.3	1.9 24.6	2795 29.98 ms/cm	4.55 5.61
Site 2 upstream of bridge surface bottom	1035	0.5 2.5	11.2 11.3	0.1 0.1	123.3 130.2	1.33 1.46
downstream bridge bottom	1300	1.0	12.1	0.1	122.3	0.88
Site 3 surface middle bottom	1050	0.5 2.5 5.0	11.6 11.6 11.6	0.1 0.1 0.1	125.5 124.2 124.5	6.18 6.31 6.06
Site 4 surface bottom	1100	0.5 2.0	11.4 11.4	0.1 0.1	103.0 103.0	9.24 8.54
Site 5 bottom	1115	1.0	11.5	0.1	104.2	8.43
Site 6 bottom	1130	1.0	10.9	0.1	95.3	10.50

December 13, 2010

Fish Sampling

We fished minnow traps baited with frozen salmon roe at seven sites in McDaniel Slough and Janes Creek and conducted seine hauls with a 30 X 4 foot beach seine at Site 1 in McDaniel Slough (Figure 1). We made two seine hauls at Site 1 and captured

no fish. We fished a minnow trap at Cypress Grove site for 145 minutes and captured one cutthroat trout. It was 113 mm FL and we applied a PIT tag to it. We fished a minnow trap at Site 4 for 165 minutes and captured two cutthroat trout with a mean FL of 106 mm (range 95-116). We applied a PIT tag to both fish. We fished a minnow trap at Site 5 for 175 minutes and captured two cutthroat trout with a mean FL of 117 mm (range 113-120). We applied a PIT tag to both fish. We fished a minnow trap at Site 6 for 180 minutes and captured five cutthroat trout with a mean FL of 80 mm (range 71-90). We applied a PIT tags to all five fish. We fished minnow traps at Sites 1, 2, and 3, for 170-220 minutes and captured <10 threespine stickleback at Site 2.

Water Quality Sampling

CDFG collected water quality samples at the same locations as the fish sampling sites in McDaniel Slough and Janes Creek using a Yellow Springs Instruments Model 85 meter (Figure 1). We detected brackish water in McDaniel Slough up to 20 ppt even though the tide gates have yet to be opened (Table 1). Janes Creek was completely freshwater at Sites 2-6 (Table 1). Dissolved oxygen levels were quite low at Site 2, marginal at Site 1, and good at the remaining sites (Table 1). WQ conditions were adequate to support juvenile salmonids from upstream and including Site 3, but due to low DO in the Site 2 area they might not be able to reach the estuary area adjacent to the tide gates.

Table 1. Water temperature measurements collected in McDaniel Slough and Janes Creek, December 13, 2010.

Water Quality Site	Time	Depth (feet)	Water Temp (° C)	Salinity (ppt)	Conductivity (µS/cm)	Dissolved Oxygen (mg/l)
Site 1 surface bottom	0950	0.5 2.3	12.1 12.3	0.2 19.7	325.4 23.89 ms/cm	4.42 5.23
Site 2 upstream of bridge surface middle bottom	1040	0.5 1.5 3.0	12.0 11.9 12.0	0.1 0.1 0.1	131.9 149.3 170.7	2.62 1.78 1.68
downstream bridge bottom	1055	1.0	12.1	0.1	115.7	3.02
Site 3 surface middle bottom	1105	0.5 2.5 5.0	11.8 11.9 11.9	0.1 0.1 0.1	104.6 89.8 101.1	7.25 7.85 6.69
Cypress Grove bottom	1135	1.0	11.8	0.1	93.1	8.19
Site 4 surface middle bottom	1145	0.5 1.5 3.0	11.8 11.8 11.8	0.1 0.1 0.1	89.5 89.6 89.8	7.94 7.87 7.80
Site 5 bottom	1200	1.0	11.8	0.1	88.8	7.34
Site 6 bottom	1220	1.0	11.5	0.1	87.1	10.72

January 18, 2011

Fish Sampling

We fished minnow traps baited with frozen salmon roe at six sites in McDaniel Slough and Janes Creek and conducted seine hauls with a 30 X 4 foot beach seine at Site 1 in McDaniel Slough (Figure 1). We made two seine hauls at Site 1 and captured two prickly sculpin. We fished a minnow trap at Site 4 for 130 minutes and captured one cutthroat trout. It was 139 mm FL and we applied a PIT tag to this fish. We fished a minnow trap at Site 6 for 130 minutes and captured one cutthroat trout. It contained a PIT tag applied by our project at this site 36 days earlier (12/13/10). While at large it grew 15 mm (0.42 mm/day). We fished minnow traps at Sites 1, 2, 3, and 5 for 130-165 minutes and captured one threespine stickleback at Site 1, <10 threespine stickleback at Site 2.

Water Quality Sampling

CDFG collected water quality samples at the same locations as the fish sampling sites in McDaniel Slough and Janes Creek using a Yellow Springs Instruments Model 85 meter (Figure 1). We detected brackish water in McDaniel Slough up to 11 ppt even though the tide gates have yet to be opened (Table 2). Janes Creek from was completely freshwater at Sites 2-6 (Table 2). Dissolved oxygen levels were low at Site 2 (though higher than the previous two months), marginal at Site 1, and good at the remaining sites (Table 2). WQ conditions were adequate to support juvenile salmonids from upstream and including Site 3, but due to low DO in the Site 2 area they might not be able to reach the estuary area adjacent to the tide gates.

February 14, 2011

Fish Sampling

We fished minnow traps baited with frozen salmon roe at six sites in McDaniel Slough and Janes Creek and conducted seine hauls with a 30 X 4 foot beach seine at Site 1 in McDaniel Slough (Figure 1). We made two seine hauls at Site 1 and captured one threespine stickleback. We fished a minnow trap at Site 4 for 100 minutes and captured one cutthroat trout. It was 135 mm FL and we applied a PIT tag to this fish. We fished minnow traps at Sites 1, 2, 3, 5 and 6 for 105-130 minutes and captured 10-50 threespine stickleback at Site 2.

Water Quality Sampling

CDFG collected water quality samples at the same locations as the fish sampling sites in McDaniel Slough and Janes Creek using a Yellow Springs Instruments Model 85 meter (Figure 1). We detected brackish water in McDaniel Slough up to 26 ppt even though the tide gates have yet to be opened (Table 3). Janes Creek from was completely freshwater at Sites 2-6 (Table 3). Dissolved oxygen levels were low at Site 2 (though higher than November and December), and good at the remaining sites (Table 3). WQ conditions were adequate to support juvenile salmonids from upstream and including Site 3, but due to low DO in the Site 2 area they might not be able to reach the estuary area adjacent to the tide gates.

March 16, 2011

Fish Sampling

We fished minnow traps baited with frozen salmon roe at six sites in McDaniel Slough and Janes Creek and conducted seine hauls with a 30 X 4 foot beach seine at Site 1 in McDaniel Slough (Figure 1). We made two seine hauls at Site 1 and captured no fish. We fished minnow traps at Sites 1, 2, 3, 5, 6, and at Cypress Grove for 145-180 minutes and captured no fish.

Table 2. Water temperature measurements collected in McDaniel Slough and Janes Creek, January 18, 2011.

Water Quality Site	Time	Depth (feet)	Water Temp (° C)	Salinity (ppt)	Conductivity (µS/cm)	Dissolved Oxygen (mg/l)
Site 1 surface bottom	1000	0.5 2.0	10.8 11.4	0.1 11.1	200.4 13.84 ms/cm	4.41 4.61
Site 2 upstream of bridge surface middle bottom downstream bridge bottom	1030 1045	0.5 1.5 3.0 1.0	10.7 10.6 10.5 10.7	0.1 0.1 0.1 0.1	106.0 114.6 168.3 103.8	4.28 2.99 1.92 4.15
Site 3 surface middle bottom	1100	0.5 2.5 5.0	10.2 10.2 10.2	0.1 0.1 0.1	94.3 93.5 93.4	7.41 7.75 7.94
Cypress Grove bottom	-	-	-	-	-	-
Site 4 surface bottom	1115	0.5 2.0	10.0 10.0	0.1 0.1	86.2 86.2	8.26 8.42
Site 5 bottom	1130	1.0	10.0	0.1	84.6	7.95
Site 6 bottom	1145	1.0	9.6	0.1	81.7	9.99

Water Quality Sampling

CDFG collected water quality samples at the same locations as the fish sampling sites in McDaniel Slough and Janes Creek using a Yellow Springs Instruments Model 85 meter (Figure 1). We detected brackish water in McDaniel Slough up to 12 ppt even though the tide gates have yet to be opened (Table 4). Janes Creek from was completely freshwater at Sites 2-6 (Table 4). Dissolved oxygen levels were marginal at Site 2 (though higher than the past months), and good at the remaining sites (Table 4). WQ conditions were adequate to support juvenile salmonids from upstream and including Site 3.

April 12, 2011

Fish Sampling

We fished minnow traps baited with frozen salmon roe at six sites in McDaniel Slough and Janes Creek and conducted seine hauls with a 30 X 4 foot beach seine at Site 1 in McDaniel Slough (Figure 1). We made two seine hauls at Site 1 and captured one threespine stickleback. We fished minnow traps at Sites 1, 2, 3, 5, and 6 for 135-175 minutes and captured one threespine stickleback at Site 1. This is the second month in a row where we captured no salmonids. So far during this study we have captured 15 cutthroat trout. We've applied PIT tags to 14 cutthroat and recaptured one tagged cutthroat trout.

Table 3. Water temperature measurements collected in McDaniel Slough and Janes Creek, February 14, 2011.

Water Quality Site	Time	Depth (feet)	Water Temp (° C)	Salinity (ppt)	Conductivity (µS/cm)	Dissolved Oxygen (mg/l)
Site 1 surface bottom	1000	0.5 2.0	10.2 10.3	25.6 25.5	28.91 ms/cm 28.78 ms/cm	7.49 7.87
Site 2 upstream of bridge bottom	1030	1.0	8.3	0.1	124.3	3.12
downstream bridge bottom	1040	1.0	8.2	0.1	121.2	3.70
Site 3 surface middle bottom	1050	0.5 1.5 3.0	8.6 8.6 8.5	0.1 0.1 0.1	108.1 108.1 108.3	8.20 8.04 7.74
Cypress Grove bottom	-	-	-	-	-	-
Site 4 surface bottom	1105	0.5 2.0	8.4 8.4	0.1 0.1	87.6 87.5	9.81 10.04
Site 5 bottom	1115	1.0	8.7	0.1	82.6	9.64
Site 6 bottom	1130	1.0	8.7	0.1	85.2	11.11

Water Quality Sampling

CDFG collected water quality samples at the same locations as the fish sampling sites in McDaniel Slough and Janes Creek using a Yellow Springs Instruments Model 85 meter (Figure 1). We detected brackish water in McDaniel Slough up to 17 ppt even though the tide gates have yet to be opened (Table 5). Janes Creek from was completely freshwater at Sites 2-6 (Table 5). Dissolved oxygen levels were marginal at Sites 1 and 2 and good at the remaining sites (Table 5). WQ conditions were adequate to support juvenile salmonids from upstream and including Site 3, but due to low DO in the Site 2 area they might not be able to reach the estuary area adjacent to the tide gates during parts of the year.

May 11, 2011

Fish Sampling

We fished minnow traps baited with frozen salmon roe at seven sites in McDaniel Slough and Janes Creek and conducted seine hauls with a 30 X 4 foot beach seine at Site 1 in McDaniel Slough (Figure 1). We made two seine hauls at Site 1 and captured two tidewater goby, <10 prickly sculpin, and <10 threespine stickleback. We fished minnow traps at all sites for 70 – 125 minutes and captured <50 threespine stickleback at Site 2. This is the third month in a row where we captured no salmonids.

Table 4. Water temperature measurements collected in McDaniel Slough and Janes Creek, March 16, 2011.

Water Quality Site	Time	Depth (feet)	Water Temp (° C)	Salinity (ppt)	Conductivity (µS/cm)	Dissolved Oxygen (mg/l)
Site 1 surface middle bottom	1100	0.5 2.0 4.0	10.4 10.4 10.8	0.1 0.1 11.8	126.8 185.3 14.43 ms/cm	6.22 6.30 6.36
Site 2 upstream of bridge surface bottom	1135	0.5 2.0	10.1 10.2	0.1 0.1	140.8 124.1	3.58 4.89
downstream bridge bottom	1140	1.0	10.3	0.1	86.2	6.66
Site 3 surface middle bottom	1200	0.5 3.5 7.0	10.1 10.0 10.0	0.1 0.1 0.1	76.9 75.9 75.8	8.37 8.58 8.46
Cypress Grove surface bottom	1210	0.5 2.0	9.9 9.9	0.0 0.0	73.8 74.0	9.26 9.10
Site 4 surface middle bottom	1215	0.5 1.5 3.0	10.0 10.0 10.0	0.0 0.0 0.0	72.9 72.9 72.9	8.85 8.79 8.82
Site 5 surface bottom	1225	0.5 2.0	10.1 10.1	0.0 0.0	71.9 72.0	9.05 8.95
Site 6 bottom	1240	1.0	9.5	0.0	71.7	10.78

Water Quality Sampling

CDFG collected water quality samples at the same locations as the fish sampling sites in McDaniel Slough and Janes Creek using a Yellow Springs Instruments Model 85 meter (Figure 1). We detected brackish water in McDaniel Slough up to 27 ppt even though the tide gates have yet to be opened (Table 6). Janes Creek from was completely freshwater at Sites 2-6 (Table 6). Dissolved oxygen levels were marginal at Site 1, poor at Site 2, and good at the remaining sites (Table 6). WQ conditions were adequate to support juvenile salmonids from upstream and including Site 3, but due to low DO in the Site 2 area they might not be able to reach the estuary area adjacent to the tide gates during parts of the year.

June 8, 2011

Fish Sampling

We fished minnow traps baited with frozen salmon roe at six sites in McDaniel Slough and Janes Creek and conducted seine hauls with a 30 X 4 foot beach seine at Site 1 in McDaniel Slough (Figure 1). We made two seine hauls at Site 1 and captured two tidewater goby and <10 unidentified juvenile Sculpin species (probably Prickly Sculpin or Coast Range Sculpin). We fished a minnow trap at Site 4 for 95 minutes and

Table 5. Water temperature measurements collected in McDaniel Slough and Janes Creek, April 12, 2011.

Water Quality Site	Time	Depth (feet)	Water Temp (° C)	Salinity (ppt)	Conductivity (µS/cm)	Dissolved Oxygen (mg/l)
Site 1 surface bottom	1035	0.5 2.0	10.5 11.6	0.4 17.4	620 21.00 ms/cm	5.31 5.87
Site 2 upstream of bridge surface bottom	1115	0.5 2.0	10.1 10.0	0.1 0.1	103.5 111.5	3.70 3.14
downstream bridge surface middle bottom	1120	0.5 1.5 3.0	10.1 10.1 10.0	0.1 0.1 0.1	100.6 100.7 111.0	3.72 3.64 3.00
Site 3 surface middle bottom	1130	0.5 2.0 4.0	9.5 9.5 9.5	0.1 0.1 0.1	96.4 95.8 97.1	7.77 8.14 7.10
Cypress Grove bottom	-	-	-	-	-	-
Site 4 surface bottom	1145	0.5 2.0	9.3 9.3	0.1 0.1	83.3 83.2	9.10 9.23
Site 5 bottom	1155	1.0	9.3	0.1	79.1	8.96
Site 6 bottom	1205	0.5	8.5	0.1	79.3	10.50

captured one cutthroat trout. It was 149 mm FL and we applied a PIT tag to this fish. We fished a minnow trap at Site 6 for 135 minutes and captured one cutthroat trout. It was 110 mm FL and we applied a PIT tag to this fish. We fished minnow traps at Sites 1, 2, 3, 5 and six for 100–180 minutes and captured <50 threespine stickleback at Site 1.

Water Quality Sampling

CDFG collected water quality samples at the same locations as the fish sampling sites in McDaniel Slough and Janes Creek using a Yellow Springs Instruments Model 85 meter (Figure 1). We detected brackish water in McDaniel Slough up to 18 ppt even though the tide gates have yet to be opened (Table 7). Janes Creek from was completely freshwater at Sites 2-6 (Table 7). Dissolved oxygen levels were marginal at Sites 1 and 3, poor at Site 2 and good at the remaining sites (Table 7). WQ conditions were adequate to support juvenile salmonids from upstream and including Site 3, but due to low DO in the Site 2 area they might not be able to reach the estuary area adjacent to the tide gates during parts of the year.

Table 6. Water temperature measurements collected in McDaniel Slough and Janes Creek, May 11, 2011.

Water Quality Site	Time	Depth (feet)	Water Temp (° C)	Salinity (ppt)	Conductivity (µS/cm)	Dissolved Oxygen (mg/l)
Site 1 surface bottom	1010	0.5 2.0	12.5 15.3	0.5 27.2	791 34.50 ms/cm	4.58 5.29
Site 2 upstream of bridge surface bottom	1035	0.5 2.0	12.0 11.8	0.1 0.1	120.6 174.7	3.55 0.61
downstream bridge surface middle bottom	1045	0.5 1.5 3.0	11.7 11.6 11.6	0.1 0.1 0.1	116.9 117.2 128.1	2.29 1.48 1.05
Site 3 surface middle bottom	1055	0.5 2.0 4.0	11.2 11.2 11.3	0.1 0.1 0.1	106.4 105.9 106.0	6.36 7.22 7.31
Cypress Grove bottom	1110	1.0	11.2	0.1	97.7	9.07
Site 4 surface bottom	1120	0.5 2.0	11.2 11.2	0.1 0.1	89.1 88.9	8.93 9.04
Site 5 bottom	1130	0.5	11.2	0.1	84.7	8.92
Site 6 bottom	1140	0.5	9.9	0.1	84.6	10.69

July 13, 2011

Fish Sampling

We fished minnow traps baited with frozen salmon roe at seven sites in McDaniel Slough and Janes Creek and conducted seine hauls with a 30 X 4 foot beach seine at Site 1 in McDaniel Slough (Figure 1). We made two seine hauls at Site 1 and captured 50-100 tidewater goby, 10-50 topsmelt, 100-500 threespine stickleback and 10-50 prickly sculpin. At Site 4 we fished a minnow trap for 145 minutes and captured one cutthroat trout. It was 133 mm FL and we applied a PIT tag to this fish. At Site 6 we fished a minnow trap for 160 minutes and captured two cutthroat trout. They were 102 and 115 mm FL. We applied a PIT tag to the 102 mm cutthroat. The 115 mm cutthroat was a recaptured fish which we had tagged at Site 6 on June 8, 2011 at 110 mm FL – so in the 35 days at large this fish grew 5 mm in FL (0.14mm/day). We fished minnow traps at the remaining Sites for 150 – 215 minutes and captured 50-100 threespine stickleback at Site 1 and one threespine stickleback at Site 2.

Water Quality Sampling

CDFG collected water quality samples at the same locations as the fish sampling sites in McDaniel Slough and Janes Creek using a Yellow Springs Instruments Model 85 meter (Figure 1). We detected brackish water in McDaniel Slough up to 28 ppt even though

Table 7. Water temperature measurements collected in McDaniel Slough and Janes Creek, June 8, 2011.

Water Quality Site	Time	Depth (feet)	Water Temp (° C)	Salinity (ppt)	Conductivity (µS/cm)	Dissolved Oxygen (mg/l)
Site 1 surface bottom	955	0.5 2.0	16.8 18.2	5.2 17.5	7.85 ms/cm 24.60 ms/cm	2.96 3.37
Site 2 upstream of bridge bottom	1120	1.0	13.9	0.1	117.6	0.95
downstream bridge surface middle bottom	1130	0.5 1.5 3.0	13.9 13.3 13.3	0.1 0.1 0.1	90.6 116.3 117.1	1.13 1.03 1.08
Site 3 surface middle bottom	1140	0.5 2.0 4.0	13.2 12.9 13.0	0.1 0.1 0.1	106.7 105.0 105.4	4.96 6.07 5.83
Cypress Grove bottom	-	-	-	-	-	-
Site 4 surface bottom	1155	0.5 2.0	12.7 12.7	0.1 0.1	90.6 90.6	7.79 7.95
Site 5 bottom	1210	1.0	14.3	0.1	91.9	7.74
Site 6 bottom	1230	0.5	11.5	0.1	87.7	9.11

the tide gates have yet to be opened (Table 8). Janes Creek was completely freshwater at Sites 2-6 (Table 8). Dissolved oxygen levels were marginal at Sites 1 and 3, next to zero at Site 2 and good at the remaining sites (Table 8). WQ conditions were adequate to support juvenile salmonids from upstream and including Site 3, but due to low DO in the Site 2 area they might not be able to reach the estuary area adjacent to the tide gates during parts of the year. Also, water temperatures and salinity at Site 1 were too high for juvenile coho salmon to rear in this area.

August 18, 2011

Fish Sampling

We fished minnow traps baited with frozen salmon roe at five sites in McDaniel Slough and Janes Creek and conducted seine hauls with a 30 X 4 foot beach seine at Site 1 in McDaniel Slough (Figure 1). We made two seine hauls at Site 1 and captured 10-50 tidewater goby, 100-200 topsmelt, 10-50 threespine stickleback, 10-50 prickly sculpin and one bay pipefish. At Site 5 we fished a minnow trap for 95 minutes and captured one cutthroat trout. It was 154 mm FL and we applied a PIT tag to this fish. We fished minnow traps at Sites 1, 2, 4 and 6 for 95 – 230 minutes and captured 10-50 threespine stickleback and <10 prickly sculpin at Site 1 and <10 threespine stickleback at Site 2. There was no minnow trap effort at Site 3 due to a faulty trap set.

Table 8. Water temperature measurements collected in McDaniel Slough and Janes Creek, July 13, 2011.

Water Quality Site	Time	Depth (feet)	Water Temp (° C)	Salinity (ppt)	Conductivity (µS/cm)	Dissolved Oxygen (mg/l)
Site 1 surface bottom	0955	0.5 2.0	18.9 21.3	5.6 27.7	8.69 ms/cm 39.85 ms/cm	3.52 2.54
Site 2 upstream of bridge bottom	1055	0.5	15.5	0.1	128.0	0.11
downstream bridge surface middle bottom	1100	0.5 1.5 3.0	15.1 14.3 14.2	0.1 0.1 0.1	128.4 129.3 129.6	0.07 0.00 0.00
Site 3 surface middle bottom	1110	0.5 1.5 3.0	14.4 14.4 14.5	0.1 0.1 0.1	111.4 110.9 111.3	4.49 5.05 4.25
Cypress Grove bottom	1130	1.0	14.1	0.1	101.4	6.16
Site 4 surface bottom	1140	0.5 2.0	14.0 14.1	0.1 0.1	93.2 93.4	8.25 8.05
Site 5 bottom	1150	0.5	14.9	0.1	94.2	8.25
Site 6 bottom	1200	0.5	12.6	0.1	92.4	9.46

Water Quality Sampling

CDFG collected water quality samples at the same locations as the fish sampling sites in McDaniel Slough and Janes Creek using a Yellow Springs Instruments Model 85 meter (Figure 1). We detected brackish water in McDaniel Slough up to 31 ppt even though the tide gates have yet to be opened (Table 9). Janes Creek from was completely freshwater at Sites 2-6 (Table 9). Dissolved oxygen levels were low at Sites 1 and 2, marginal at Site 3 and good at the remaining sites (Table 9). WQ conditions were adequate to support juvenile salmonids from upstream and including Site 3, but due to low DO at Sites 1 and 2 they might not be able to reach the estuary area adjacent to the tide gates during parts of the year.

September 14, 2011

Fish Sampling

We fished minnow traps baited with frozen salmon roe at six sites in McDaniel Slough and Janes Creek and conducted seine hauls with a 30 X 4 foot beach seine at Site 1 in McDaniel Slough (Figure 1). We made two seine hauls at Site 1 and captured 10-50 tidewater goby, 50-100 threespine stickleback and 10-50 topsmelt <50. At Site 4 we fished a minnow trap for 180 minutes and captured three cutthroat trout of 82, 79 and 75 mm FL (mean FL = 79). We applied a PIT tag to all three fish. We fished minnow traps at Sites 1, 2, 3, 5 and 6 for 165 – 205 minutes and captured <10 threespine stickleback at Site 1 and one threespine stickleback at Site 3.

Table 9. Water temperature measurements collected in McDaniel Slough and Janes Creek, August 18, 2011.

Water Quality Site	Time	Depth (feet)	Water Temp (° C)	Salinity (ppt)	Conductivity (µS/cm)	Dissolved Oxygen (mg/l)
Site 1 surface bottom	1130	0.5 2.0	16.9 20.4	3.1 31.1	4.88 ms/cm 43.51 ms/cm	2.63 3.04
Site 2 upstream of bridge bottom	1245	1.0	15.2	0.1	113.7	3.91
downstream bridge bottom	1250	0.5	15.3	0.1	116.8	1.34
Site 3 surface middle bottom	1300	0.5 2.0 4.0	14.4 13.9 13.9	0.1 0.1 0.1	109.9 107.0 106.9	4.80 5.49 5.68
Cypress Grove bottom	-	-	-	-	-	-
Site 4 surface bottom	1410	0.5 2.0	13.8 13.8	0.1 0.1	91.3 91.4	8.76 7.88
Site 5 bottom	1420	0.5	14.2	0.1	92.3	9.00
Site 6 bottom	1435	0.5	12.9	0.1	93.9	9.37

Water Quality Sampling

CDFG collected water quality samples at the same locations as the fish sampling sites in McDaniel Slough and Janes Creek using a Yellow Springs Instruments Model 85 meter (Figure 1). We detected brackish water in McDaniel Slough up to 29 ppt even though the tide gates have yet to be opened (Table 10). Janes Creek from was completely freshwater at Sites 2-6 (Table 10). Dissolved oxygen levels were low at Sites 1, 2 and 3 and good at the remaining sites (Table 10). WQ conditions were adequate to support juvenile salmonids from upstream and including Site 4.

October 12, 2011

Fish Sampling

We fished minnow traps baited with frozen salmon roe at seven sites in McDaniel Slough and Janes Creek and conducted seine hauls with a 30 X 4 foot beach seine at Site 1 in McDaniel Slough (Figure 1). We made two seine hauls at Site 1 and captured one tidewater goby, <10 threespine stickleback and one unidentified juvenile sculpin species. At Site 4 we fished a minnow trap for 165 minutes and captured one cutthroat trout at 91 mm FL. This fish was previously tagged at the same site on 9/14/2011. In 28 days at large it grew 9 mm in FL (0.32 mm/day). At Site 6 we fished a minnow trap for 175 minutes and captured three cutthroat trout at 148, 115 and 103 mm FL (mean FL = 122). We applied a PIT tag to all three fish. We fished minnow traps at Sites 1, 2, 3, 3.5 and 5 for 160 – 210 minutes and captured 10-50 threespine stickleback at Site 2.

Table 10. Water temperature measurements collected in McDaniel Slough and Janes Creek, September 14, 2011.

Water Quality Site	Time	Depth (feet)	Water Temp (° C)	Salinity (ppt)	Conductivity (µS/cm)	Dissolved Oxygen (mg/l)
Site 1 surface bottom	0930	0.5 1.5	16.1 17.9	9.6 29.3	13.52 ms/cm 39.09 ms/cm	1.81 3.41
Site 2 upstream of bridge bottom	1040	1.0	15.5	0.1	166.2	1.22
downstream bridge bottom	1050	0.5	15.1	0.1	116.2	0.69
Site 3 surface middle bottom	1100	0.5 1.5 3.0	14.2 14.1 14.1	0.1 0.1 0.1	112.1 111.3 111.0	3.53 3.47 3.73
Cypress Grove bottom	-	-	-	-	-	-
Site 4 surface bottom	1115	0.5 2.0	13.5 13.6	0.1 0.1	94.1 94.2	6.74 6.24
Site 5 bottom	1135	0.5	13.5	0.1	94.1	6.36
Site 6 bottom	1145	0.5	12.7	0.1	94.4	7.67

Water Quality Sampling

CDFG collected water quality samples at the same locations as the fish sampling sites in McDaniel Slough and Janes Creek using a Yellow Springs Instruments Model 85 meter (Figure 1). We detected brackish water in McDaniel Slough up to 14 ppt even though the tide gates have yet to be opened (Table 11). Janes Creek from was completely freshwater at Sites 2-6 (Table 11). Dissolved oxygen levels were low at Sites 1 and 2 and good at the remaining sites (Table 11). WQ conditions were adequate to support juvenile salmonids from upstream and including Site 3, but due to low DO in the Site 2 area they might not be able to reach the estuary area adjacent to the tide gates during parts of the year.

Table 11. Water temperature measurements collected in McDaniel Slough and Janes Creek, October 12, 2011.

Water Quality Site	Time	Depth (feet)	Water Temp (° C)	Salinity (ppt)	Conductivity (µS/cm)	Dissolved Oxygen (mg/l)
Site 1 surface bottom	1035	0.5 230	14.3 16.0	0.2 14.0	341.2 19.09 ms/cm	3.20 2.69
Site 2 upstream of bridge bottom	1135	1.0	14.2	0.1	131.0	0.49
downstream bridge bottom	1140	1.0	13.7	0.1	98.9	1.61
Site 3 surface middle bottom	1155	0.5 2.5 5.0	13.2 13.1 13.2	0.1 0.1 0.1	104.1 100.9 101.4	5.22 6.55 6.87
Cypress Grove bottom	1205	1.0	12.9	0.1	97.3	8.61
Site 4 surface bottom	1215	0.5 2.0	12.9 12.9	0.1 0.1	124.7 96.0	8.47 8.44
Site 5 bottom	1230	1.0	13.2	0.1	97.5	7.16
Site 6 bottom	1235	0.5	12.0	0.1	89.6	10.15

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