

2006

Atlantic Whitefish Recovery Project

2006 Field Season Report

The Atlantic Whitefish Recovery Project (AWRP) was initiated in 2004, with the main goal of raising the profile of the species within the Petite Rivière watershed community. In addition to public education in the early years of the project, the 2006-07 AWRP saw several new activities including; a general mail out survey; update of BCAF display at the Fisheries Museum of the Atlantic in Lunenburg; installation of an informative AW panel at Risser's Beach Provincial Park; diet analysis of smallmouth bass sampled in Minamkeak Lake; as well as lake shore surveys around Minamkeak, Milipsigate, and Hebb Lakes. BCAF is also in the process of working on further AW projects such as conducting bathymetric surveys of Minamkeak, Milipsigate, and Hebb Lakes and creating new school presentations about the project.

Chris Wessel
Bluenose Coastal Action Foundation
December 2006



INTRODUCTION

The endangered Atlantic whitefish is an endemic species currently found only in Nova Scotia's Petite Rivière watershed. Although once found in the Tusket River watershed, researchers believe this population of Atlantic whitefish to be extirpated. Both natural and human induced pressures and threats such as; hydro-electric development, fish passage, acidification, incidental catch by recreational anglers, and land use practices have contributed to the decline of this species.

This report describes the activities conducted under the Atlantic Whitefish Recovery Project (AWRP) since April, 2006. The AWRP was initiated in 2004, with the main goal of raising the profile of the species within the Petite Rivière watershed community. In 2004 and 2005, the main focus of the project was community-wide public education and awareness regarding the plight of the endangered Atlantic whitefish. Various education materials were designed by BCAF in order to achieve this goal. These communications products consisted of an Atlantic Whitefish Activity Book directed at youth (Figure 1); a Petite Rivière Watershed Handbook entitled "Our Watershed. Our Responsibility." (Figure 2), an Atlantic Whitefish Bookmark (Figure 3), and an Atlantic Whitefish Poster (Figure 4). In addition to producing the outreach materials, public presentations were delivered to audiences of all ages at the Fisheries Museum of the Atlantic in Lunenburg, as well as presentations delivered at schools where BCAF hosts the Fish Friends Program.

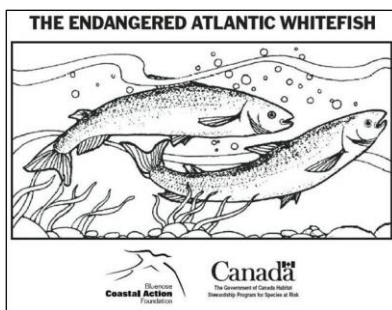


Figure 1. Front cover of Atlantic Whitefish Activity Booklet



Figure 2. Front cover of Petite Rivière Watershed Handbook

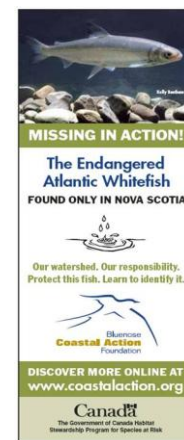


Figure 3. Atlantic Whitefish Bookmark

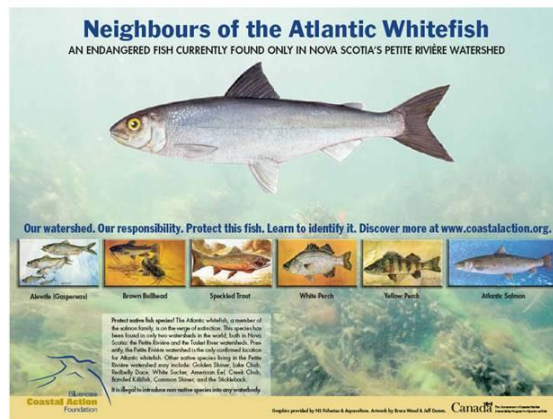


Figure 4. Atlantic Whitefish Poster



The proposed work plan for the 2006-07 AWRP included the following activities:

- Conducting a general watershed mail-out survey
- Updating of the BCAF project display at the Fisheries Museum of the Atlantic
- Development and installation of Atlantic whitefish interpretive panel for display at Risser's Beach Provincial Park
- Sampling of smallmouth bass in Minamkeak Lake for a diet analysis study
- Conducting land use surveys of Minamkeak, Milipsigate, and Hebb Lakes
- Conducting bathymetric surveys of Minamkeak, Milipsigate, and Hebb Lakes
- Furthering the AWRP outreach and education program within the Petite Rivière community

DISCUSSION

Several activities were completed under the umbrella of the Atlantic Whitefish Recovery Project since the start of the new fiscal year in April 2006. These activities consisted of a watershed mail out survey; enhancement of BCAF display at the Fisheries Museum of the Atlantic in Lunenburg; installation of an informative Atlantic whitefish panel at Risser's Beach Provincial Park; smallmouth bass sampling on Minamkeak Lake for diet analysis study; as well as lake shore surveys around Minamkeak, Milipsigate, and Hebb Lakes. BCAF is also in the process of working on AWRP projects such as conducting bathymetric surveys in Minamkeak, Milipsigate, and Hebb Lakes along with creating new communications tools for delivery in local schools and the community at large.

Watershed Mail-out Survey

The watershed mail-out survey activity was comprised of three parts. The first part consisted of an initial survey sent out to residents living within the Petite Rivière watershed (334 households) asking residents to rate their knowledge on the Atlantic whitefish and its habitat. (See Appendix 1 for copy of Atlantic Whitefish Watershed Survey). After receiving the surveys back from the residents, AWRP staff spent the next six months concentrating their education and outreach efforts within the Petite Rivière community based on the survey responses. Education and outreach efforts included the following activities:

- Mail outs of information on the Atlantic whitefish and its habitat to the same watershed residents who completed the initial surveys based on the survey results.
- Presentations and hand-out materials were made publicly available to residents through project displays at local festivals and events.
- BCAF partnered with the Petite Rivière Elementary School where project presentations were delivered and hand-out materials distributed.
- BCAF hosted a field trip to the Mersey Biodiversity Centre for the local angling association where they were provided with a tour of the facility and AW presentations by Fisheries and Oceans Science staff.
- BCAF staff provided interviews and AWRP materials to local media and news articles were written for the local newspaper.

In the fall of 2006, after the completion of the above mentioned education and awareness activities, BCAF project staff then mailed out an exit survey, similar to the first survey, to those same watershed residents. The purpose of this follow-up survey was to gauge the success, if any, of BCAF's extensive project communications efforts. (See Appendix 2 for copy of Atlantic Whitefish Outreach Exit Survey).



AWRP Display at Fisheries Museum

During the spring/summer of 2006, BCAF partnered with the staff at the Fisheries Museum of the Atlantic in Lunenburg to enhance the existing Atlantic whitefish display found in the aquarium. The existing display showcased a live exhibit of Atlantic whitefish in a tank with no accompanying interpretive / information panels similar to other species on display in the aquarium. Display materials were originally set up around the aquarium in the fall of 2005, for the purpose of providing the public with information on the species, its status, and its habitat. However, the information was minimal, quickly pulled together, and displayed too late in the year to have the intended maximum impact. This year, BCAF added to the display by creating a banner for above the tank that reads, “Endangered Atlantic Whitefish”, a banner located below the tank that reads, “*Coregonus huntsmani*”, the Latin name for the Atlantic whitefish, and a fact sheet was also added to the right side of the aquarium explaining BCAF’s current work under the AWRP (Appendix 3). During the 2006 museum season, end of May to mid-October, the Fisheries Museum of the Atlantic recorded a museum attendance of 87,149 people.

AWRP Interpretive Panel at Risser’s Beach Provincial Park

BCAF approached the Nova Scotia Department of Natural Resources (NS DNR) in the Fall/Winter of 2005 to pitch the idea of including an interpretive panel about the Atlantic whitefish along the boardwalk at Risser’s Beach Provincial Park in Lunenburg County, Nova Scotia. The intended purpose of the panel was to attract more attention to the Atlantic whitefish, its endangered status, and the issues needed to be addressed with its habitat. NS DNR agreed to cover the costs of the installation and long term maintenance of the panel and BCAF was responsible for the overall design and printing / manufacturing of the panel. The panel was installed along the boardwalk, overlooking the estuary of the Petite Rivière, the watershed containing the last known wild population of the species (Figure 5). The panel includes information on Atlantic whitefish habitat, its status, and a map displaying the Petite Rivière watershed. The panel itself is made out of a durable weather resistant material and contains both English and French translations of the information. BCAF also provided a poster about the Atlantic whitefish for display at the Species at Risk information kiosk at Risser’s Beach, explaining about BCAF the organization, BCAF projects, and information on the Atlantic whitefish.



Figure 5. Atlantic whitefish interpretive panel along boardwalk at Risser’s Beach Provincial Park.



Smallmouth Bass Sampling and Diet Analysis

It is believed that a major issue with maintaining a healthy population of Atlantic whitefish in the Petite Rivière watershed is that this system contains smallmouth bass (SMB). SMB have the potential to be very aggressive predators and/or competitors, therefore, hindering the recovery of the Atlantic whitefish within the Petite system. The purpose of the smallmouth bass sampling and diet analysis study was to determine if in fact the SMB populations within Minamkeak Lake are actually directly preying on the Atlantic whitefish. BCAF partnered with the Nova Scotia Department of Fisheries and Aquaculture (NS DFA) in the delivery of this project component.

The SMB used in the study were sampled by successfully angling for the fish. The main sample location was Minamkeak Lake, primarily in the West end of the lake where SMB tend to be found in larger numbers. After SMB were caught for sampling, they were taken to the BCAF office for further analysis. Sampling of the SMB included taking several measurements, including; total length of individual, total weight of individual, weight of gonad, sex of individual, stomach mass, and stomach contents. By analyzing the stomach contents, BCAF project staff were able to determine what the smallmouth bass were feeding on at the time of sampling, and more importantly, if it was feeding on juvenile Atlantic whitefish.



Shoreline Surveys of Minamkeak, Milipsigate, and Hebb Lakes

Shoreline surveys were conducted on Minamkeak, Milipsigate, and Hebb Lakes in August and September, 2006, to determine if there were any major areas of concern around the lakes or direct point-source pollutants entering the lakes. BCAF based their observations on issues such as pollution, shoreline degradation, and adjacent land use practices. It was important to collect this information and assess any possible issues that are currently causing a problem or have the potential to create problems in the future. If this information is collected and recorded regularly, then researchers and decision makers may be able to act accordingly to prevent a problem from happening in the future, or at least determine the potential cause or source of the problem based on data collected.



Figure 6. Milipsigate Lake



Ongoing or Upcoming AWRP Activities

As of December 2006, BCAF has started two additional AWRP activities; bathymetric surveys of Minamkeak, Milipsigate, and Hebb Lakes and developing new education and outreach products for delivery in local schools as well as the community at large. BCAF partnered with Nova Scotia Power Inc. and the NS Department of Fisheries and Aquaculture in conducting the bathymetric surveys of the three AW lakes. The actual field work for the bathymetric surveys has been completed; however, the data collected has yet to be processed and incorporated into report form. AWRP staff are also working on developing new presentations for use in local schools, specifically those where Petite Rivière youth are enrolled (i.e., Petite Rivière Elementary, Hebbville Academy, and Park View Education Centre). Various age appropriate materials are being developed for these school presentations, as well as for general public outreach efforts in the future.

RESULTS

Watershed Mail-out Survey

BCAF received a total of 21 surveys (6% return rate) back from the initial Atlantic Whitefish Watershed Survey mass mail-out and a total of 11 surveys (3.5% return rate) back from the Atlantic Whitefish Outreach Exit Surveys. The results of the initial survey (Appendix 4) basically indicated that local knowledge of the Atlantic whitefish was minimal and there was a definite need for public increased public education and outreach efforts. 52% of individuals considered themselves to be only “somewhat aware” of the species when rating their knowledge of the Atlantic whitefish. 67% of individuals were aware that the Atlantic whitefish was an endangered species found within the Petite Rivière system. Less than 25% of the people surveyed were aware that they could do anything to help with the recovery of the species.

The results of the Atlantic Whitefish Outreach Exit Survey (Appendix 5) were primarily positive; however, results must be taken with a grain of salt considering the extremely low return rate. The level of knowledge among the returned surveys seemed to have increased from the initial survey; with 34% of individuals indicating that their knowledge of the Atlantic whitefish had “increased”, and 34% of respondents indicating that their knowledge had “increased substantially”. BCAF also received very positive results from asking respondents if they were more willing to get involved with the AWRP. 56% of the returned surveys indicated that they were more willing to get involved, compared to the 34% that said their “willingness was unchanged”, and 0% indicating that they were “less willing” to participate.

Smallmouth Bass Sampling and Diet Analysis

In May and July, BCAF and the Nova Scotia Department of Fisheries and Aquaculture began sampling smallmouth bass on Minamkeak Lake. In total, 33 SMB were sampled in these two months on Minamkeak Lake; 67% of these individuals were females and 33% were males. After examining the stomach contents of all the SMB that were retained, BCAF and NS DFA could not find any evidence that any of the individuals sampled had preyed upon Atlantic whitefish at the time they were sampled from Minamkeak Lake. Although it could not be proven that SMB were feeding on Atlantic whitefish, unidentified fish vertebrae, otoliths, and skeletal parts were found in the analyses. Table 1 shows the contents of the SMB stomachs, prey species found in SMB stomachs, and the weight of stomach samples (see Appendix 6 for further details on the diet analysis study).



Table 1. Summary Results of SMB Diet Analysis

Average stomach weight (g) in May – 13.25g

Average stomach weight (g) in July – 7.8g

Total weight (g) of organisms found in SMB stomachs

Species Present in Stomachs	May Samples (g)	July Samples (g)	Total (g)
Ephemeroptera	17.64	4	21.64
Odonata	92.08	0	92.08
Trichoptera	88.48	4.4	92.88
Hirudinea	0.6	0	0.6
Megaloptera	1.2	0	1.2
Coleoptera	0	0	0
Vertebrae/Otolith	0	43.64	43.64
Ants	0	2	2
Wasp	0	1	1
Adult Dragonfly	0	6	6

Shoreline Surveys of Minamkeak, Milipsigate, and Hebb Lakes

Milipsigate and Hebb Lakes, along with the south half of Minamkeak Lake, were surveyed during the fall of 2006. The north half of Minamkeak will hopefully be surveyed in the spring 2007. BCAF field staff did not find any obvious areas of concern on any of the lakes. Milipsigate Lake had no visual sources of pollution entering into it, and the only man-made shoreline structure was a small portion of the road leading to the dam, and the dam itself connecting Milipsigate and Hebb Lakes. Other than that, the riparian areas around the lake seemed to be very healthy and full of vegetation.

Hebb Lake had a road that ran along the shoreline, leading to the main dam in the north east corner of the lake. The road was stabilized with large boulders and crushed gravel; erosion would probably not occur at this location. However, if there happened to be an oil or gas leak from a vehicle, then the absence of a buffer zone may allow the pollutants to run directly into the lake. There was a concrete dam separating Hebb Lake and the stream that runs into Fancy Lake, as well as a small non-operational dam in the cove known as “Pinch Gut” in the north end of the lake.

RECOMMENDATIONS

Watershed Mail-out Survey

If a future survey is to take place with the residents of Petite Rivière, it would be recommended that the survey be conducted door to door or by telephone rather than through the mail. By employing either the door to door or telephone format, the survey would likely have a better response rate from participants. Providing a more personal touch to the survey would also likely deliver more accurate results. Another benefit of a door to door or telephone survey is that it would provide BCAF with an opportunity to introduce themselves to the



community and talk personally with each resident. A potentially negative aspect to conducting surveys in this manner is the time it would take to survey each household individually.

Smallmouth Bass Sampling and Diet Analysis

If the sampling of SMB for the purposes of a diet analysis study is conducted again for another field season, it is recommended that more individuals are retained, a larger area is sampled, and sampling takes place two to three times a month for the spring and early summer. By sampling more individuals, in a wider range of area, at more intervals, it would produce more accurate results.

Shoreline Surveys of Minamkeak, Milipsigate, and Hebb Lakes

One recommendation for this survey would be that it is conducted annually. The reason it should be conducted each year is to ensure that an annual check of the known Atlantic whitefish lake shorelines monitored for any new potential issues and/or problems that could negatively impact the species. These annual surveys would note quality AW habitat within the three lakes, helping to prevent future problems by providing a long term record of lake health, as well as a database of information to trace potential problems back to their source by looking at the history of the lake. Another possible recommendation would be to start re-establishing a buffer zone or riparian area along the area of Hebb Lake where there is a road adjacent to the water. A quick start for establishing a buffer zone in this area would be to start tree planting activities along the shoreline.



APPENDIX 1. Atlantic Whitefish Watershed Survey

Question	Answer Options	Additional Info / Comments
1. Are you aware that the Atlantic whitefish in an endangered species?	<ul style="list-style-type: none"> • Yes • No 	
2. Are you aware that the Atlantic whitefish is found only in Nova Scotia, specifically only within the Petite Rivière watershed?	<ul style="list-style-type: none"> • Yes • No 	
3. Are you familiar with the work of the Bluenose Coastal Action Foundation?	<ul style="list-style-type: none"> • Yes • No 	
4. How would you rate your current knowledge of the Atlantic whitefish?	<ul style="list-style-type: none"> • Not previously aware • Somewhat aware • Aware • Completely aware and actively participating 	
5. Are you aware of actions you can personally take to support the recovery efforts for the Atlantic whitefish?	<ul style="list-style-type: none"> • Yes • No 	
6. Does the rate of natural habitat loss within Nova Scotia cause you to be concerned?	<ul style="list-style-type: none"> • Yes • No 	
7. Please circle / identify all of the following descriptions that apply to you:	<ul style="list-style-type: none"> • Student • Petite Rivière landowner or resident • Lunenburg County resident • Tusket River landowner or resident • Angler • Outdoor enthusiast 	




APPENDIX 2. Atlantic Whitefish Outreach Exit Survey

Question	Answer Options	Additional Info / Comments
1. Describe your level of knowledge pertaining to the Atlantic whitefish and its status prior to BCAF's education and outreach efforts / initiatives.	<ul style="list-style-type: none"> • Unaware • Somewhat aware • Knowledgeable • Informed • Very informed 	
2. Describe how your awareness level changed after hearing / reading BCAF's education and outreach presentations / communications materials.	<ul style="list-style-type: none"> • Unchanged • Slightly increased • Increased • Increased substantially 	
3. Please describe what aspects of BCAF's education and outreach program you found to be most effective and why.		
4. Please describe what aspects of BCAF's education and outreach program you found to be least effective and why.		
5. After reviewing / observing BCAF's education and outreach program, would you be willing to take measures in your personal life to assist in the recovery of the species?	<ul style="list-style-type: none"> • More willing • Less willing • Willingness unchanged 	
6. If you are willing, briefly describe what measures you would take to positively impact the status of the Atlantic whitefish in Lunenburg County, NS.		



APPENDIX 3. Atlantic Whitefish Display Poster at the Fisheries Museum of the Atlantic, Lunenburg.



Current Work

Atlantic whitefish Conservation & Recovery Team

Atlantic whitefish Fast Figures

Lateral line scales:	90
Salinity it can tolerate	31
Number of fins:	6
# of Legislation it is protected by:	4
# of Lakes it occurs in:	3
# of Watersheds it occurs in:	1

In 1999 the Atlantic whitefish Conservation & Recovery Team was formed in response to the Atlantic whitefish's appointment as **endangered** under COSEWIC (Committee on the Status of Endangered Wildlife in Canada) in 1984 (and confirmed in 2000). This group is made up of Dept of Fisheries & Oceans, Dept of Agriculture and Fisheries and other government officials, community members and concerned individuals. The Recovery Team hopes to see the establishment of a viable population in the Petite Riviere.


Atlantic whitefish Projects

Action you can take

- Share with others about the state of the Atlantic whitefish
- Practice low-impact recreation in the watershed
- Observe fishing and other environmental regulation

★ Achieve a balance between the needs and interests of the community and the fish species in the Petite Riviere watershed.

★ Determine if small-mouth bass, an introduced piscivorous species is preying on the Atlantic whitefish.



★ Determine what the Atlantic whitefish population is in the Petite Riviere watershed.



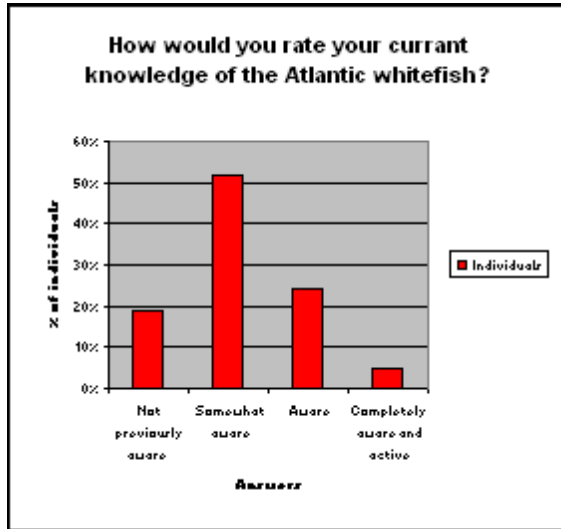
APPENDIX 4. Atlantic Whitefish Watershed Survey Results

Return rate: 21/334 = 6%

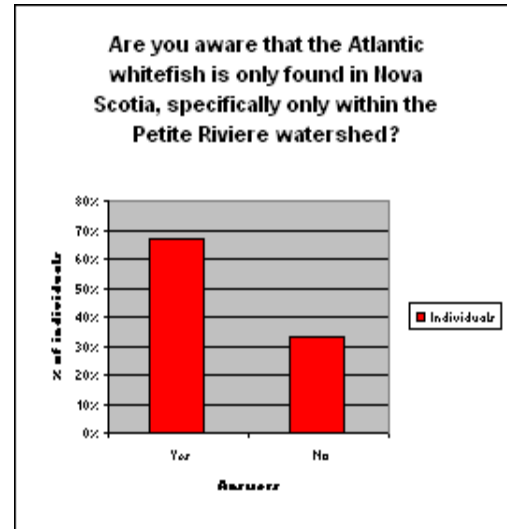
Questions	Answers	Percent
How would you rate your current knowledge of the Atlantic whitefish	Not previously aware	19%
	Somewhat aware	52%
	Aware	24%
	Completely aware and active	5%
Are you aware that the Atlantic whitefish is only found in Nova Scotia, specifically the Petite Rivière watershed?	Yes	67%
	No	33%
Are you aware that the Atlantic whitefish is an endangered species?	Yes	67%
	No	33%
Are you aware of the actions you can personally take to support the recovery of the Atlantic whitefish?	Yes	24%
	No	76%
Does the rate of natural habitat loss within Nova Scotia cause you to be concerned?	Yes	91%
	No	9%
Are you familiar with the work of the Bluenose Coastal Action Foundation?	Yes	24%
	No	76%
Please circle all of the following descriptions that apply to you:	Student	0%
	Tusket River landowner / resident	0%
	Angler	33%
	Interested in learning more about the Atlantic whitefish	33%
	Petite Rivière landowner / resident	48%
	Lunenburg County resident	95%
	Outdoor enthusiast	53%
Environmentally concerned citizen	76%	



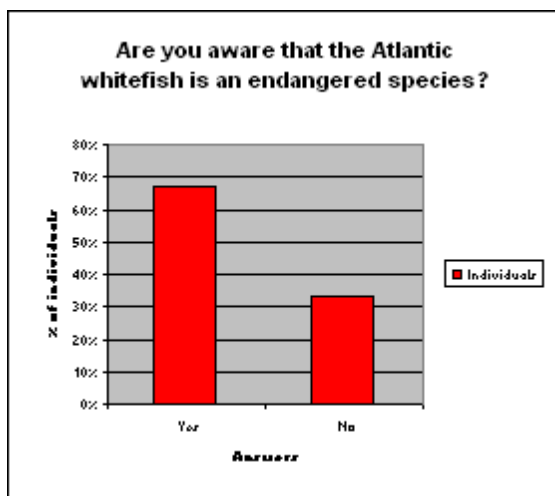
APPENDIX 4 con't. Graphic Representation of Atlantic Whitefish Watershed Survey Results



Graph 1. Present knowledge of Atlantic whitefish.



Graph 2. Aware of present location of Atlantic whitefish.



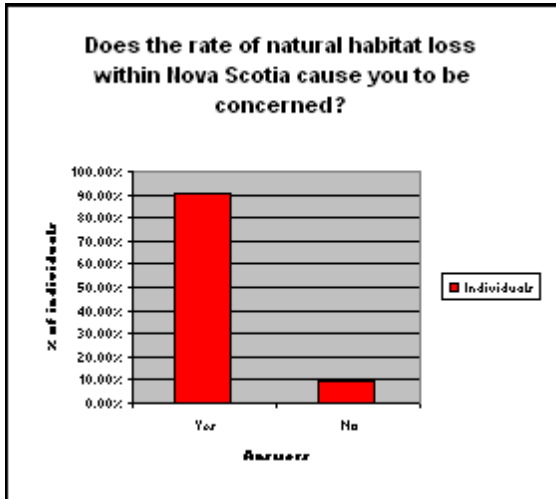
Graph 3. Aware that Atlantic whitefish is endangered.



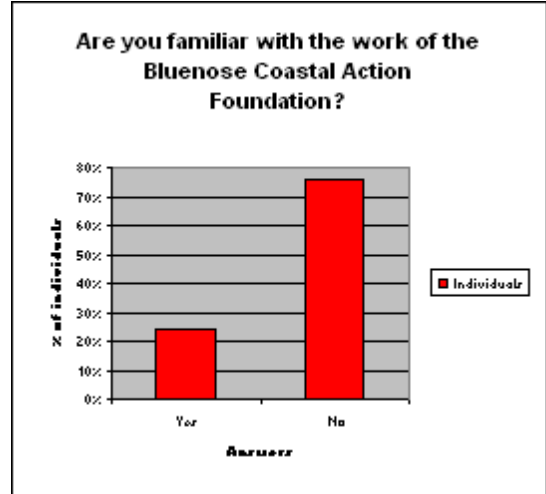
Graph 4. Aware of recovery actions in support of Atlantic whitefish.



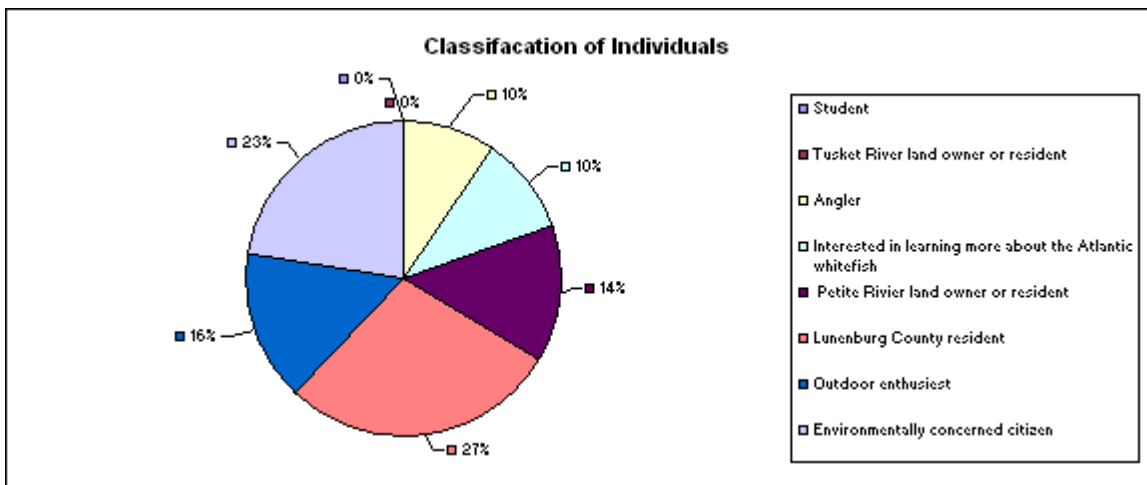
APPENDIX 4 con't. Graphic Representation of Atlantic Whitefish Watershed Survey Results



Graph 5. Concerned about natural habitat loss



Graph 6. Familiar with Bluenose Coastal Action Foundation.



Graph 7. Breakdown of survey respondents.

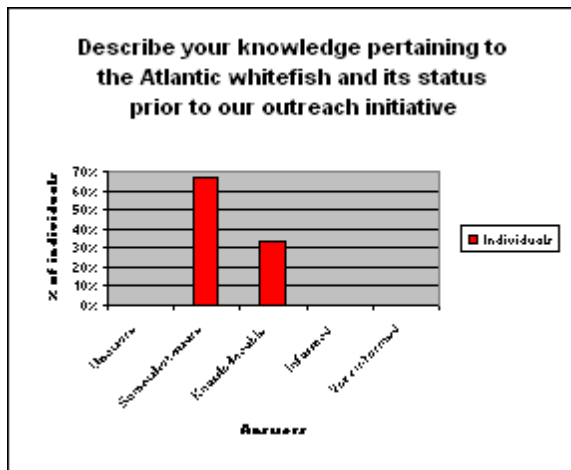


APPENDIX 5. Atlantic Whitefish Outreach Exit Survey Results

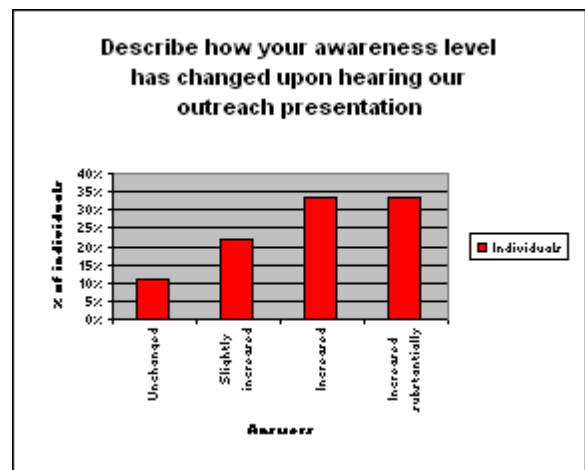
Return rate: 11/334 = 3.5%

Questions	Answers	Percent
Describe your level of knowledge pertaining to the Atlantic whitefish and its status prior to BCAF's education and outreach efforts / initiatives.	Unaware	0%
	Somewhat aware	67%
	Knowledgeable	33%
	Informed	0%
	Very informed	0%
Describe how your awareness level changed after hearing / reading BCAF's education and outreach presentations / communications materials.	Unchanged	11%
	Slightly increased	22%
	Increased	34%
	Increased substantially	33%
After reviewing / observing BCAF's education and outreach program, would you be willing to take measures in your personal life to assist in the recovery of the species?	More willing	56%
	Willingness unchanged	34%
	Less willing	0%

Graphic Representation of Atlantic Whitefish Outreach Exit Survey Results



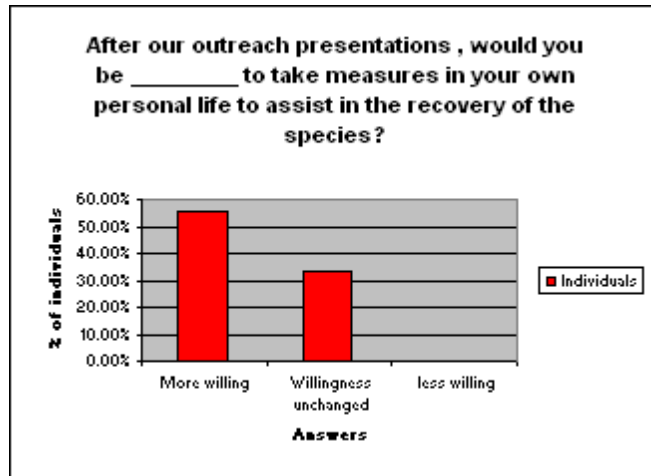
Graph 1. Knowledge of Atlantic whitefish prior to outreach efforts.



Graph 2. Change in level of awareness after outreach efforts.



APPENDIX 5 con't. Graphic Representation of Atlantic Whitefish Outreach Exit Survey Results



Graph 3. Willingness to personally assist in recovery of Atlantic whitefish.



APPENDIX 6. Smallmouth Bass Sampling and Diet Analysis Results

Species Key

Latin Name	Common Name
Ephemeroptera	Mayfly
Odonata	Dragonfly & Damselfly
Trichoptera	Caddisfly
Hirudinea	Leech
Megaloptera	Fishfly & Dobsonfly
Coleoptera	Beetle

Sample #	Lake	Species	Date (D/M/Y)	Total Length (cm)	Weight (g)	Gonad Weight (g)	Sex	Water Temp (°C)	% CC	Stomach Mass (g)	Stomach Contents	Percent %
1	Minamkeak	SMB	16/05/06	46.5	1348	160	F	14.8	100	24	Ephemeroptera – 2 Odonata – 1	66 33
2	Minamkeak	SMB	16/05/06	42.8	1044	128	F	14.8	100	16	Trichoptera (limnephilidae) – 2 Odonata (Gomphidae) – 1 Vertebrate - fish with 2 otoliths	66 33
3	Minamkeak	SMB	16/05/06	45.2	1224	122	F	14.8	100	22	Trichoptera (limnephilidae) – 1 Odonata (Gomphidae) – 1 Odonata (Libellidae) – 2 *Note: hook in stomach	33 66
4	Minamkeak	SMB	16/05/06	42.5	948	8	M	14.8	100	14	Odonata (Libellidae) – 1 Trichoptera (limnephilidae) – 2	14 86
5	Minamkeak	SMB	16/05/06	44	1272	122	F	14.8	100	16	Trichoptera (limnephilidae) – 1 Odonata (Gomphidae) – 1	92 8
6	Minamkeak	SMB	16/05/06	40.4	822	96	F	14.8	100	10	Odonata (Gomphidae) – 1 Trichoptera (limnephilidae) – 9	10 90
7	Minamkeak	SMB	16/05/06	42	948	94	F	14.8	100	10	Trichoptera (limnephilidae) – 17 Odonata (Libellidae) – 1 Odonata (Gomphidae) – 2 *Note: yellow grub present on organs	85 15
8	Minamkeak	SMB	16/05/06	42.2	1106	112	F	14.8	100	12	Nothing in stomach or intestines	

9	Minamkeak	SMB	16/05/06	42.9	1090	140	F	14.8	100	10	Odonata (Gomphidae) – 2 Trichoptera (limnephilidae) – 2	50 50
10	Minamkeak	SMB	16/05/06	43.1	1040	122	F	14.8	100	18	Trichoptera (Helicopsychidae) – 1 Trichoptera (limnephilidae) – 2 Trichoptera (rhyacophilidae) – 1 Trichoptera (polycentropodidae) – 1 Ephemeroptera (ephemeridae) – 1 Odonata (micromidae) – 1 Odonata (libellididae) – 3 Vertebrate – fish; unidentified bones	50 10 40
11	Minamkeak	SMB	16/05/06	40	822	86	F	14.8	100	10	Trichoptera (limnephilidae) – 1	100
12	Minamkeak	SMB	16/05/06	39.2	798	86	F	14.8	100	16	Odonata (Gomphidae) – 1 Odonata (libellididae) – 1	100
13	Minamkeak	SMB	16/05/06	37.4	690	84	F	14.8	100	12	Odonata (libellididae) – 6 Odonata (aeshnidae) – 4 Odonata (Gomphidae) – 6	100
14	Minamkeak	SMB	16/05/06	24.6	188		M	14.8	100	6	Odonata (libellididae) – 6 Trichoptera (rhyacophilidae) – 2 Megaloptera: corydalidae – 2 Bones – unknown source	60 20 20
15	Minamkeak	SMB	16/05/06	212	360	30	F	14.8	100	6	Odonata (libellididae) – 4 Odonata (aeshnidae) – 3 Hirudinea: pisciolidae – 1 Trichoptera (limnephilidae) – 2	70 10 20
16	Minamkeak	SMB	16/05/06	32.2	398		M	14.8	100	10	Odonata (Gomphidae) – 4	100
17	Minamkeak	SMB	16/05/06	26.4	210		M	14.8	100		Coleoptera (Haliplidae) – 1 Coleoptera (Gyrinidae) – 1 Hirudinea: erpobodellidae – 4 Odonata: anisoptera – 1 Trichoptera (rhyacophilidae) – 2	22 44 11 22
18	Minamkeak	SMB	05/07/06	38.3	638		M	22	75	8	Trichoptera (limnephilidae) – 5 Vertebrate – 3 Unknown – 1	55 33 11
19	Minamkeak	SMB	05/07/06	34.9	442		M	22	75	4	Empty Yellow grub	
20	Minamkeak	SMB	05/07/06	23.7	148	4	F	22	75	4	Ephemeroptera: Ephemeridae	100
21	Minamkeak	SMB	05/07/06	24.3	162	2	F	22	75	4	Empty	
22	Minamkeak	SMB	05/07/06	23.9	128		F	22	75	4	Unknown	



23	Minamkeak	SMB	05/07/06	32.9	430	10	F	22	75	6	Empty	
24	Minamkeak	SMB	12/07/06	39.5	732	12	F	20-21	0	12	Empty	
25	Minamkeak	SMB	12/07/06	39.7	760		F	20-21	0	22	Vertebrate	100
26	Minamkeak	SMB	12/07/06	26.4	200		M	20-21	0	1	Yellow Grub Unknown	
27	Minamkeak	SMB	12/07/06	29.2	272	4	F	20-21	0	4	Wasp – 1 Adult dragonfly – 1 Ants – 2	25 25 50
28	Minamkeak	SMB	12/07/06	317	380		M	20-21	0	6	Empty	
29	Minamkeak	SMB	12/07/06	36.8	640	6	F	20-21	0	10	Vertebrate	100
30	Minamkeak	SMB	12/07/06	38.8	668		M	20-21	0	8	Empty	
31	Minamkeak	SMB	12/07/06	35.1	532	4	F	20-21	0	10	Vertebrate Adult dragonfly – 1	50 50
32	Minamkeak	SMB	12/07/06	32	426		M	20-21	0	14	Vertebrate with otolith	
33	Minamkeak	SMB	12/07/06	28.4	252		M	20-21	0	8	Vertebrate	100



APPENDIX 7. Project Partners

BCAF would like to acknowledge and thank our many AWRP partners and supporters. Without the generous contributions of these groups and individuals, BCAF would not be able to deliver all the various components of the Atlantic Whitefish Recovery Project.

A special thanks to the dedicated members of the Atlantic Whitefish Conservation and Recovery Team (AWC&RT) who help guide the project through their combined knowledge, expertise, and advice; as well as brainstorm new ideas for future project components and funding opportunities. Committee members include:

- Fisheries and Oceans Canada, Science Branch – Rod Bradford, Shane O’Neil, John Whitelaw
- Fisheries and Oceans Canada, Communications Branch – Tracie Eisener
- Fisheries and Oceans Canada, Conservation & Protection Branch – Bill Wolfe, Rollie Burgess
- Fisheries and Oceans Canada, Habitat Management Division – Thomas Wheaton, Dave Longard
- Fisheries and Oceans Canada, Species at Risk Coordination Office – Kim Robichaud-LeBlanc, Heidi Schaefer
- Fisheries and Oceans Canada, Fisheries Management Branch – Greg Stevens, Ian Marshall
- Fisheries and Oceans Canada, Policy and Economics Branch – Rob MacIntosh
- Department of National Defense – Jeremy Gammon
- NS Department of Fisheries and Aquaculture – Jason LeBlanc
- Bridgewater Public Service Commission – Mike Fox
- Nova Scotia Power Inc. – Ken Meade
- South Shore Naturalists – Jill Comolli
- Dalhousie University – Adam Cook
- Nova Scotia Museum of Natural History – John Gilhen
- Petite Rivière Anglers – Chris Gill

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- Environment Canada’s Atlantic Coastal Action Program
- Nova Scotia Student Career Skills Development Program
- Habitat Stewardship Program for Species at Risk
- Community donations

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