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**Recreational Fisheries Advisory Council  
Minutes of the 2013 RFAC Meeting****Area 5**

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**Date Prepared:** December 6, 2013*Annapolis, Kings, and Hants Counties*

The RFAC meeting for Area 5 was held on November 12, 2013 at the Old Orchard Inn in Wolfville, Nova Scotia. In addition to Nova Scotia Department of Fisheries and Aquaculture staff, there were 18 people in attendance. Jason LeBlanc, Biologist, Inland Fisheries Division chaired the meeting while, manager Al McNeill, Resource Management from the Nova Scotia Department of Fisheries and Aquaculture and Greg Stevens from Fisheries and Oceans were also present. The meeting began at 6:30 pm with a brief introduction of those present, and a review of the agenda by the Chair.

**Licencing Update / Strategic Planning Initiative**

Al provided licence sales data for 2012 and past years. Total general fishing licence sales in 2012 were 68,347 which was an increase of 8.5% over 2011 and an increase of over 36% of 2005 sales. Salmon licences were down slightly in 2012 at 2,301. Salmon licence sales have been very consistent between 2,200 and 2,500 since 1998, reflecting the popularity of this fishery in spite of the fact that many rivers are currently closed to angling.

Al indicated the Department is in the final stages of publication of a report on the results of the 2010 survey of Sportfishing in Nova Scotia. He indicated that this is an important source of information of catch and effort statistics, angler opinions and preferences as well as expenditures on recreational fishing. The Division will be briefing the new minister and cabinet on the importance of the recreational fishery which was worth \$56 million in 2010.

The Nova Scotia Sportfish Habitat Fund received a budget of \$332,368 in 2013, based on 2012 licence revenues. Twenty-four community groups were involved in 2012. Total funds to Adopt-a-Stream were \$290,000 in addition to \$100,000 in funding from the Nova Scotia Liquor Commission. Five other projects received funding in 2013, the West River Sheet Harbour Lime doser project, a liming project on the Medway River, and three boat launch/ barrier-free projects were funded. Al reminded those present that the Sportfish Habitat Fund provides money to projects that improve angler access to the resource such as boat ramps and fishing piers, and encouraged anglers to review the on-line application and consider submitting projects before the March 1, 2014 deadline.

Al also provided the names of the nine groups which qualified for the 2013 Atlantic Salmon Conservation Fund for Nova Scotia. The call for proposals for 2014 closes on Dec 13, 2013. Interested groups can visit the website: [www.salmonconservation.ca](http://www.salmonconservation.ca) for details and to find out which projects were funded in 2013 and earlier.

## **2013 Regulation Changes and Proposed Changes for 2014**

Al reviewed the 2013 regulation changes from page 3 in the Angler's Handbook. Al also reviewed the Proposed changes for 2014 on page 5. Al noted that the first proposed change – a review of spawning season restrictions for smallmouth bass would be covered in Jason LeBlanc's presentation.

### Live Fish Possession Regulations

Al summarized the implementation of aquatic invasive species regulations which now prohibit, in most circumstances, the possession of live fish in Nova Scotia. This regulation is particularly important to slowing or stopping the illegal introduction of fish into the Province's important speckled trout habitat. Anglers are generally pleased with the Department's approach towards aquatic invasive species management.

There were no other regulations changes or proposed changes for RFA 5.

## **Agenda Items from the Floor**

Stephen Jollymore, Hants West Wildlife Association, spoke to an apparent shut down of water flows on the Annapolis River, near Middleton by Nova Scotia Power which negatively impacted shad. He suggested that the Department contact NSPI regarding flow during shad season and that we recommend to DFO that shad be categorized as a sportfish. Stephen added that he feels harvest in the tidal areas is too high on shad and it is also impacted the fishery. Greg Stevens, DFO, noted that there is currently no commercial harvest of shad on the Annapolis. He also added that shad numbers look good in other areas (eg. Shubenacadie, Stewiacke) but have declined in other areas (eg. LaHave River, and the US). Jeremy Broome suggested that there may be some hook and release mortality issues with shad.

Gary Josey raised concerns about new occurrences of chain pickerel throughout the Lahave River watershed. He reported catches in Wentzell's Lake, Sherbrooke Lake and Lake Paul. John Duron added that chain pickerel are now widespread throughout the Gaspereau River system and are having noticeable impacts on forage fish and frogs in Gaspereau Lake. Mike Brylinski reported catching chain pickerel in Sherebrooke Lake.

Gary Josey mentioned that in-season closures in place on the LaHave River unnecessarily restrict smallmouth bass angling on a portion of Wentzell's Lake to single hook lure or artificial fly only. The map in the Anglers Handbook mistakenly depicts the North Branch LaHave River flowing into the main stem of the LaHave upstream from Wentzell's lake. It actually flows directly into Wentzell's Lake. It was suggested to begin the fly fishing or single hook lure boundary 200 m upstream from it's confluence with Wentzell's Lake. It was also suggested that signage pertaining to closed areas be added at the boat launches such as the one at Wentzells Lake and New Germany Lake as these places are where anglers enter the watershed.

Mike O'Brien, Hants West Wildlife Association, indicated that historically anglers were able to fish on the Cornwallis River until October 31 but that the season now ends September 30. He requested that we re-examine this.

Mike O'Brien, Hants West Wildlife Association, suggested that it is very unlikely that inner Bay of Fundy salmon stocks would recover on rivers such as the Kennetcook, Meander, Herbert or St. Croix but that these rivers have suitable habitat and an abundance of pools which could offer angling opportunities for brown trout or rainbow trout. He requested that we consider stocking these species in the rivers above. Al McNeill spoke to the steady displacement of speckled trout by brown trout where they co-

exist and that our current policy is to supplement brown trout only where they currently exist. Rainbow trout are utilized in specific lakes as part of our enhancement activities (eg. winter fisheries). Another option to consider would be to stock sea-run speckled trout or consider using rainbow trout, for put-and-take fisheries in lakes that contain smallmouth bass.

Jeremy Broome suggested that we link popular fishing areas or areas with specific regulations to GPS points so anglers can find them easier. Al McNeill suggested that we have developed maps on our website for more areas than we have space to publish in our Anglers Handbook because of space restrictions and the budget allocated for printing the booklet. Greg Stevens added that maps are useful information but that enforcement staff are restricted to specific coordinates that are listed in regulation in order to prosecute infractions.

## **Guest Speaker:**

### **Movement patterns of striped bass in the Minas Passage and Minas Basin**

Freya Keyser, a graduate student at Acadia University gave a presentation on the temporal and spatial movement patterns of striped bass in the Minas Passage and Minas Basin of the Bay of Fundy. The energy industry is currently researching the use of tidal energy turbines in the Minas Passage. A test site for these turbines has been identified in the Minas Passage, and is known as the FORCE test site. Before turbine installation and testing can begin, it is important that the environmental impacts that the turbines could have be examined. She indicated that she chose to study the Bay of Fundy striped bass population because they are an endangered species.

To determine whether striped bass are at risk during the turbine testing, Freya examined their movement patterns using acoustic telemetry. Acoustic transmitters were surgically implanted in 85 fish from three river systems (Stewiacke, Grand Pre and Kingsport) and 29 acoustic receivers were deployed in the Passage to detect and log the pings of the transmitters. Each transmitter ping is coded with an identification number and depth information, and this information is recorded by the receiver.

Over 11,000 individual fish detections were recorded from the receiver arrays. Some detections showed that striped bass interaction with proposed turbines are possible and larger individuals are at greater risk due to deeper swimming depths. Freya added that risk also depends on the ability of striped bass to avoid turbines which will require behavioural studies near turbines.

Other conclusions from this study indicate that striped bass are present in the Minas Passage year-round and make multiple movements through the Minas Passage. Future research on this topic will include DNA analysis to indicate which river striped bass in the Mina Basin originate from, determining if migration patterns vary between stocks, confirming when striped bass leave their spawning grounds and enter the Minas Basin and how striped bass are using the near-shore areas of the Minas Basin. There was some discussion about how striped bass are able to swim in such fast currents. Stephen Jollymore suggested striped bass are able to negotiate the fast current of the Annapolis basin quite well.

## **Hatchery Report / Trout & Salmon Enhancement**

Al McNeill, manager, gave a brief overview of the provincial fisheries enhancement programs on behalf of Mike McNeil, Manager of the McGowan Lake Hatchery. The Dept. of Fisheries & Aquaculture

operates three hatcheries, Fraser's Mills Hatchery in Antigonish Co., McGowan Lake Hatchery in Queens Co., and Margaree Hatchery in Inverness County. He distributed the Spring and Fall stocking lists and noted they are both on the Departmental web site, <http://www.gov.ns.ca/fish/sportfishing/>.

### **Spring Trout Stocking**

In an effort to sustain the very popular recreational trout fishery, each spring the hatcheries stock approximately 200 lakes across Nova Scotia. Most of these are stocked with brook trout; additionally, over 20 lakes are provided with Rainbow trout from the Fraser's Mills Hatchery. In recent years much of this stocking activity has been directed to lakes in populated centers, providing recreational angling opportunities to an increasingly urban population and helping to maintain an important sportfishing industry. There are now over 25 wheelchair accessible, barrier-free facilities in Nova Scotia. Most are located on sites that receive trout from the hatcheries. Last year trout were made available to support over 60 of the Department's Learn to Fish projects. As well, approximately 50 trout fishing derbies sponsored by volunteer organizations received trout from the hatcheries.

### **Fall Trout Stocking**

Trout stocking with finger-sized juvenile trout is carried out in October and November. Lakes stocked in the fall are typically more remote than the spring-stocked lakes, but still have significant fishing pressure. These fish are presumed to grow for a season before becoming large enough to contribute to the creel. Approximately 175 lakes receive brook trout in the fall. Most Brown trout stocking takes place at this time of year. The majority of brown trout stocking takes place in rivers where the fingerlings have access to estuaries where they can grow quickly.

### **Winter Trout Stocking**

Winter is long and cold. Nova Scotians are encouraged to remain active all year and many do so by getting out and enjoying time ice fishing for trout. Twenty lakes, including the Bras d'Or Lakes, are stocked in November and December in anticipation of the winter season. All Rainbow trout stocking for RFA 5 is conducted out of the Frasers Mills Hatchery. Unfortunately, due to a power surge, pumps and a backup generator failed, resulting in a major loss of rainbow trout. Consequently, the lakes scheduled to receive rainbow trout for the winter fishery will get brook trout instead. These should provide an exciting angling opportunity this winter. Seasons and bag limits will be changed to allow for retention of Speckled trout in these stocked lakes. Sunken Lake will not be stocked this winter but will be stocked in the spring with Rainbow trout.

### **Atlantic Salmon Enhancement Program**

2013 was the seventh year that the Department of Fisheries & Aquaculture has been working to support the Atlantic salmon and enhance the fishery. Fall parr were provided for Waughs River, Colchester Co., Margaree River, Inverness Co. and Middle River, Victoria County. It is unlikely that the fall salmon season on the Middle River and Baddeck River (stocked 2010-2012) would have been permissible without the stocking program. This fall the Margaree Hatchery was utilized to provide parr for the Middle River.

With assistance from many volunteers, successful broodstock collections took place on Waughs' River, Middle River, Baddeck River, Mabou River and Margaree River.

In addition to providing brook trout for local watersheds and selected sites on Cape Breton Island, the Margaree hatchery typically supplies 130,000-160,000 parr each fall and 30,00-40,000 Atlantic salmon smolt in the spring, for the Margaree River. The value of the Atlantic salmon fishery to the Margaree community is estimated to exceed \$4,000,000.00 per year.

The N.S Dept. of Fisheries & Aquaculture has been working with DFO, for the past few years, to find ways to expand the number of rivers where Atlantic salmon populations can be enhanced from the Margaree hatchery. This fall, in addition to the Margaree River Broodstock, salmon from Baddeck, Middle and Mabou Rivers are now held at Margaree Hatchery to provide eggs for next year's production. Broodstock from Waugh's River are held at Fraser's Mills Hatchery.

### **Community Based Enhancement Facilities**

A number of community-based fishery organizations operate small scale hatcheries or incubation boxes. Trout and, in some cases, salmon eggs are delivered to these in late winter. The fry hatch in early spring and when they have developed to the point where they are able to begin feeding on their own, they are released. This usually takes place in early to mid-May. Over the last few years there were operations in New Waterford, Port Morien, Coxheath, Isle Madame, Mulgrave and Tatamagouche.

### **Fish Friends**

Fish Friends is an educational program, sponsored by the Nova Scotia Salmon Association and maintained through the hard work of many dedicated volunteer organizations. Aquarium units are set up in participating school class rooms and teachers are provided with educational material about the salmonid life cycle. Children get to watch the eggs hatch, and the fry develop. They feed them for a few weeks and then release them into a local stream. Last year the hatcheries were able to provide eggs to approximately 60 Fish Friend projects.

### **Review of 2013 Field Activities**

#### **Coldwater Species Management**

Al McNeill provided an update on the 2012 field activities related to speckled trout. Assessments were conducted to evaluate angler catches in two sea run trout fisheries on the East River of Pictou and the Cornwallis River.

Anglers were counted and interviewed to measure activity and their catch at ten popular angling sites. Estimated total angler effort spent on the Cornwallis River between 1 April and 29 May was 2867 hours and resulted the catch of 689 brown trout and 50 speckled trout. The harvest based on the proportion of the catch that was retained was 63 brown trout and zero speckled trout. Harvest estimates were small for trout and the high release rate practiced by anglers in the Cornwallis River suggest that the impact of angling on the sport fish resource is minimal. The high release rate practiced by anglers in Cornwallis differs from the results of most sea run fishery assessments. Environmental conditions that are impacted by agricultural activities and other development probably have a much larger impact on the fish populations and sportfishery. Habitat restoration and protection measures to address issues that relate to livestock access, nutrient loading, irrigation, and improving buffer zones impacting the Cornwallis River system need to be continued.

Gary Lynch fishes the Cornwallis River regularly and suggested that the majority of effort is directed towards large brown trout although there are still some good size speckled trout as well. It was requested that we consider extending the season for brown trout to October 31.

Mike Brylinsky asked why there are so few speckled trout in the system relative to brown trout. Al McNeill suggested that brown trout exhibit a competitive advantage in most circumstances.

An angler creel survey on East River of Pictou was undertaken between 14 and 23 May during 1998, 1999, 2000 and 2013. Total angler counts for each year ranged from a low of 71 in 2013 to a high of 114 in 2000. Catch of speckled trout ranged from a low of 25 in 1999 to a high of 32 in 2013. Mean length and weight was relatively small in 1998 and greatest in 2013. Catch of speckled trout per hour ranged from 0.18 and 0.24 and was relatively consistent. In 2013, the catch of brown trout was greatest at 0.03 per hour of angling. Weather conditions among years, differences in trout abundance can influence angling activity (angler counts) and catch. An increasing trend was apparent in the proportion of brown trout in the total trout catch. The proportion of brown trout in the overall catch is of particular concern as the spring catch in other systems such as River John, Waugh's River and Barneys River are dominated by brown trout. Further study may reflect a changing fishery toward more non-native brown trout in the catch from the East and West rivers of Pictou. There are a number of reasons as to why the catch may be changing. Brown trout tend to be difficult to catch and live longer and thus grow to a larger size compared to speckled trout. Browns are tolerant of warmer conditions and these characteristics enable a competitive advantage over speckled trout. The proportion of trout released was 0.27 for speckled trout and 0.11 for brown trout caught. Retention rates are usually greater during sea run fisheries. Provincially, the release rate of speckled trout was 0.65 in 2010.

An intensive study is planned for 2014 to obtain a more detailed picture of the status of the trout fishery in the East River of Pictou. The study will involve tagging trout prior to the opening of the angling season with volunteers from the Pictou County Rivers association. Tagged trout will be released back in the river and they will mix with unmarked trout. The tagging will be followed by an angler creel survey for the first month of the season. The number in the population of trout can be estimated if enough tagged trout occur in the catch of anglers. The next objective will be to obtain and estimate of the number of trout harvested from the creel survey. An improved understanding of the importance of exploitation could be obtained from estimates of the number in the trout population and the number harvested. Inland Fisheries has limited resources to be used toward the type of intensive study that is planned for 2014. A significant volunteer effort will be required to participate in the capture of trout during the tagging process prior to the opening of the angling season.

Reports of the two creel surveys are available.

## **Freshwater Fisheries Research Cooperative**

The Freshwater Fisheries Research Cooperative (FFRC) was established seven years ago to facilitate applied research with universities and government agencies. This initiative was set up to address fisheries management questions and the interests of anglers and the Inland Fisheries Division. In 2013, a total cash investment of 30k dollars was made toward FFRC projects and a total in-kind was 132k dollars. In-kind contributions were associated with labour, supervisory, and equipment from partners. In 2013, the following six FFRC partnerships received funding : 1) Freshwater Fish parasite distribution, Dr. David Cone, St Mary's University, 2) Evaluation of stream restoration, Kris Hunter, St FX University, 3) Smallmouth bass trophic level and mercury assessment, Dr. Lind Campbell, St Marys University ,4)

Striped Bass tracking in Mira River, Colin Buhariwalla and Dr. Mike Dadswell, Acadia University, and 5) Evaluation of DNA of speckled trout in small streams in Annapolis Valley, Dr. Daniel Ruzzante, Dalhousie University.

Dr. David Cone, St Mary's University is collecting information on common trout parasites that inhabit lakes and rivers throughout Nova Scotia. Two brochures on the black spot and the gill maggot parasite have been developed. Another on internal parasites is planned for this year. Brochures are used to inform and facilitate the collected of information from anglers on the distribution of common parasites.

Kris Hunter, Saint Xavier University, 2013 was year three of a ten year study on water chemistry, habitat and electrofishing results will be assessed to evaluate the impacts of commonly used in-stream restoration initiatives to improve habitat for trout and salmon. For the first five years the eight sites will be monitored on an annual basis to assess habitat and fish populations. In year five, four of the eight sites will be restored and monitoring will continue for another five years post-restoration. Long term studies are needed to evaluate annual natural fluctuations in order to obtain a true picture of the impacts of restoration.

Colin Buhariwalla and Dr. Mike Dadswell, are undertaking a striped bass tracking project in Cape Breton. Very little is known about the origin of stripers that frequent waters of Bras d'Or Lakes and in Cape Breton rivers and estuaries. Some may be long distance migrants from USA and use waters of Cape Breton as a feeding area. There also may be a small spawning population in Cap Breton. With the help of many volunteer anglers, bass were caught and measured and an acoustic tag was inserted in the body cavity. Acoustic tags put out signals (sounds) that are detected by receivers that are in place in the Bras d'Or Lakes, Maritimes and along the Eastern Seaboard. Fourteen stripers in the Mira River were implanted with tags. There is an array of 14 receivers deployed in the Mira River. No DNA results yet. In 2012 seven striped bass overwintered in the Mira River, exhibiting spawning-like behavior in spring, but so far, no eggs or juveniles detected in the River.

Dr. Daniel Ruzzante, Dalhousie University, DNA of speckled trout from 16 sites in 14 streams on North Mountain, Annapolis Valley, was assessed. The purpose will be to evaluate populations upstream and downstream from barriers and assess the how different populations are based on their proximity from one another.

Dr. Linda Campbell, St Mary's University is evaluation mercury levels in fish in lakes and evaluating trophic levels of species within populations.

The new lake Inventory Program is an updated version of our Lake Survey Program. New Geographic Information Systems (GIS) equipment has been used by Reginald Madden, Fisheries Technician, to collect high quality data and produce bathymetric maps of lakes in Nova Scotia. Sampling methodologies have been improved to increase efficiency. The plan is to sample five to ten lakes each year and add to the current database of lakes in Nova Scotia.

## **Review of Smallmouth Bass Regulations**

Jason LeBlanc reviewed Special Bass Management Area Regulations which have been in place in several Recreational Fishing Areas since 2001. The primary goal of these regulations is to shift the size structure of bass in these lakes to favor growth and higher mean sizes of bass in selected populations, thereby increasing the opportunity to catch larger bass. This can be accomplished through restricting

angling to catch and release during the spawning season (May 1 to June 15), reducing the bag limit on larger fish to three (3) per day and implementing a maximum size limit of 35 cm (14 in). Fourteen lakes throughout Nova Scotia have these regulations in place and others have been suggested. The proposed lakes for inclusion in Special Management Areas for smallmouth bass starting in the 2014 angling season were discussed. There was general support to include Aylesford Lake, Kings County and Vaughn Lake, Yarmouth County for these regulations. Other lakes may be considered as additional information is collected. Jason also indicated that the effectiveness of these regulations will be assessed in the coming years and factors other than regulations, such as productivity, acidity and simplistic littoral zones and forage communities may be equally important to maintaining healthy bass populations.

## **Invasive Species Initiatives**

Jason LeBlanc provided an overview of some of the invasive species initiatives the Department is involved in. Aquatic invasive species may be defined as organisms that, when introduced, have or are likely to have harmful consequences to other fish, fish habitat or the use of fish. The two most serious concerns for Nova Scotia continue to be smallmouth bass and chain pickerel which have had documented negative impacts on native fish communities. Jason reviewed some of the know impacts aquatic invasive species may have on fish communities, which include but are not limited to: disrupted food webs, direct predation, competition for limited habitat and prey, habitat loss, truncated fish sizes and reduced abundances of native fish species. Jason discussed some recent research on the impacts of chain pickerel which show almost complete absence of other fish species where pickerel have established. It is hoped that proposed Federal regulations will provide some important tools to better manage invasive species. Aspects of these regulations will complement existing Live Fish Possession Regulations which were implemented in 2013 by the Department of Fisheries and Aquaculture. The primary goal of invasive species management is clearly to prevent further spread of smallmouth bass and chain pickerel and prohibit new species from being illegally introduced to Nova Scotia. The Inland Fisheries Division hopes to accomplish this through four key areas: (1) Outreach and Education, (2) Legislation and Enforcement, (3) Research and Monitoring, and (4) Collaborative Projects. Jason highlighted some important accomplishments in each of these areas and indicated aquatic invasive species initiatives will continue to be an important Department priority.

## **Education / Extension Programs**

Al McNeill reviewed the education and extension programs that were completed in 2013. Al explained that Tara Marshall has accepted a position with DNR in Truro and we wish her well with her new job. Al said the Division will be re-staffing the Sportfish Development Officer position, and hope to have someone in place by Christmas. Al explained the L2F (learn to fish) program and gave an overview of the participation rates since 2006. In 2013 the L2F program was delivered to almost 2,000 students over 62 workshops around the province. In addition to schools, L2F was delivered to Boy Scouts, Girl Guides and Brownies, summer day camps, the IWK Children's Hospital, and Millbrook First Nation. Mike O'Brien added that it is difficult to break establish L2F in the Middle Schools. Al thanked the Hants County Wildlife Association for their contributions to the L2F Program. The first job for the new officer will be to review the 50+ requests on file and build the 2014 L2F schedule.

Al reviewed the educational partnerships and programs with Department of Natural Resources throughout the province. Family L2F events were held at Shubenacadie Wildlife Park to celebrate National Wildlife Week. The L2F program was delivered in Lower Sackville to celebrate Kids in the



Forest Day. Al explained the Fishing Tackle program where fishing rods and tackle are loaned free of charge to campers at the following Provincial Parks: Mira River, Boylston, Dollar Lake, Laurie Park, Smiley's, and Ellenwood Park. This program has been very popular. He also gave an overview of the fishing workshops delivered by Department of Natural Resources Education Officers as part of the Parks Education program.

Al reviewed the Becoming an Outdoors Woman (BOW) program, Tara was able to teach trout fishing and tasty fish classes at the BOW in September on her last day of work with us! Al reminded the audience that the Free Fishing week-end for the winter fishery will be February 15, 16 and Winter BOW will be held at the Gaelic College in St. Anns on the following weekend, February 21 – 23.

Al thanked all the volunteer instructors and sponsors for the L2F program.

## **Discussion**

It was requested that we consider opening Nicholas and North River lakes during the winter for chain pickerel, white perch and yellow perch. Both lakes are in the Black River watershed. Jason LeBlanc indicated that we would consult with Nova Scotia Power regarding access or potential water level fluctuation issues.

Scott Cook asked if the Department had any concerns regarding the proposed DFO Fish Habitat Protection regulations. Greg Stevens added that the focus of the new regulations is habitat concerns specific to commercial, aboriginal and recreational fisheries. Al McNeill mentioned that recent reductions in DFO staff in the region may become an issue.