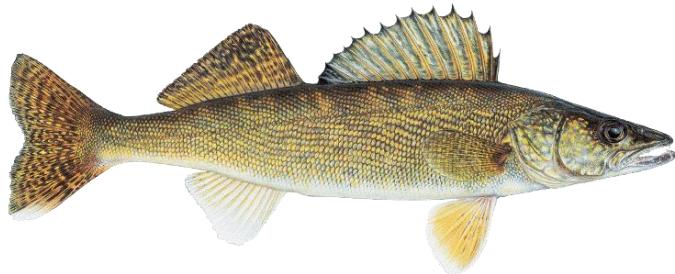


MSC SUSTAINABLE FISHERIES CERTIFICATION

Off-site Surveillance Report - Waterhen Lake Walleye and Northern Pike
Commercial Gillnet Fishery



3rd Surveillance stage

February 2018

Certificate Code: F-ACO-0053
Prepared For: Manitoba Conservation and Water Stewardship Fisheries Branch
Prepared By: Acoura Marine
Authors: Paul Knapman and John Casselman



Assessment Data Sheet

Fishery name	Waterhen Lake Walleye and Northern Pike Commercial Gillnet Fishery	
Species and Stock	Waterhen Lake Walleye (<i>Sander vitreus</i>) and Northern Pike (<i>Esox lucius</i>)	
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1 Introduction

1.1 Scope of Surveillance

This report outlines the findings of the 3rd Annual Surveillance of the Waterhen Lake Walleye and Northern Pike Commercial Gillnet Fishery. The scope of the certified fishery and therefore of this surveillance is specified in the Units of Certification (UOC) set out below:

UoC 1

Species:	Walleye (<i>Sander vitreum</i>)
Geographical area:	Waterhen Lake, Manitoba, Canada
Method of capture:	Gillnet winter fishery
Stock:	Waterhen Lake Walleye
Management System:	Manitoba Conservation and Water Stewardship (MCWS) Department of Fisheries and Oceans, Canada (DFO)
Client Group:	Manitoba Conservation and Water Stewardship, Wildlife and Fisheries Branch

UoC 2

Species:	Northern Pike (<i>Esox lucius</i>)
Geographical area:	Waterhen Lake, Manitoba, Canada
Method of capture:	Gillnet winter fishery
Stock:	Waterhen Lake Northern Pike
Management System:	Manitoba Conservation and Water Stewardship (MCWS) Department of Fisheries and Oceans, Canada (DFO)
Client Group:	Manitoba Conservation and Water Stewardship, Wildlife and Fisheries Branch.

1.2 Aims of the Surveillance

The purpose of the annual Surveillance Report is fourfold:

1. to establish and report on whether or not there have been any material changes to the circumstances and practices affecting the original complying assessment of the fishery;
2. to monitor the progress made to improve those practices that have been scored as below “good practice” (a score of 80 or above) but above “minimum acceptable practice” (a score of 60 or above) – as captured in any “conditions” raised and described in the Public Report and in the corresponding Action Plan drawn up by the client;
3. to monitor any actions taken in response to any (non-binding) “recommendations” made in the Public Report;

4. to re-score any Performance Indicators (PIs) where practice or circumstances have materially changed during the intervening year, focusing on those PIs that form the basis of any "conditions" raised.

Please note: The primary focus of this surveillance audit is assess changes made in the previous year. For a complete picture, this report should be read in conjunction with the Public Certification Report for this fishery assessment which can be found here:

<https://cert.msc.org/FileLoader/FileLinkDownload.ashx/GetFile?encryptedKey=22zfNIOxCSzZ6Rhsa8CqfPlbWX9i7rpUuQui832icYBY16RKS/bOwmMqAIPjMEAY>

1.3 Certificate Holder Details

Manitoba Conservation and Water Stewardship, Fisheries Branch¹ is part of the Manitoba Provincial Sustainability Department².

The following is taken from the Waterhen Lake Integrated Fisheries Management Plan (Klein & Galbraith 2017). The Government of Canada, under the authority of the Fisheries Act (Canada), retains ultimate legal authority and responsibility for fish and fish habitat conservation matters within Canada. However, the daily management and administration of federal fisheries regulations has effectively been delegated to Manitoba officials: The Minister of Conservation and Water Stewardship, the Director of Fisheries, and fishery officers employed by Manitoba.

Under the Manitoba Fishery Regulations (Canada), the Minister of Conservation and Water Stewardship and Director of Fisheries have been given the authority to vary close times, species, quotas and gear types established under those regulations.

Manitoba, under The Fisheries Act (Manitoba), maintains constitutional jurisdiction to make laws relating to the use and allocation of fish in Crown (Manitoba) waters as part of the public property. This includes the right to determine who can fish on provincial Crown land (licensing), what conditions may be included in a licence, and what fee would be paid for the licence. This authority is exercised under The Fisheries Act of Manitoba and regulations to that Act.

Manitoba fisheries management activities are undertaken consistent with departmental policies, strategies, and directives in accordance with specific issues, opportunities and/or priorities.

2 Surveillance Process

2.1 Findings of the original assessment

As a result of the assessment, 3 conditions of certification were raised by the assessment team, and maintenance of the MSC certificate is contingent on the Waterhen Lake Walleye and Northern Pike Commercial Gillnet Fishery moving to comply with these conditions within the time-scales set at the time the certificate was issued. In addition, 13 recommendations were made which, whilst not obligatory, the client is encouraged to act upon within the spirit of the certification.

2.2 Surveillance Activity

2.2.1 Surveillance team details

This off-site surveillance visit was carried out by Dr. John Casselman and Paul Knapman (Audit team Leader).

John Casselman (P1 & P2) – John received his BSA from the University of Toronto (Ontario Agricultural College), MSc from the University of Guelph, and PhD from the University of Toronto in 1978. Upon graduation, he joined the Ontario Ministry of Natural Resources as a senior scientist supervising fish age, growth, and production throughout the province of Ontario till his retirement in

¹ <http://www.gov.mb.ca/conservation/waterstewardship/fish/index.html>

² <http://www.gov.mb.ca/conservation/>

2005, when he supervised fisheries research on Lake Ontario for the Ontario government at the Glenora Fisheries Station (22 staff and up to 22 casual and summer students). He has been cross-appointed at a number of universities, primarily Waterloo, Trent, and Queen's and is currently an active Adjunct Professor in the Biology Department at Queen's University, has a laboratory and graduate students. He has supervised 14 graduate students and has been on numerous graduate committees and defences at national and international universities. He is President and CEO of AFishESci Inc., an active company that provides research and consults on the application of fisheries and environmental sciences.

As a fisheries scientist, John has focused on environmental physiology, fish ecology, fish populations and community dynamics, and fisheries management. He has worked widely on studies in both the natural environment and the laboratory. He has been specifically interested in age, growth, and production of fish populations and has studied them widely throughout the world, primarily through invitation and diverse collaboration, and has been called on to consult widely. He has researched fish and fisheries not only in North America from the Canadian Arctic to the Caribbean but throughout the world in such places as the Tibetan Highlands for the Chinese Academy of Sciences and Ethiopia for CIDA. He has 178 primary-literature publications, with numerous book chapters, a co-edited book, and many reports and miscellaneous publications. He has numerous formal ongoing advisory roles such as for the International Joint Commission, Science Advisory Board; Great Lakes Fishery Commission, Canadian Representative Public-at-Large; Ontario Ministry of Natural Resources Great Lakes Branch, Science Adviser; Ontario Federation of Anglers and Hunters, Science Adviser to the Fish Committee. He has received numerous awards, such as 2008 American Fisheries Society Award of Excellence; 2009 Ontario Commercial Fisheries' Association Partnership Award; 2009 Great Lakes Fishery Commission Award for distinguished scientific contributions toward understanding Great Lakes ecosystems; 2015 voted into Canadian Angler Hall of Fame; 2015 inducted into the American Fisheries Society Legend in Canadian Fisheries Science and Management and installed in the inaugural class of the American Fisheries Society Fellows.

He has been actively involved as an MSC assessor and auditor and is certified as a Fishery Team Member Certification Process Version 1.3 and 2.0. He was involved in the pre-assessment of Lake Erie yellow perch with TAVEL Certification Inc. and an auditor of the MSC-certified Lake Erie Multispecies Commercial Fishery with Acoura Inc. and was on the original MSC certification team of the Waterhen Lake Walleye and Northern Pike commercial gill-net fishery with Intertek. In his various capacities as an expert on MSC fisheries certification, he has been responsible for Principle 1 (sustainable fish stocks) and Principle 2 (minimising environmental impact) MSC standards and criteria.

Paul Knapman - Paul is an independent consultant based in Halifax, Nova Scotia, Canada. Paul began his career in fisheries nearly 30 years ago as a fisheries officer in the UK, responsible for the enforcement of UK and EU fisheries regulations. He then worked with the UK government's nature conservation advisors (1993-2001), as their Fisheries Programme Manager, responsible for establishing and developing an extensive programme of work with fisheries managers, scientists, the fishing industry and NGOs, researching the effects of fishing and integrating nature conservation requirements into national and European fisheries policy and legislation. Between 2001-04 he was Head of the largest inshore fisheries management organisation in England, with responsibility for managing an extensive area of inshore fisheries on the North Sea coast. The organisation's responsibilities and roles included: stock assessments; setting and ensuring compliance with allowable catches; developing and applying regional fisheries regulations; the development and implementation of fisheries management plans; acting as the lead authority for the largest marine protected area in England. In 2004, Paul moved to Canada and established his own consultancy providing analysis, advisory and developmental work on fisheries management policy in Canada and Europe. In 2008, Paul joined Moody Marine as their Americas Regional Manager, with responsibility for managing and developing their regional MSC business. He became General Manager of the business in 2012. Paul has been involved as a lead assessor, team member and technical advisor/reviewer for more than 50 different fisheries in the MSC programme. He returned to fisheries consultancy in 2015.

Paul provided technical overview of the original assessment of the fishery and participated as a team member in last year's surveillance audit. Paul has completed and passed MSC Team Leader training.

2.2.2 Date & Location of surveillance audit

For this off-site surveillance, a telephone conference call was held on 18th December 2017, the participants were:

Name	Organisation	Role
Paul Knapman	Representing Acoura Marine	Audit Team Member
John Casselman	Representing Acoura Marine	Audit Team Member
Bill Gailbraith	Manitoba Sustainable Development	Fishery Manager
Geoff Klein	Manitoba Sustainable Development	Fishery Manager
Gord Kirbyson	Manitoba Sustainable Development	Conservation Officer

2.2.3 What was inspected

The following was inspected during the audit:

- The scientific base of information and stock assessment;
- Changes to the fishery and its management, e.g. legislation and regulations, personnel changes within the science and management structure and within the industry;
- Any changes that might affect traceability within the fishery and conformity with regulations;
- Progress against the conditions of certification; and,
- A review of follow up action by the client on recommendations from the original assessment.

2.2.4 Stakeholder Consultation

A total of 5 stakeholder organisations and individuals having relevant interest in the assessment were identified and consulted during this surveillance audit. The interest of others not appearing on this list was solicited through the postings on the MSC website:

<https://fisheries.msc.org/en/fisheries/waterhen-lake-walleye-and-northern-pike-gillnet-commercial/@@assessments>

2.3 Surveillance Standards

2.3.1 MSC Standards, Requirements and Guidance used

This surveillance audit was carried out according to the MSC Fisheries Certification Requirements v1.3 and using the surveillance process as detailed in v2.0.

2.3.2 Confirmation that destructive fishing practices or controversial unilateral exemptions have not been introduced

No indication was given or suggested during the surveillance audit that either destructive fishing practices or controversial unilateral exemptions have been introduced in this fishery.

3 Updated Fishery Background

Waterhen Lake is located between Lake Winnipegosis and Lake Manitoba in the province of Manitoba (Figure 1). It is approximately 34 km long and, at its widest, 8 km. In general, it is shallow, with a maximum water depth of 5 m. Lake Winnipegosis empties into Waterhen Lake through both the Little Waterhen and West Waterhen rivers. Waterhen Lake then drains southward through the East Waterhen River into Lake Manitoba.



Figure 1. The location of Waterhen Lake in relation to the Province of Manitoba.

Manitoba Conservation and Water Stewardship (MCWS), Fisheries Branch, classify Waterhen Lake as a multi-use fishery consisting of Aboriginal domestic harvest, commercial gill netting and recreational angling.

Two commercial fisheries operate on Waterhen Lake:

1. A limited entry winter commercial fishery (maximum 22 licenced fishers) using gillnets subject to harvest control rules (HCR) such as quotas, seasons and gear restrictions; and
2. A year-round carp/sucker gillnet fishery subject to gear restrictions.

The winter commercial fishery targets Walleye (*Sander vitreus*), which is the only species subject to an annual lake quota. Northern Pike (*Esox lucius*) is a bycatch fishery. A number of other non-quota species are harvested: Lake Whitefish (*Coregonus clupeaformis*); Yellow Perch (*Perca flavescens*); Sauger (*Sander canadensis*); White Sucker (*Catostomus commersoni*); Shorthead Redhorse (*Moxostoma macrolepidotum*) (marketed as mullet); Cisco (*Coregonus artedi*) (marketed as tullibee); and Common Carp (*Cyprinus carpio*).

The recreational fishery targets walleye and is confined mainly to the tributaries of the Waterhen Lake (Little Waterhen, East Waterhen and West Waterhen rivers). Provincial angling regulations apply to recreational fishers.

3.1 Changes in the management system

In 2016, due to a low CPUE of 4.17 Walleye per net in the index netting program, the allowable yardage per license was reduced to 4500 m, in accordance with the harvest control rule. In 2017, the CPUE improved to 4.89, but remained below the upper stock reference point of 5 so the maximum allowable yardage for the 2017-18 fishing year will be 5000 m.

One of the 21 commercial licenses has been transferred to a new fisher. The new fisher is subject to existing management regulations and requirements so no substantive changes will result in the fishery.

3.2 Changes in relevant regulations

Recently, there has been a change in the Freshwater Fish Marketing Act (Canada), resulting in the removal of the Freshwater Fish Marketing Corporation's exclusive right to export commercially harvested fish. As a result, licenced dealers are now able export fish, which includes MSC certified walleye and Northern pike (Bill Gailbraith, pers. comm. 2017).

Walleye

In response to a decrease in the performance indicators related to catch per unit effort, the total allowable yardage per fisherman for the 2016–2017 fishing season was reduced to 4,275 m from 5,700 m in 2015–2016. There was no change to mesh size because of abundance of the female spawning-stock biomass or the diversity of the spawning-age females. As well, because of the low total mortality, there was no change to the overall quota – see further details in Section 3.4 below.

Northern Pike

There have been no changes in the regulations of the Northern Pike fishery.

3.3 Changes to personnel involved in science, management or industry

Owing to an injury to Gord Kirbyson (Conservation Officer) that is presently preventing him undertaking normal field inspection/enforcement duties, additional support will be provided to Lyndon Clark, the new conservation officer appointed last year.

3.4 Changes to scientific base of information including stock assessments

3.4.1 Principle 1

Walleye

Commercial walleye harvest and fishing effort in Waterhen Lake are guided by four basic performance indicators, which have harvest control rules that involve: 1) Catch per unit effort (CPUE); 2) Spawning stock biomass (SSB); 3) Spawning female age diversity (SFAD); and, 4) Total mortality (TM).

Lower, or limit, and target reference points for the Walleye stock are defined for each performance indicator based on criteria established during the initial certification process and the public certification report (Casselman et al. 2014). These permit assessment of level of risk to the resource: "Low Risk" target stock reference point (highlighted with green) and "High Risk" lower or limit stock reference point (highlighted with red). Indicators below an upper stock reference point "Medium Risk" (highlighted with yellow) resulted in harvest control actions. Harvest control measures involving allowable net length per licensee, mesh size, and whole-lake quota are used. Three of the harvest control measures are input controls (CPUE, SSB, SFAD – total allowable net length per licence and mesh size), and the fourth is an output control (TM – quota reduction). Harvest control measures are implemented in response to changes in the performance indicators established from a late-summer (September) annual stock index gill-netting monitoring survey, with the commercial fishery commencing during the following ice-cover period: late fall and winter – "*when ice makes on or after November 1st to March 31st*" (Klein and Galbraith 2017).

In the 2016 index netting, 125 Walleye were caught in the 30 nets used, compared with 162 in 2015 (Table 1). The CPUE (fish per net night) decreased to 4.1 in 2016 from 5.4 in 2015 (Table 2, Figure 2). The 2016 CPUE/target reference point CPUE ratio in 2016 was 0.66, lower than 1 and lower than

the 0.85 in 2015; this was the lowest ratio for the past seven years for which there have been comparable indexing data (Table 2). The 2016 CPUE fell below the upper stock reference point of 5.0. This performance indicator placed the Walleye resource in the medium risk level, eliciting a harvest control measures that reduced netting effort.

Table 1. Index netting catch per unit effort for 10 species for 2010 to 2017, Waterhen Lake. Species are ordered by increasing coefficient of variation. Index nets are the North American standard nets, stretch mesh sizes 38, 51, 64, 76, 89, 102, 114, and 127 mm. Each panel is 3 m long and 1.8 m deep. The index netting program uses 30 nets set annually. Catch data for 2017 are also provided. From Knapman and Boyle 2016, updated by G. Klein, Fisheries Manager, Manitoba Sustainable Development.

Species		Catch per unit effort											
Common name	Scientific name	2010	2011	2012	2013	2014	2015	2016	2017	Mean	SD	CV	
Northern Pike	<i>Esox lucius</i>	72	55	76	53	45	58	76	70	63.3	11.9	18.9	
Walleye	<i>Sander vitreum</i>	155	174	195	228	125	162	125	145	163.6	35.2	21.5	
White Sucker	<i>Catostomus commersoni</i>	42	59	26	43	43	38	54	47	44.0	10.0	22.7	
Yellow Perch	<i>Perca flavescens</i>	33	136	149	123	58	68	108	132	100.9	42.4	42.0	
Lake Whitefish	<i>Coregonus clupeaformis</i>	13	18	10	7	6	6	5	8	9.1	4.4	48.5	
Shorthead Redhorse	<i>Moxostoma macrolepidotum</i>	4	1	6	8	3	5	2	8	4.6	2.6	56.5	
Brown Bullhead	<i>Ameiurus nebulosus</i>	0	2	41	77	34	52	144	27	47.1	46.6	98.8	
Common Carp	<i>Cyprinus carpio</i>	1	26	37	25	1	1	0	3	11.8	15.0	127.8	
Cisco	<i>Coregonus artedi</i>	130	42	20	7	19	8	12	6	30.5	41.9	137.3	
Freshwater Drum	<i>Aplodinotus grunniens</i>	0	4	0	5	3	0	0	14	3.3	4.8	147.8	

Table 2. Performance indicators for harvest control rules for Walleye population of Waterhen Lake, Manitoba, associated with MSC certification of the commercial Walleye and Northern Pike fishery, providing actual values acquired from index netting and a relative value provided as a ratio of the actual value over the Target Reference Point (TRP). Index netting was conducted September prior to winter commercial-fishing season. A relative value of >1 for Catch per Unit Effort (CPUE), Spawning Stock Biomass (SSB), and Spawning Female Age Diversity (SFAD) indicates that the performance indicator is above target and <1 below target. For the ratio of Total Mortality (TM), <1 indicates that mortality is above target and >1 below target. Performance indicators, actual and relative values are also provided for 2017.

Harvest Control Rule – Performance Indicator									
	Catch per Unit Effort		Spawning Stock Biomass		Spawning Age Diversity		Total Mortality		
Limit Reference Point	2.0		20		0.31		0.70		
Target Reference Point	6.3		50		0.60		0.53		
Year	Actual	Relative	Actual	Relative	Actual	Relative	Actual	Relative	
2010	5.7	0.90	55	1.10	0.42	0.70			
2011	4.8	0.92	40	0.80	0.71	1.18			
2012	6.5	1.03	45	0.90	0.76	1.27			
2013	7.6	1.20	81	1.62	0.55	0.92			
2014	4.3	0.68	92	1.84	0.44	0.73	0.38	0.72	
2015	5.4	0.85	112	2.24	0.60	1.00	0.35	0.66	
2016	4.17	0.66	92	1.84	0.72	1.20	0.36	0.68	
2017	4.83	0.77	79	1.58	0.74	1.23	0.33	0.62	

During the subsequent 2016–2017 commercial fishing season, total allowable netting effort stipulated as a condition of licence per fisher a reduction to 45 nets from 60 nets per licensee (4,275 m compared with 5,700 m), a reduction of 25% (Table 3, in Galbraith et al., 2017).

In 2015, it was reported that while stock status had improved that year over the former, there was a reduction, which was attributed to large-scale environmental effects. It has been observed that recruitment patterns tend to be synchronous across the lakes, suggesting broad-scale environmental influences (G. Klein, Fisheries Manager, Manitoba Sustainable Development, pers. comm.; Knapman and Boyle, 2016). Indeed, the influence of environmental and climatic effects on Walleye recruitment and populations has been well documented (Schupp, 2002); these would directly affect commercial fisheries and fishing.

Catch per Unit Effort

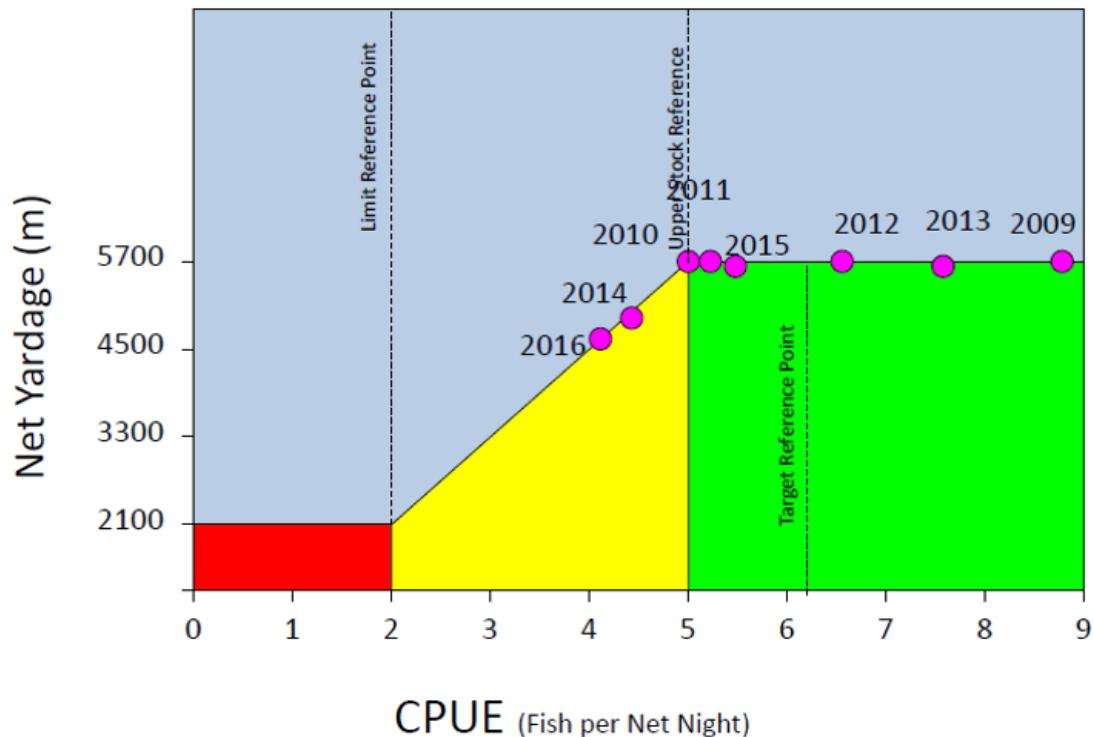
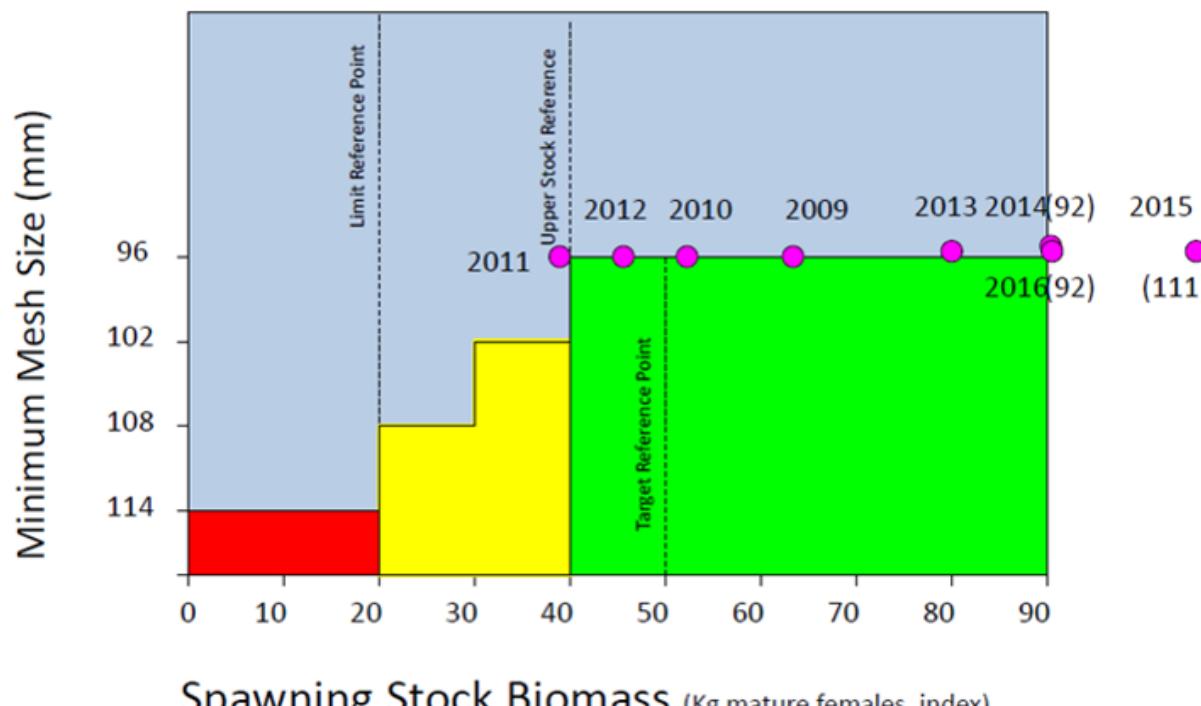


Figure 2. Harvest control rule governing allowable yardage for the Waterhen Lake commercial fishery. Circles (pink) mark catch-per-unit effort (CPUE) for the past eight years of index netting. If the CPUE fell into the medium-risk zone, allowable yardage in the commercial fishery would be decreased. The limit (2.0) and target (6.3) reference points are shown, along with an upper stock reference point (5.0). From Klein and Galbraith (2017).

The performance indicator for spawning stock biomass, which is the kilograms of mature females caught in the 30 net-night indexing program decreased somewhat, to 92 kg in 2016 from 112 kg in 2015 (Table 2, Figure 3). The 2016 SSB/SSB target reference point ratio also decreased, to 1.84 from 2.24, but still well above a ratio of 1, not requiring any changes to minimum mesh size governed by the harvest control rule associated with this performance indicator. The intent of the SSB harvest control rule is to increase mesh size if the SSB declines, allowing more larger females to escape and spawn (Figure 3). The SSB of the Walleye population remains very high in Waterhen Lake, well above any cause for concern that would initiate the harvest control rule.

Spawning Stock Biomass

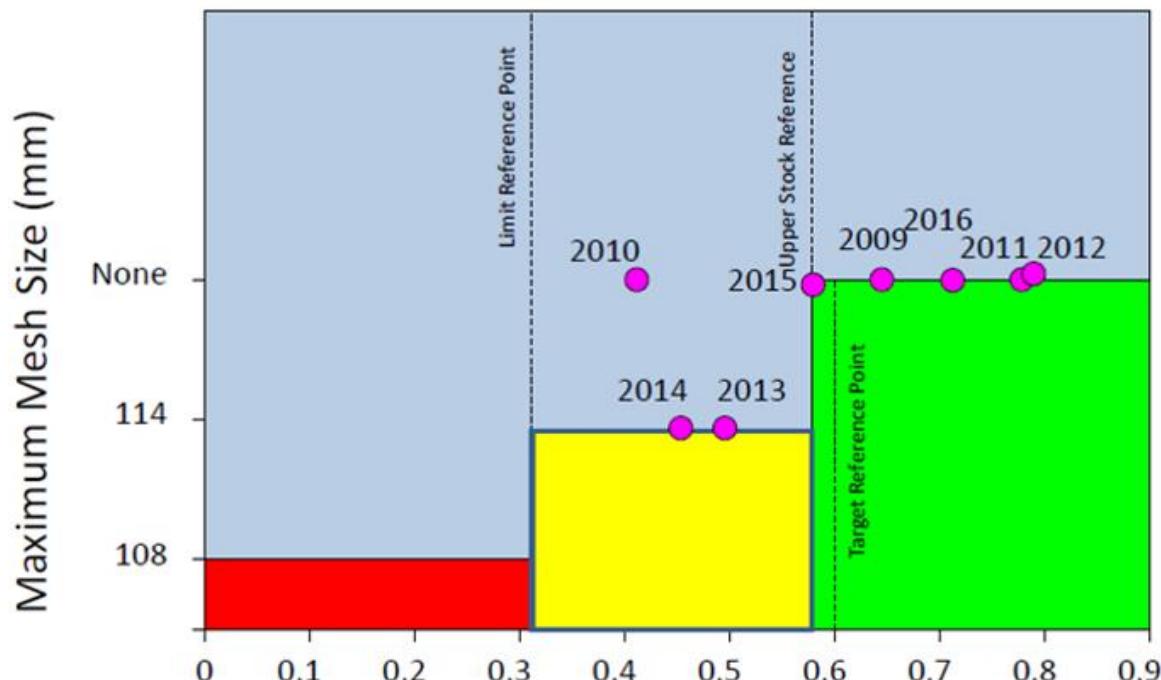


Spawning Stock Biomass (Kg mature females, index)

Figure 3. Harvest control rule to avoid recruitment overfishing in the Waterhen Lake commercial Walleye fishery. Circles (pink) mark spawning stock biomass, which is reflected as total kilograms of gravid female Walleye caught in all 30 nets of the annual index program over past eight years. As spawning stock biomass decreases, minimum mesh size allowed in commercial fishery increases, so more females recruit to spawning size. The limit (20) and target (50) reference points are shown, along with an upper stock reference point (40). Actual numbers off scale are in parentheses. From Klein and Galbraith (2017).

The performance indicator that considers spawning age diversity of female Walleye (SFAD), assessed with the Shannon Diversity Index, using indexing data, increased in 2016 to 0.72 from 0.60 in 2015 (Table 2, Figure 4). The 2016 SFAD/SFAD target reference point ratio increased to 1.20 from 1.00 in 2015. The ratio is above target, so the harvest control rule of this performance indicator associated with decreasing maximum mesh size was not implemented (Figure 4) as was done for the earlier 2014–15 commercial fishing season (Table 3 in Galbraith et al., 2017).

Spawning Female Age Diversity



Spawning Female Age Diversity (H)

Figure 4. Harvest control rule for the Shannon Diversity Index for spawning female Walleye age diversity for the annual indexing program over the past eight years. Circles (pink) mark the annual age diversity values. When the performance indicator, H , is above 0.58, no maximum gill-net mesh size is applied, but values in the cautionary zone will result in maximum mesh size of 114 mm or 108 mm to conserve and enhance age diversity for spawning females. The limit (0.31) and target (0.60) reference points are shown, along with the upper stock reference point (0.58). From Klein and Galbraith (2017).

Total annual mortality of Walleye (including fishing and natural mortality) remained virtually the same in 2016 at 0.36 compared with 0.35 for 2015 (Table 2, Figure 5). The 2016 TM/TM target reference point ratio increased slightly, to 0.68 from 0.66 in 2015. This ratio is well below 1, indicating that the mortality is well below target. It appears that mortality has decreased in recent years (Table 2). Given that total mortality is well below the target reference point, the overall Walleye quota for Waterhen Lake was not changed and remained at 36,300 kg during the 2016–2017 commercial fishing season (Figure 6).

Mortality

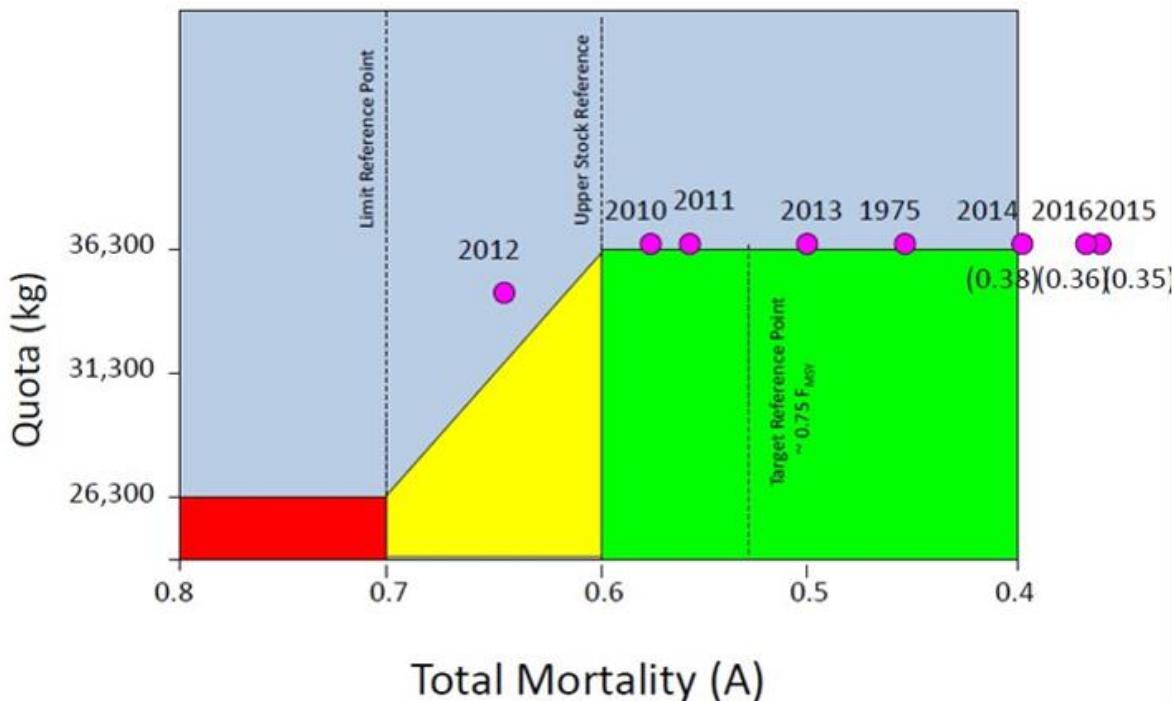


Figure 5. Harvest control rule for total mortality indicating total mortality for the annual indexing programming over the past eight years. When total mortality exceeds 0.6, Walleye quota for the Waterhen Lake fishery will be decreased to allow the stock to rebuild. The limit (0.70) and target (0.53) reference points are shown, along with an upper stock reference point (0.60). Actual numbers off scale are in parentheses. From Klein and Galbraith (2017).

Overall, since the second surveillance audit (Knapman and Boyle, 2016), there has been a slight decline in Walleye abundance, which necessitated a decrease in fishing effort (25% netting effort per licensee). Nevertheless, the other three performance indicators remain strong, at or well above target levels. The response to this decline was appropriate and generally the Walleye stock of Waterhen Lake remains strong and capable of taking advantage of whatever environmental or climatic factors will result in increased recruitment. Walleye harvest in 2016–17 was slightly lower than the previous year (7%) and well below recent levels (Figure 6 from Galbraith et al., 2017) because the fishing season began late, reducing Walleye harvest and exploitation.

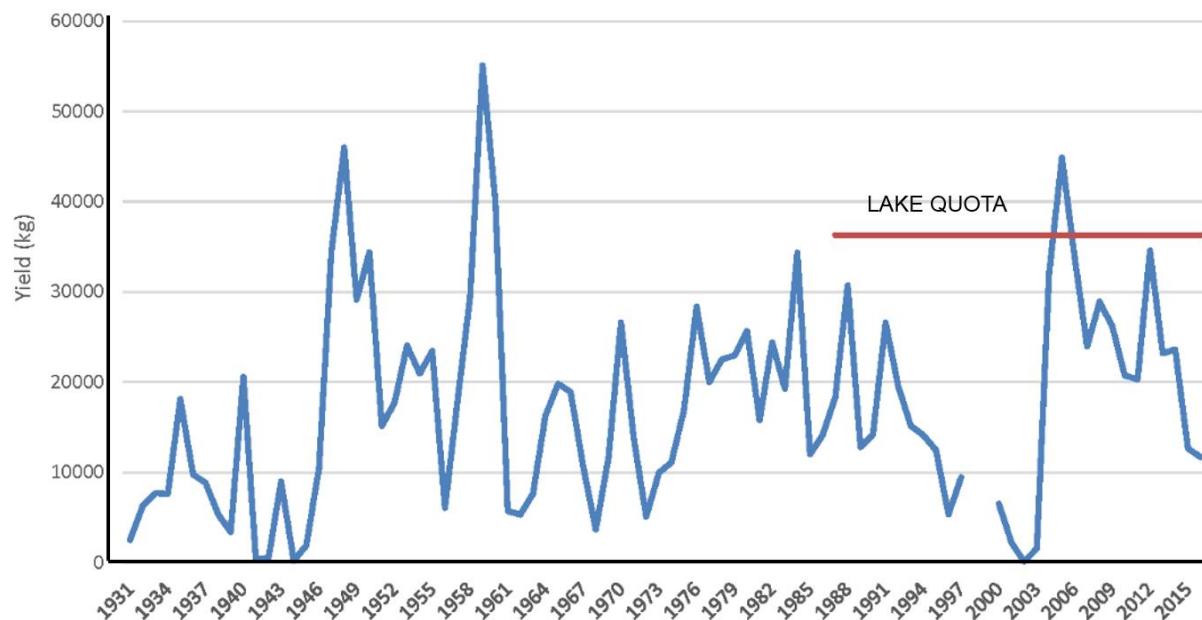


Figure 6. Walleye production, Waterhen Lake, 1931/32 to 2016/17 commercial fishing season, including the current lake quota of 36,300 kg, set in 1987. From Galbraith et al. (2017).

Northern Pike

Between 2010 and 2017, the index netting program annually caught between 45 and 76 Northern Pike, with 76 in 2016 and 70 in 2017, and, for the eight-year period, a total of 505 Pike (Table 1). The Northern Pike CPUE has been the most stable of any species caught in the Waterhen Lake indexing program (Table 1), with a mean annual CV of 18.9%, slightly lower than that of Walleye, 21.5%, and White Sucker (*Catostomus commersonii*), 22.7%. The mean catch of Northern Pike over the years was slightly more than one-third that of Walleye (63.3 compared with 164.1) (Table 1). The recreational fishery seems well managed. A maximum size limit of 75 cm TL for Northern Pike has been implemented for the recreational fishery.

Over the years, the commercial harvest of Pike, on average, has been about equal to that of Walleye (1987–2015, N = 28, Pike 28.5% and Walleye 28.9%). But in the 2015–16 and 2016–17 commercial fishing seasons, Pike harvest was appreciably greater (37% versus 26% and 41% versus 30%, respectively). This has been attributed to changes in species composition of the catch associated with a delayed ice-fishing season — relatively more Walleye are caught at the beginning of the season.

Two of the conditions pertain to Northern Pike. Considerable progress has been made on these conditions, which are detailed in a progress report provided for this audit (Appendix 3). A harvest control rule involving total annual mortality has been developed that applies to Northern Pike in Waterhen Lake. A Pike harvest control rule was developed and is explained as follows:

Northern Pike Harvest Control Rule – Total Annual Mortality Rate

**Northern Pike Harvest Control Rule of the
Waterhen Commercial Net Fishery**

**G. Klein, Fisheries Manager
Manitoba Sustainable Development
January 15, 2018**

During the initial full assessment for Waterhen Lake to achieve sustainable fishing certification under Marine Stewardship Council, Northern Pike, *Esox lucius*, passed with conditions. Northern Pike is principally retained bycatch in the Waterhen Lake Walleye, *Sander vitreus*, fishery -- too valuable to discard, but insufficiently valuable to target – though some fishers do report targeting pike in February in the north end of the lake. Fishers have also asked managers to let them know when only 10,000 kg remain in their Walleye quota, so they can stop fishing until later in the winter when the catch ratio favours pike as Walleye become less active, and/or move to areas of the lake where fewer Walleye will be caught relative to Northern Pike. This request was made in response to past years when fishers caught the Walleye quota and felt they missed some economic opportunity because the lake closed and they could not fish for Northern Pike. Available data at the time of certification suggested Northern Pike could not be overfished under the harvest control rules governing the Walleye fishery owing to the earlier maturity schedule of the Northern Pike. The assessment team did not disagree, but were concerned that sustainable fishing certification of Northern Pike might increase the value of the fish leading to more targeted fishing and there were no controls in place to avoid overfishing the pike stock if more targeted fishing occurred. Two conditions were set on Northern Pike fishing requiring consultation with fishers and development of a harvest control rule for Northern Pike fishing on Waterhen Lake. This document describes the harvest control rule that resulted from those discussions.

Estimating a Natural Mortality Rate for Waterhen Lake Northern Pike:

For the indexing years 2013 to 2017, a total of 304 Northern Pike were caught and aged in the Waterhen Lake index netting program. The oldest fish aged so far from Waterhen Lake was nine years old. Using the Hoenig (1983) equation to estimate natural mortality rates, a nine year old maximum age equates to a natural mortality rate of 37%. Other lakes, albeit farther north, have produced Northern Pike as old as 11 years. If that were the actual maximum age possible in Waterhen Lake, natural mortality would be a more conservative 32%, which we have elected to use for Waterhen Lake, because there is a paucity of literature on pike mortality rates. A natural mortality rate of 32% is also the rate calculated by Haugen et al.(2007) in Windermere Lake (Figure A) derived from a multi-decade tagging program. Another estimate of natural mortality rates of Northern Pike can be inferred from Malette and Morgan (2005). For 310 Ontario lakes, these authors estimated the 25th percentile of the female Northern Pike total mortality rate at 27.5%, and also estimated female total mortality to be 0.884 of total mortality for both sexes – a total mortality rate for both sexes then of 31% (27.5%/0.884). I chose the 25th percentile instead of the minimum Malette and Morgan report because the mortality rate estimates used to generate their benchmarks

are from onetime lake assessments using Ontario's Fall Walleye Index Netting Program. A onetime snapshot of pike demographics in a lake could appear to have an artificially low mortality rate if a particularly strong year class had reached the age of 9 or 10.

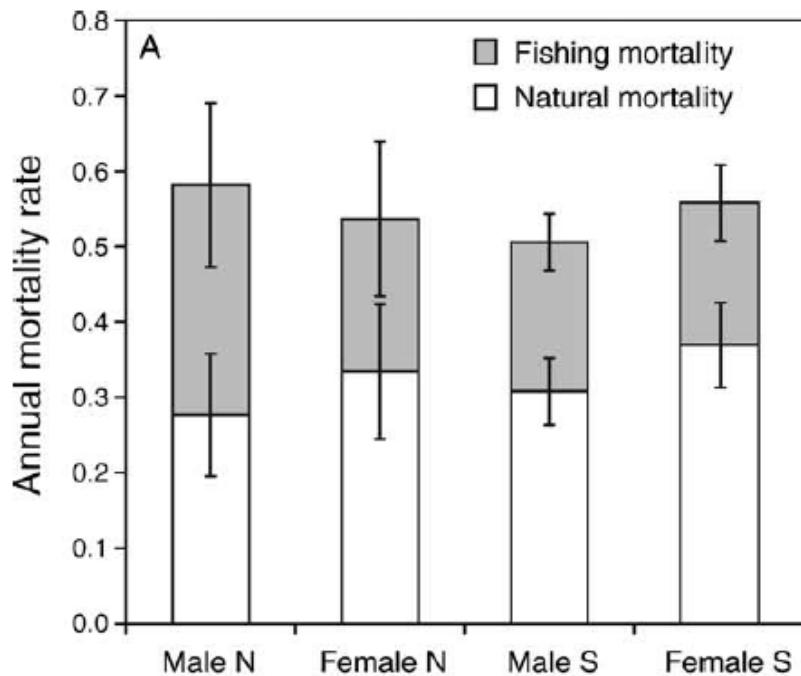


Figure A. Mortality rates of Lake Windermere Northern Pike in northern England for male and female fish in the north (N) and south (S) basins (from Haugen et al. 2007, Figure 7). The average annual natural mortality rate was 32%.

Measuring the Total Mortality Rate for Waterhen Lake Northern Pike:

Waterhen Lake is sampled annually in fall when water temperatures are between 10°C and 15°C using 30 overnight sets of North American Standard Index Nets. The nets are graded mesh gillnets with meshes of 38, 51, 64, 76, 89, 102, 114, and 127 mm stretched. Waterhen pike are fully recruited to these nets at four years of age. Pike frequency was pooled by age for the years 2013 - 2017. Regression of the age frequencies of recruited fish reflected an instantaneous total mortality of $Z = 0.67$ or 49% total annual mortality (Figure B). If we assume mortality is additive, then the annual fishing mortality is 17%. The average Northern Pike commercial harvest from Waterhen Lake in the five years used to calculate mortality was 21,067 kg round weight (standard deviation = 6155 kg).

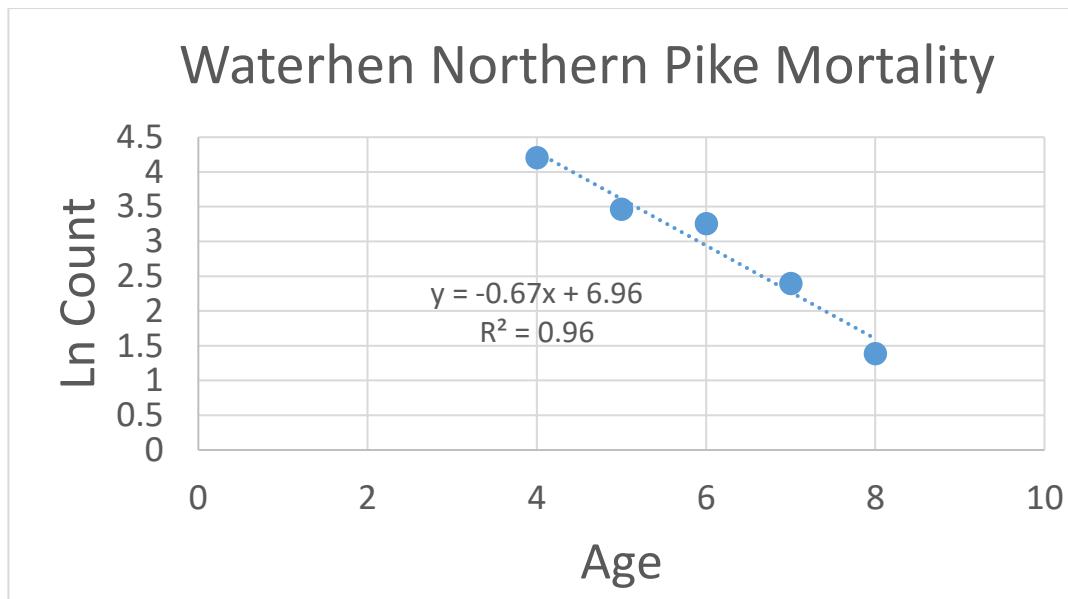


Figure B. Catch curve of fully recruited Northern Pike in Waterhen Lake. Frequencies represent 304 Northern Pike caught in 150 North American Standard Index Nets between 2013 and 2017.

The Harvest Control Rule for Waterhen Lake Northern Pike:

With the limited data available we have adopted the rule of thumb that maximum sustainable yield equals twice the natural mortality rate. Assuming (for now) mortality is additive, and that a commercial harvest of 21,067 kg can be achieved at an annual fishing mortality rate of 17%, then an annual fishing mortality rate of 32% (demographic and edaphic factors remaining the same) would equate to a commercial delivery of 39,655 kg. Fishers and managers have agreed to a quota of 40,000 kg of Northern Pike that would be triggered if the total annual mortality rate of Northern Pike in Waterhen Lake ever exceeds 64%. Thereafter, the quota would be lowered by 10% every year the total annual mortality rate remains above 64%. When the total annual mortality rate is brought back below the 64% threshold, quota will be increased by 10% per year for as long as the quota is caught and total annual mortality remains below 64%.

This harvest control rule was accepted by the Waterhen fishers' association at the annual preseason meeting November 1st 2017, with more than half the fishers in attendance, including all the board of directors.

References:

- Haugen, T.O., I.J. Winfield, L.A. Vollestad, J.M. Fletcher, J.B. James, and N.C. Stenseth. 2007. Density dependence and density independence in the demography and dispersal of pike over four decades. *Ecological Monographs* 77(4): 483-502.
- Hoenig, J.M. 1983. Empirical use of longevity data to estimate mortality rates. *Fishery Bulletin* 82: 898-903.
- Malette, M.D. and G.E. Morgan. 2005. Provincial summary of Northern Pike life history characteristics based on Ontario's Fall Walleye Index Netting (FWIN) Program 1993 to 2002. Laurentian University/Ontario Ministry of Natural Resources monograph 141 pp.

The auditors of this surveillance report note that the natural mortality estimate provided here for Northern Pike appears to be high and the maximum age is somewhat low compared with information for unexploited lakes with which they are familiar. The auditors consider it important to highlight that until data are available for unexploited lakes in the area, the present natural mortality is a best available estimate, but it is recommended that in order to be precautionary, the client considers acquiring some independent natural mortality rate estimates for Pike populations in the area to confirm the estimate provided here.

3.4.2 Principle 2

Retained Species

All marketable-sized fish are required to be retained in this fishery. Mullet are the only main retained species, i.e. ≥ 5% of the total catch, in the commercial gill net fishery. In Waterhen Lake, “mullet” refers to White Sucker and Shorthead Redhorse (*Moxostoma macrolepidotum*) (red fin mullet). In 2016, Mullet was 23.5% of the overall harvest.

Minor retained species include Yellow Perch (*Perca flavescens*), Lake Whitefish (*Coregonus clupeaformis*) and Sauger (*Sander canadensis*). In 2016, the commercial harvest was 0.4% Yellow Perch, 5.5% Lake Whitefish, and 0.03% Sauger.

3.5 Compliance

No compliance issues were reported.

3.6 Harmonisation

There are no overlapping MSC certified or in-assessment fisheries and so no harmonisation is required.

3.7 Any developments or changes within the fishery which impact traceability or the ability to segregate between fish from the Unit of Certification (UoC) and fish from outside the UoC (non-certified fish)

There were no reported changes that would impact the traceability of certified and un-certified fish from the UoC. The client representative did note that they were aware of some chain of custody certification issues with respect to the initial ‘down-stream’ handling of certified product, however, this did not relate to the fisheries certification.

3.8 TAC and catch data

Walleye

TAC	Year	2016/17	Amount	36,300 Kgs
UoA share of TAC	Year	2016/17	Amount	36,300 Kgs
UoC share of TAC	Year	2016/17	Amount	36,300 Kgs
Total green weight catch	Year (most recent)	2016/17	Amount	11,708 Kgs
	Year (second most recent)	2015/16	Amount	12,650 Kgs

Northern Pike

TAC	Year	2016/17	Amount	Fishery open to all commercial license holders with TAC on walleye acting as a "choke" species.
UoA share of TAC	Year	2016/17	Amount	
UoC share of TAC	Year	2016/17	Amount	
Total green weight catch	Year (most recent)	2016/17	Amount	16,219 Kgs
	Year (second most recent)	2015/16	Amount	17,562 Kgs

Total commercial harvest from Waterhen Lake in the 2016–2017 commercial fishing season was 39,571 kg (Figure 7 from Klein and Galbraith, 2017). Total commercial harvest for the 2016–2017 season was 19% below the harvest for the 2015–2016 season, which was 48,823 kg. The harvest of walleye was 11,707 kg and Northern Pike 16,219 kg (client information provided for the third surveillance audit). From 1987 to 2015, the commercial harvest of Walleye was 28.9% of the total harvest and Northern Pike was 28.5%. Results for the 2016–2017 season were considerably different: Pike amounted to 41.0% and Walleye 29.6%. This proportion was approximately similar to the 2015–2016 season, which resulted in a relative harvest of 37% Pike and 26% Walleye. In the past two commercial fishing seasons, Pike have constituted a higher percentage of the overall commercial harvest than did walleye. During the 3rd Surveillance Audit conference call, the client indicated that the commercial catch was lower in the 2016–2017 season because ice cover came on Waterhen Lake much later than usual, delaying the start of the fishing season. It was also noted that early in the season, the commercial catch contains disproportionately more Walleye, with relatively more Pike near the end of the season. This may explain why, at least in 2016–2017, Pike represented a greater than usual proportion of the harvest.

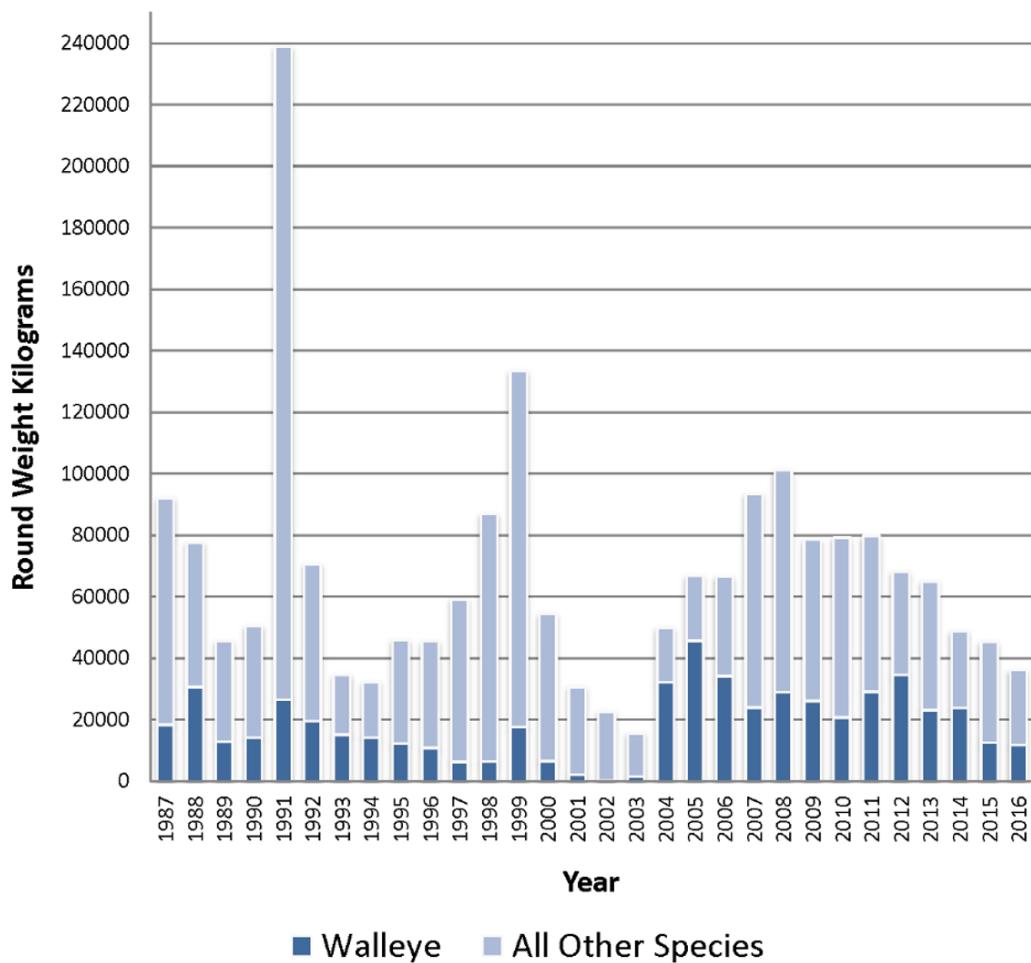


Figure 7. Commercial production of walleye, non-quota species, and total round weight (kg) from 1987 to 2016. From Klein and Galbraith (2017).

3.9 Summary of Assessment Conditions

Table 3. Summary of Assessment Conditions following this Audit

Condition number	Performance indicator (PI)	Status	PI original score	PI revised score
1	1.2.1 (Northern Pike)	On target	70	N/A
2	1.2.2 (Northern Pike)	On target	70	N/A
3	3.2.4 (Northern Pike & Walleye)	Closed	70	80

4 Results

4.1 Condition 1

Performance Indicator (PI) & Score	PI number	Scoring Issue (SI) & Scoring Guidepost (SG) text	Score
	1.2.1 Northern Pike	<p>SG 80 Sla</p> <p>The harvest strategy is responsive to the state of the stock and the elements of the harvest strategy work together towards achieving management objectives reflected in the target and limit reference points.</p>	70
Scoring Rationale	<p>Assessment of data-deficient fisheries against this indicator consider how elements of the harvest strategy combine to manage impact, such that susceptibility is maintained at or below acceptable levels given the productivity of the species. The harvest strategy is based on Walleye as the targeted species with Northern Pike taken as a retained by-catch. While the approach has differed over the years, the choice of the 96 mm gill net mesh size protects smaller Northern Pike and it is too small to catch larger Northern Pike. Thus it may be considered that the fishery meets SG60. As the harvest strategy has been designed to respond to Walleye management it cannot be said that it is responsive to the state of the Northern Pike stock. The fishery does not meet SG80.</p>		
Condition	<p>By the fourth annual audit, the following SG 80 scoring issue must be met: The harvest strategy for Northern Pike is responsive to the state of the stock and the elements of the harvest strategy work together towards achieving management objectives reflected in the target and limit reference points.</p>		
Milestones	<p>At the first annual audit the client will present the Certification Assessment Body with evidence that there has been formal consideration of a harvest strategy for Northern Pike. Interim Scoring: no change 70</p> <p>At the second annual audit the client will present the Certification Assessment Body with evidence that the defined harvest strategy has been formally accepted by Manitoba Conservation and Water Stewardship and data and analysis are underway to provide the basis for development of biological reference points to support the strategy Interim Scoring: no change 70</p> <p>At the third annual audit the client will present the Certification Assessment Body with the analytically determined biological reference points Interim Scoring: no change 70</p> <p>At the fourth annual audit the harvest strategy for Northern Pike will reflect findings on the stock status in relation to the defined reference points. Scoring Outcome: 80</p>		
Client Action Plan	<p>In the first year of certification, Manitoba Conservation and Water Stewardship (Fisheries Branch) will undertake the following activities:</p> <ul style="list-style-type: none"> • Expand the effort to increase the sample size of Northern Pike as part of the Branch's on-going annual indexing program. • Start an annual commercial catch sampling program for Northern Pike as part of the Branch's data collection activities in support of effective monitoring and analysis that is part of a formal harvest strategy for sustainable management of the Northern Pike fishery. • Discuss with the Waterhen Lake commercial fishers a precautionary approach to fishery management of Northern Pike. 		

	<p>In the second year of certification, Manitoba Conservation and Water Stewardship (Fisheries Branch) will draft a harvest strategy in full consultation with the Waterhen Lake Fishermen's Association including related associated specific harvest control rules & other management actions for Northern Pike. Manitoba Conservation and Water Stewardship (Fisheries Branch) will analyze data and information from Waterhen Lake and other sources to identify potential limit and upper stock reference points for Northern Pike together with related stock performance indicators.</p> <p>In the third year of certification, Manitoba Conservation and Water Stewardship (Fisheries Branch) will provide the Certification Assessment Body with the outcome and results of discussions with Waterhen Lake commercial fishers and other stakeholders on potential harvest control rules, biological reference points and performance indicators.</p> <p>In the fourth year of certification, Manitoba Conservation and Water Stewardship (Fisheries Branch) will provide the Certification Assessment Body with evidence of the use of biological reference points to inform the management decision-making process as part of a formal harvest strategy, together with evidence of the defined harvest control rules.</p>
Progress on Condition [Year 1]	<p>The FMP (Klein & Galbraith) represents a formal approach to the management of the fishery that (Page 4) must be conducted in a manner that does not lead to over-fishing or depletion of the harvested populations and, for those populations that are depleted the fishery must be conducted in a manner that demonstrates activities leading to stock recovery. This includes Northern Pike.</p> <p>The harvest strategy governing the fishery was designed to sustain Walleye that is the species most prone to stock collapse owing to its late maturation. The Northern Pike stock is considered sustainable under the Walleye harvest strategy, because female Northern Pike will have spawned two or three times before they are susceptible to the minimum mesh size allowed in the Waterhen fishery. The first part of developing a specific Northern Pike harvest strategy was to improve the information base. (i) Index netting is carried out each year in the month of September when water temperatures fall to between 10 and 15 degrees Celsius. Weight and length are recorded for all fish caught. The sample size for Northern Pike has been expanded to a target of 200 specimens as part of the Fisheries Branch's on-going annual indexing programme. To date it has proved difficult to obtain a larger sample size and further consideration is being given to approaches to improving sampling. (ii) Starting in the winter of 2014, a commercial catch sampling programme was established to better understand the stock age structure of Northern Pike, with the collection of cleithra taken from samples caught in commercial gillnets, from lake patrols when fishers are lifting their nets and from nets seized during enforcement activities. For the commercial fishery samples sex, age and length are recorded as well as the mesh size of the commercial gillnet. (iii) On-site (basin hole) inspections to estimate the number of discards.</p>
Progress on Condition [Year 2]	<p>The milestone states that at the second annual audit, the client will present the Certification Assessment Body with evidence that the defined harvest strategy (HS) has been formally accepted by Manitoba Conservation and Water Stewardship and data and analysis are underway to provide the basis for development of biological reference points to support the strategy.</p> <p>During the site visit, it was reported that data collection and analysis in support of the condition is well underway. Evidence of this was provided after the site visit in the form of a client report (Appendix 3).</p> <p>Discussions on the Harvest Strategy (HS), however, have not progressed as planned. The intent had been to discuss the development of a HS and associated Harvest Control Rules (HCRs) similar to those used in the walleye fishery with fishers at a meeting on 26th October 2016. However, discussions on</p>

	<p>the price premium for MSC certified walleye between the fishers and the Freshwater Fish Marketing Corporation precluded discussion on Northern Pike HS and HCR options (Appendix 3). MCWS staff did, however, discuss the HS and HCR approach in a more limited meeting with senior fishers within the Association. Regarding a CPUE HCR, an index performance indicator is available which has been very stable over time. Regarding mesh size based HCRs (SSB and Diversity), there was a sense that the large mesh sizes in place for the Walleye fishery would not create negative impacts on Northern Pike. The minimum mesh size limits and HCRs in place to govern Walleye fishing in Waterhen Lake also afford sustainable fishing for Northern Pike due to the early maturation schedule of female Northern Pike relative to Walleye. Further, all commercial fishing ceases on the lake when the Walleye quota is met, and the historical record shows that when fishing large mesh, the Walleye quota restricts Northern Pike harvest to levels well below the harvest required to collapse the fishery. Regarding the Total Mortality HCR, there was little interest in the adoption of a quota for Northern Pike. Rather, the fishers indicated that a HS, which used zoning to manage the Northern Pike fishery, would be a more favourable option. They suggested that an area around "Grassy Point", which represents the best pike habitat in Waterhen Lake, should be excluded from fishing if the number of Northern Pike caught in the index netting program dropped to 20 or lower. Overall, there was a sentiment that limits on Northern Pike fishing should not hinder the Walleye fishery.</p>
Progress on Condition [Year 3]	<p>Client information provided for the 3rd Surveillance Audit site visit informed that data analysis had been conducted to provide the basis for development of a biological reference point and harvest control rule supporting the strategy (see Appendix 3). Specific evidence was provided that is detailed in section 2.4 referred to as "Northern Pike Harvest Control Rule – Total Annual Mortality Rate". The explanation of the analytically determined performance indicator and the harvest control rule indicates that the commercial fishers of Waterhen Lake were consulted and involved. The performance indicator is total mortality rate. The natural mortality rate (M) of Pike in Waterhen Lake was estimated to be 32%. The biological reference point will be 2M, a proxy for maximum sustainable yield. There will be no limit on Northern Pike harvest until total annual mortality rate exceeds 2M, at which time a quota of 40,000 kg will be imposed. The quota will then be reduced by 10% annually until the mortality rate returns to below 2M and at that point will be increased by 10% a year as long as the mortality rate remains below 2M. This harvest control rule satisfies the condition indicating that it is now on target</p>
Audit Team Observations / Comments	<p>The biological reference point and harvest control rule developed for Northern Pike make a significant contribution to managing the Waterhen Lake Pike population sustainably. Pike are an important keystone predator in the fish community and are an important, although not highly valued, species in the commercial harvest. Nevertheless, their exploitation needs to be carefully monitored and managed. Development of this reference point and rule is an important contribution to ensuring a sustainable Northern Pike fishery in this Walleye/Pike fish community. Fishers and managers have agreed to a quota of 40,000 kg of Northern Pike that would be triggered if the total annual mortality rate of Northern Pike in Waterhen Lake ever exceeds 64% ($> 2M$ where $M = 32\%$). Thereafter, the quota would be lowered by 10% every year the total annual mortality rate remains above 64%. When the total annual mortality rate is brought back below the 64% threshold, quota will be increased by 10% per year for as long as the quota is caught and total annual mortality remains below 64%. The audit team considers these adjustments to be appropriate to address increasing total annual mortality.</p>
Status of Condition	<p>The client has provided evidence that the appropriate results have been achieved by the 3rd Surveillance Audit, meeting the 2nd and 3rd milestones. The performance indicator for Northern Pike associated with the proxy for</p>

	maximum sustainable yield, using a biological reference point of $2M$, where $M = 32\%$, and the associated harvest control rule meets the condition as outlined. Considerable progress has been made on this condition, and it is now on target. No changes in the score of PI 1.2.1 were made.
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4.2 Condition 2

Performance Indicator (PI) & Score	PI number	Scoring Issue (SI) & Scoring Guidepost (SG) text	Score
	1.2.2 Northern Pike	<p>SG80 Sia.</p> <p>Well-defined harvest control rules are in place that are consistent with the harvest strategy and ensure that the exploitation rate is reduced as limit reference points are approached.</p>	70
Scoring Rationale	<p>As Northern Pike is not directly managed there is a need to assess the extent to which there are management tools and measures in place that are consistent with ensuring that susceptibility of the target species to removal is no higher than that which would cause the risk to the target species to be above an acceptable risk range. Given the distribution of the species in Waterhen Lake, mesh size, limited season, limit on gill net length and closed areas, it may be concluded that the harvest control rules achieve the aim of limiting the risk, but as they are not well defined for Northern Pike they do not ensure that exploitation rates for Northern Pike may be adjusted if required.</p>		
Condition	<p>By the fourth annual audit, the following SG 80 scoring issue must be met:</p> <p>For Northern Pike, well-defined harvest control rules are in place that are consistent with the harvest strategy and ensure that the exploitation rate is reduced as limit reference points are approached.</p>		
Milestones	<p>At the first annual audit the client will present the Certification Assessment Body with evidence that there has been consideration of the appropriateness of existing Harvest Control Rules for Northern Pike and, that options have been identified. Interim Scoring: no change 70</p> <p>At the second annual audit the client will present the Certification Assessment Body with evidence that the identified options have been discussed with stakeholders and may be implemented according to the status of the stock in the context of the harvest strategy. Interim Scoring: no change 70</p> <p>At the third annual audit the client will present the Certification Assessment Body with evidence that HCR options have been discussed with stakeholders and confirm that these will be implemented according to the status of the stock in the context of the harvest strategy by the 4th surveillance audit. (NB. This milestone was added following the 2nd annual audit). Interim Scoring: no change 70</p> <p>At the fourth annual audit there will be evidence that the harvest control rules required by the strategy have been implemented as required and in accordance with the stock status. Scoring outcome: 80</p>		
Client Action Plan	<p>In the first year of certification, Manitoba Conservation and Water Stewardship (Fisheries Branch) will undertake the following activities:</p> <ul style="list-style-type: none"> • Expand the effort to increase the sample size of Northern Pike as part of the Branch's on-going annual indexing program. • Start an annual commercial catch sampling program for Northern Pike as part of the Branch's data collection activities in support of effective monitoring and analysis that is part of a formal harvest strategy for sustainable management of the Northern Pike fishery. 		

	<ul style="list-style-type: none">• Discuss with the Waterhen Lake commercial fishers a precautionary approach to fishery management of Northern Pike. <p>In the second year of certification, Manitoba Conservation and Water Stewardship (Fisheries Branch) will draft a harvest strategy in full consultation with the Waterhen Lake Fishermen's Association including related associated specific harvest control rules & other management options/actions for Northern Pike. Manitoba Conservation and Water Stewardship (Fisheries Branch) will also analyze data and information from Waterhen Lake and other sources to identify potential limit and upper stock reference points for Northern Pike together with related stock performance indicators.</p> <p>In the fourth year of certification, Manitoba Conservation and Water Stewardship (Fisheries Branch) will provide the Certification Assessment Body with evidence of the use of biological reference points to inform the management decision making process as part of a formal harvest strategy, together with evidence of the defined harvest control rules.</p>
Progress on Condition [Year 1]	<p>As covered in the FMP (Klein & Galbraith 2015):</p> <p>The 105 mt catch spike in the 1940s following use of 83 mm mesh with the subsequent return to 102 mm mesh did not appear to collapse the Northern Pike stock. In contrast, the 148 mt removal (5.5 kg/ha) in 1991 and sustained 76 mm use did. The use of small mesh catches all sizes of pike, many before they are able to spawn for the first time.</p> <p>A study of Northern Pike in Waterhen found female Northern pike to be sexually mature at two years of age (2-year olds were 100% mature, n=5; 3 year olds were 93 % mature, n=14). The 96 mm minimum mesh in Waterhen catches fish 5 years and older, thus female Northern Pike are afforded two or three spawning seasons before harvest and this is sustainable.</p> <p>On that basis, it is considered that the minimum mesh size limits and harvest control rules in place to govern Walleye fishing also afford sustainable fishing for Northern Pike due to the early maturation schedule of female Northern Pike relative to Walleye. All commercial fishing ceases on the lake when the Walleye quota is met, and the historical record shows that when fishing large mesh the walleye quota restricts Northern Pike harvest to levels well below the harvest required to collapse the fishery.</p> <p>The FMP also restates other tools – closed areas and limitation on net length – that could be considered to reduce effort in the Northern Pike fishery. In relation to recommendation 11, the client is considering the need for regulation of the roe fishery.</p>
Progress on Condition [Year 2]	<p>The milestone states that at the second annual audit, the client will present the Certification Assessment Body with evidence that the identified options have been discussed with stakeholders and may be implemented according to the status of the stock in the context of the harvest strategy.</p> <p>As indicated in progress on condition 1, full consultation with the Waterhen Lake Fishermen's Association was not possible owing to a Walleye pricing issue which had recently emerged. However, discussion with some of the senior fishers has taken place and their preferred option for management action when catches of Northern Pike reach a pre-determined level (≤ 20) in the index netting is to close an area known as "Grassy Point" to commercial fishing.</p> <p>Audit team observations and comments</p> <p>The audit team notes that a key reason for the current successful management of the fishery is the stakeholder engagement and participation. The audit team also recognises that engagement on the HS and associated HCR for Northern Pike was largely precluded by discussions on the price of fish being offered and further discussion will be necessary.</p>

	<p>That said, the client has met the specifics of the second annual milestone by discussing HCR options with stakeholders. However, the audit team notes that further discussion with the Waterhen Lake Fishermen's Association about Northern Pike HCR options will be necessary.</p> <p>The audit team notes that a third annual milestone was not set for this condition. This is thought to have been an oversight during the initial assessment. The audit team has therefore set a third year milestone as follows:</p> <p>At the third annual audit, the client will present the Certification Assessment Body with evidence that HCR options have been discussed with stakeholders and confirm that these will be implemented according to the status of the stock in the context of the harvest strategy by the 4th surveillance audit.</p> <p>In setting this milestone the client has been asked to provide the audit team with an updated action plan to reflect this new milestone.</p>
Progress on Condition [Year 3]	<p>The client provided a revised action plan (Sustainable Fisheries Unit, 2018) (see Appendix 3) taking account of the new 3rd year milestone. The action plan's year 3 milestone states:</p> <p>In the third year of certification, Sustainable Development (Sustainable Fisheries Unit, Wildlife and Fisheries Branch) will provide evidence at the third annual surveillance audit that harvest control rule options have been discussed with stakeholders; and the agreed harvest control rules will be implemented according to the status of the stock in the context of the harvest strategy by the fourth annual surveillance audit.</p> <p>The client provided documentation showing the HCR was discussed with the fishers, i.e. in the explanation of the harvest control rule presented in Section 2.4 — Northern Pike Harvest Control Rule – Total Annual Mortality Rate. It states that "<i>This harvest control rule was accepted by the Waterhen fishers' association at the annual preseason meeting November 1, 2017, with more than half the fishers in attendance, including all the board of directors.</i>"</p>
Audit Team Observations / Comments	<p>The audit team notes that a key reason for the current successful management of the fishery is the stakeholder engagement and participation and commends the client for ensuring that the Pike HCR was developed, explained and accepted by the fishers within this audit period, thereby bringing the condition back on track.</p>
Status of condition	The condition is on target. No changes in the score of PI 1.2.2 were made.

4.3 Condition 3

Performance Indicator (PI) & Score	PI number	Scoring Issue (SI) & Scoring Guidepost (SG) text	Score
	3.2.4 Northern Pike & Walleye	SG80 Sib.	70
Scoring Rationale	<p>The research results are available to fishery managers and through them the results are made known to stakeholders. Similarly, researchers have access to the data-base and the information. The auditors have not seen any evidence to indicate that the results of the research are disseminated or that they are available to <u>all</u> interested parties. There is no evidence to show how the research results are disseminated and it appears clear that they are not widely and publically available. The fishery meets the issue at SG60 but not SG80 and SG100.</p>		
Condition	<p>By the second annual audit, the following SG 80 scoring issues must be met: Research results are disseminated to all interested parties in a timely fashion.</p>		
Milestones	<p>At the first annual audit the client will present the Certification Assessment Body with evidence that there has been consideration of how to disseminate research results in a formal established approach. Interim Scoring: no change 70</p> <p>At the second annual audit the client will present the Certification Assessment Body with evidence that research results are being disseminated in a formal established way. Interim Scoring: no change 70</p> <p>By the third audit the required minimum score for PI 3.2.4 is 80.</p>		
Client Action Plan	<p>Monitoring and research results will be disseminated to the general public through the Manitoba Conservation and Water Stewardship, Fisheries Branch website, which, within one year of Waterhen Lake becoming certified, will include a section dedicated to Waterhen Lake eco-certification. This website will include, in addition, materials related to certification efforts on Waterhen Lake including the management plan, the action plan, the certification assessment report and annual audit reports.</p> <p>Where University research is involved, theses and peer-reviewed publications will be prepared by the home organization and be available through normal University channels. In addition, these documents, links to these documents or citations for these documents (depending on copyright restrictions) will be made available to the public on the Conservation and Water Stewardship, Fisheries Branch website.</p> <p>For directly involved stakeholders and interested parties, all monitoring and research results and associated materials, including University based research projects, will be presented, discussed and distributed at the annual Waterhen Lake commercial fisher association meeting, which will be followed by a general public meeting to be held in the Waterhen Lake area.</p> <p>These materials will also be made available upon request to the Department of Manitoba Conservation and Water Stewardship, Fisheries Branch or to interested parties that attend the Fisheries Branch head office in person.</p> <p>The approach stated above will provide the venue to disseminate and share information to all involved stakeholders and interested parties in a timely fashion and ensure the materials are widely and publicly available.</p>		
Progress on Condition	<p>The web site approach is being developed. An annual report on the fishery was produced in 2015 (Galbraith 2015). The FMP was updated in early 2015 and will</p>		

[Year 1]	<p>be up-dated on an annual basis and this will include details on the research plan and the results obtained. The annual pre-season meeting with stakeholders presents the up-dates on relevant research.</p> <p>The Annual Report and FMP were presented to the President of the LWFA.</p>
Progress on Condition [Year 2]	<p>The FMP (section 9.2) states that, “Monitoring and research results will be disseminated to the general public through the Manitoba Conservation and Water Stewardship, Fisheries Branch website, which, within one year of Waterhen Lake becoming certified, will include a section dedicated to Waterhen Lake eco-certification…”</p> <p>On review of the MCWS website, a link has been included on “Eco Certification”, (http://www.gov.mb.ca/conservation/waterstewardship/fish/index.html)</p> <p>The link takes the viewer to a page that describes commercial fishing in Manitoba and a description of eco certification.</p> <p>The webpage then displays the following links:</p> <ul style="list-style-type: none">◦ <u>Public Certification Report</u>◦ <u>MSC Fishery Certificate</u>◦ <u>Summary report</u>◦ <u>MSC Certification Media Release</u>◦ <u>Management Plan</u>◦ <u>Eco-Certification Action Plan & Matrix</u>◦ <u>1st Annual Waterhen Eco Certification Audit Report 2015</u> <p>None of the links relate specifically to research on the Waterhen lake fishery, which is the key issue with respect to this condition, i.e. the dissemination of research results.</p> <p>In discussion with the client, it was noted that the FMP does have a section on research and provides references to “Past Research” and “Pending Research”. The past research references date between 1978 and 2012.</p> <p>None of the pending research has yet to be conducted owing to budgetary constraints.</p>
Progress on Condition [Year 3]	<p>The client provided the following web link:</p> <p>http://www.gov.mb.ca/sd/waterstewardship/fisheries/commercial/commercial.htm.</p> <p>This provides access to the Manitoba Conservation and Water Stewardship, “Commercial Fishing” webpage, where “Eco-certification” is explained and all research reports/documents conducted on Waterhen Lake by the Water Stewardship Division is now publically accessible.</p>
Audit Team Observations / Comments	The client has met the requirements set out in the condition and therefore this condition can be rescored and closed. A revised scoring rationale is provided in Appendix 1.
Status of Condition	Closed.

Recommendations

Recommendations are included in MSC assessments to highlight how the management or operation of the fishery could be enhanced and contribute to ongoing efforts to ensure the long-term sustainability of the fishery. Recommendations do not impose a mandatory requirement nor are they auditable, however, they do act as a marker for future audits and assessments and may highlight actions that will ensure information or evidence of good management remain current and continue to meet MSC requirements. Following certification of the fishery, the client indicated it was their intent, where possible, to undertake actions related to the recommendations and this has been reported in previous surveillance audits. A further update was provided by the client for this audit and is set out in the table below.

Table 4. Recommendation Matrix Showing an Update on Any Action the Client Has Taken in the Audit Period

Recommendation Matrix – MSC Certification of Waterhen Lake Walleye & Northern Pike Commercial Gillnet fishery				
Recommendation	Adoption	Rationale	Implementation Plan/Strategy	Update
1 (a) To better understand the stock structure of Northern Pike in Waterhen Lake, commercial-catch sampling should be conducted.	Yes		The Department will work with commercial fishers and the Freshwater Fish Marketing Corporation to acquire the necessary commercial catch samples on an annual basis.	Unfortunately the Freshwater Fish Marketing Corporation are delivering Northern Pike in a headless form, so the cleithra used for aging are missing, as are the gonads. The most successful method has been to collect data from commercial nets, on the ice.
1 (b) The index sampling effort should be increased to catch at least 200 Northern Pike as part of the indexing program.	Partial	The Department will continue current annual index netting program.	The Department is searching for areas with high Northern Pike density and low Walleye by-catch that will augment the sample size of Northern Pike. However, it is premature to commit to 200 samples of Northern Pike.	Despite best efforts increasing the sample size to 200 appears to be too optimistic and not a feasible target.
2. Water temperature and water quality, particularly winter oxygen levels, be measured routinely in	Yes		There will be monthly monitoring during the winter commercial fishing season for the first two	There have been equipment failures and there is no longer a functioning O ₂ meter.

Recommendation Matrix – MSC Certification of Waterhen Lake Walleye & Northern Pike Commercial Gillnet fishery				
Recommendation	Adoption	Rationale	Implementation Plan/Strategy	Update
Waterhen Lake. This data should be collected to see whether they have any aspects of winterkill or local oxygen depletion, which would concentrate Northern Pike, while supporting a better understanding of the Walleye resource.			years to determine if oxygen depletion occurs.	MCWS still interested in doing this but resources are limited.
3. Validated procedures of accurately interpreting age and growth of Northern Pike be used in the future, probably using the cleithral method, in routine indexing and commercial catch sampling and that size-at-age be compared with a growth standard and used to develop age-related performance indicators.	Yes		Validated aging procedures will be used for Northern Pike.	Ageing of Northern Pike is now part of the routine sampling program
4. Various types of reproductive information be acquired and used to develop and monitor an indicator of the spawning stock of Northern Pike in Waterhen Lake. Indeed, as in Walleye, a Northern Pike index of spawning stock biomass could provide a target reference point.	Yes		The Department is currently collecting maturity schedules for both sexes in the hope of eventually developing a harvest control rule.	Complete, every female is mature
5. Appropriate techniques are developed to annually determine mortality rate of the Northern Pike population of Waterhen Lake and that it be used as a reference-point	Partial	Currently the Department is limited to gillnet surveys which are recognized as inappropriate due	The Department will explore opportunities to enhance its monitoring using different gear types and/or techniques. Ontario FWIN summary will be	A reference point based on mortality rates has been developed and compared with the FWIN global 25 th percentile, but a more

Recommendation Matrix – MSC Certification of Waterhen Lake Walleye & Northern Pike Commercial Gillnet fishery				
Recommendation	Adoption	Rationale	Implementation Plan/Strategy	Update
performance indicator to assess Northern Pike exploitation on an ongoing basis, preferably refined for thermal conditions (GDD).		to biased harvest to gravid females. Mortality rates will be calculated from the current index program to at least provide a trend in ersatz mortality rates.	consulted to determine if any relation to thermal conditions can be detected.	nuanced comparison to FWIN data using GDD has not yet been done.
6. A carefully monitored spring live-capture trap-net commercial fishery be considered and, if necessary, used to reduce disproportionately abundant prey fish, including small Northern Pike, to maintain a sustainable, high-quality commercial Walleye and Northern Pike harvest.	Yes	This will serve as a valuable management tool to adjust fish community if needed.	Regulations and areas where a fishery would occur will be determined in advance of a spring live-capture trap-net commercial fishery.	The 2017 index program caught a high number of young-of-the-year Northern Pike. If this abundant year class appears to persist in the 2018 index program, a thinning plan will be developed with the fishers.
7 (a) Log books are made compulsory as a condition of license.	No	A subgroup of sentinel fishers should be sufficient. This approach is consistent with recommendations made during the pre-assessment survey of fishery.	This would be implemented in conjunction with the on-site basin hole inspection program.	A new pilot will be attempted with a group of sentinel fishers in 2018 using tablets for data entry.
7 (b) Part of the log book is used to record discards in order to ensure the completeness of information.	Yes		Already being conducted. Log book records two types of data: (1) retained (non FFMC) by-catch as well as (2) discarded by-catch.	The voluntary logbooks scheme was not successful and has been dropped for now.

Recommendation Matrix – MSC Certification of Waterhen Lake Walleye & Northern Pike Commercial Gillnet fishery				
Recommendation	Adoption	Rationale	Implementation Plan/Strategy	Update
8. The external audit of the Fisheries Management Plan is completed in the third year of the MSC certification so that the results and the MCWS response are available to the team engaged in any re-certification.	Yes		The external review of the management plan will be completed in the third year of the MSC certification.	Three external reviewers have been approached.
9. The Fisheries Management Plan is considered “evergreen” to reduce the need for future staff inputs.	Yes			This is now routine.
10 (a) The auditors are concerned that there may be too broad a range and subsequent overlap of size and age of fishes caught by either mesh size due to snagging, entangling, and age variation etc. to provide the protection desired, and more drastic means may be required. It is recommended that there is some evidence to support the effectiveness of mesh size selectivity to obtain the desired results.	Yes	Mesh sizes are broadly selective for age and size, particularly smaller meshes.	The Department will provide distributions of fish size by mesh so reviewers can assess selectivity. The Department understands that deduction of small or large Walleye will not be total, but the Harvest Control Rules will provide the greatest protection possible for age classes.	Size selectivity information is now available for pike and walleye.
10 (b) It is recommended that assessment be conducted using specific nets to determine gill-net selectivity for Northern Pike and that selectivity curves be prepared and considered when designing performance indicators. Likewise,	No	The Department considers a consistent index netting program sufficient to track the Northern Pike	This recommendation would provide very interesting information to managers and will be forwarded as an undergraduate or Masters research project. There are simply too many gauges of twine,	While recognizing the merits in this it the Department will never have resources to undertake this.

Recommendation Matrix – MSC Certification of Waterhen Lake Walleye & Northern Pike Commercial Gillnet fishery				
Recommendation	Adoption	Rationale	Implementation Plan/Strategy	Update
selectivity and catchability of Northern Pike should be taken into consideration in the FWIN index gill nets. Indeed, retention of various types of gill nets has been studied recently not only for Northern Pike but for other species, providing valuable correction factors (Walker et al. 2012).		population.	materials, colours and hanging ratios for the Department to undertake this recommendation.	
11. Currently the Waterhen gill net ice fishery targets Walleye. The retained by-catch of Northern Pike has also been certified. While it is understood that the roe of captured eggs of female Northern Pike may be extracted to provide the specific product of Northern Pike caviar, the auditors are concerned that any increase in the market value of the roe may lead to the inception of a dedicated roe fishery which may, in turn, be detrimental to stock status and may have implications for other populations in the Lake including walleye. On that basis it is strongly recommended that fishery managers regulate against a specific roe fishery until such time there may be science based Northern Pike TACs and quota that could take account of the potential catch in such a fishery.	Partial	The Department agrees with the precautionary approach; however, to determine the exact scope will research Northern Pike roe deliveries from Waterhen Lake to determine whether concerns of a dedicated roe fishery are warranted.	Data will be compiled in time for the 2 nd annual surveillance audit.	Data for December 2017, and January 2018, indicate the maximum ratio of roe to delivered weight of headless Northern Pike is around 10%. This is close to the expected ratio, and occurred when headless pike were fetching \$1.25/kg and roe \$8.25/kg.

Recommendation Matrix – MSC Certification of Waterhen Lake Walleye & Northern Pike Commercial Gillnet fishery				
Recommendation	Adoption	Rationale	Implementation Plan/Strategy	Update
12. Given the vintage of the data we recommend that the client reviews other sources to ensure that the Lake Winnipeg findings used to estimate the Limit Reference Point for walleye continue to be relevant or are the most appropriate.	Yes		The Department will conduct reviews of relevant literature.	When resources and competing priorities allow this may be undertaken.
13. The auditors recommend an explicit definition of a habitat strategy in the Fishery Management Plan.	Yes	The Department agrees that habitat is a component of any fishery. The Department is collaborating with the University of Manitoba in monitoring edaphic characteristics of Waterhen Lake.	Habitat strategy will be developed which incorporates protection as outlined in the Federal Fisheries Act and Departmental policies.	Manitoba Sustainable Development is reviewing the new federal Fisheries Act, and will develop a habitat strategy in the context of the new Act.

5 Conclusion

5.1 Summary of findings

Conditions 1 and 2 are on-target and expected to be closed out at the next annual audit.

Condition 3 has been met and has been closed out at this audit.

The fishery continues to meet MSC certification requirements and remains certified.

6 References

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- Schupp, D.H. 2002. What does Mt. Pinatubo have to do with walleyes? *North American Journal of Fisheries Management* 22: 1014–1020.
- Sustainable Fisheries Unit, 2018. Wildlife and Fisheries Branch. Action Plan to Meet Conditions of Certification and Assessment Team recommendations for the Waterhen Lake Walleye and Northern Pike Gillnet Commercial Fishery

Appendix 1 – Re-scoring evaluation tables

The following table is taken from the Public Certification Report (PCR) and a revised scoring rationale provided in **blue text**. The cited references can be found in the PCR at:

<https://fisheries.msc.org/en/fisheries/waterhen-lake-walleye-and-northern-pike-gillnet-commercial/@@assessments>

PI 3.2.4		The fishery has a research plan that addresses the information needs of management		
Scoring Issue		SG 60	SG 80	SG 100
a	Guidepost	Research is undertaken, as required, to achieve the objectives consistent with MSC's Principles 1 and 2.	A research plan provides the management system with a strategic approach to research and reliable and timely information sufficient to achieve the objectives consistent with MSC's Principles 1 and 2.	A comprehensive research plan provides the management system with a coherent and strategic approach to research across P1, P2 and P3, and reliable and timely information sufficient to achieve the objectives consistent with MSC's Principles 1 and 2.
	Met?	Y	Y	N
Justification		<p>Walleye & Northern Pike</p> <p>Research is undertaken over a wide range of issues relevant to P1 and P2 activities, either directly for Waterhen Lake or for lakes with similar ecosystems and habitats. This research is consistent with the need to advise fishery managers of the status of the commercial fish stocks and thus the effectiveness of the management planning. The timing of the main activities contained in the research plan of the FMP is to inform the decision making process prior to confirmation of the harvest control rules of the up-coming season. This can be considered as a strategic approach that provides reliable and timely information relevant to P1. Given that the main P2 issues relate to retained and by-catch species, the research programme also provides data on other species. Concerning ETP species, habitat and ecosystem, the decision making process is informed by consideration of the maintenance of the <i>status quo</i> (i.e. there is no detectable increase in risk) and non-direct research (e.g. into gear issues and the food web). The research plan cannot be considered comprehensive as it does not identify non-direct research taking place that may have a bearing on the three principles, nor identify the areas that may need research but that are outside the possibilities for funding of activities related to a fishery of the scale and intensity of Waterhen Lake.</p>		
b	Guidepost	Research results are available to interested parties.	Research results are disseminated to all interested parties in a timely fashion.	Research plan and results are disseminated to all interested parties in a timely fashion and are widely and publicly available.
	Met?	Y	N Y	N Y

	Justification	Walleye & Northern Pike The research results are available to fishery managers and through them the results are made known to stakeholders. Similarly, researchers have access to the data base and the information. The auditors have not seen any were provided with evidence, i.e. a link to the Manitoba Conservation and Water Stewardship Commercial Fishing webpage, that demonstrates to indicate that the results of the research are disseminated or that they are and available to all interested parties. Furthermore, page 38 of the 2017 Waterhen Lake Fisheries Management Plan highlights to readers this web page and that any new information will be uploaded to this site when available. There is no evidence to show how the research results are disseminated and it appears clear that they are not widely and publically available. The fishery meets the scoring issue at SG60, but not SG80 and SG100. This has led to the raising of a condition to certification.
References	MSC 2013 (i); MSC 2013 (ii); MCWS (2013); Pellissier, Geisler Klein, G. and W. Galbraith. 2017. Waterhen Lake Fisheries Management Plan. Fisheries Report. 2017-01. Manitoba Conservation and Water Stewardship Commercial Fishing page: http://www.gov.mb.ca/sd/waterstewardship/fisheries/commercial/commercial.html .	
OVERALL PERFORMANCE INDICATOR SCORE		Walleye & Northern Pike 70 90
CONDITION		3

Appendix 2 - Stakeholder submissions

No stakeholder comments were received

Appendix 3 - Surveillance audit information

The following information was provided by the client:

Client Information for Surveillance Site Visit

Fishery: Lake Waterhen Walleye and Northern Pike

The purpose of a surveillance audit is to ensure that the fishery continues to comply with the MSC standard since being certified. They are a required part of the MSC process. The surveillance audit also allows for key changes within the fishery to be captured and reported on with relevance to the MSC standards.

The following checklist of information requirements is aimed at helping you to prepare for the surveillance audit and assist the assessment team in their preparation and completion of their audit report without unnecessary delays. Please review the checklist and provide the requested information at least 2 weeks before the audit. If you have any queries, please contact a member of the fisheries team at fisheries@acoura.com.

Information required:				
Updated vessel list	Fishery is carried out from snowmobiles and Bombardier tracked vehicles on ice. There are 21 licenses on Waterhen Lake. One license transfer occurred since the last audit: Quenton Gabriel (fisher number 173) transferred his license to Rudy Gabriel (fisher number 197).			
Catch Data	Species 1 (Walleye)			
	TAC	Year (Most recent fishing year)	(2016-17)	Amount
	UoA share of TAC	Year (Most recent fishing year)	(2016-17)	Amount
	UoC share of TAC	Year (Most recent fishing year)	(2016-17)	Amount
	Total green weight catch by UoC	Year (Most recent fishing year)	(2016-17)	Amount
		Year (second most recent)	(2015-16)	Amount
	Species 2 (Northern Pike)			
	TAC	Year (Most recent fishing year)	(2016-17)	Amount
	UoA share of TAC	Year (Most recent fishing year)	(2016-17)	Amount
	UoC share of TAC	Year (Most recent fishing year)	(2016-17)	Amount
	Total green weight catch by UoC	Year (Most recent fishing year)	(2016-17)	Amount
		Year (second most recent)	(2015-16)	Amount

Relevant information to support the surveillance audit	Annual index netting program and stock assessment
Changes in the management system and/or relevant regulations	
Information Provided	In 2016 due to a low CUE of 4.17 Walleye per net in the index netting program, the allowable yardage per license was reduced to 4500 m. In 2017, the CUE improved to 4.89, but remained below the upper stock reference point of 5 so the maximum allowable yardage for the 2017_18 fishing year will be 5000 m.
Changes to personnel involved in science, management or industry	
Information Provided	One of the 21 licenses was transferred to a new fisher.
Changes to scientific base of information including stock assessments	
Information Provided	The 2017 stock assessment has been completed. The Catch Per Unit Effort has improved over the 2016 assessment, but remains slightly below the Upper Stock Reference. Spawning stock abundance and diversity remain well above the Upper Stock Reference points for each, and the mortality rate remains very low.
Any developments or changes within the fishery which impact traceability or the ability to segregate between fish from the UoC and fish from outside the UoC (non-certified fish)	
Information Provided	No changes within the fishery. We are aware that the processor may have broken the chain of custody within their facility.

Evidence of work carried out to meet any condition milestones:	
Principle 1 Condition 1	<p>By the fourth annual audit, the following SG 80 scoring issue must be met: The harvest strategy for Northern Pike is responsive to the state of the stock and the elements of the harvest strategy work together towards achieving management objectives reflected in the target and limit reference points. <i>BEHIND TARGET LAST YEAR.</i></p> <p>At the second annual audit the client will present the Certification Assessment Body with evidence that the defined harvest strategy has been formally accepted by Manitoba Conservation and Water Stewardship and data and analysis are underway to provide the basis for development of biological reference points to support the strategy Interim Scoring: no change 70</p> <p>At the third annual audit the client will present the Certification Assessment Body with the analytically determined biological reference points Interim Scoring: no change 70</p>
Evidence provided:	A harvest control rule has been developed with the fishers that will be responsive to the state of the stock. The biological reference point will be a 2M proxy for the maximum sustainable yield. There will be no limit on Northern Pike until total annual mortality exceeds 2M, at which time a quota of 40,000 kg will be imposed. The quota will then be reduced by 10% annually until the mortality rate returns to below 2M, and from that point increased by 10% per year as long as the mortality rate remains below 2M.

Principle 1 Condition 2	<p>By the fourth annual audit, the following SG 80 scoring issue must be met: For Northern Pike, well-defined harvest control rules are in place that are consistent with the harvest strategy and ensure that the exploitation rate is reduced as limit reference points are approached.</p> <p>At the second annual audit the client will present the Certification Assessment Body with evidence that the identified options have been discussed with stakeholders and may be implemented according to the status of the stock in the context of the harvest strategy. Interim Scoring: no change 70</p> <p>No 3rd surveillance milestone. Interim Scoring: no change 70</p> <p>At the fourth annual audit there will be evidence that the harvest control rules required by the strategy have been implemented as required and in accordance with the stock status. Scoring outcome: 80</p>
Evidence provided:	A harvest control rule has been developed with the fishers that will be responsive to the state of the stock. The biological reference point will be a 2M proxy for the maximum sustainable yield. There will be no limit on Northern Pike until total annual mortality exceeds 2M, at which time a quota of 40,000 kg will be imposed. The quota will then be reduced by 10% annually until the mortality rate returns to below 2M, and from that point increased by 10% per year as long as the mortality rate remains below 2M.
Principle 3 Condition 3	<p>By the second annual audit, the following SG 80 scoring issues must be met: Research results are disseminated to all interested parties in a timely fashion. <i>BEHIND TARGET LAST YEAR.</i></p> <p>At the second annual audit the client will present the Certification Assessment Body with evidence that research results are being disseminated in a formal established way. Interim Scoring: no change 70</p> <p>By the third audit the required minimum score for PI 3.2.4 is 80.</p>
Evidence provided:	<p>All past and current research has been posted on the following Manitoba Sustainable Development, Wildlife and Fisheries Branch, webpage for public access and viewing:</p> <p>www.gov.mb.ca/sd/waterstewardship/fisheries/commercial/commercial.html</p> <p>Beside the above, the following statement has also been incorporated into the Waterhen Lake Fishery Management Plan Research section:</p> <p>“The website will be updated when new research is published”.</p>
Recommendation 1	<i>Insert condition text and relevant milestone</i>
Evidence provided:	

Revised client action plan with the new milestone 3 for Condition 2 highlighted

**Action Plan to Meet Conditions of Certification & Assessment Team
Recommendations for the Waterhen Lake Walleye and Northern Pike
Gillnet Commercial Fishery**

**Prepared by: Sustainable Development, Sustainable Fisheries Unit, Wildlife and
Fisheries Branch.**

Condition 2	There are well defined and effective harvest control rules in place
Performance Indicator	<p>PI 1.2.2</p> <p><u>Issues at SG80</u></p> <p>Well defined harvest control rules are in place that are consistent with the harvest strategy and ensure that the exploitation rate is reduced as limit reference points are approached. The selection of the harvest control rules takes into account the main uncertainties. Available evidence indicates that the tools in use are appropriate and effective in achieving the exploitation levels required under the harvest control rules.</p>
Score	70
Rationale	Issue a. As harvest control rules are not well defined for Northern Pike they do not ensure that exploitation rates for Northern Pike may be adjusted if required.
Condition	By the fourth annual audit, the following Scoring Guideline 80 scoring issues must be met: For Northern Pike, well-defined harvest control rules are in place that are consistent with the harvest strategy and ensure that the exploitation rate is reduced as limit reference points are approached.
Milestones	<p>At the first annual audit the client will present the Certification Assessment Body with evidence that there has been consideration of the appropriateness of existing Harvest Control Rules for Northern Pike and, that options have been identified.</p> <p>At the second annual audit the client will present the Certification Assessment Body with evidence that the identified options have been discussed with stakeholders and may be implemented according to the status of the stock in the context of the harvest strategy.</p> <p>At the third annual audit, the client will present the Certification Assessment Body with evidence that harvest control rule options have been discussed with stakeholders and confirm that these will be implemented according to the status of the stock in the context of the harvest strategy by the fourth annual surveillance audit.</p> <p>At the fourth annual audit there will be evidence that the harvest control rules required by the strategy have been implemented as required and in accordance with the stock status.</p>
Client action plan	<p>In the first year of certification, Sustainable Development (Sustainable Fisheries Unit, Wildlife and Fisheries Branch) will undertake the following activities:</p> <ul style="list-style-type: none">• Expand the sample of Northern Pike to at least 200 specimens as part of the Branch's on-going annual indexing program.• Start an annual commercial catch sampling program for Northern Pike as part of the Branch's data collection activities in support of effective monitoring and analysis that is part of a formal harvest strategy for sustainable management of the Northern Pike fishery.• Discuss with the Waterhen Lake commercial fishers a precautionary approach to fishery management of Northern Pike.

	<p>In the second year of certification, Sustainable Development (Sustainable Fisheries Unit, Wildlife and Fisheries Branch) will draft a harvest strategy in full consultation with the Waterhen Lake Fishermen's Association including related associated specific harvest control rules & other management options/actions for Northern Pike. Sustainable Development (Sustainable Fisheries Unit, Wildlife and Fisheries Branch) will also analyze data and information from Waterhen Lake and other sources to identify potential limit and upper stock reference points for Northern Pike together with related stock performance indicators.</p> <p>In the third year of certification, Sustainable Development (Sustainable Fisheries Unit, Wildlife and Fisheries Branch) will provide evidence at the third annual surveillance audit that harvest control rule options have been discussed with stakeholders; and the agreed harvest control rules will be implemented according to the status of the stock in the context of the harvest strategy by the fourth annual surveillance audit.</p> <p>In the fourth year of certification, Sustainable Development (Sustainable Fisheries Unit, Wildlife and Fisheries Branch) will provide the Certification Assessment Body with evidence of the use of biological reference points to inform the management decision-making process as part of a formal harvest strategy, together with evidence of the defined harvest control rules.</p>
Consultation on condition	No consultation is required on meeting this condition as the client is solely responsible for meeting this requirement of certification.

Appendix 4 - Revised Surveillance Program

Table 5: Surveillance level rationale

Year	Surveillance activity	Number of auditors	Rationale
4	On-site audit	3 auditors on-site	<p>This will be the 4th audit and re-assessment of the fishery is expected to commence at the 4th audit. Therefore, it is anticipated that a team of 3 auditors/assessors will be on site.</p> <p>It should be noted that the re-assessment will be undertaken against the MSC Fisheries Certification Requirements version 2.</p>

Table 6: Timing of surveillance audit

Year	Anniversary date of certificate	Proposed date of surveillance audit	Rationale
4	24 th June 2014	June 2018	<p>It is estimated that the re-assessment will take 12 months to complete and so commencing the re-assessment as close to the fishery certification anniversary in order to ensure no lapse in certification.</p>

Table 7: Fishery Surveillance Program Revised

Surveillance Level	Year 1	Year 2	Year 3	Year 4
Level 4	On-site surveillance audit	On-site surveillance audit	Off-site surveillance audit	On-site surveillance audit & re-certification site visit.