

# Summary of Activities

Date: July 28, 2016

To: SVSFE Board of Directors  
Ian Kitch Sustainable Development  
- Fisheries Branch

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**Subject:** Vini Lake - Investigation on pike invasion

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**Study Area:** Vini Lake is a unique fishery located in a secluded area within the Porcupine Provincial Forest located 56 km north-northwest of the town of Swan River (UTM 14U 335837 5830931). The lake has an area of 56.0 hectares and attains a maximum depth of 33.7 meters. The lake is off the beaten path which provides a more pristine experience for trout anglers.

## **Introduction:**

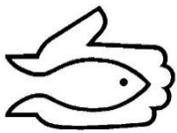
In recent years, non-salmonid invasions have become a growing trend for fisheries managers. The unauthorized, intentional release of aquatic animals to facilitate a fishery, which we refer to as "illegal stocking," is a global problem (Johnson 2009), but sometimes mother nature is responsible for the appearances of unwanted species. Many of our lakes are connected through intermittent streams or tributaries which contain multiple tiers of beaver dams restricting fish movement between waterbodies. Unfortunately changing climates and high runoff years can cause immediate changes to these streams/creeks in a short period, allowing fish to enter into adjacent waterbodies. We believe this was the case with Vini Lake in the spring of 2014.

## **Background info:**

Vini Lake was originally an under-utilized northern pike fishery. In the late 80's Department of Natural Resources (Dauphin) and SVSFE partnered to create a lake suitable for the more preferred trout species. The purpose of the project was to reclaim the lake and restock with a more productive fish species (Manitoba Environment & Workplace, 1989). With funding approval received through Lottery Funds - Fisheries Branch, chemical reclamation took place on October 13<sup>th</sup>, 1989.

Prior to reclamation, as many game fish species (northern pike & white suckers) were caught and live-transferred to other waters. The lake was reclaimed by the application of rotenone, a product which is a non-polluting substance that disrupts the breathing apparatus of fish species (Edwards, 1989). Edwards, DNR Fisheries Technician, noted gratitude towards project supporters including students from Birch/Bowsman schools in the construction of a rock fish barrier at the lake's outlet and the volunteers who helped with the treatment process.

The project costed \$25,000 to treat the 56 hectare lake with rotenone but was highly recommended as "it would generate 10,000 hours of fishing annually on Vini Lake, at a cost of less than \$2 per angler-day." (DNR, 1989). They believed the project would draw a lot of attention as did Beaver and Two Mile Lake reclamations in 1987.



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Following reclamation, Vini Lake was stocked frequently with rainbow trout from 1990 on. Average stocking rate on years stocked works out to 11,000 rainbows. One time stocking occurrences of arctic char took place in 1994 and lake trout most recently in 2012 (Table).

In 2010 & 2011, SVSFE conducted short trout assessments utilizing the Brook Trout Index Netting Protocol (BTIN). At the time the lake appeared to re-established with a strong white suckers population possessing 77% (2010) and 92% (2011) of the species composition.

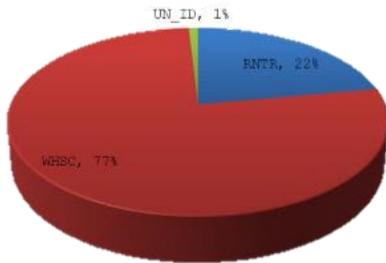


Figure: 2010 Species Composition

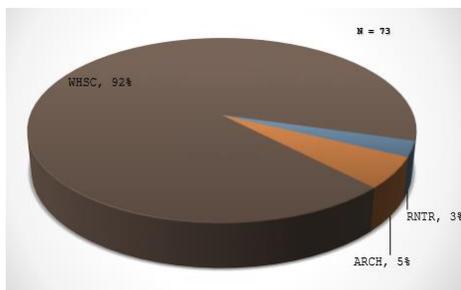
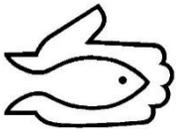


Figure: 2011 Species Composition

**Table: Stocking History**

Year	Species	Size	# Stocked
1990	Rainbow Trout	fingerlings	15,000
	Rainbow Trout	2+	2,400
1991	Rainbow Trout	1+	6,000
1992	Rainbow Trout	fingerlings	13,000
1993	Rainbow Trout	1+	25,000
1994	Arctic Char	12-15 cm	15,000
1995	Rainbow Trout	12-15 cm	9,000
1996	Rainbow Trout	12-15 cm	17,000
1997	not stocked		
1998	Rainbow Trout	12-15 cm	10,000
1999	Rainbow Trout	12-15 cm	10,000
2000	not stocked		
2001	Rainbow Trout	12-15 cm	7,000
2002	Rainbow Trout	12-15 cm	15,000
2003	Rainbow Trout	fingerlings	20,000
2004	Rainbow Trout	12-15 cm	15,000
2005	Rainbow Trout	12-15 cm	15,500
2006	not stocked		
2007	Rainbow Trout	12-15 cm	9,900
	Rainbow Trout	18+	2,100
2008	Rainbow Trout	12-15 cm	8,400
2009	Rainbow Trout	fingerlings	15,000
2010	Rainbow Trout	fingerlings	6,000
2011	not stocked		
2012	Lake Trout	18+	700
2013	not stocked		
2014	not stocked		
2015	Rainbow Trout	12-15 cm	5,000

It is important to note the possibility that the reclamation process may not have been very effective on eradicating the suckers due to the morphology of the lake. In Vini Lake historical documents the amount of chemical used was calculated by lake surface acre/hectares where literature today calculates the amount of treatment to use by volume of water. There have been several studies indicating a negative impact on rainbow trout populations where sucker are present due interspecific competition. This is a concern as competition between the two species could be compromising the success of the current stocking program. In addition, following the 2011 trout assessment lake trout were recommended for the stocking program. The initiative would bring the first lake trout destination in the Porcupine Mountains.



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The interesting discovery during these assessments was the presence of arctic char in both the 2010 and 2011 assessments. Age analysis was inclusive for the one char caught in 2010 (unid at that time) and ages from the 2011 have not been received/analyzed to date. Regardless, all fish were fairly small, entertaining the idea of natural recruitment or on the other end of the spectrum, extremely slow growth, which seems unlikely. Further investigations with the hatchery and fisheries personnel could possibly resolve the question.



Largest arctic char caught during the 2011 survey

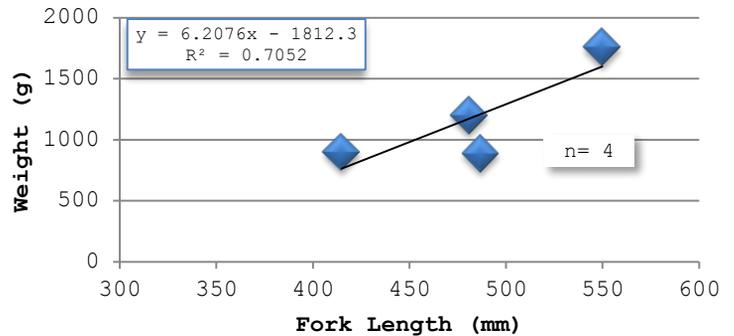


Typical arctic char caught during surveys - skinny



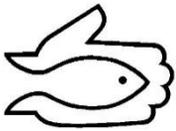
Rainbow trout caught during 2011

## 2011 Vini Lake Arctic Char Size Distribution



Rainbow trout angled by local fly-fisher in 2011

Very little is known on the current angling quality for trout in Vini Lake. During the 2011 trout assessment, fly-fishers reported angling few, but attractive rainbows. There has been positive feedback on lake trout stocking as local anglers have reported recent success in winter lake trout fishing.



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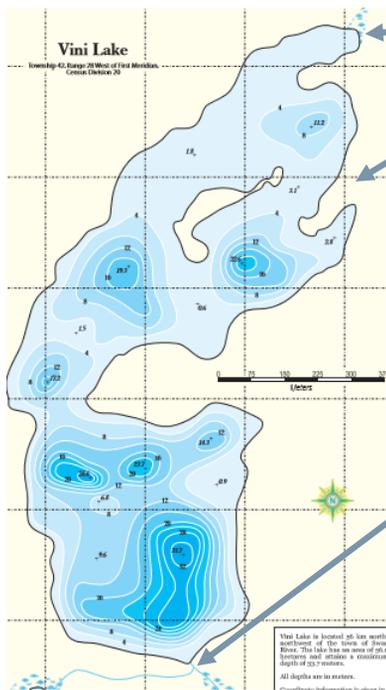
What anglers have reported is the issue at hand... the presence of northern pike. The first confirmed pike reported in Vini Lake was on the August long weekend in 2014. This fish measured in at 35" which was a shock not only to the fisherman but to managers as well. It is believed that high water is to blame. The spring melt with a combination of high spring rainfall (May 29<sup>th</sup> - highest rainfall of 52mm for Swan River area) likely compromised either connected outflows or inflows. Managers requested anglers remove all pike within their legal limits and in 2015 the fishing regulations were amended to allow anglers to possess one pike over 75cm. SVSFE was unable to investigate until the summer of 2016.

## 2016 Investigations:

On June 29-30<sup>th</sup> technicians set into Vini Lake with the intentions of gathering information on the reported pike found in the lake. Technicians set several short set gill nets, one over night trap and angled many areas of the lake. In total five pike were caught (all in the same location). Pike were between 340 - 500 mm (Figure).



Age results indicate two pike at age 2 and three pike at age 3. This corresponds with the first reports of pike in 2014. It is speculated these fish are either; 1) offspring from mature pike 2) entered the lake at a small size or 3) may still be entering the lake from connected waterbodies. Due to the morphology of the lake, capturing pike by means of netting was found to be quite difficult, while angling was most effective during the short assessment. Technicians investigated the status of connected creeks. Two tributaries were identified on the northeast end of the lake and one outflow was found at the south end of the lake.



Inflow #1: water held by beaver dam, no apparent connectivity

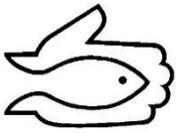


Inflow #2: connected to nearby M-file lake #2 (pike fishery)



Outflow: rock fish barrier built in 1989 still intact though water does seep through and could possibly provide passage from North Steeprock Lake during high waters





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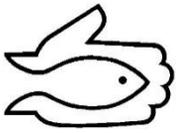
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Technicians planned to revisit Vini Lake in late August to repeat BTIN protocols from 2010/11 to assess trout numbers and remove any pike. Unfortunately previous commitments took priority and this was unable to commence. After reviewing the current situation with board members and Ian Kitch, Fisheries Manager of the Western Region, it was concluded that initiating a full manual removal program is not feasible.



SVSFE values our trout fisheries, but each waterbody has different considerations when deciding the most economical and beneficial action plan for the fishery. Over the past two years, SVSFE has re-initiated a pike removal program on a lake very similar to Vini Lake. The "Glad Lake pike removal" program was re-erected to facilitate the management objective of creating a lake trout/arctic char fishery. This type of effort has proven successful in the past for trout introductions but can be short lived if not maintained. Therefore, SVSFE recognizes a pike removal in lakes of this size and depth are long term commitments. Vini Lake has many factors which make it challenging; and therefore justifying a long term removal program is difficult.

- (1) Access - is far from ideal. The road meanders through over a kilometer of mud holes and is 4x4 access or winter access only. SVSFE has discussed improving the road but would need to consult with local Wuskwi Sipiik treaty band as the first portion of the road overlays a treaty entitlement. Also, improvements could be quite expensive to undertake. Without having timely access in and out of the lake, poses issues transferring live fish from the lake, not to mention the gear required.
- (2) Usage - as stated previously, angling pressure and success it not truly known at this time but anecdotal information suggests angling pressure is minimal...not near the 1989 estimate of "10,000 fishing hours annually". If feasible it might be beneficial to set up a traffic counter to grasp usage.
- (3) Cost - The cost to physically remove fish through a live fish transfer netting program would be much higher compared to the "Glad Lake Pike Removal" as access would increase time, effort and gear required.
- (4) Commitment - As mentioned previously, this is a long term commitment. At this time, SVSFE's seasonal staff is committed to other fisheries management objectives during critical periods (low water temperatures). There is the opportunity of volunteers conducting the program but there are matters to discuss in sourcing additional gear, transportation and long term committed volunteers. If a removal is ever a consideration (physical/chemical), connecting tributaries should be re-evaluated in order to prevent pike re-establishing in the lake.



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## **Moving forward:**

At this time, it is not recommended to undertake a pike removal program at Vini Lake. The presence of pike in a stocked trout water is an unfortunate reality managers have to face, sadly after government and user groups have invested into this trout fishery. What is recommended, is to request the assistance from anglers. As stated previously, angling displayed the highest catch per unit effort and with modified regulations, anglers can assist in removing the unwanted pike. This request should be publicized through social media, signage and local media, regularly.

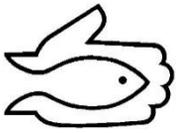
Monitoring the success of anglers assistance might hold some merit. Fisheries managers/technical staff are at a point where special considerations are required to properly determine the most cost effective practices in managing trout water invasions. If agreed upon, monitoring might benefit, as it would

- (1) support understanding of the current stocked trout fishery within the lake
- (2) provide insight on management practices of this type by monitoring angler removals and the outcomes on the fishery.

In terms of current stocking program, managers may choose to revise or cease trout stocking. It is well known rainbow trout and northern pike occupy similar littoral habitat and pike can negatively effect the success of rainbow trout stocking. Scheibel et al (2016) found northern pike predation substantially influences salmonid management initiatives and is likely a primary factor contributing to reduced rainbow trout abundance. Interestingly, they also found rainbow trout only contributed to <10% of the annual energy consumption in pike <600mm, while in pike >600mm rainbows accounted for 56% of their annual energy consumption. There is some light to this suggestion as the pike caught in 2016 were all under 600mm. Scheibel also noted strategies for reducing pike predation on rainbows include increasing size of stocked fish or altering the timing and spatial distribution of stocking events. If rainbow trout stocking is continued, SVSFE recommends spring scatter stocking of larger rainbows. Impacts to the lake trout appear to be less due to recent angling quality though research suggests they too may experience negative effects depending on the dynamics of the fish population and lake size. Kerr (2000), found in lake trout waters, the presence of northern pike may reduce lake trout abundance as a result of competition and predation. This effect is particularly pronounced in smaller lakes.

One may say Vini Lake is doomed as a stocked trout fishery but it is hopeful through public assistance and periodic monitoring and alterations to the stocking program, this lake may continue to be one of the few trout fisheries found in the Porcupine Mountains.





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## **Literature Cited:**

DNR 1989. Vini Lake Reclamation (89-05-19). Sustainable Development Fisheries Branch - Internal Report.

Edwards, G. 1989. Newspaper submission to Star & Times. Sustainable Development Fisheries Branch - Internal Report.

Johnson, B.M., R. Arlinghaus, P.J. Martinez. 2009. Essay: Introduced Species - Are we doing all we can to stem the tide of illegal fish stocking. American Fisheries Society. Vol 34 No 8 • August 2009

Kerr, S. J. and R. E. Grant. 2000. Ecological Impacts of Fish Introductions: Evaluating the Risk. Fish and Wildlife Branch, Ontario Ministry of Natural Resources, Peterborough, Ontario. 473 p.

Manitoba Environment & Workplace. 1989. Public Notice. Sustainable Development Fisheries Branch - Internal Report. newspaper clipping from Aug 24, 1989

Scheibel, N.C., D.J Dembkowski, J.L Davis, S.R. Chipps. 2016. Impacts of Northern Pike on stocked Rainbow Trout in Pactola Reservoir, South Dakota. North American Journal of Fisheries Management.

USGS Publications Warehouse. 10.1080/02755947.2015.1116472DB - <https://pubs.er.usgs.gov/publication/70173868>