



# Arctic Charr Technical Work Group

Arctic charr Species Author:

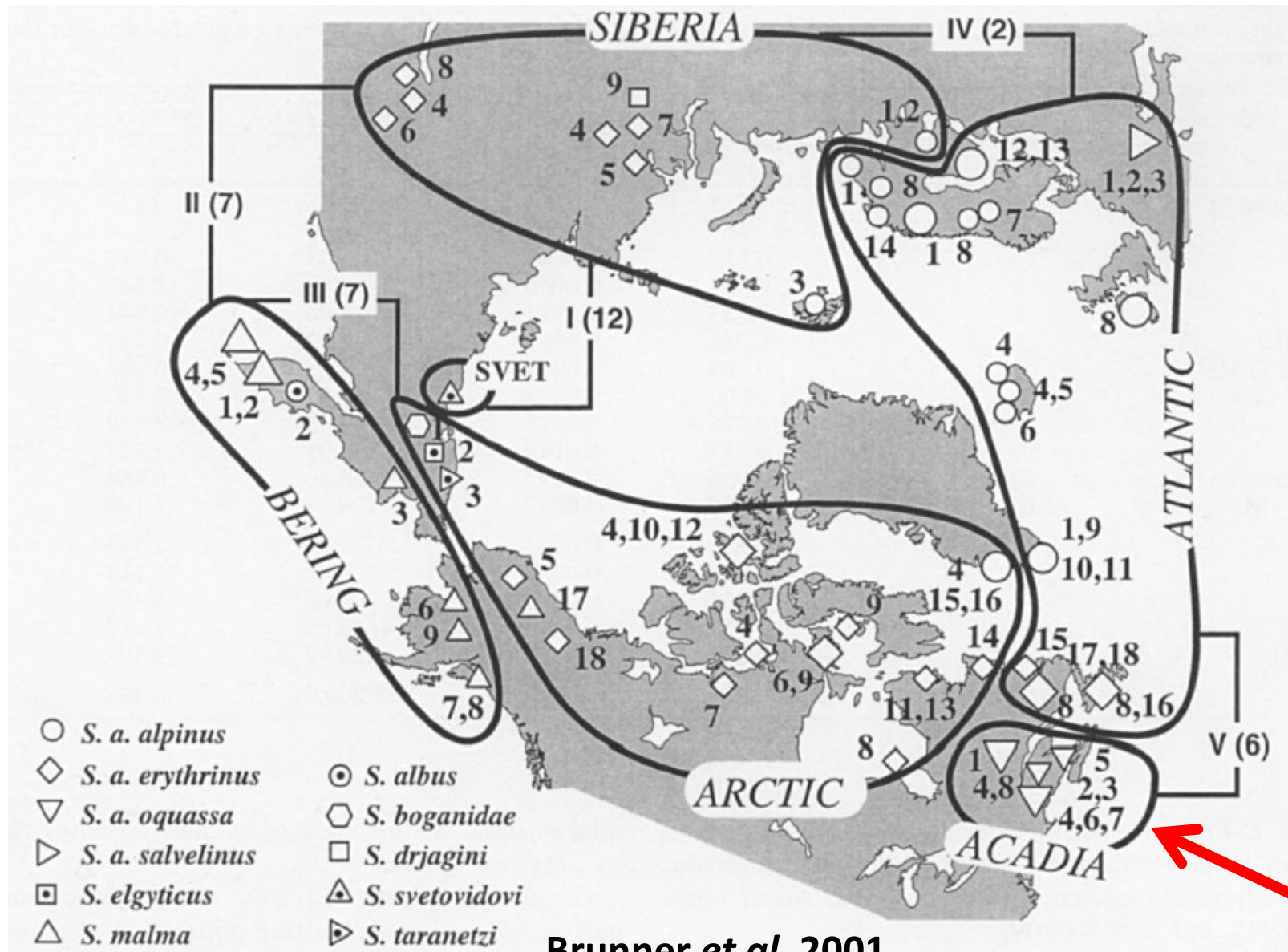
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Fish River Lakes Region

# Introduction – Arctic charr



- \* Endemic to Maine/Northeast*
- \* “Pioneer species”...first fish to colonize 11-20K years*
- \* Often called glacial relicts...meaning*
- \* Limited distribution, mainly interior highlands*
- \* Hatchery production related to focused, short-term projects*
- \* Globally, northern-most freshwater fish with a wide circumpolar distribution*
- \* High Arctic to deep lakes far outside the Polar region*
- \* Highly cold-adapted - high elevation, to 1,500 ft water depths*

# Global Range of Arctic Charr and Close Relatives



Brunner et al. 2001

# Management History – Arctic charr



- \* Early extirpations in ME, NH, and VT; fishery regulations too late in preventing the Rangeley Lake collapse*
- \* 1960s culture work; 70s/80s genetic work; 70s-90s translocations*  
*F. Kircheis work*
- \* 1980s Floods Pond work (F. Kircheis) – Bangor Water District*
- \* UMaine work, recent...*
- \* Fishery regulations – conservative daily bag limits, high length limits, concurrent regs with brook trout; geared toward preventing release of live bait fish*
- \* Restoration projects at Big Reed and Wadleigh Ponds*



## Current Management – Arctic charr

- Periodic fish sampling through gillnetting, minnow traps, and angling; limited trapnetting
- Voluntary creel surveys
- Water quality – dissolved oxygen/temperature profiles
- Watershed activities monitored – forestry, development, etc
- Discussions with anglers, guides, sporting camps



## Current Management – fishery regulation

No. of Waters	Regulation
1	Closed to all fishing
1	ALO; S-18 (effectively no harvest allowed)
2	ALO/FFO; C&R
3	ALO; 10 in min; 2 fish daily bag limit
1	ALO; general law, north region
5	S-4; 2 trout daily bag limit (1@ 5)
1	General law, south region



**N=315**



**N=2**

**N=1**

**N=1**

**Acadian Charr in U.S. and Canada**

# Recent MDIFW Initiatives



*Bald Mountain Pond work...*

*Restoration and reclamation of two charr waters:*

*Big Reed Pond, 2010 chemical reclamation*

*Big Wadleigh Pond, 2012 chemical reclamation*



**Big Reed Pond**  
**90 acres**  
**55 ft max d**





## Invasive rainbow smelt confirmed 1991



**Once introduced, cause major ecological changes**

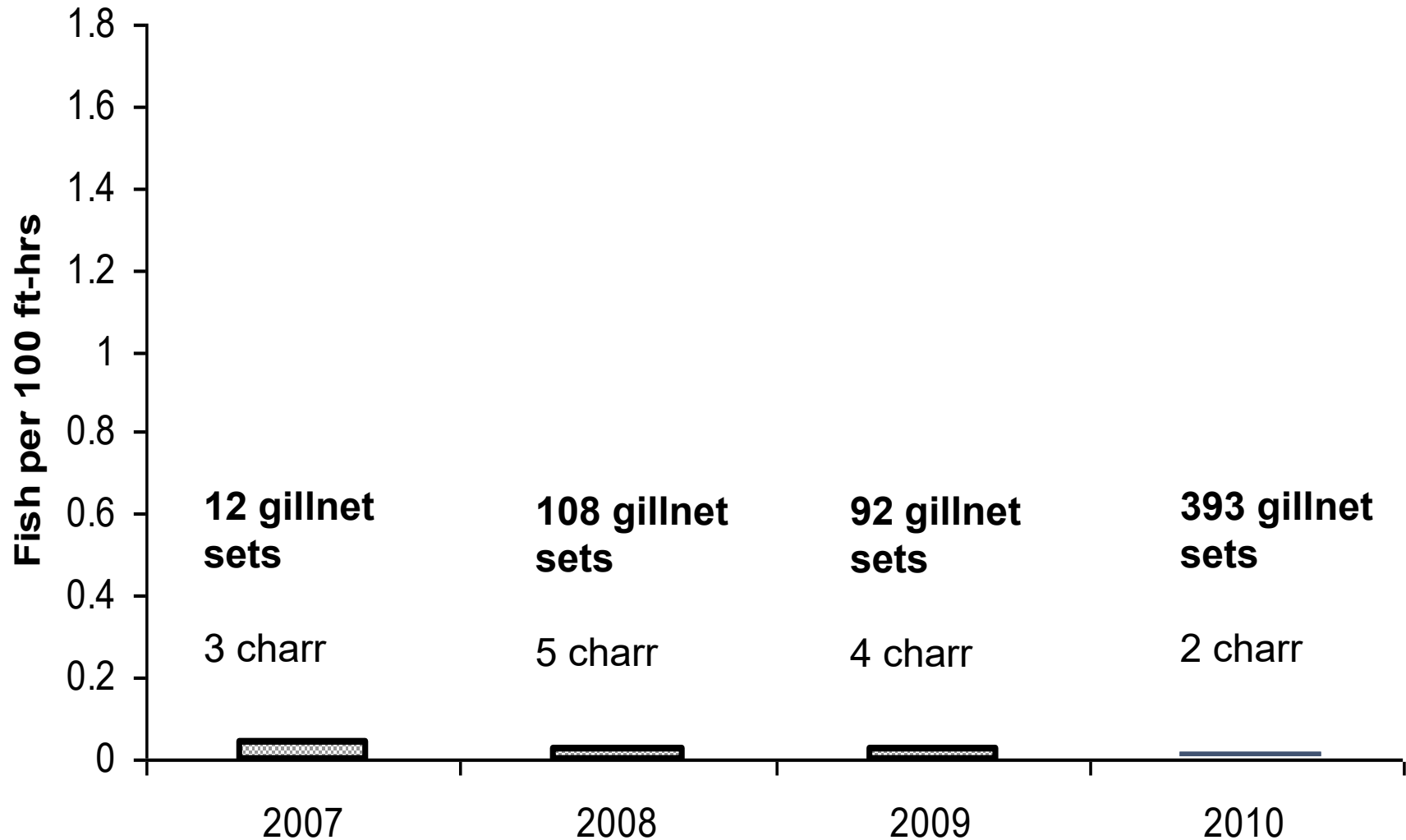


# The Restoration Plan....



1. Capture charr for brood, quarantine in a hatchery (2007 – 2010)
2. Hatchery culture to increase numbers (2007 – 2013)
3. Treat with rotenone to remove smelt (October 2010)
4. Reintroduce charr (2011 – 2013)

# Captive Brood Collection – Effort and number of charr caught





## Difficulties with culture



- \* Feeding – would not eat pelleted fish food
- \* Low numbers of fish: only 9 contributed eggs/milt
- \* Successful only in 1 of 6 years

# Private hatchery, contracted for culture



**5 seven ft tanks**  
**6 five ft combi tanks**  
**Two hatching troughs**  
**Space to add 4 combi tanks**





Maximizing crosses and keeping separate through swim up





## Application of rotenone, October 2010



**1,100 litres of liquid**  
**4,140 kg of powder**







# RESTOCKING EFFORT

1+

Spring/fall 2011

1,035



2+

Fall 2012

54

3+

Fall 2013

67

0+

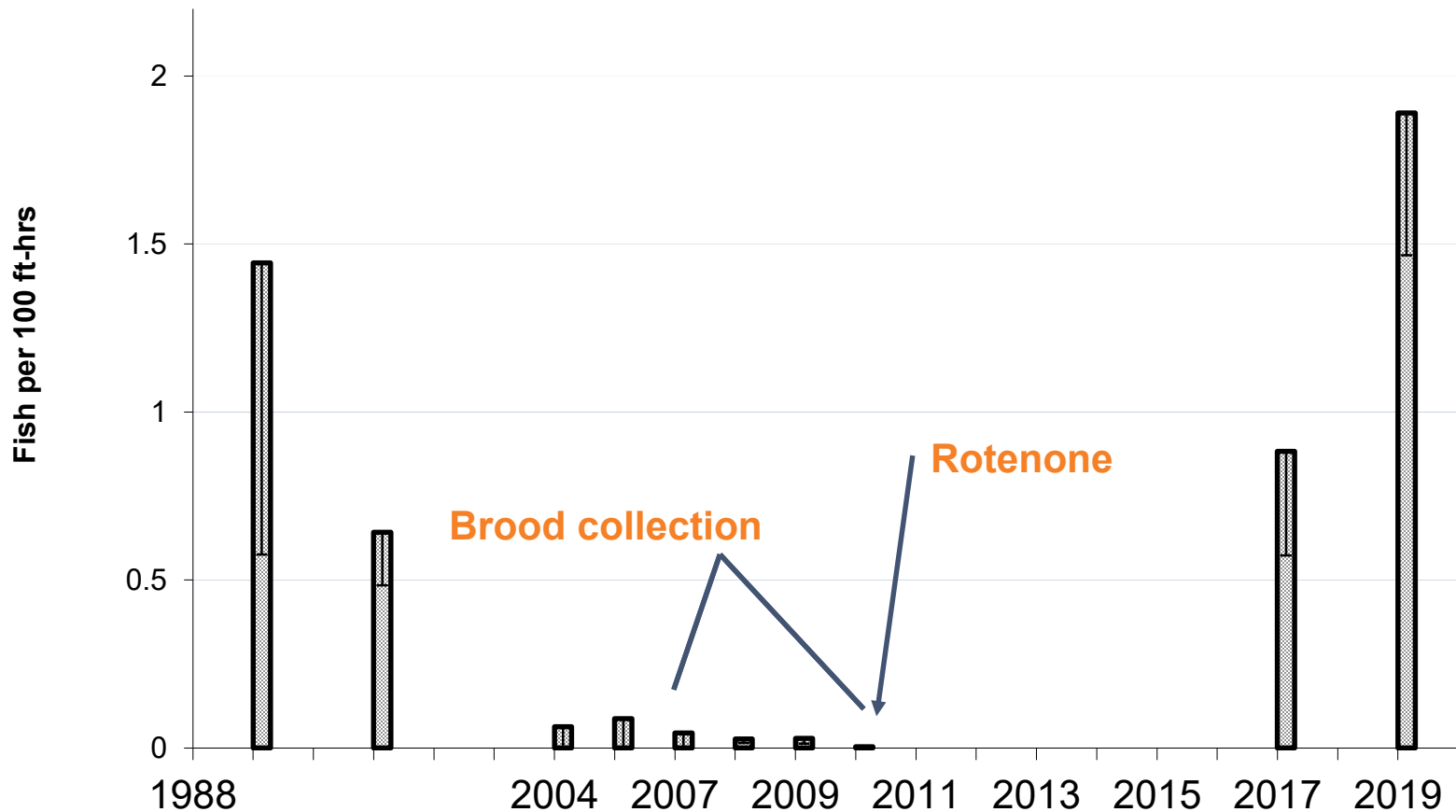
Fall 12/13

163





## Big Reed Pond, Charr catches: 1989-2019





# 2016 Angler Survey Summary

- Taken from the summary section of the RM survey.

Location	Completed Surveys
North Region	200
Downeast Region	200
Central Region	203
Southern Region	202
Nonresident	400
Total	1,205

Q19: What inland freshwater species did you fish for during the 2015 open water season?

Arctic charr: 0.7 percent

## Future work...



- Process substantial back-log of otoliths for age determination
- Update age-growth for all populations, where feasible
- Locate spawning areas for each population, where feasible
  - Radio telemetry
  - Example: Deboullie Pond complex...is there a spawning population in each water?
- Consider new translocation program
  - Short term conservation measure
  - Provide new angling opportunity
  - Raise awareness among anglers of species







Translocations: future?

Multiple waters, focused on “most at risk”

