

THE FISH OF EYYOU ISTCHEE

What can DNA tell us?



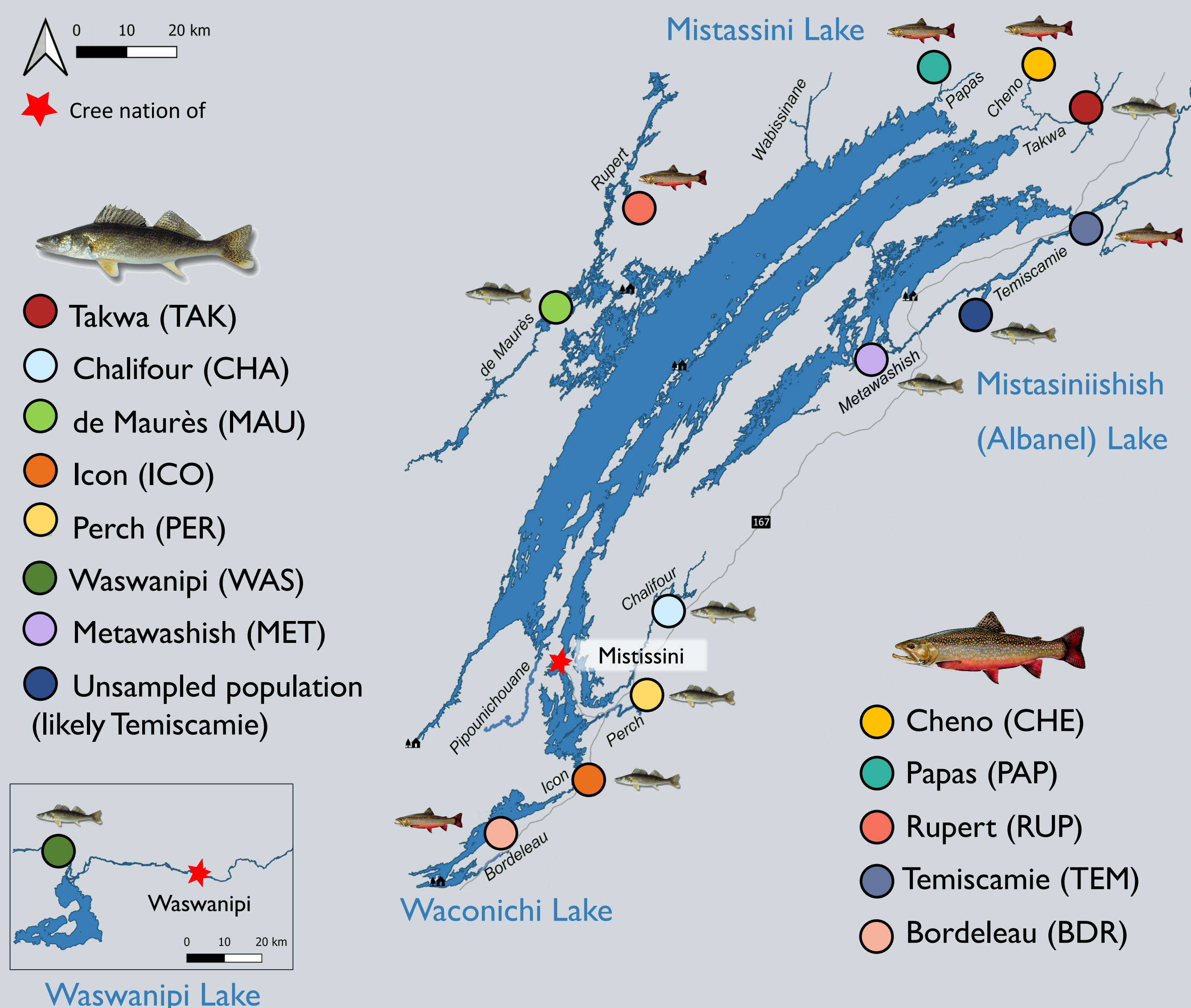
FISHES is a community-based research partnership across Canada which interweaves Indigenous knowledge and western sciences (notably genomics and fisheries science) to improve food security and fisheries stewardship in Northern Indigenous Communities.

This poster aims to share the most recent genomic results from the **FISHES** project in Eeyou Istchee for the **Walleye (*Sander vitreus*)**, the **Lake trout (*Salvelinus namaycush*)** and the **Speckled (Brook) trout (*Salvelinus fontinalis*)**

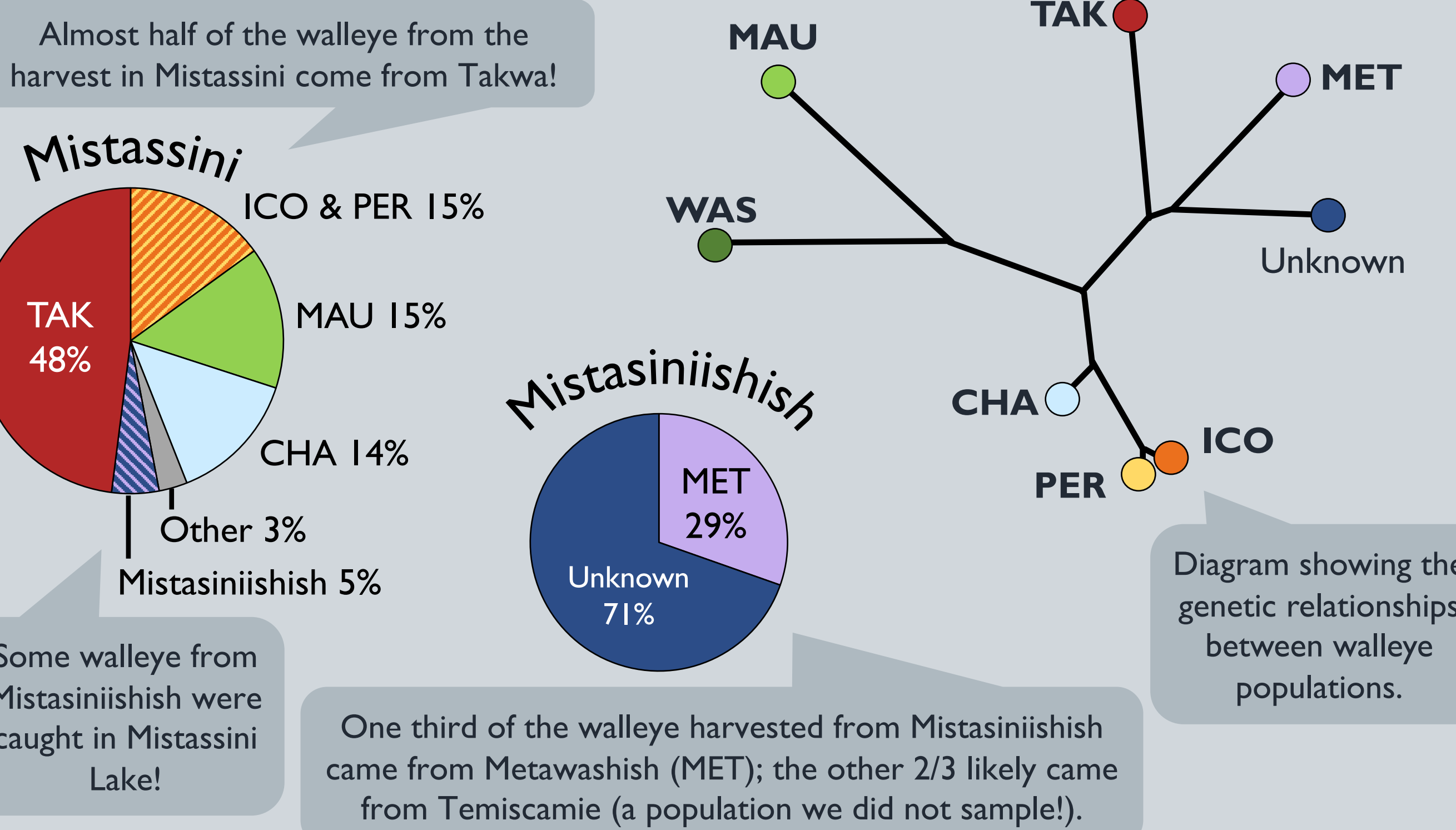
Thanks to your help and support, tissue samples from over 4000 individual fish have been collected in Eeyou Istchee to date! For genomic research, we use these samples to investigate the DNA variation found within different species and to answer several questions:

1. What is the population (stock) structure of Speckled trout, Walleye and Lake trout within several large lakes and their tributary rivers?
2. How genetically different are populations breeding in different regions of each lake?
3. Do fish move between different rivers or lakes?
4. Which populations contribute most to the annual harvest for Walleye and Speckled trout in Mistassini and Mistasiniishish Lakes?

Major source-rivers for Ukâss (walleye) and Mâsamekus (speckled trout)

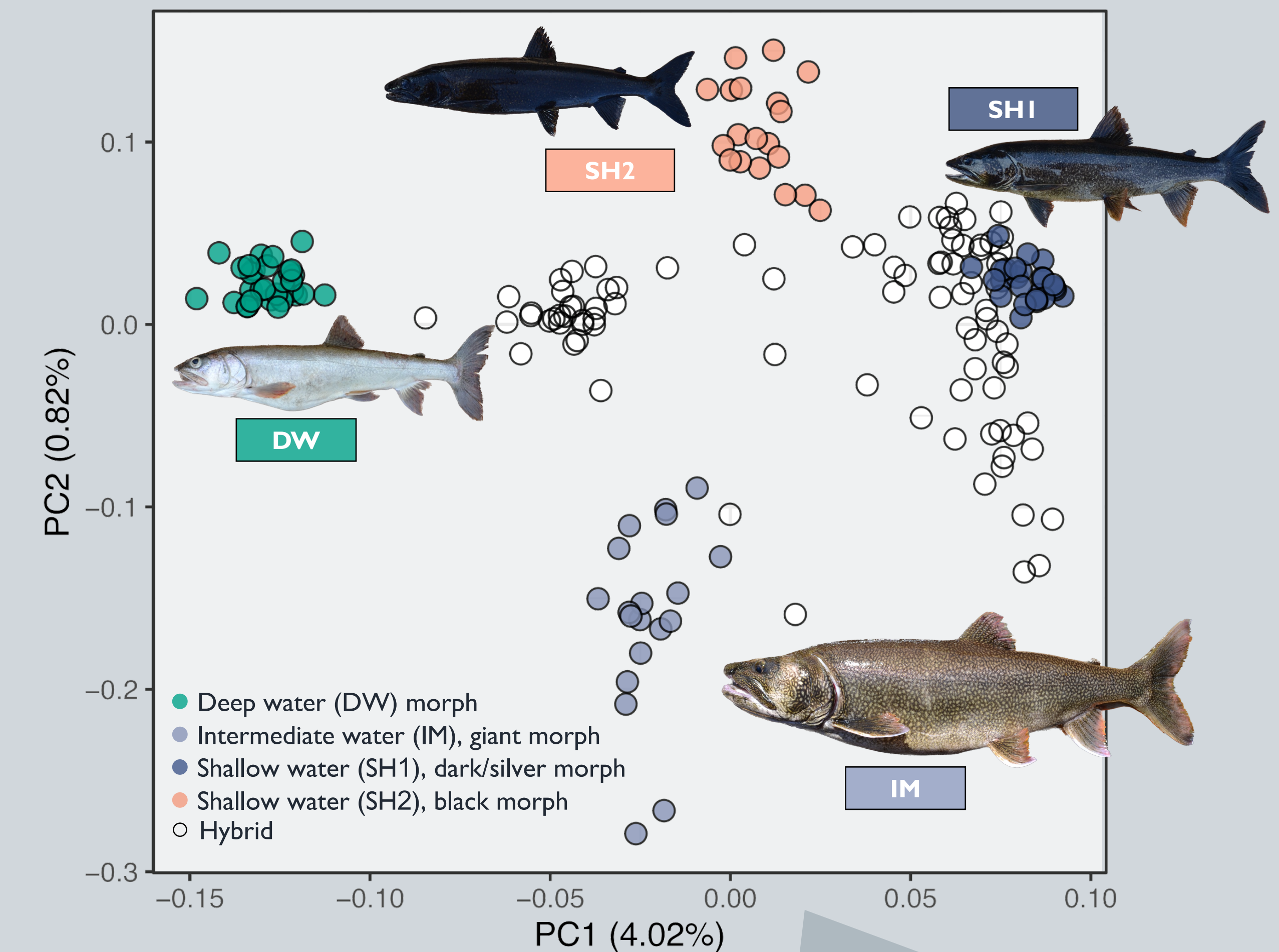


Ukâss Walleye

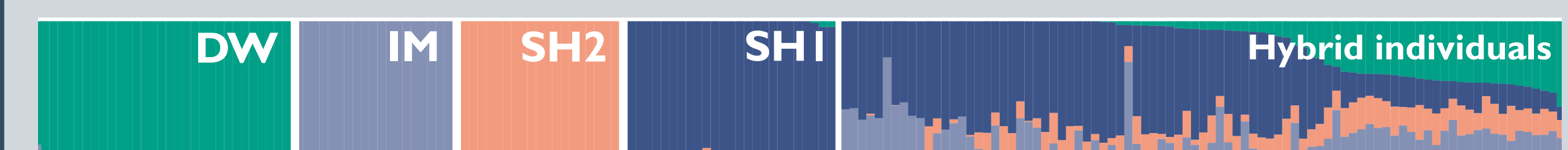


- There are at least seven genetically distinct populations of walleye. Four in Mistassini, two in Mistasiniishish and one in Waswanipi.
- De Maurès (MAU) and Waswanipi (WAS) are the most differentiated.
- Icon (ICO) + Perch (PER) are grouped together as they are not distinct from each other.
- Takwa (TAK) are more closely related to walleye from Mistasiniishish than other populations in Mistassini Lake!
- There is an unknown population in Mistasiniishish, genetically different from the one in Metawashish (MET)!

Namekuss Lake trout

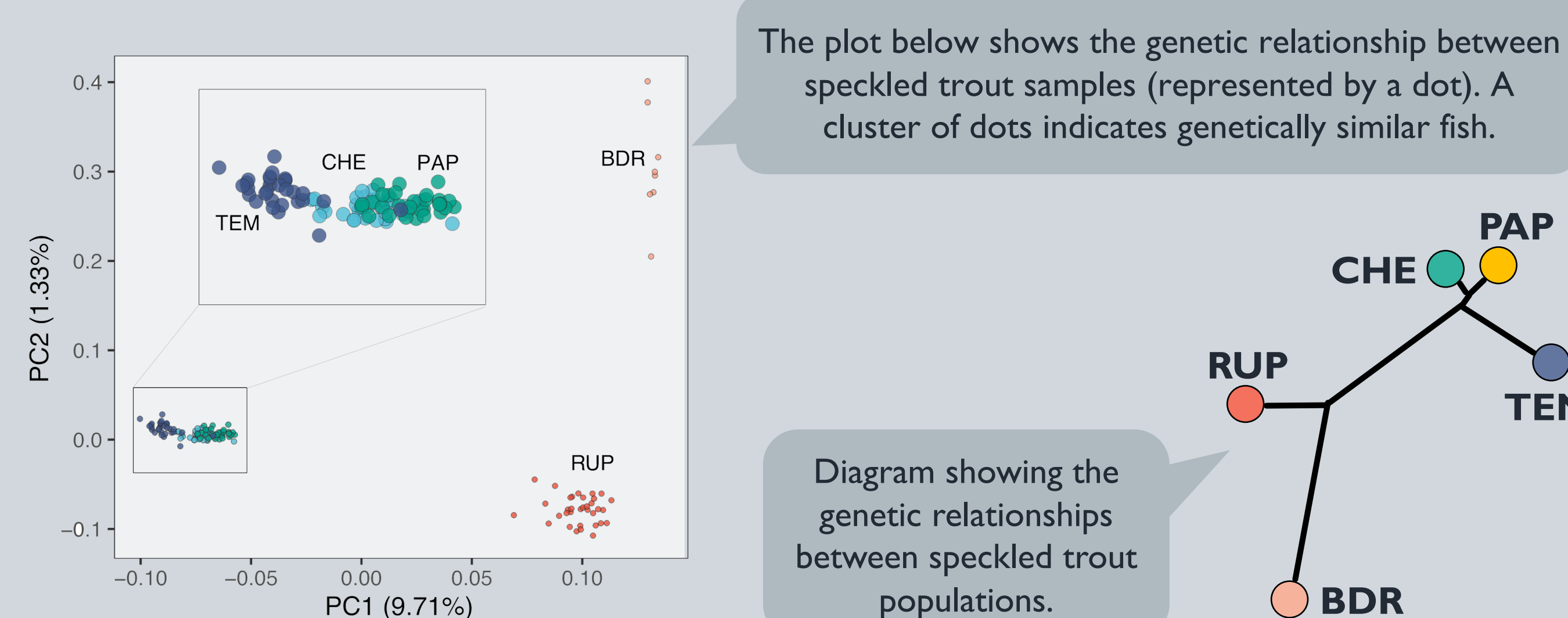


The plot below shows the proportional assignment of each individual lake trout (vertical colored-line) to the four main genetic populations. Hybrid individuals show less than 90% of assignment to a single cluster.



- Mistassini Lake is home to at least four genetically distinct lake trout populations or 'morphs' which occupy different habitats (e.g., depth and basin).
- Morphological differences are associated (at least partially) with body shape, size and coloration.
- Hybridization between these morphs is widespread.

Mâsamekus Speckled (Brook) trout



- Genetic analyses of fall spawning speckled trout indicate four distinct stocks across the three lakes; Mistassini, Mistasiniishish and Waconichi.
- Rupert (RUP) in Mistassini and Bordeleau (BDR) in Waconichi are the most genetically differentiated.
- Speckled trout from the two Northeastern rivers in Mistassini, Cheno (CHE) and Papas (PAP), are genetically very similar and more related to Temiscamie (TEM) in Mistasiniishish than they are to Rupert (RUP) trout which are also found in Mistassini.
- More analyses are under way regarding speckled trout harvests!

Thank you to local partners and communities for their support!



Contact us!



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More information about the project scan the QR code or check fishes-project.ibis.ulaval.ca