

Population abundance estimates of ecologically and economically important species

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Holy Grail: how many fish are out there?

Close-kin mark-recapture (CKMR)

Based on the principle that an individual's genotype can be thought of as a
"Recapture of the genotype of each of its parents"



Fisheries and Oceans
Canada

Pêches et Océans
Canada



Advantages of CKMR

Relatively cheap

No recapture of same individual needed

No tag loss

The tag is the genotype

Can use dead fish

(DNA quality)

No bias from mortality
due to tagging

No bias from differences in
tag reporting rate

Fecundity is important

Approach validated: Ruzzante et al 2019 Meth Ecol Evol

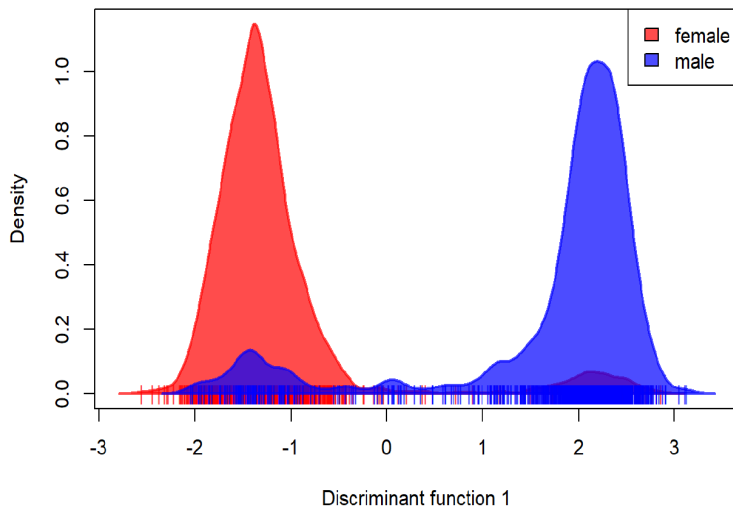
Close Kin Mark Recapture workshop
(JULY 2019) Dalhousie University



ATLANTIC HALIBUT

- Genomic tools available
 - Highest Value fishery on the east coast
 - Population abundance uncertain and presumed changing (also US vs. Canada)
- Goal to genotype N=12000 indiv over 4-5 yrs @ ~ 3000 ind/yr

Discriminant Analysis of PC



~ 200 SNPs distinguish sex
Some ind misassigned sex in
the field

genotyped 2634 @ 3600 SNPs (March 2022)
Expecting ~ 1150 genotypes (now) + extra 2400
by March 2023

1 POP
14 HSP
80 FC
identified in N=2634

Need to identify ≥ 50 POPs