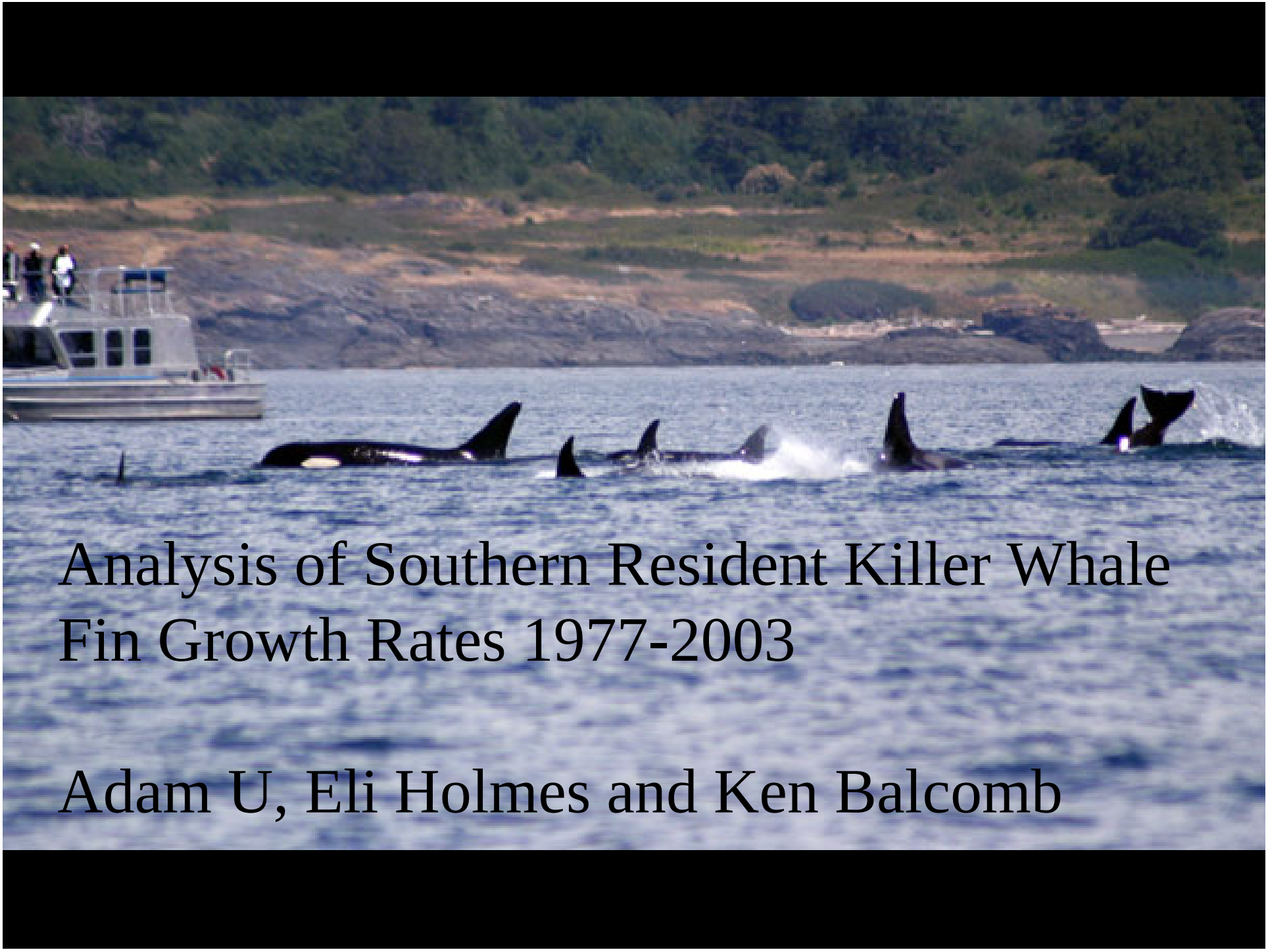


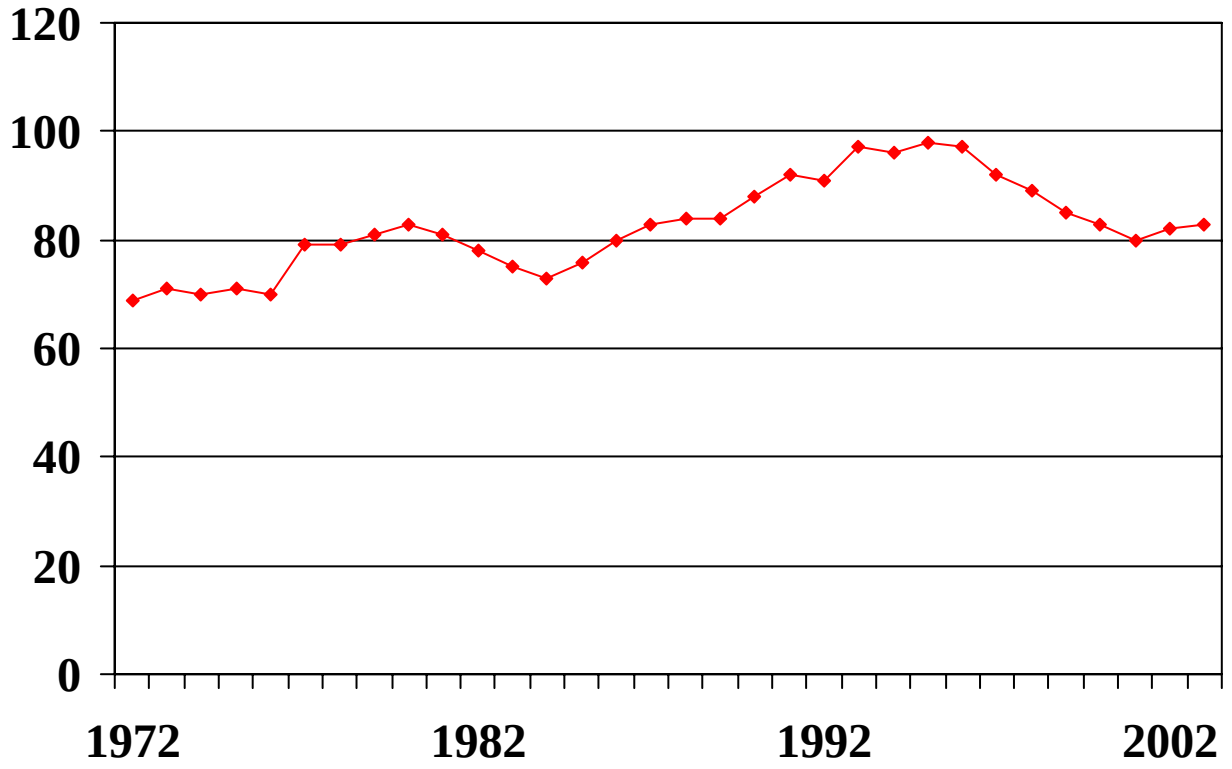
Analysis of Southern Resident Killer Whale Fin Growth Rates 1977-2003

Adam U, Eli Holmes and Ken Balcomb

Some natural history about KWs

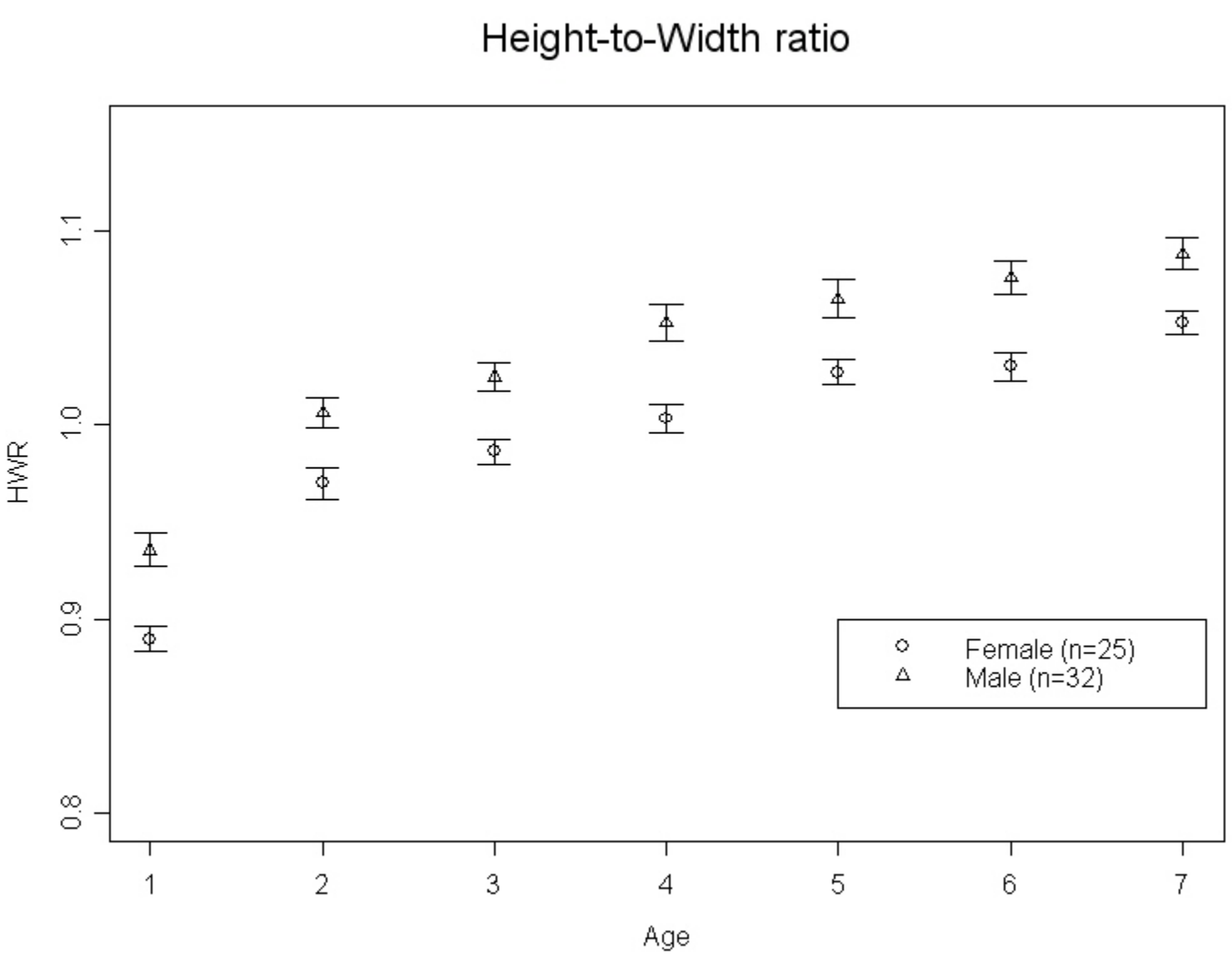
- 2 types of KWs
- SRKWs are found in the summer in the San Juan Islands and then spend the winter elsewhere
- 3 pods in the SRKWs
- Paternity can be from outside pod
- SRKWs were petitioned to be listed in 2001 in the US
- SRKWs are listed as an endangered species in Canada

Southern Resident KW pods: 1970s to present



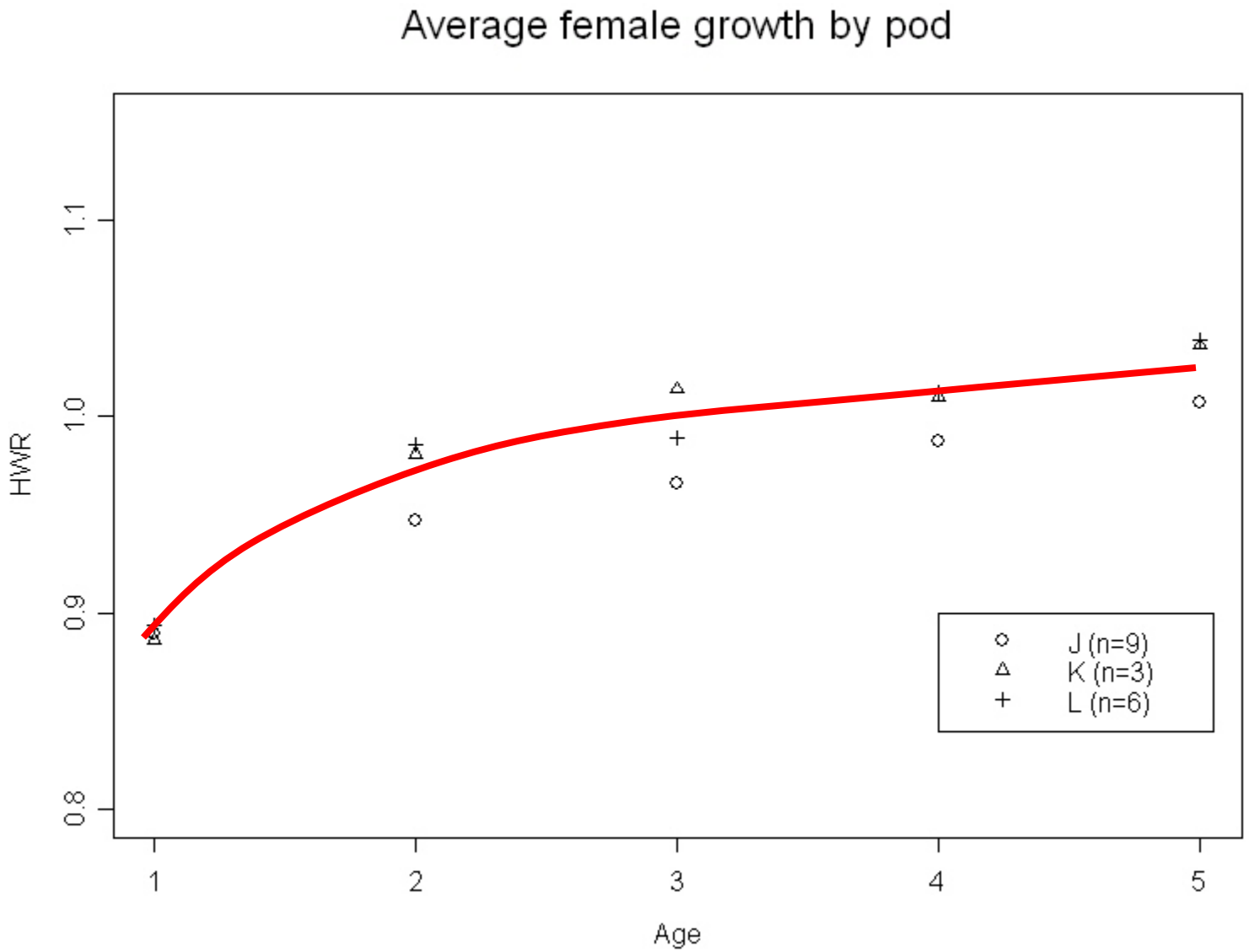
Long-term data set

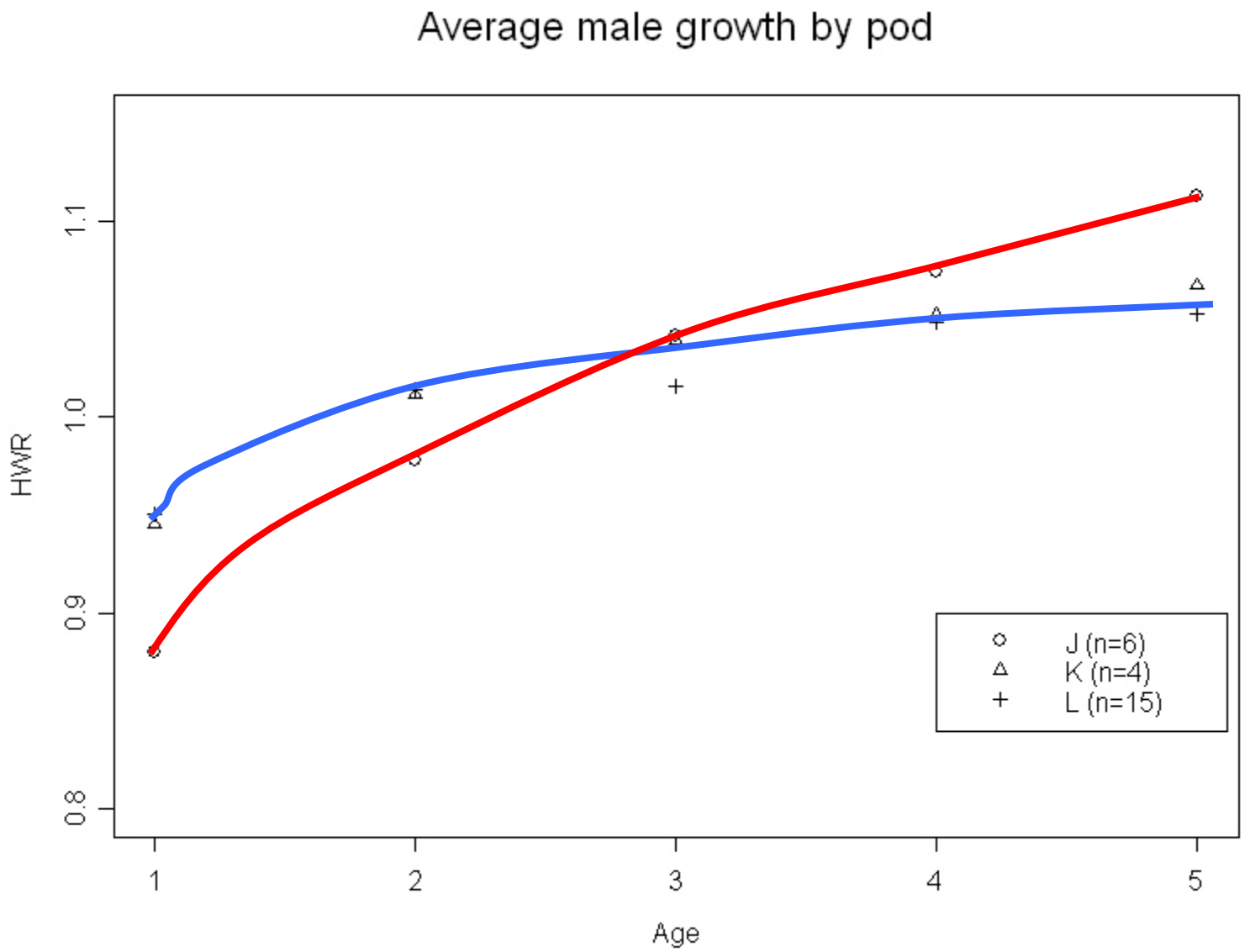
- 30+ year record of all individuals with birth and death year
- Multiple ID photos per individual per year


Height-to-Width ratio
HWR
0.8
0.9
1.0
1.1
1
2
3
4
5
6
7
Age
Female (n=25)
Male (n=32)

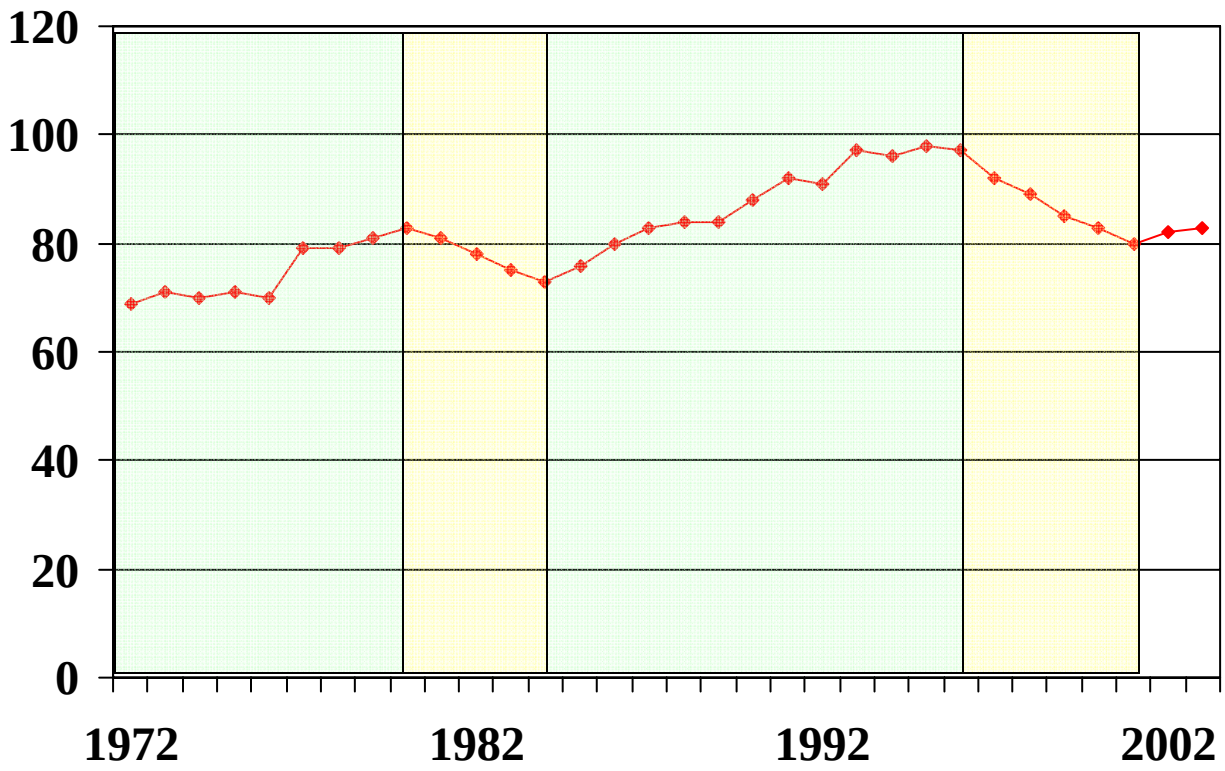
Photogrammetric analysis of fin growth rates 1977-2003

- Goal: Look for evidence (or lack thereof) of temporal changes in growth rates that might be consistent with food limitation.

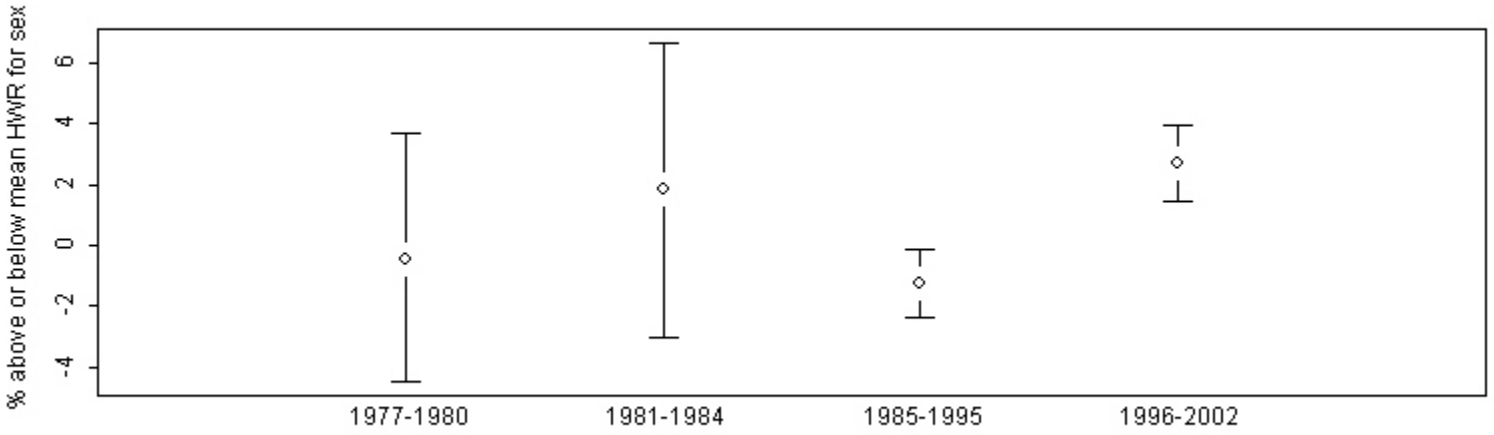

Average female growth by pod
HWR
0.8
0.9
1.0
1.1
1
2
3
4
5
Age
J (n=9)
K (n=3)
L (n=6)

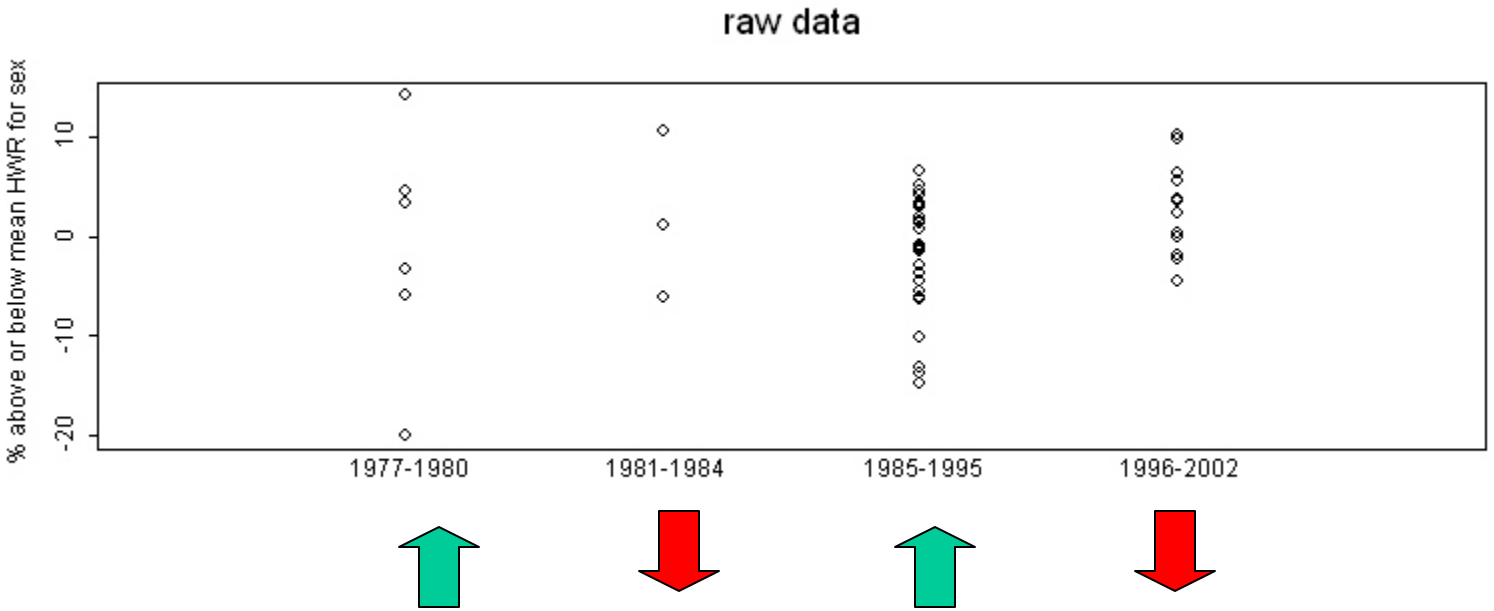

Average male growth by pod
HWR
0.8
0.9
1.0
1.1
1
2
3
4
5
Age
J (n=6)
K (n=4)
L (n=15)

Analysis years divided into increasing and decreasing periods

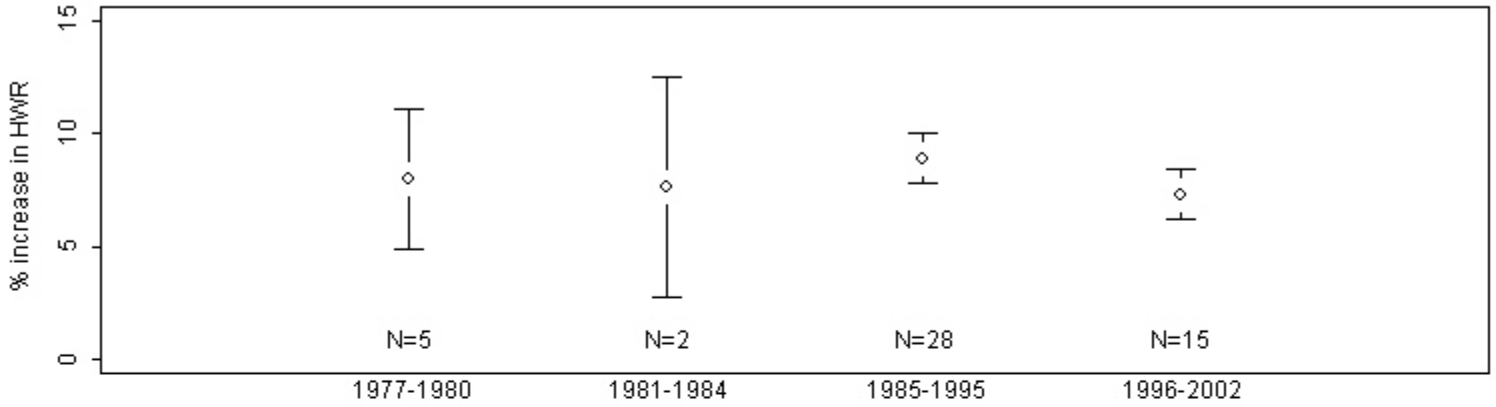


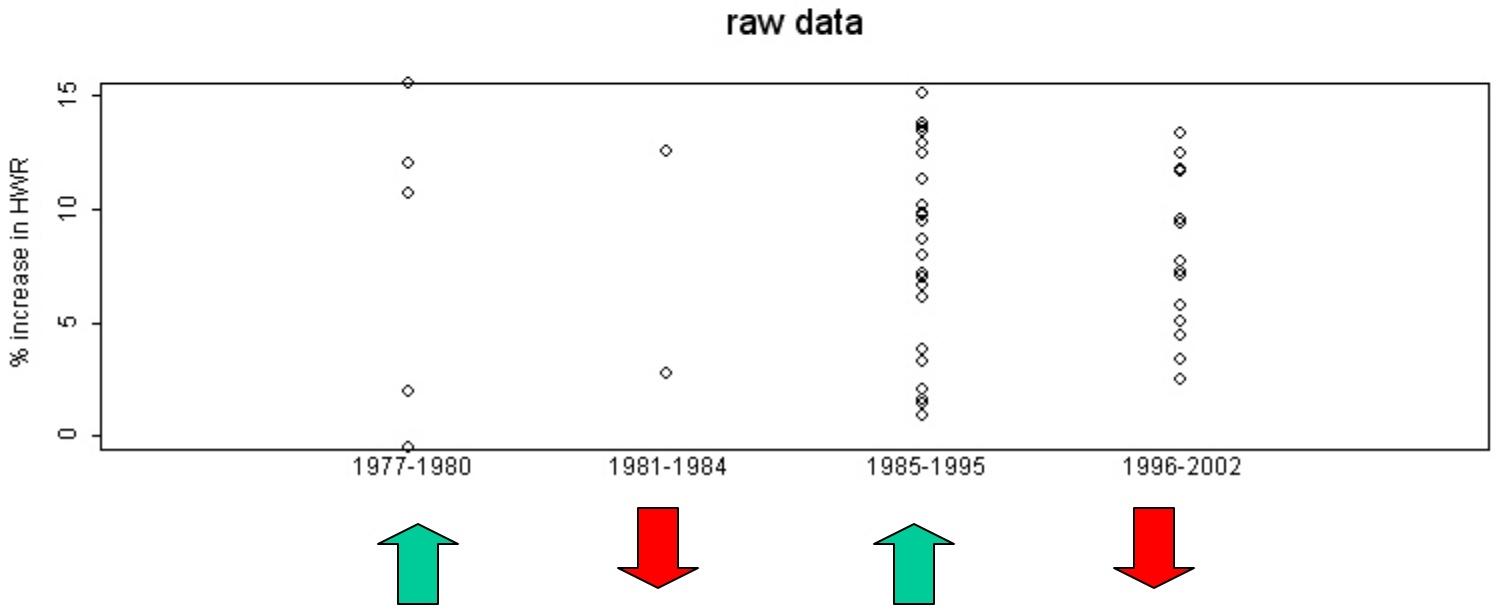
Size of newborns over time



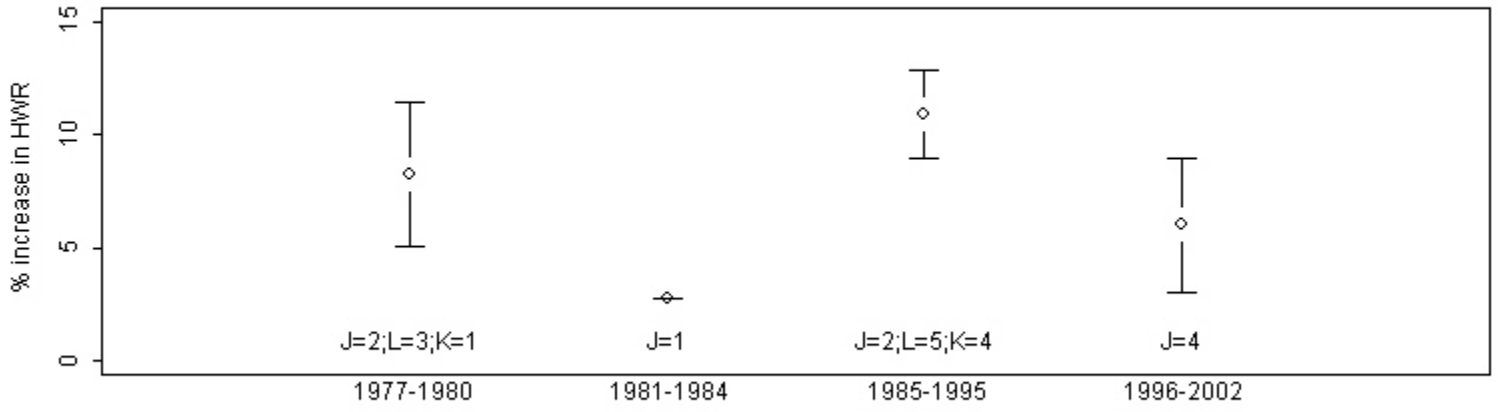


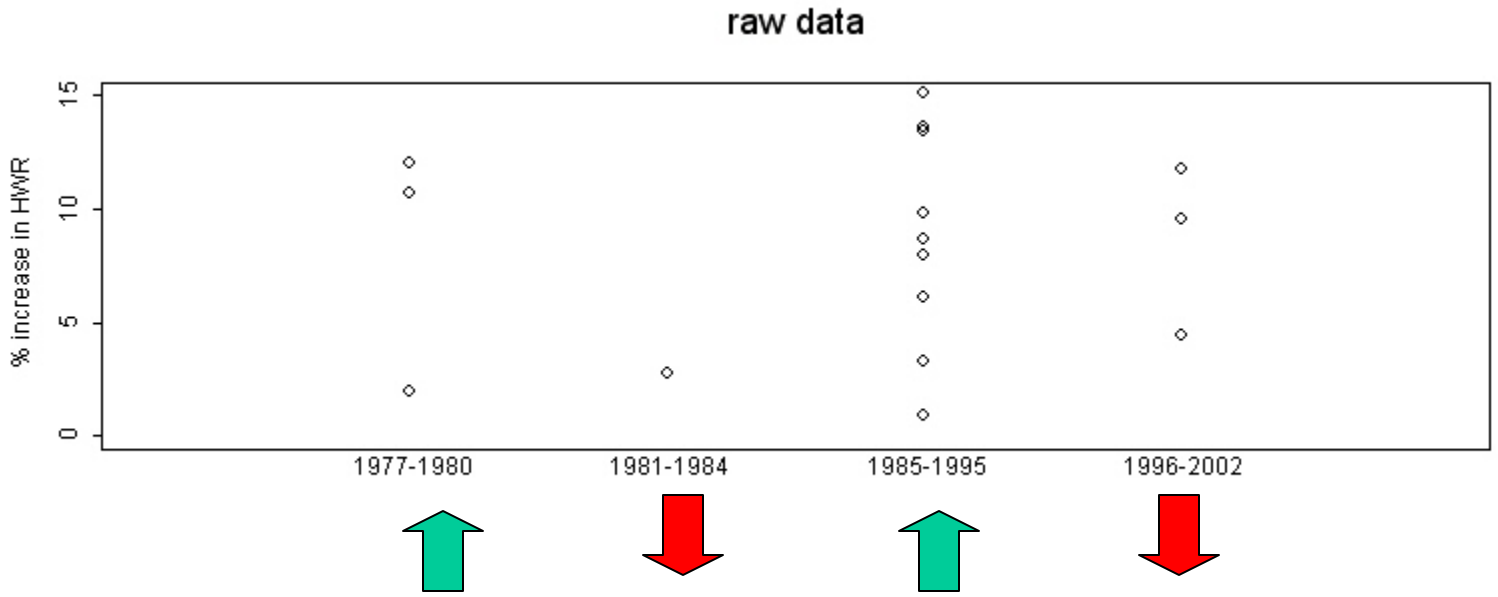
1st years average growth



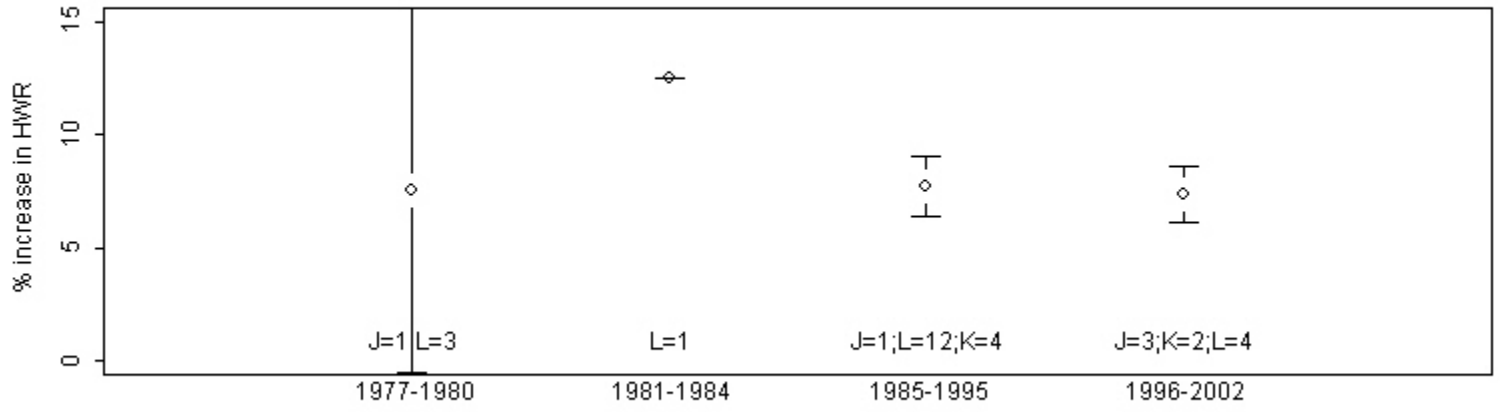


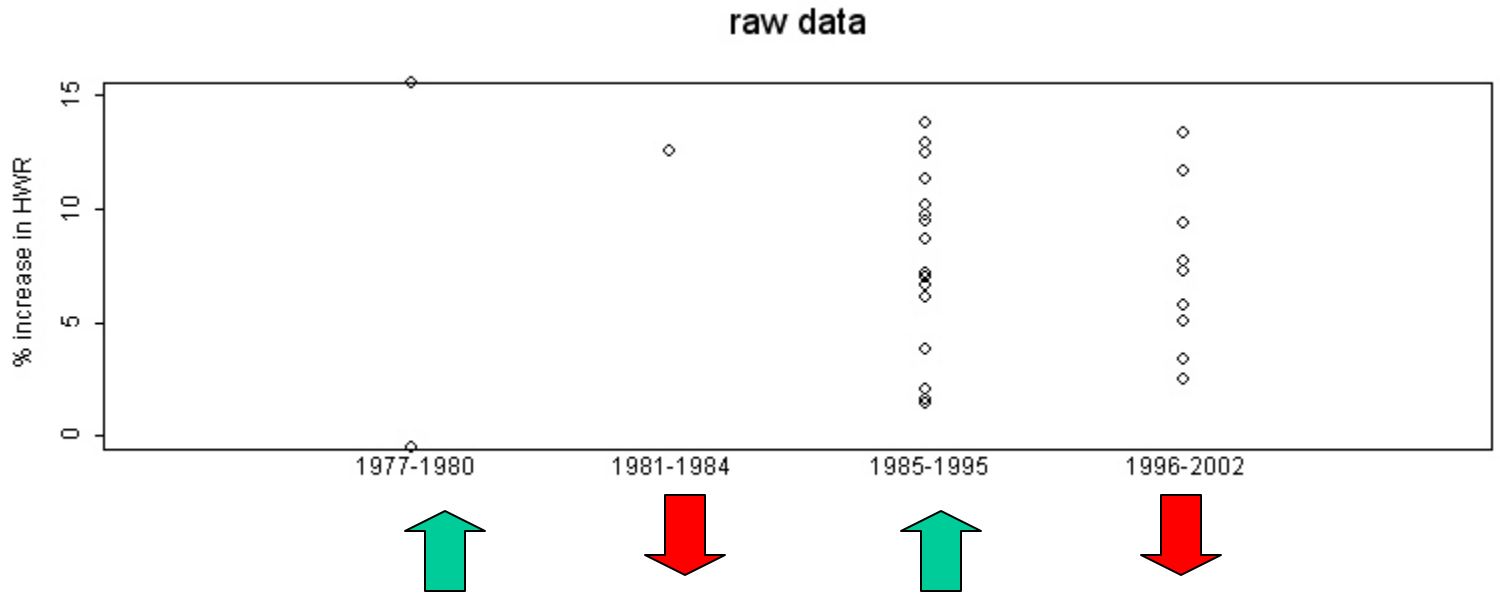
1st years average growth: females



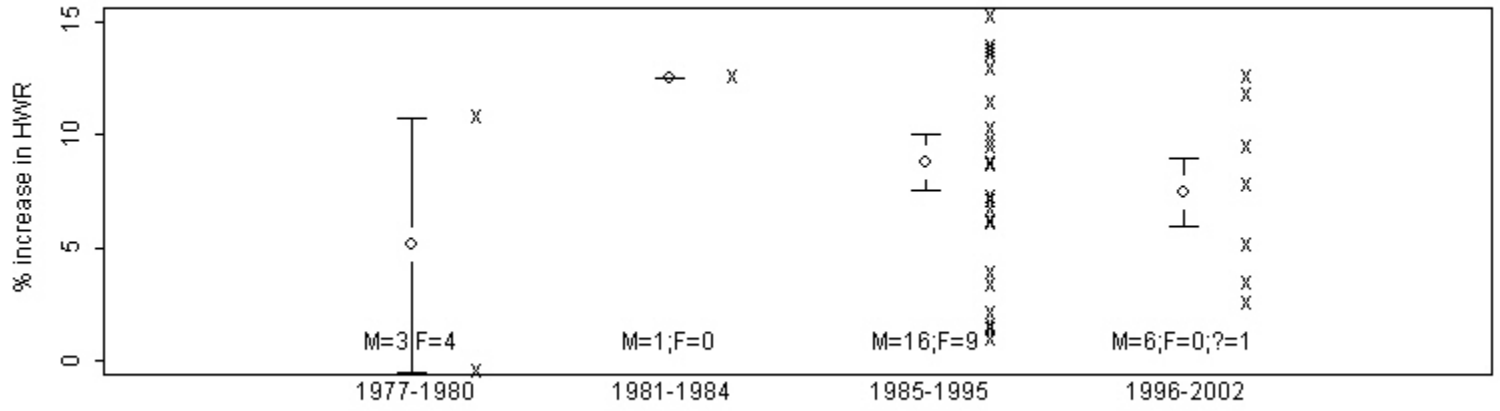


1st years average growth: males

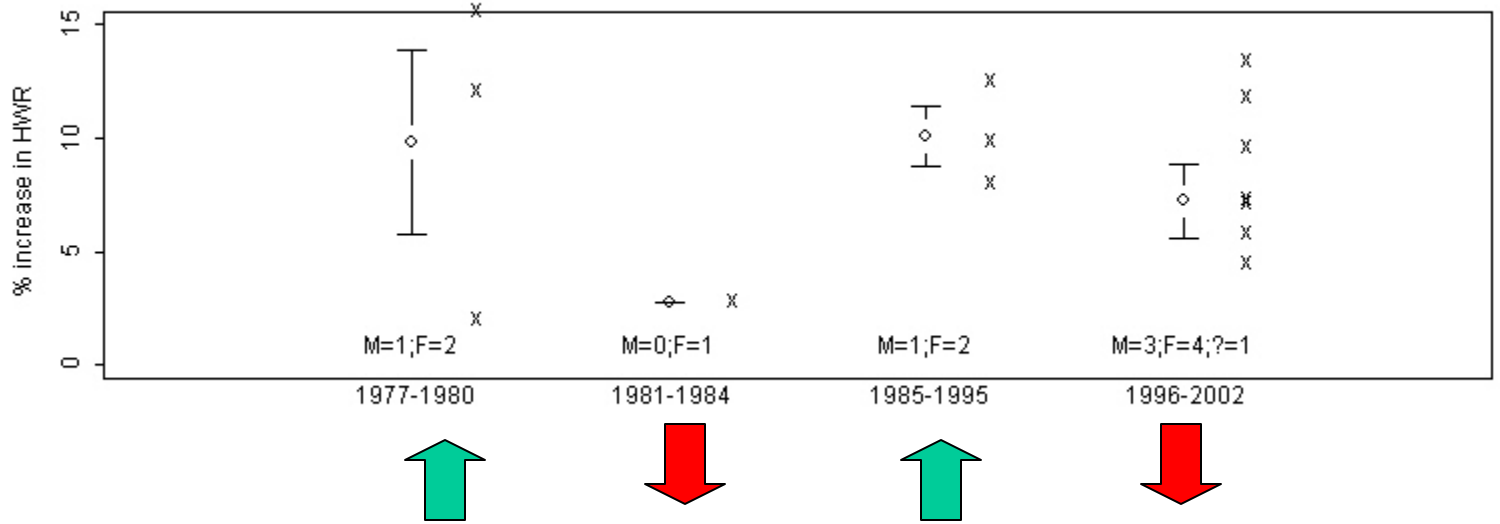




1st years average growth: K,L



1st years average growth: J



Summary

- There is not much evidence of lower fin growth rate in declining years
- No evidence however I did the analysis: lagged years, growth versus actual population decline, or ditto with lagged years
- This suggests that whatever caused the higher mortality is not also causing lower physical growth.