

A brief update to the stock status of Pribilof Island red king crab

Cody Szuwalski

September 12, 2018

Contents

Introduction	2
Overfishing status	2
Overfished status	2
OFL and ABC	2
Recent trends	2

Introduction

Pribilof Islands red king crab (PIRKC) has been moved to a biennial assessment cycle, with full assessments conducted every two years. The last full assessment was conducted during 2017/2018, so 2018/2019 is an ‘off’ year for PIRKC and only a brief update is presented here.

Overfishing status

The PIRKC fishery was closed in 2017/2018, so no catch was retained. Bycatch of PIRKC in the crab fisheries observed by the Alaska Department of Fish and Game was 168 kg (derived from a single female caught in the snow crab fishery). Total bycatch of PIRKC in the fixed gear fisheries was estimated at 131 kg by NMFS AKRO from groundfish observer sampling. The NMFS estimate of bycatch from the trawl gear fisheries was 269 kg. Applying a handling mortality rate of 0.2 for fixed gear and 0.8 for trawl gear to these bycatch estimates produced an estimated bycatch mortality of 275.0 kg (0.275 t). The estimated ABC for 2017/2018 was 362 t, so overfishing did not occur in 2017/2018 for PIRKC.

Overfished status

The PIRKC stock has not been fished since 1999 due to low blue king crab abundance. The estimated mature male biomass (MMB) was 3364 t from the 2017 assessment; the estimated minimum stock size threshold (MSST) was 2302 t. Given the estimated MMB far exceeded the MSST last year and very small fishing mortalities due to bycatch occurred this year, it is very unlikely that PIRKC is currently overfished.

OFL and ABC

The OFL and ABC for 2018/19 are the same as 2017/18 (OFL = 482 t; ABC = 362 t).

Recent trends

Recent trends in the retained catch (Figure 1) and bycatch (Figure 2) are included below. The number of red king crab sampled in the Pribilof Island district by year (Figure 3), the inferred density of crab by year (Figure 4), the distribution of males and females in 2018 (Figure 5 & Figure 6), and length composition by year for males (Figure 7) and females (Figure 8) can also be seen below.

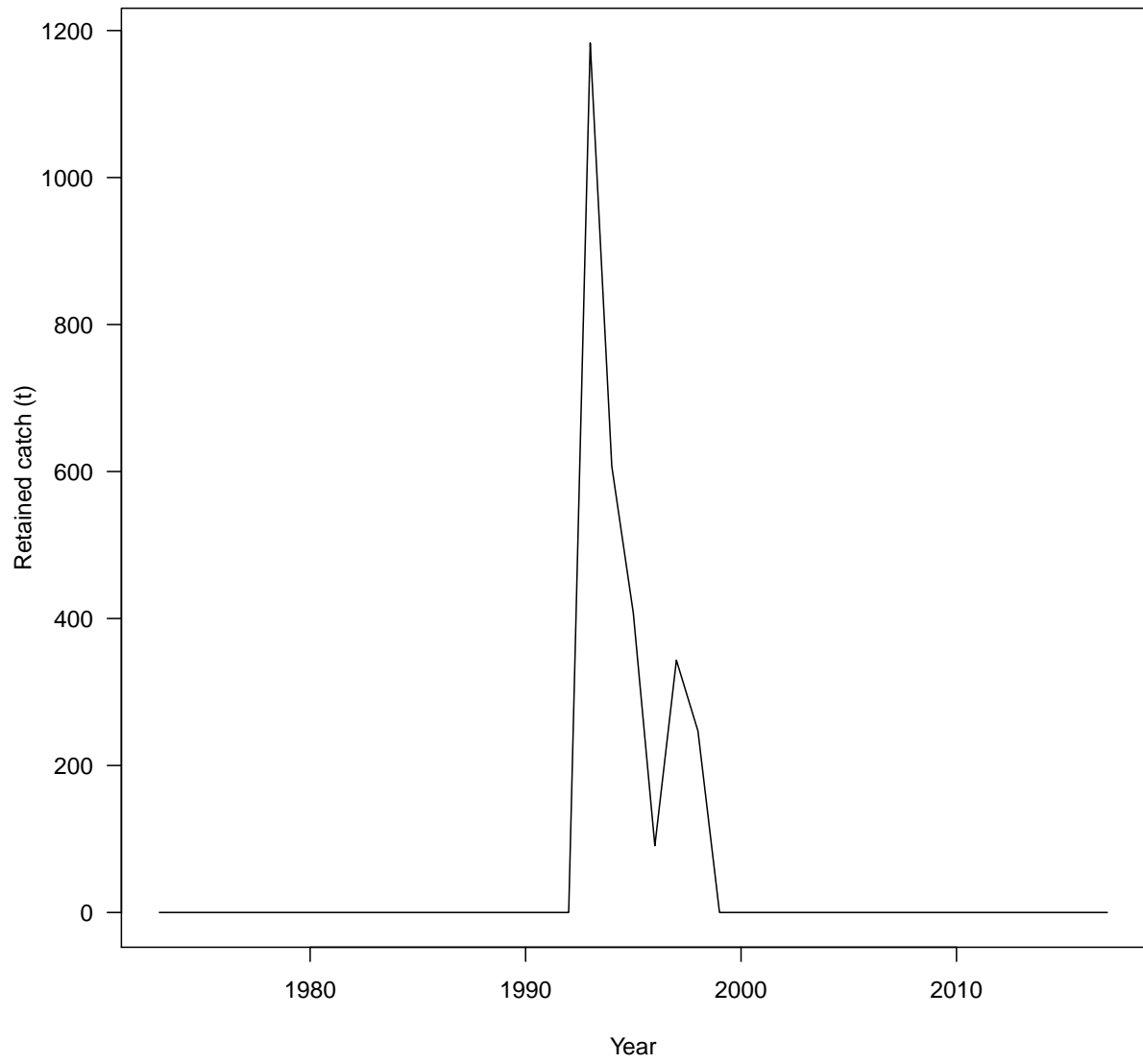


Figure 1: Retained catch in the directed PIRKC fishery.

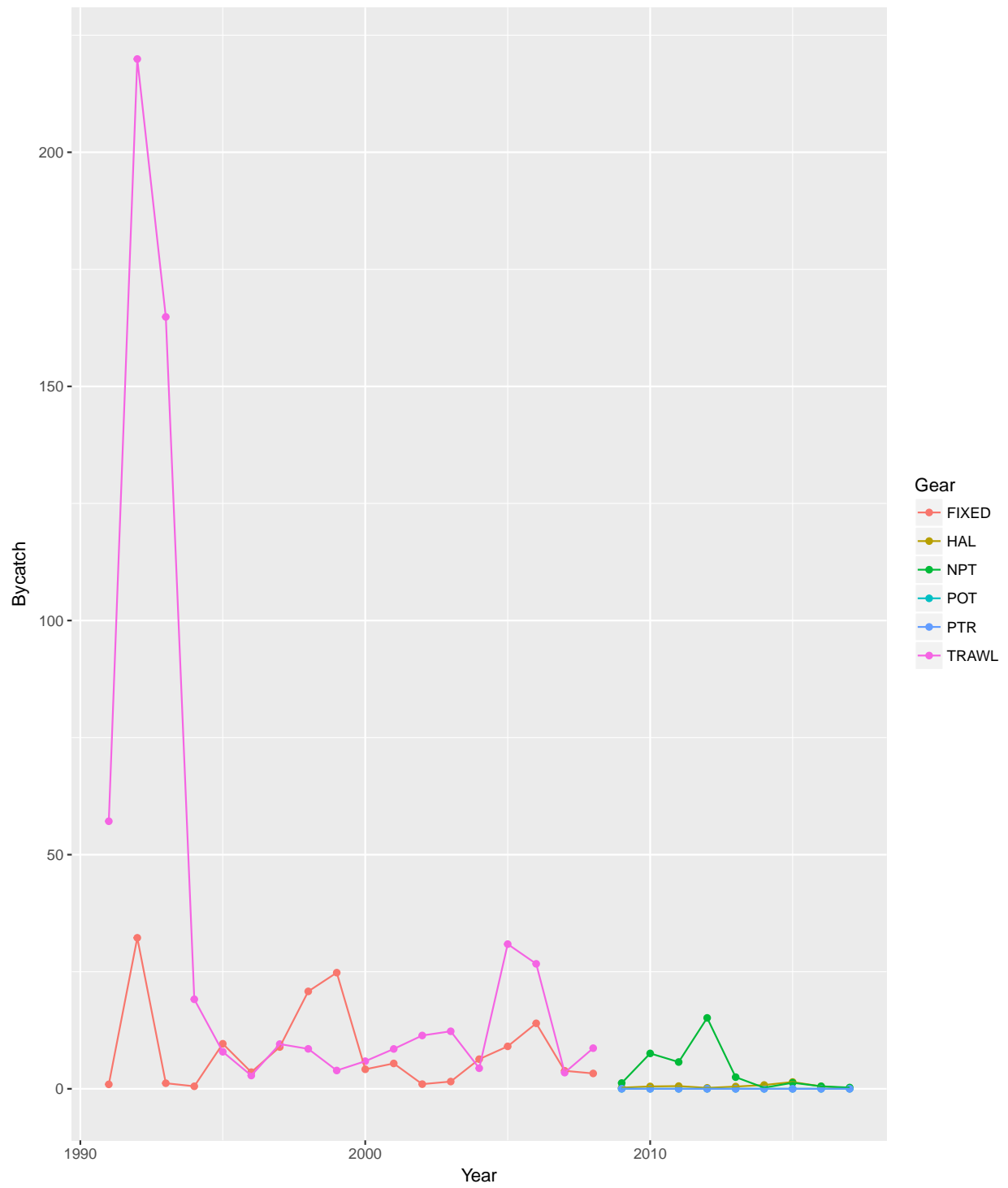


Figure 2: Bycatches of PIRKC in other fishing fleets.

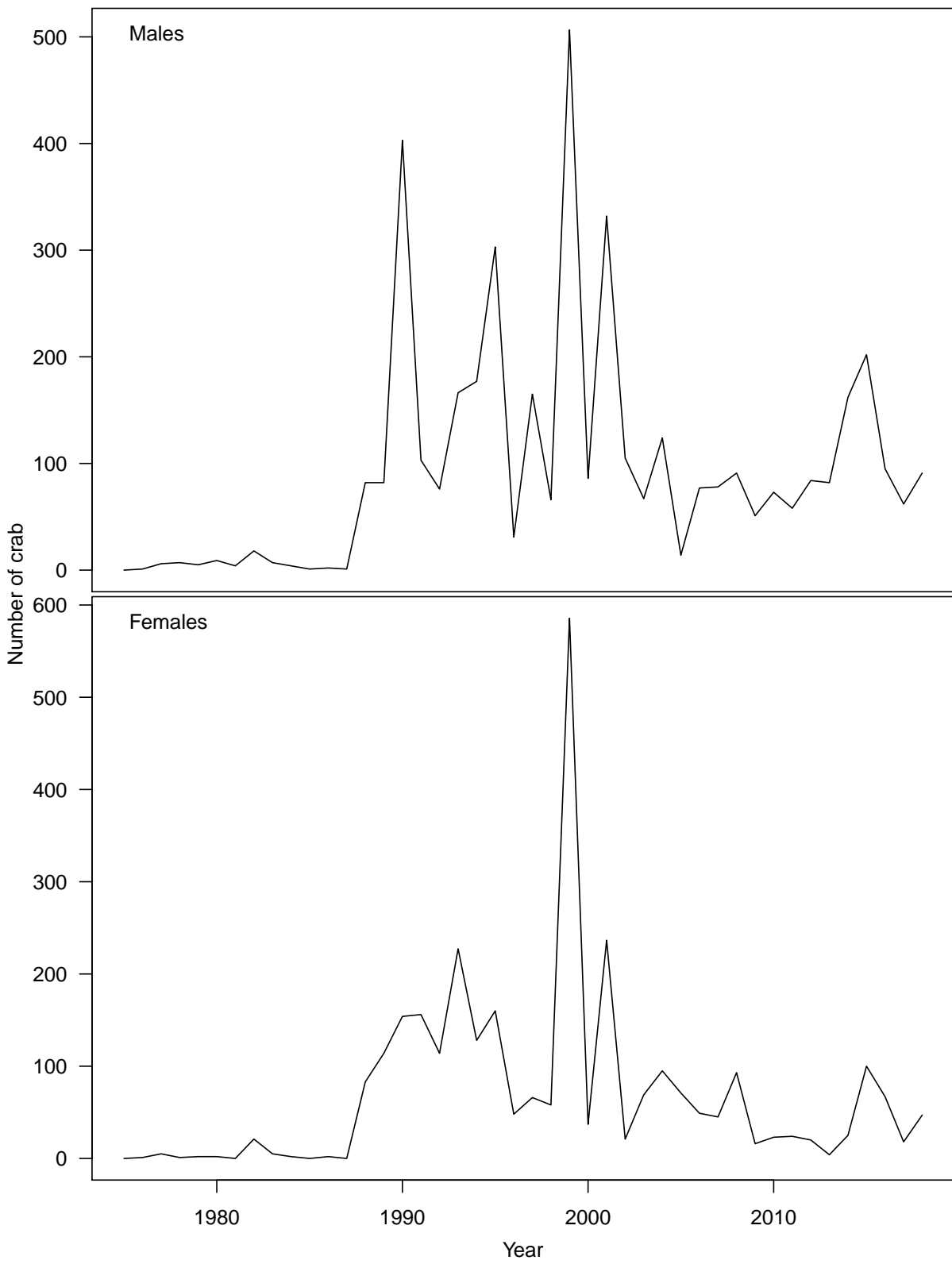


Figure 3: Total number of sampled crab by sex in the Pribilof Island district over time.

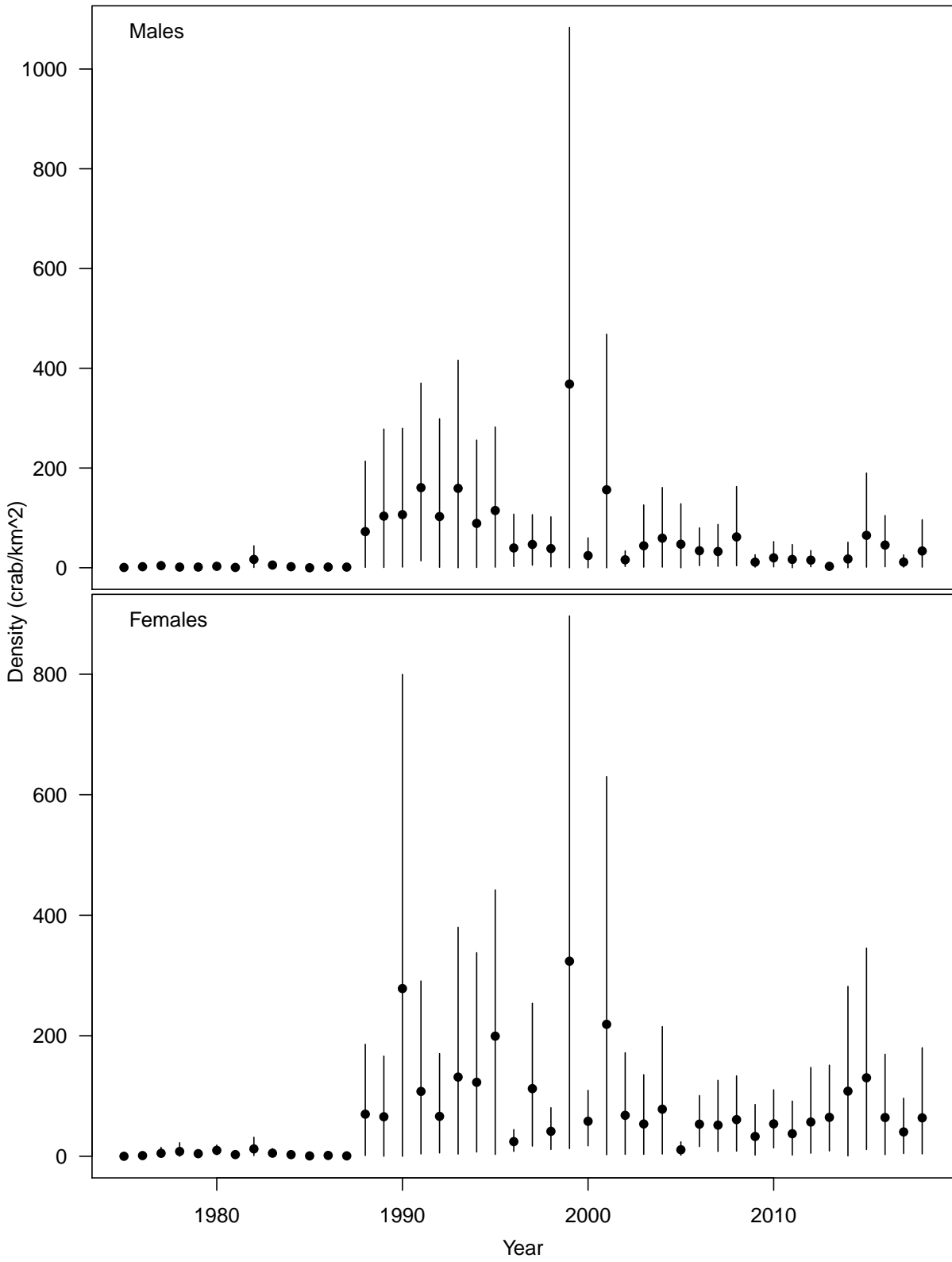


Figure 4: Average density of crab by sex and year in the Pribilof Island district with bootstrapped 90% confidence intervals.



Figure 5: Distribution of male crab from the most recent assessment in the Pribilof Island district.

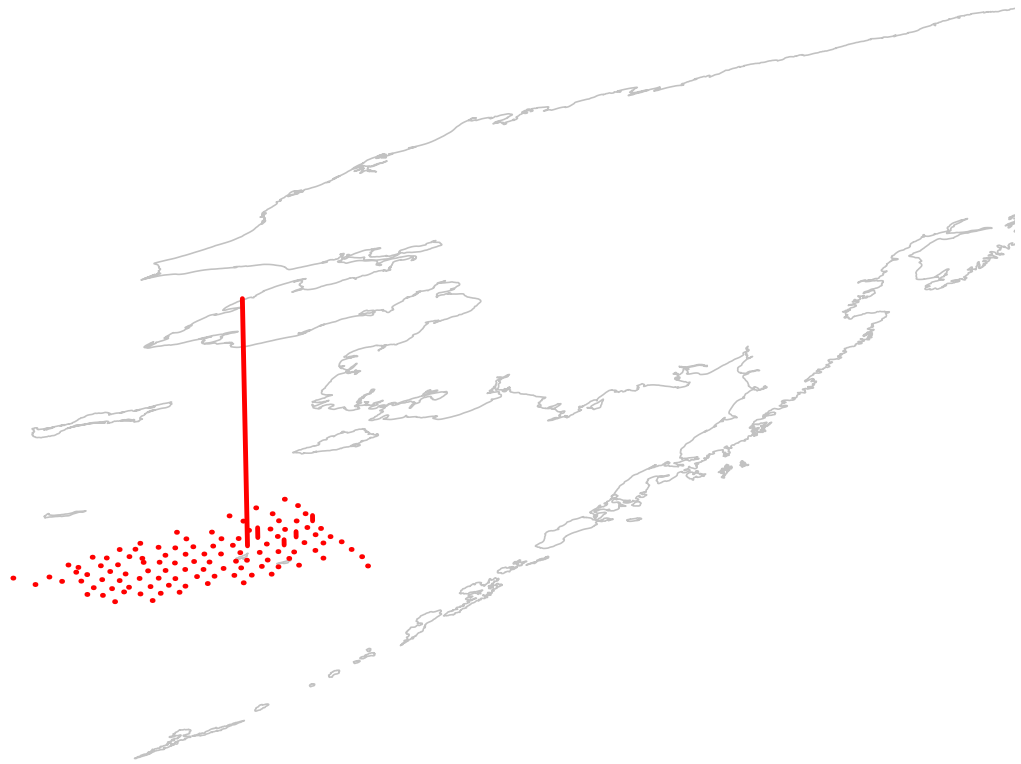


Figure 6: Distribution of female crab from the most recent assessment in the Pribilof Island district.

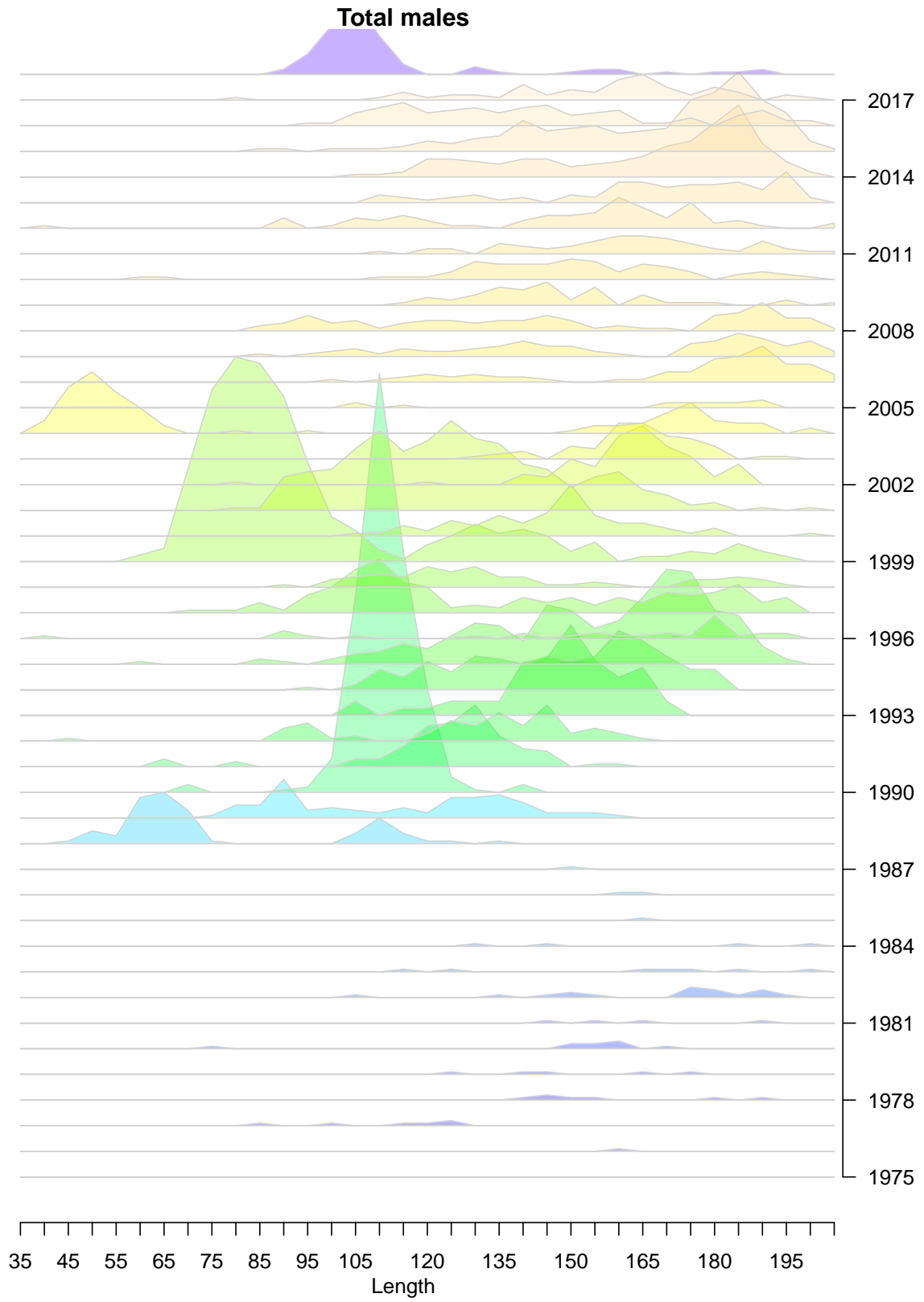


Figure 7: Numbers at length over time for male crab in the Pribilof Island district.

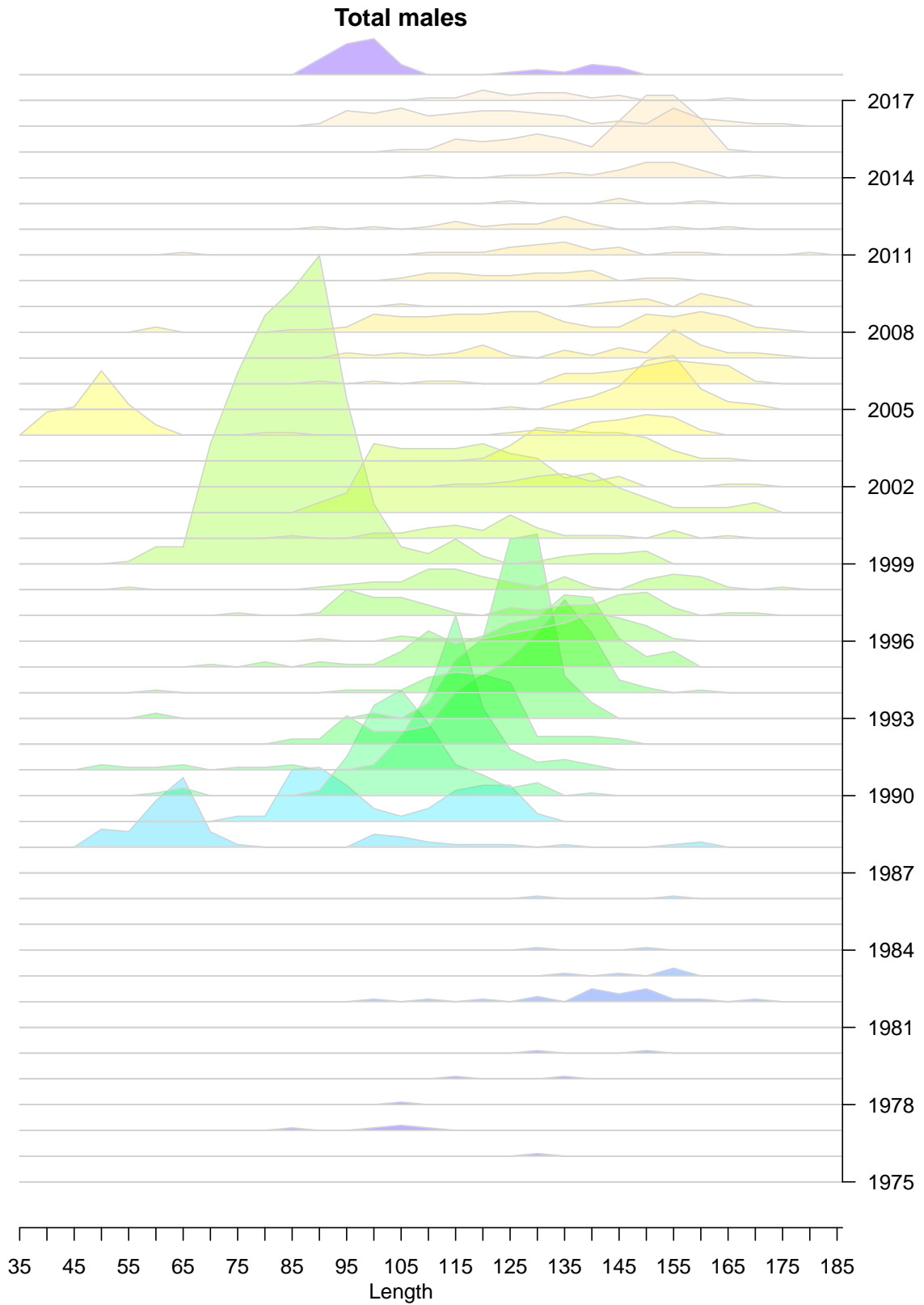


Figure 8: Numbers at length over time for female crab in the Pribilof Island district.