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## **Red king crab (*Paralithodes camtschaticus*) in the Barents Sea**



- **Introduction period- 1963 - 1969**
- **Joint research and management since 1994**
- **This lecture: Barents Sea crab stock biology in 2001 and 2002**



# Material & Methods



- Two annual surveys in REZ (Spring & Autumn)
- Swept area using a scientific bottom trawl
- One annual survey in NEZ (Autumn)
- Swept area using an Agassiz-trawl
- Additional data on trap-CPUE from fishery & surveys in both zones



# Definitions



- **Total stock:** All size groups plausible being caught in representative numbers in trawl gears
- **Legal males:** Males with  $CL \geq 132$  mm corresponding to a  $CW \geq 150$  mm
- **Pre-recruits:** Males with  $115 \leq CL \leq 131$
- **Mature crabs:** All crabs with  $CL \geq 110$  mm





# Fishing areas & size of crabs

- In REZ: Varanger – 40°E
- Weight legal males – ca 3.0 kg
  
- In NEZ: Varanger – Nordkyn
- Weight legal males in 2002: 4.1 kg (2001: 4.3 kg)



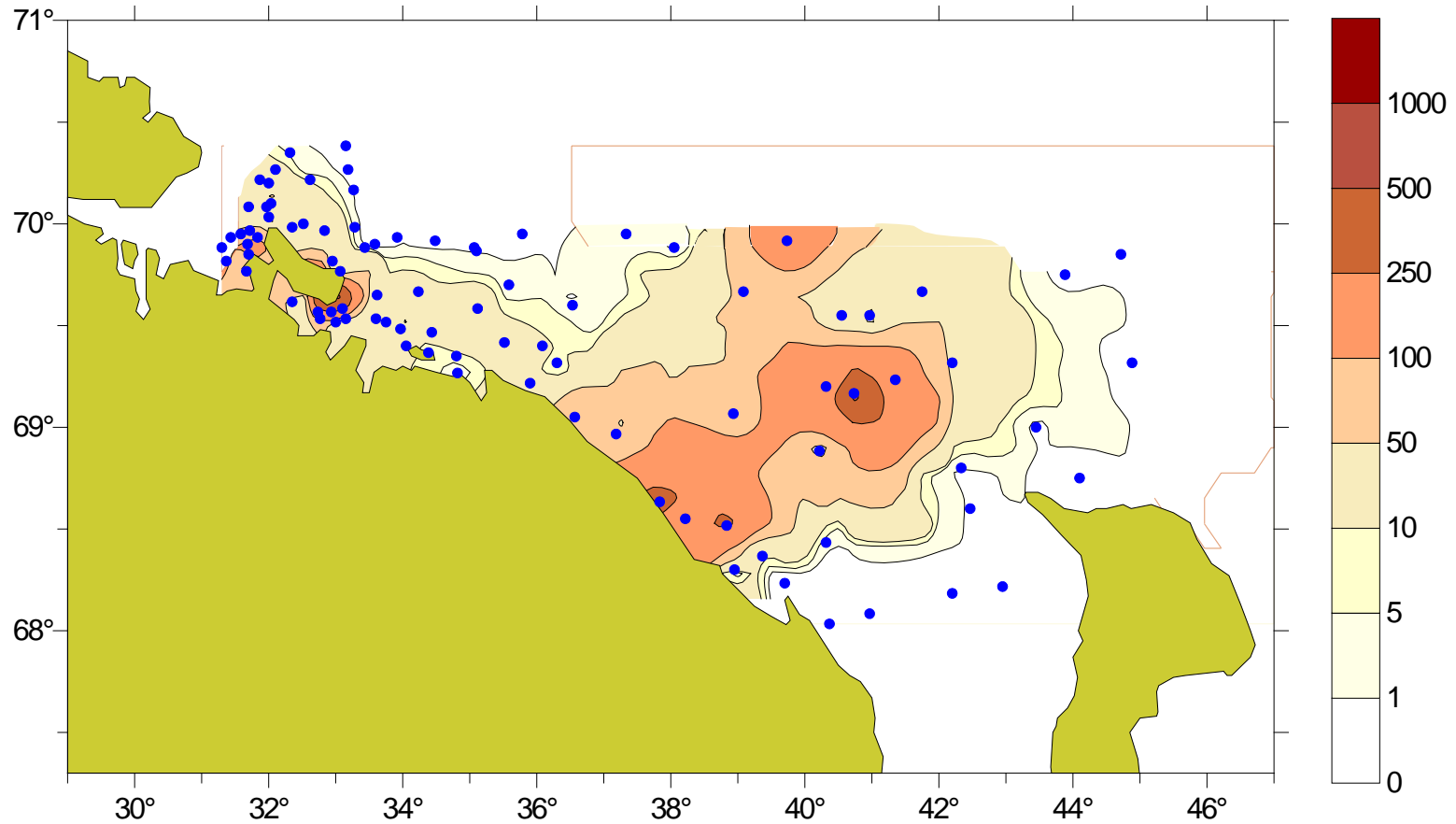
# CPUE index - fishery



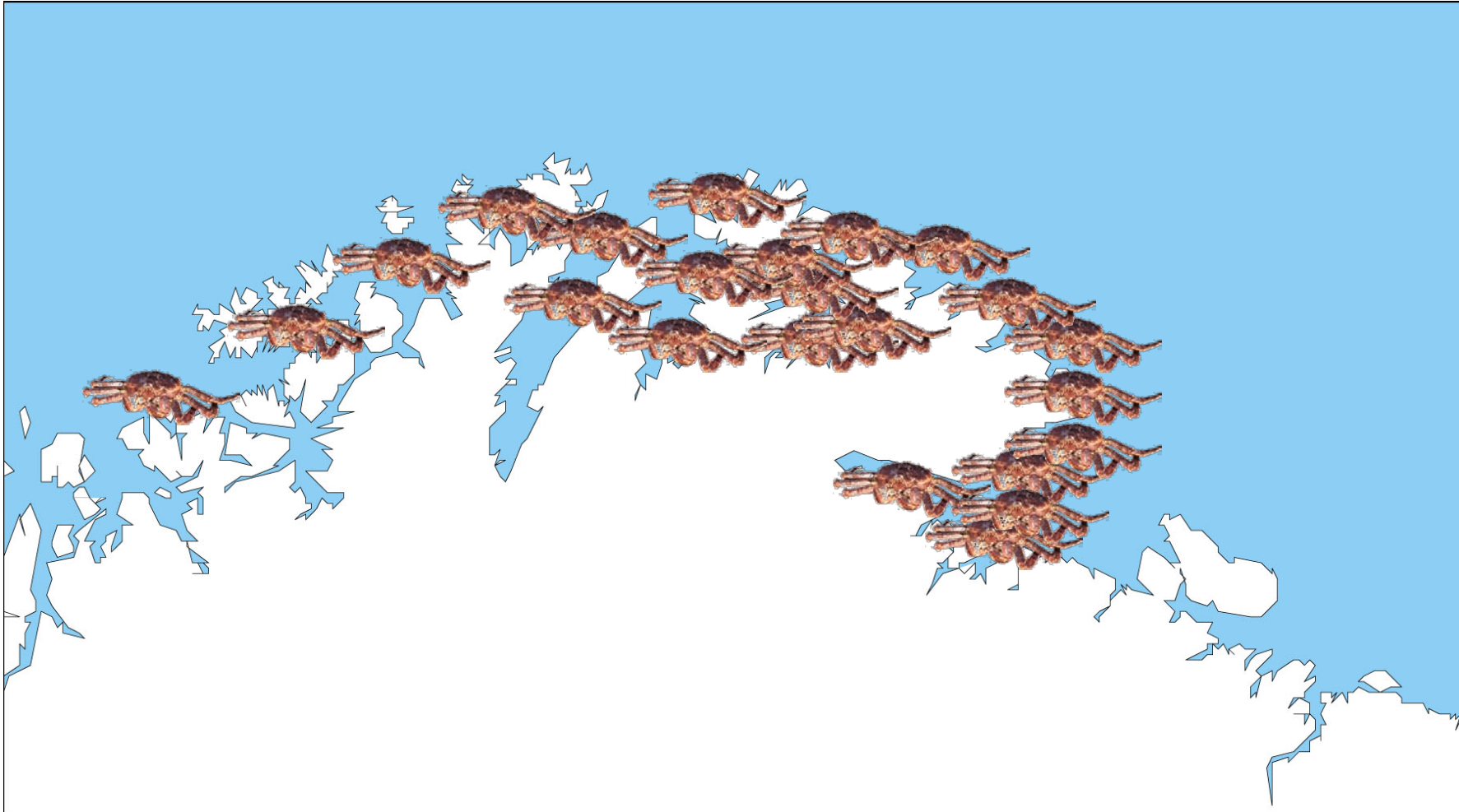
Area	1999	2000	2001
Varanger	3.8	6.4	14.6
Tana	0.4	1.3	12.4
Østhavet	1.1	2.0	3.7



# Distribution area REZ

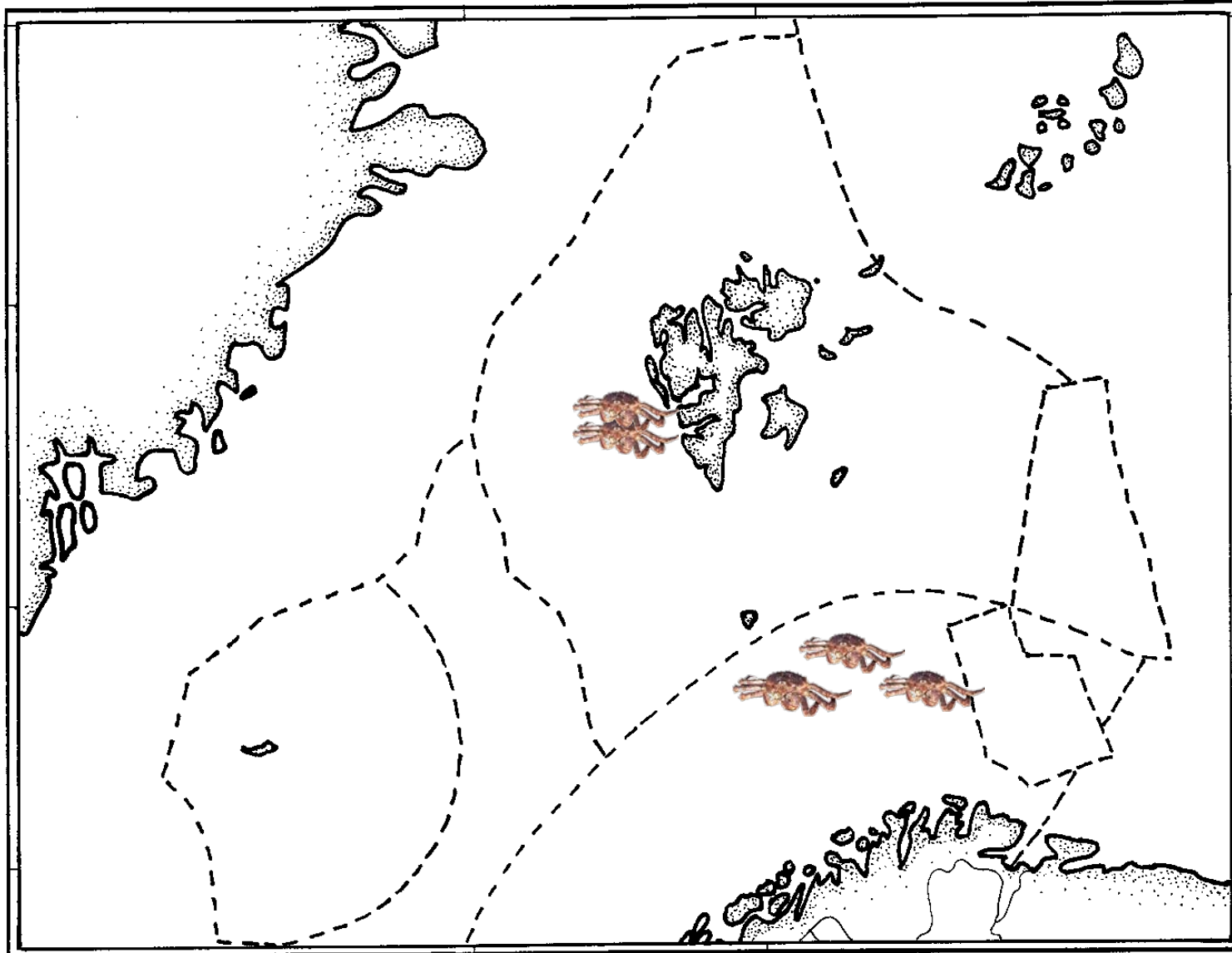


# Distribution area NEZ





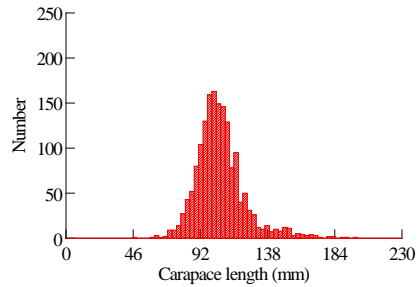
# Distribution NEZ & SZ



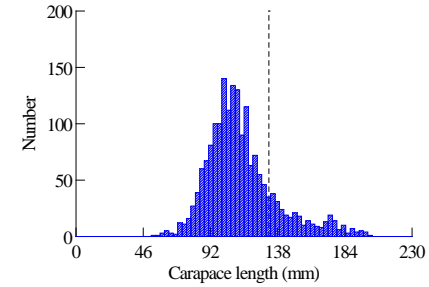
# Stock structure - NEZ



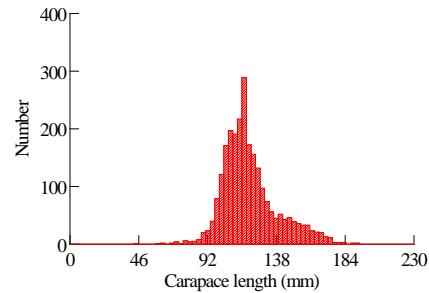
Females 2000



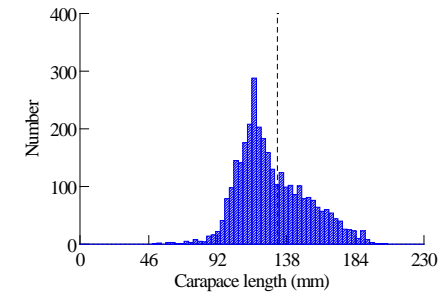
Males 2000



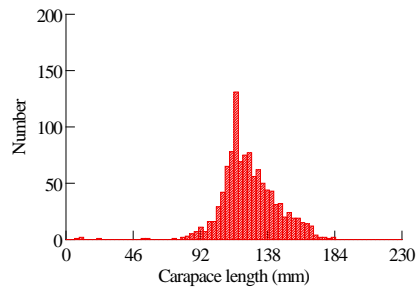
Females 2001



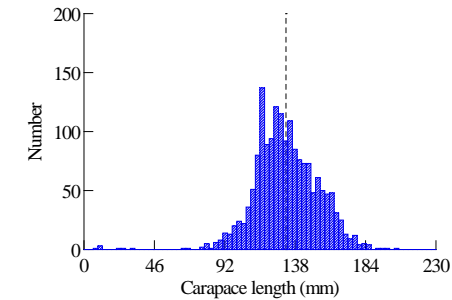
Males 2001



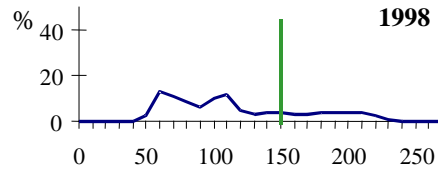
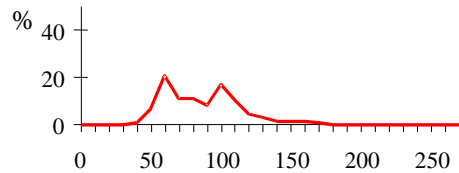
Females 2002



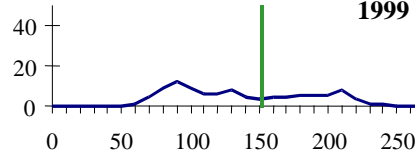
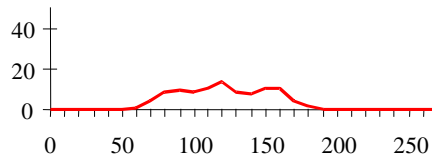
Males 2002



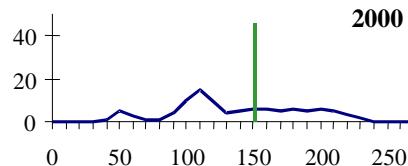
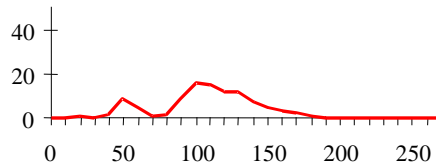
# Stock structure - REZ



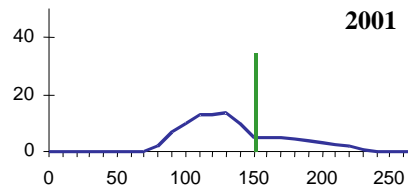
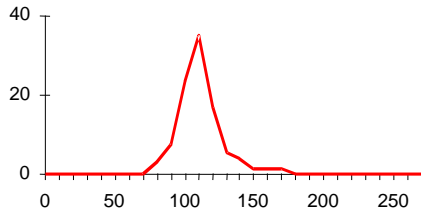
1998



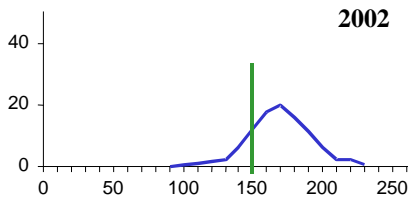
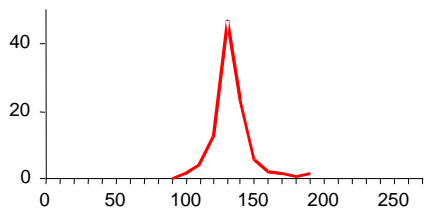
1999



2000



2001



2002

Carapace width, mm



# Stock index



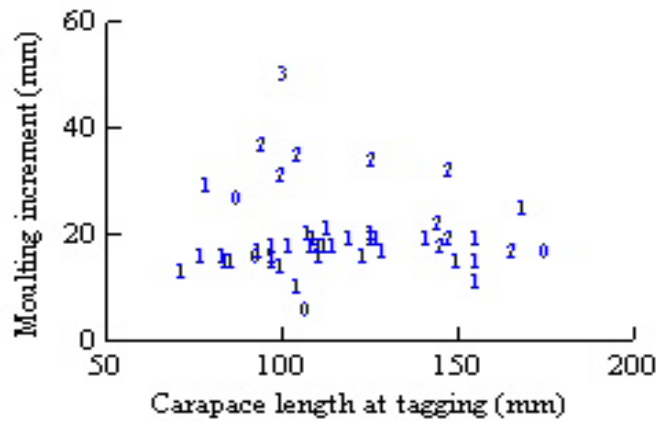
<b>Number of legal males</b> (CaWi $\geq$ 150 mm or CaLe $\geq$ 132 mm)			
<b>Year</b>	<b>REZ</b>	<b>NEZ</b>	<b>REZ + NEZ</b>
1995	250000	54000	304000
1996	155000	87000	242000
1997	316000	110000	426000
1998	801000	150000	951000
1999	1 508000	not estimated	
2000	1 513000	676000	2 189000
2001	1 494000	446000	1 940000
2002	3 271000	799000	4 070000



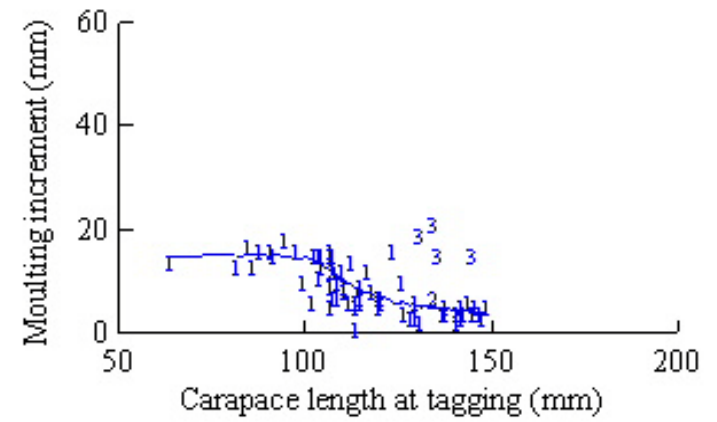
# Growth



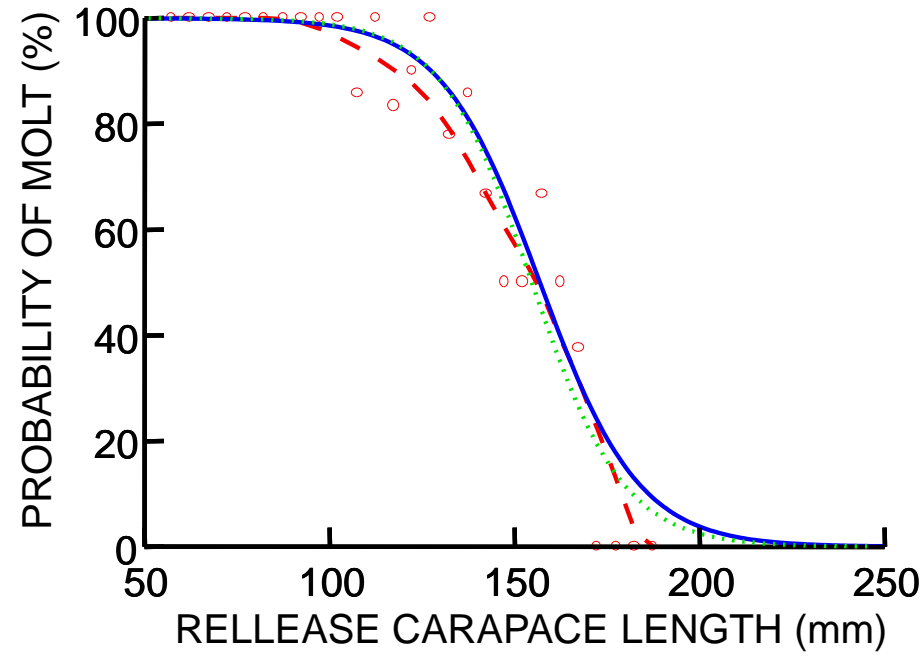
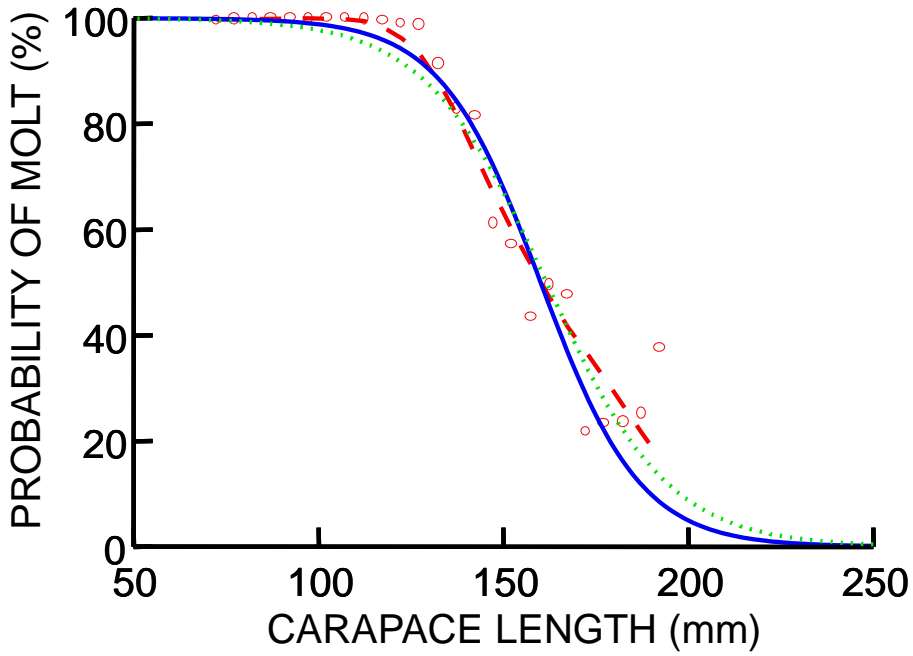
Growth increment KK males



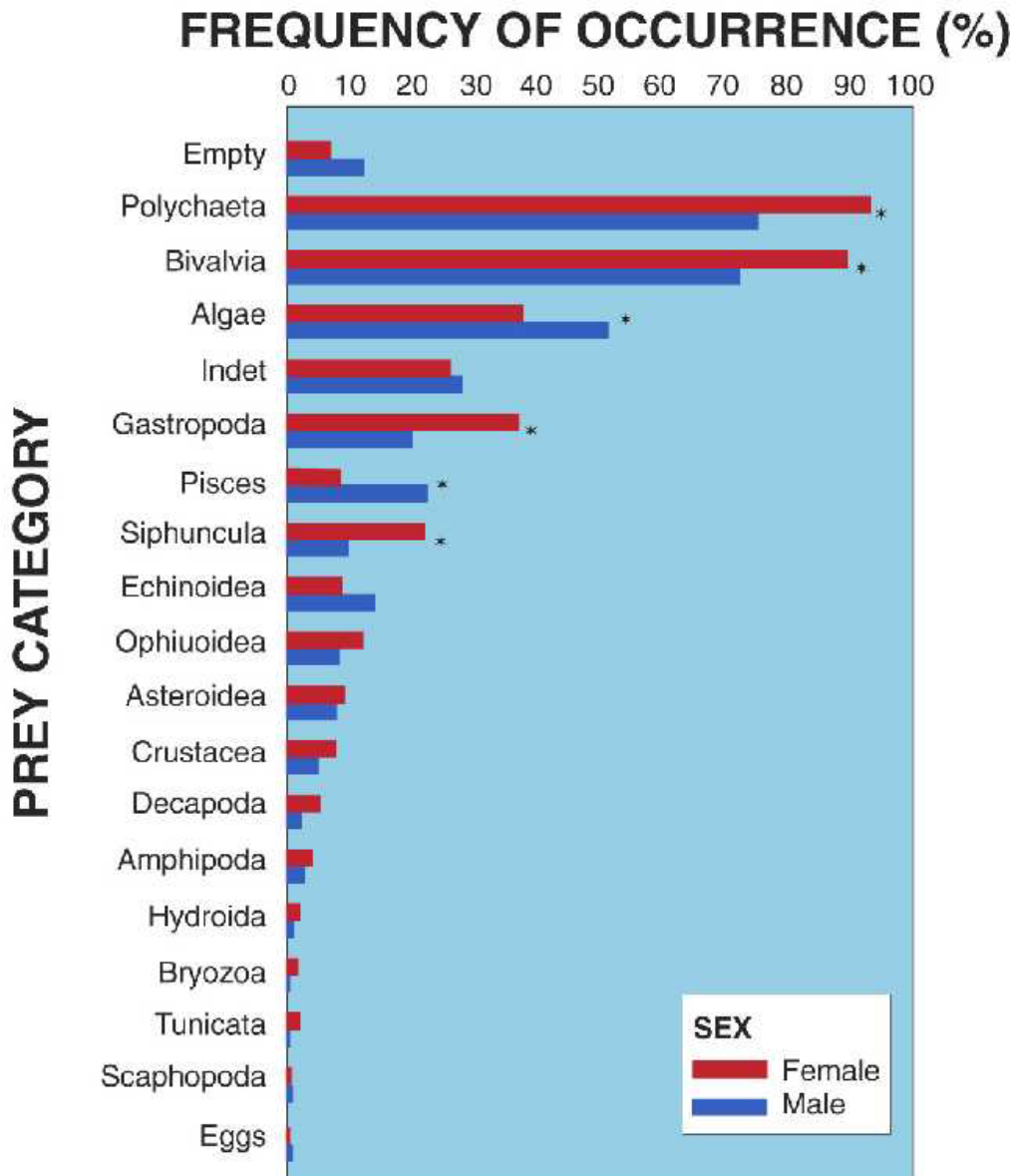
Growth increment KK females



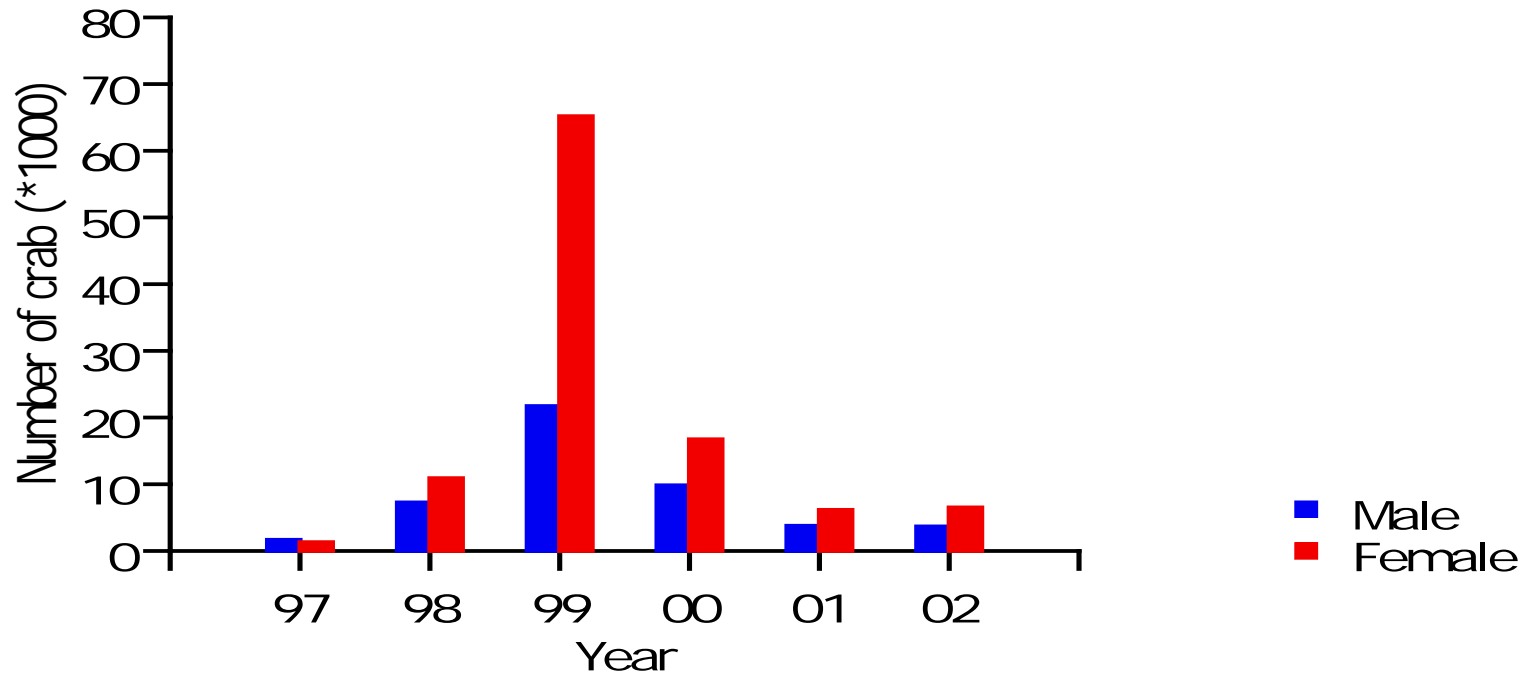
# Moult



# Stomach content



# Bycatch





# Management of the king crab in the Barents Sea



- TAC decided by the MRNFC
- A common N-R harvest rate (at present 20% of standing legal stock)
- A 3-S strategy (SEX, SIZE and SEASON) as in Alaska waters of the Bering Sea
  1. Males only
  2.  $CL > = 132$  (137)mm corresponding to a  $CW > = 150$  mm
  3. A Autumn/Winter fishery



# Future N-R research tasks



- A 3 year joint research programme adopted by the MRNFC
- Scientists shall focus on ecological impacts of the crab
- N-R scientists are requested to suggest a western limit for the joint N-R management of the crab, for the 32nd session of the MRNFC in 2003