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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

<table>
<thead>
<tr>
<th>Area</th>
<th>1999</th>
<th>2000</th>
<th>2001</th>
</tr>
</thead>
<tbody>
<tr>
<td>Varanger</td>
<td>3.8</td>
<td>6.4</td>
<td>14.6</td>
</tr>
<tr>
<td>Tana</td>
<td>0.4</td>
<td>1.3</td>
<td>12.4</td>
</tr>
<tr>
<td>Østhavet</td>
<td>1.1</td>
<td>2.0</td>
<td>3.7</td>
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Distribution area NEZ
Distribution NEZ & SZ
Stock structure - NEZ

Females 2000

Males 2000

Females 2001

Males 2001

Females 2002

Males 2002
Stock structure - REZ

Carapace width, mm
# Stock index

## Number of legal males

(CaWi \( \geq \) 150 mm or CaLe \( \geq \) 132 mm)

<table>
<thead>
<tr>
<th>Year</th>
<th>REZ</th>
<th>NEZ</th>
<th>REZ + NEZ</th>
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</thead>
<tbody>
<tr>
<td>1995</td>
<td>250000</td>
<td>54000</td>
<td>304000</td>
</tr>
<tr>
<td>1996</td>
<td>155000</td>
<td>87000</td>
<td>242000</td>
</tr>
<tr>
<td>1997</td>
<td>316000</td>
<td>110000</td>
<td>426000</td>
</tr>
<tr>
<td>1998</td>
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<td>150000</td>
<td>951000</td>
</tr>
<tr>
<td>1999</td>
<td>1 508000</td>
<td>not estimated</td>
<td></td>
</tr>
<tr>
<td>2000</td>
<td>1 513000</td>
<td>676000</td>
<td>2 189000</td>
</tr>
<tr>
<td>2001</td>
<td>1 494000</td>
<td>446000</td>
<td>1 940000</td>
</tr>
<tr>
<td>2002</td>
<td>3 271000</td>
<td>799000</td>
<td>4 070000</td>
</tr>
</tbody>
</table>
Growth

Growth increment KK males

Growth increment KK females
Moulting

![Graphs showing the probability of molt against carapace length and release carapace length.](image)
Stomach content

FREQUENCY OF OCCURRENCE (%)

0 10 20 30 40 50 60 70 80 90 100

PREY CATEGORY

Empty
Polychaeta
Bivalvia
Algae
Indet
Gastropoda
Pisces
Siphuncula
Echinoidea
Ophiuidea
Asteroidea
Crustacea
Decapoda
Amphipoda
Hydroida
Bryozoa
Tunicata
Scaphopoda
Eggs

SEX
Female
Male
Bycatch

![Number of crab (x1000)](#)

- Year: 97, 98, 99, 00, 01, 02
- Number of crab: 0 to 80 (in increments of 10)
- Male and Female categories

Legend:
- Male
- Female
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\geq132 (137)\text{mm} corresponding to a CW\geq150 \text{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