RED KING CRAB (*Paralithodes camtschaticus*)

ARTIFICIAL CULTIVATION – AS A METHOD OF RESTORATION IT’S NATURAL POPULATIONS

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Stock dynamics of the red king crab in some East Pacific Ocean areas (thousand tones)

**Distribution area of Paralithodes camtschaticus**

- **West-Kamchatka**
- **Kam.-Kurils k**
- **North-Kurils k**
- **West-Sakhalin**

![Graph showing crab stock dynamics](image-url)
Red king crab cultivation methods

- post larvae and juveniles settling on artificial collectors in the sea
- artificial cultivation from eggs to the vital juvenile stage in the coast farm;
- artificial cultivation from eggs to the market size in the coast farm.
Closed Recirculation Water System (CRWS) for red king crab cultivation - VNIRO

Short female storage to the start of hatching (7 – 14 days)
Artificial cultivation steps:

1. Egg-bearing female catch, transportation and holding in the tanks before hatching;

Catch of the breeding females

- 2000: 31.03. Sea of Japan
- 2001-02: 20-23.03 Barents Sea

Egg-bearing females transportation to the tanks, March – April (5 – 24 h)
Artificial cultivation steps:

- hatching and larvae transfer in the breeding tanks;

Larvae hatching
Breeding of larvae (zoea) stage I, II, III, IV (April – May, 35 - 40 days)

Artificial cultivation steps:

3 larvae feeding and permanent conditions control;
4 zoea IV cultivation and settling substrate preparing;

<table>
<thead>
<tr>
<th>Stage</th>
<th>Duration</th>
<th>Degree Days</th>
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<tbody>
<tr>
<td>I</td>
<td>8-10 days</td>
<td>56-70</td>
</tr>
<tr>
<td>II</td>
<td>7-8 days</td>
<td>56-64</td>
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<tr>
<td>III</td>
<td>9-10 days</td>
<td>72-80</td>
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<tr>
<td>IV</td>
<td>11-12 days</td>
<td>88-96</td>
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Artificial cultivation steps:

1. Post larvae settling and its breeding to the juvenile stage;
2. Juvenile cultivation to the viable stage (2-3mm carapace length).

Breeding of the juveniles in the tanks with substrate
(June – July, 14 – 20 days, 140 – 200 degree days)
Duration of larvae, post larvae and juvenile stages in CRWS (VNIRO)
Behavior and substrate preferences of post larva and juveniles (VNIRO)

24 h Juveniles moving activity
Mouth part morphological changes of the larvae, post larvae and juvenile red king crab (VNIRO)
Three different concepts for crab culture could be implemented:

1. Rearing juveniles for releasing to sea;

- Eggs
- Zoea
- Juvenile crab
- Glaucotothoe
Three different concepts for crab culture could be implemented:

2. Rearing crabs from eggs to market size;
Three different concepts for crab culture could be implemented:

3. Fattening of wild-caught crabs
“Technology elaboration and creation of complex for artificial reproduction, selection of juveniles and commercial cultivation of red king crab in specialized basin complex in Varanger-fiord aquatorium (the Barents Sea)” - 2002-2012.
The main goals of the Program:

- Elaboration of technology for obtaining and rearing red king crab larvae to adults of commercial size in basin complex.
- Elaboration of technology for fattening non-conditional crabs to crabs of commercial size in basin complex.
- Elaboration of technology for fattening recruit crabs in basin complex.
RED KING CRAB ARTIFICIAL CULTIVATION
Laboratory of Crustacea Reproduction, VNIRO
THANK YOU FOR YOUR ATTENTION!
We hope that our knowledge and experience in red king crab cultivation will find more followers!
Acknowledgments

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