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# Klimata mainības ietekme uz Daugavas zooplanktonu

Daugavpils Universitāte



# Ideja



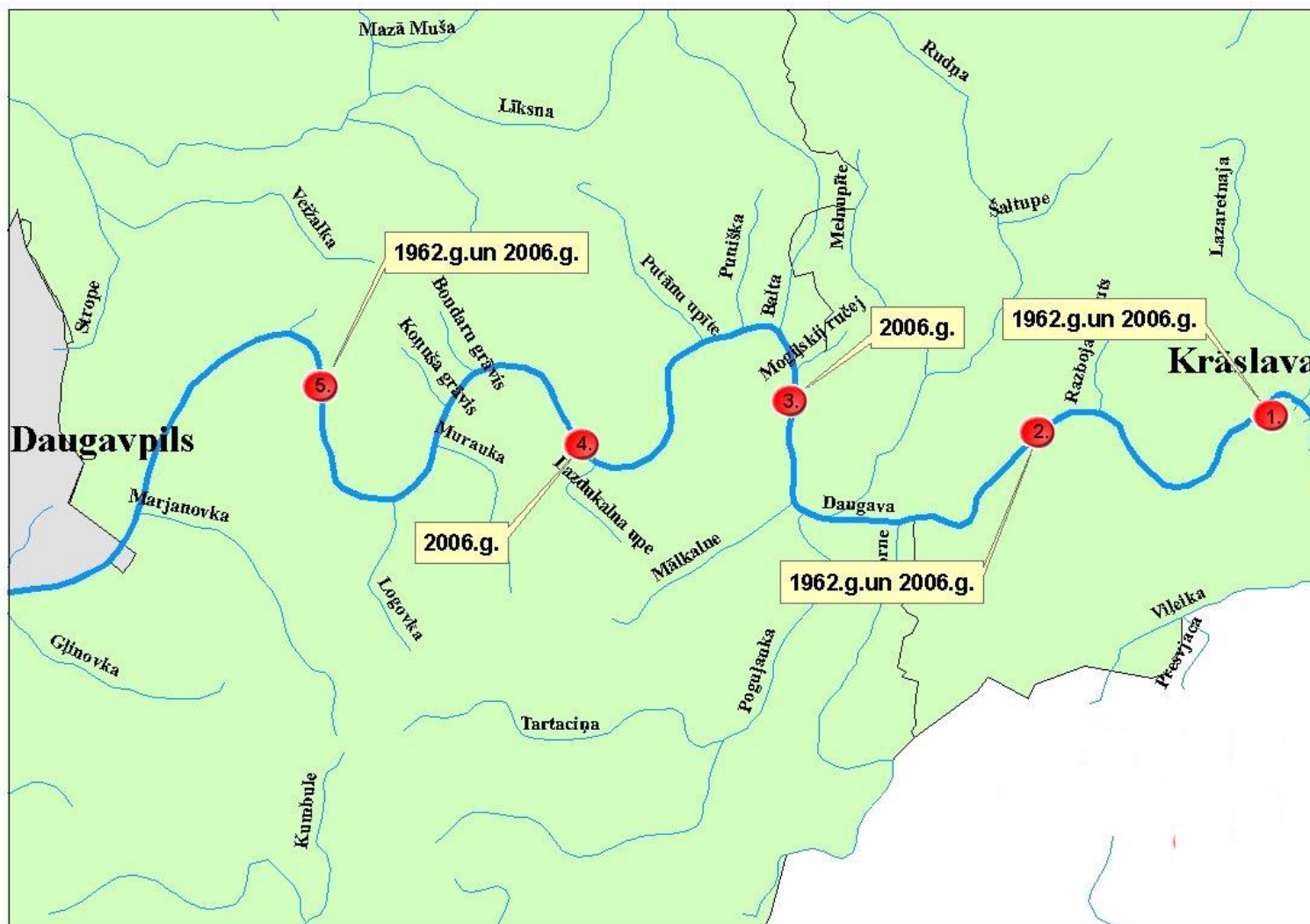
1962.g. Renātes Škutes  
ekspedīcija

44 gadi

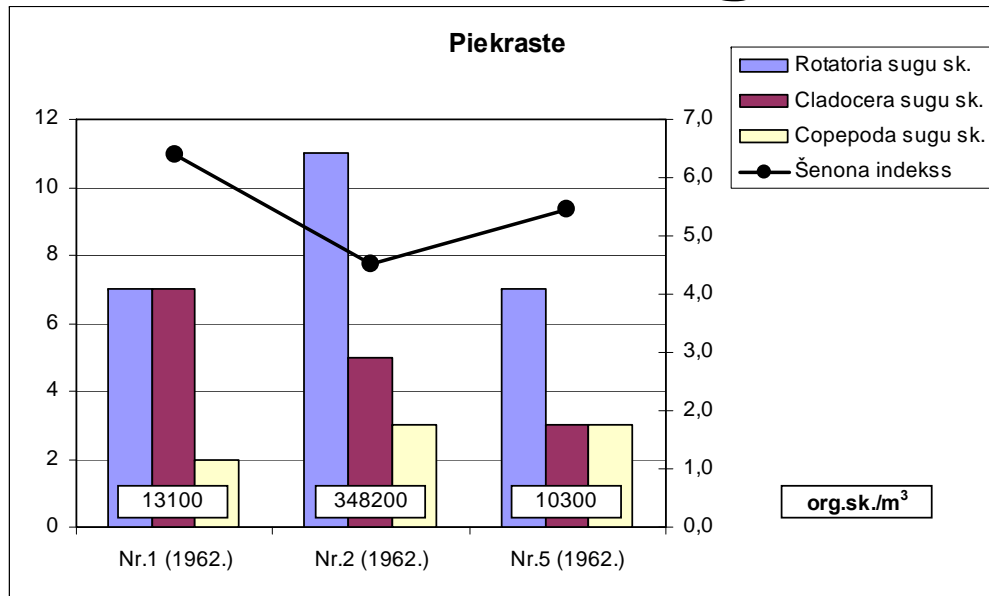
2006.g. Artūra Škutes  
ekspedīcija



# Materiāli un metodes

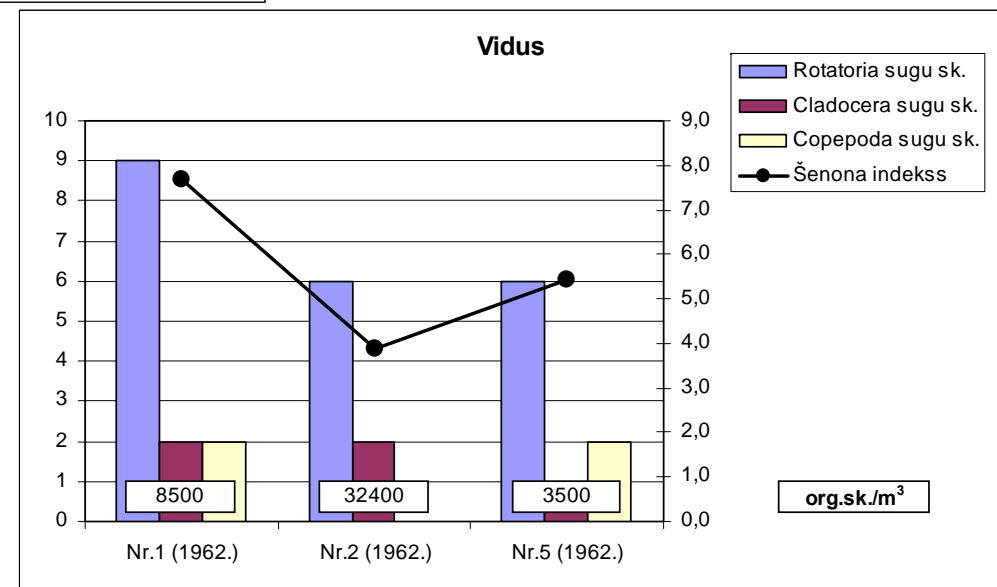


# 1962.gads

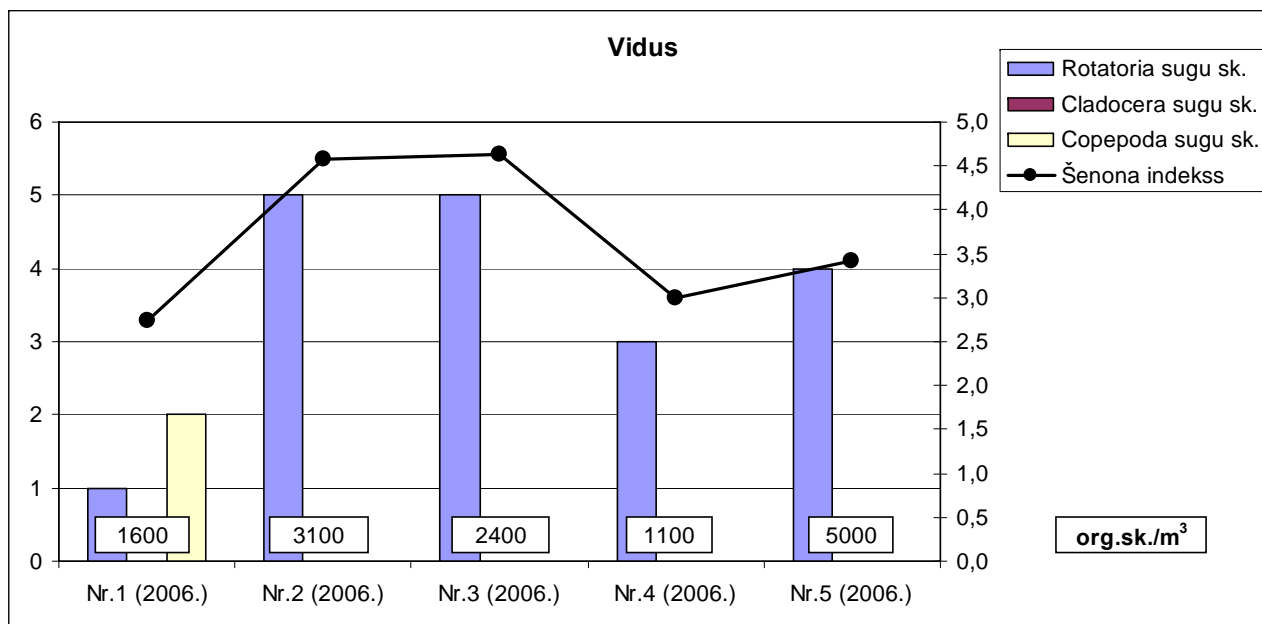
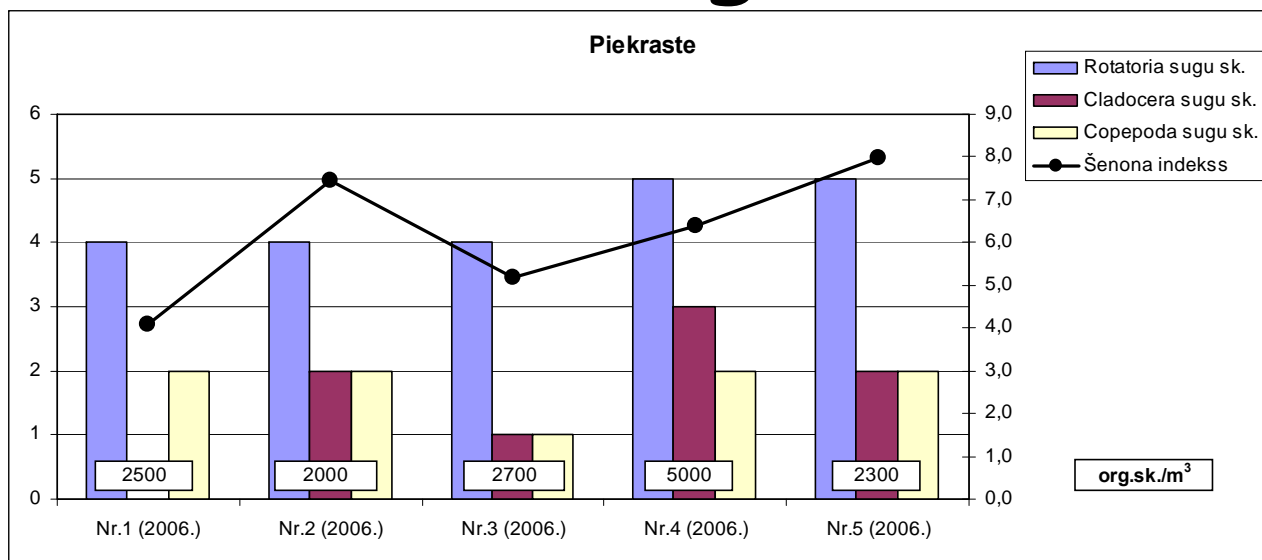


$$H' = \sum_{i=1}^s (p_i)(\log_2 p_i); \text{Shannon - Wiener}$$

$$N_1 = 2^{H'}; (\text{Margalef 1958})$$



# 2006.gads



# Sugu saraksts

| <b>Rotatoria</b>                                  | <b>1962.g</b> | <b>2006.g</b> | <b>Abos</b> |
|---|---------------|---------------|-------------|
| <i>Asplanchna priodonta</i>                       |               | +             |             |
| <i>Brachionus angularis</i>                       | +             |               |             |
| <i>Brachionus pala</i>                            | +             |               |             |
| <i>Brachionus quadridentatus clunior biculans</i> |               | +             |             |
| <i>Brachionus urceolaris</i>                      | +             |               |             |
| <i>Brochionus quadridentatus</i>                  |               |               | +           |
| <i>Conochilus hippocrepis</i>                     |               | +             |             |
| <i>Euchlanis dilatata</i>                         |               |               | +           |
| <i>Karatella quadrata</i>                         |               | +             |             |
| <i>Kellicottia longispina</i>                     |               | +             |             |
| <i>Keratella cochlearis</i>                       |               | +             |             |
| <i>Lacinularis flosculosa</i>                     | +             |               |             |
| <i>Lecane luna</i>                                | +             |               |             |
| <i>Lepadella oblonga</i>                          | +             |               |             |
| <i>Notholca longispina</i>                        | +             |               |             |
| <i>Philodina sp.</i>                              | +             |               |             |
| <i>Pilinia longiseta</i>                          | +             |               |             |
| <i>Pterodina patina</i>                           |               |               | +           |
| <i>Rotifer sp.</i>                                |               | +             |             |
| <i>Scaridium longicaudun</i>                      | +             |               |             |
| <i>Synchaeta sp.</i>                              |               |               | +           |
| <b>Kopā (21)</b>                                  | <b>10</b>     | <b>7</b>      | <b>4</b>    |

| <b>Cladocera</b>               | <b>1962.g</b> | <b>2006.g</b> | <b>Abos</b> |
|--------------------------------|---------------|---------------|-------------|
| <i>Acroperus harpeo</i>        | +             |               |             |
| <i>Alona quadrangularis</i>    |               | +             |             |
| <i>Bosmina longirostris</i>    |               |               | +           |
| <i>Ceriodaphnia qudrangula</i> |               |               | +           |
| <i>Chydorus sphaericus</i>     |               |               | +           |
| <i>Daphnia longispina</i>      | +             |               |             |
| <i>Maerotrix laticoris</i>     | +             |               |             |
| <i>Pleuroxus aduncus</i>       | +             |               |             |
| <i>Rhynchotalona rostrata</i>  | +             |               |             |
| <i>Sida crystallina</i>        |               | +             |             |
| <b>Kopā (10)</b>               | <b>5</b>      | <b>2</b>      | <b>3</b>    |

| <b>Copepoda</b>                 | <b>1962.g</b> | <b>2006.g</b> | <b>Abos</b> |
|---------------------------------|---------------|---------------|-------------|
| <i>Caphtocphtus stephilinus</i> | +             |               |             |
| <i>Copepodida</i>               |               |               | +           |
| <i>Cyclops sp.</i>              |               |               | +           |
| <i>Harpacticoidea</i>           |               | +             |             |
| <i>Nauplii</i>                  |               |               | +           |
| <i>Paracyclops fibriatus</i>    | +             |               |             |
| <b>Kopā (6)</b>                 | <b>2</b>      | <b>1</b>      | <b>3</b>    |

# Līdzību noteikšana

$$P = \sum_i \min(p_{1i}, p_{2i}); (\text{Renkonen 1938})$$

|                 |           | Nr.1 (1962.) |       | Nr.1 (2006.) |       | Nr.2 (1962.) |       | Nr.2 (2006.) |       | Nr.3 (2006.) |       | Nr.4 (2006.) |       | Nr.5 (1962.) |       | Nr.5 (2006.) |       |
|-----------------|-----------|--------------|-------|--------------|-------|--------------|-------|--------------|-------|--------------|-------|--------------|-------|--------------|-------|--------------|-------|
|                 |           | Piekraste    | Vidus | Piekraste    | Vidus | Piekraste    | Vidus | Piekraste    | Vidus | Piekraste    | Vidus | Piekraste    | Vidus | Piekraste    | Vidus | Piekraste    | Vidus |
| Nr.1<br>(1962.) | Piekraste |              | 14    | 10           | 12    | 36           | 17    | 34           | 2     | 32           | 4     | 23           | 0     | 39           | 45    | 11           | 4     |
|                 | Vidus     |              |       | 6            | 1     | 27           | 31    | 9            | 6     | 17           | 15    | 11           | 0     | 17           | 31    | 12           | 11    |
| Nr.1<br>(2006.) | Piekraste |              |       |              | 61    | 16           | 0     | 42           | 21    | 29           | 15    | 31           | 41    | 24           | 20    | 31           | 30    |
|                 | Vidus     |              |       |              |       | 0            | 0     | 29           | 13    | 30           | 0     | 27           | 33    | 16           | 10    | 17           | 8     |
| Nr.2<br>(1962.) | Piekraste |              |       |              |       |              | 19    | 3            | 0     | 17           | 30    | 11           | 0     | 51           | 54    | 1            | 18    |
|                 | Vidus     |              |       |              |       |              |       | 8            | 0     | 14           | 6     | 10           | 0     | 9            | 15    | 11           | 0     |
| Nr.2<br>(2006.) | Piekraste |              |       |              |       |              |       |              | 32    | 43           | 10    | 27           | 19    | 17           | 22    | 52           | 27    |
|                 | Vidus     |              |       |              |       |              |       |              |       | 37           | 29    | 17           | 26    | 7            | 10    | 51           | 68    |
| Nr.3<br>(2006.) | Piekraste |              |       |              |       |              |       |              |       |              | 37    | 39           | 7     | 37           | 30    | 49           | 53    |
|                 | Vidus     |              |       |              |       |              |       |              |       |              |       | 8            | 0     | 44           | 20    | 24           | 33    |
| Nr.4<br>(2006.) | Piekraste |              |       |              |       |              |       |              |       |              |       |              | 29    | 28           | 18    | 29           | 20    |
|                 | Vidus     |              |       |              |       |              |       |              |       |              |       |              |       | 0            | 0     | 8            | 8     |
| Nr.5<br>(1962.) | Piekraste |              |       |              |       |              |       |              |       |              |       |              |       |              | 50    | 16           | 24    |
|                 | Vidus     |              |       |              |       |              |       |              |       |              |       |              |       |              |       | 22           | 20    |
| Nr.5<br>(2006.) | Piekraste |              |       |              |       |              |       |              |       |              |       |              |       |              |       |              | 50    |
|                 | Vidus     |              |       |              |       |              |       |              |       |              |       |              |       |              |       |              |       |



Paldies par uzmanību!

