Use of SCN features: No

Actual Values

Max learning objects: 5000 objects/class Strategy N° 3

## NL 2021 Selected Samples prediction using NL 2021 training set, Learning with selected samples classes with no low regional training instances, no extra training categories, No Calanoida (civ-vi), Cyclopoida, Zooplankton classes in learning set

Confusion Matrix – In percent of Actual Value

| Classification Report Matrix        |  |
|-------------------------------------|--|
| max 5000 learning objects per class |  |

precision recall f1-score

| Confusion Matrix - in percent of Actual value |           |             |          |                   |                     |         |         |                          |                        |            |             |                             |                  | precision   | recall      | f1-score    |           |           |              |  |      |      |      |
|---|-----------|-------------|----------|-------------------|---------------------|---------|---------|--------------------------|------------------------|------------|-------------|-----------------------------|------------------|-------------|-------------|-------------|-----------|-----------|--------------|--|------|------|------|
| Acartia spp.                                  | 72%       | <1%         | 7%       | 8%                | 3%                  |         |         | 8%                       |                        | <1%        |             | <1%                         |                  |             | <1%         | <1%         |           | <1%       |              | Acartia spp<br>(n=2490-train=5000              | 0.77 | 0.72 | 0.75 |
| Evadne spp.                                   |           | 94%         | <1%      | <1%               | <1%                 | <1%     | 2%      | 1%                       |                        |            | <1%         |                             | <1%              | <1%         | <1%         |             |           | <1%       |              | Evadne spp<br>(n=1931-train=2845               | 0.90 | 0.94 | 0.92 |
| Temora spp.                                   | 14%       | 2%          | 56%      | 10%               | 2%                  |         | <1%     | 17%                      |                        |            |             | <1%                         |                  |             |             | <1%         |           |           |              | Temora spp<br>(n=1416-train=5000               | 0.66 | 0.56 | 0.60 |
| Pseudocalanus spp.                            | 19%       |             | 13%      | 59%               | <1%                 |         |         | 8%                       |                        |            |             | <1%                         |                  |             |             | <1%         |           | <1%       | <1%          | Pseudocalanus spp<br>(n=1044-train=4552        | 0.62 | 0.59 | 0.61 |
| Oithona spp.                                  | 11%       | 1%          | <1%      | <1%               | 79%                 | <1%     |         | 4%                       |                        |            |             | <1%                         |                  |             | 3%          |             |           |           |              | Oithona spp                                    | 0.67 | 0.79 | 0.72 |
| Bryozoa (larvae)                              |           | 37%         |          |                   |                     | 51%     | <1%     | 4%                       |                        |            | 2%          | 1%                          | 2%               |             | 1%          | <1%         |           | <1%       |              | (n=345-train=1409                              |      |      |      |
| Podon/Pleopsis spp.                           | 1%        | 15%         | 22%      | <1%               |                     | <1%     | 17%     | 17%                      |                        |            |             |                             |                  |             | <1%         | 2%          |           | 23%       |              | <b>Bryozoa (larvae</b><br>(n=248-train=119     | 0.91 | 0.51 | 0.66 |
| Calanoida (ci-ciii)                           | 11%       | 10%         | 13%      | 5%                | 4%                  | <1%     | 7%      | 45%                      |                        |            |             |                             |                  |             |             | 2%          |           |           | 2%           | Podon/Pleopsis spp<br>(n=230-train=201         | 0.39 | 0.17 | 0.24 |
| Oikopleura spp.                               |           |             | 3%       | 3%                | 2%                  | <1%     |         | <1%                      | 64%                    |            | <1%         |                             |                  |             | 23%         |             | <1%       |           | 2%           | Calanoida (ci-ciii<br>(n=130-train=3713        | 0.08 | 0.45 | 0.14 |
| Centropages spp.                              | 62%       |             | 8%       | 2%                |                     |         |         |                          | 1%                     | 25%        |             |                             |                  |             |             |             |           |           | 1%           | <b>Oikopleura spp</b><br>(n=115-train=761      | 0.85 | 0.64 | 0.73 |
| Echinodermata (larvae)                        | 4%        |             |          |                   | 20%                 |         | 2%      | 2%                       | 2%                     |            | 22%         |                             |                  |             | 46%         |             |           | 2%        |              | Centropages spp<br>(n=88-train=40              | 0.96 | 0.25 | 0.40 |
| pacticoida- epibenthic                        | 26%       |             | 4%       | 9%                | 9%                  |         |         | 17%                      |                        |            |             | 36%                         |                  |             |             |             |           |           |              | Echinodermata (larvae<br>(n=50-train=276       | 0.58 | 0.22 | 0.32 |
| ooda (larvae/Limacina)                        |           | 9%          |          |                   |                     |         | 13%     |                          |                        |            |             |                             | 57%              | 11%         |             |             |           | 11%       |              | Harpacticoida- epibenthic                      | 0.55 | 0.36 | 0.44 |
| Bivalvia (larvae)                             |           |             |          |                   |                     | 5%      | 5%      |                          |                        |            |             |                             | 16%              | 75%         |             |             |           |           |              | (n=47-train=136<br>Gastropoda (larvae/Limacina |      |      |      |
| Fritillaria spp.                              | 3%        |             |          |                   | 9%                  |         |         | 3%                       | 3%                     |            | 3%          |                             |                  |             | 79%         |             |           |           |              | (n=47-train=110                                | 0.52 | 0.57 | 0.55 |
| Microcalanus spp.                             |           | 10%         | 6%       | 6%                |                     |         |         | 58%                      |                        |            |             |                             |                  |             |             | 13%         |           | 6%        |              | Bivalvia (larvae<br>(n=44-train=71             | 0.77 | 0.75 | 0.76 |
| Chaetognatha                                  |           |             |          |                   |                     |         |         |                          | 36%                    |            |             |                             |                  |             | 7%          |             | 57%       |           |              | Fritillaria spp<br>(n=34-train=3447            | 0.25 | 0.79 | 0.38 |
| Polychaeta (larvae)                           |           | 15%         | 5%       | 5%                | 5%                  |         |         | 25%                      |                        |            |             |                             |                  |             |             |             |           | 45%       |              | Microcalanus spp<br>(n=31-train=80             | 0.22 | 0.13 | 0.16 |
| Calanus spp.                                  | 7%        |             |          | 14%               |                     |         |         |                          |                        |            |             |                             |                  |             |             |             |           |           | 79%          | Chaetognatha<br>(n=28-train=67                 | 0.94 | 0.57 | 0.71 |
| Eurytemora spp.                               | 50%       |             | 20%      | 30%               |                     |         |         |                          |                        |            |             |                             | _                |             |             |             |           |           |              | Polychaeta (larvae                             |      | 0.45 | 0.17 |
|   | Acarria s | Epp. Evadne | Penora S | Solidoce Solidoce | Oithona Stanus Spp. | Sp. Sp. | (lande) | Calanoid<br>Deopsis Spp. | Oikopleul<br>(ci.ciii) | Centropo   | Chinode Oce | Harpactic                   | . Castropoda     | Bivalvia /  | Pritillarie | Microcale   | Chaetogna | Polychael | Calanus Spp. |  |      |      |      |
|   |           |             |          |                   | 145 500.            | , ,     | , del   | 25/5 SPD.                | Ciii                   | <i>Pp.</i> | 5/1/2       | Harpactic<br>Ormata (lanae) | Colda Chibenthic | (larvae/lim | ide)        | <i>~</i> ⊅. | 190.      | 4         | (lande)      |  |      | 0.79 | 0.69 |
|   |           |             |          |                   |                     |         |         |                          |                        | D          |             |                             | "(               |             | Cinal       |             |           |           |              | Eurytemora spp<br>(n=10-train=88               | 0.00 | 0.00 | 0.00 |
|   |           |             |          |                   |                     |         |         |                          |                        | Predicte   | d Values    |                             |                  |             |             |             |           |           |              | macro avo                                      | 0.57 | 0.51 | 0.50 |
|   |           |             |          |                   |                     |         |         |                          |                        |            |             |                             |                  |             |             |             |           |           |              |  |      |      |      |

## Predictions of discarded taxa from training Acartia spp. 0.0% 25.0% (n=343) 0.0% 0.0% 0.0% 0.0% 100.0% (n=1) 16.7% (n=1)0.0% 0.0% 0.6% (n=2) 50.0% (n=1) 9.4% (n=30) Bivalvia (larvae) 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 50.0% (n=1) 0.0% 0.0% 0.4% (n=6) 0.0% 0.0% 4.3% (n=2) 0.0% 0.0% 5.0% (n=16) Bryozoa (larvae) 0.0% 0.0% 80 Calanoida (ci-ciii) 0.0% 32.8% (n=449) 0.0% 0.0% 0.0% 4.3% (n=2) 0.0% 16.7% (n=1) 50.0% (n=1)0.0% 6.9% (n=22) Calanus spp. 33.3% (n=3) 0.1% (n=1) 0.0% 100.0% (n=1) 0.0% 0.0% 0.0% 0.0% 25.0% (n=1) 50.0% (n=1) 0.6% (n=2) 10.6% (n=5) 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.9% (n=3) Echinodermata (larvae) 0.0% 4.3% (n=2) 0.0% 0.0% 0.0% 0.0% 0.0% 34.3% (n=109) Evadne spp. 0.0% 4.6% (n=63) 50.0% (n=1) 23.4% (n=11) 0.0% 0.0% 0.0% Taxa 60 0.0% 0.0% 0.0% 0.0% 21.3% (n=10) 0.0% 0.0% 25.0% (n=1) 0.0% 3.1% (n=10) Fritillaria spp. 1.4% (n=19) 0.0% Predicted Gastropoda (larvae/Limacina) 0.0% 0.0% 0.0% 0.0% 100.0% (n=1) 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 8.5% (n=27) 0.3% (n=4) 0.0% 0.0% 33.3% (n=2) 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% Harpacticoida- epibenthic 40 0.0% Microcalanus spp. 0.3% (n=4) 50.0% (n=1) 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.9% (n=3) Oikopleura spp. 11.1% (n=1) 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.3% (n=1) 0.1% (n=1) Oithona spp. 0.0% 10.5% (n=144) 0.0% 0.0% 0.0% 0.0% 0.0% 16.7% (n=1) 0.0% 0.0% 0.0% 2.5% (n=8) Podon/Pleopsis spp. 0.0% 0.7% (n=10) 0.0% 0.0% 0.0% 4.3% (n=2) 0.0% 0.0% 0.0% 0.0% 11.6% (n=37) 0.0% 20 Polychaeta (larvae) 55.6% (n=5) 0.0% 0.0% 0.7% (n=10) 0.0% 0.0% 0.0% 27.7% (n=13) 0.0% 0.0% 50.0% (n=2) 10.1% (n=32) 0.0% 16.7% (n=1) 0.0% 3.8% (n=12) 12.5% (n=171) 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% Pseudocalanus spp. Temora spp. 0.0% 10.6% (n=145) 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 1.3% (n=4) Decapoda-non brachyura (larvae) Sarsia spp. " (medusa) Aglantha n=1370 (uv., Oncaeidae 'spp. Zooplankton (unid) Calanoida ">< 1370 (civ-vi) Cyclopoida " (unid) Hydrozoa (medusa) Monstrillidae Tortanus spp. Ostracoda

Actual discarded Taxa



