Use of SCN features: Yes

Max learning objects: 20000 objects/class Strategy N° 7

Actual Values

## Gulf Selected Samples prediction using all regions training set, Learning with selected samples classes with no low global training instances, no extra training categories, No Calanoida, Cyclopoida, Zooplankton classes in learning set

|     | Classif | ication R | eport M | latrix    |
|-----|---------|-----------|---------|-----------|
| max | 20000   | learning  | objects | per class |

|                                 |         |       |             |             |                    |                   |              |                 |                        | C         | onfusi     | ion N    | latrix        | – In <sub>I</sub> | percei                    | nt of    | Actua           | l Valı | ue          |             |                    |          |                        |         |                    |             |                        |                 |
|---------------------------------|---------|-------|-------------|-------------|--------------------|-------------------|--------------|-----------------|------------------------|-----------|------------|----------|---------------|-------------------|---------------------------|----------|-----------------|--------|-------------|-------------|--------------------|----------|------------------------|---------|--------------------|-------------|------------------------|-----------------|
| Acartia spp.                    | 50%     |       | <1%         | <1%         | 27%                | 7%                | 3%           | <1%             |                        | 1%        | <1%        | <1%      | <1%           | <1%               | 1%                        | <1%      | <1%             | 2%     | <1%         | <1%         | <1%                | <1%      | <1%                    | 4%      |                    | <1%         | 1%                     | (n=1            |
| Bivalvia (larvae)               |         | 93%   | 1%          | <1%         | <1%                | <1%               | <1%          | <1%             | 4%                     |           | <1%        | <1%      | <1%           | <1%               |                           | <1%      |                 | <1%    | <1%         |             |                    | <1%      | <1%                    |         |                    |             |                        |                 |
| Copepoda (nauplii)              |         | 1%    | 94%         | 1%          | <1%                | <1%               | <1%          |                 | <1%                    |           | <1%        | <1%      |               |                   |                           | 1%       |                 | <1%    | 1%          |             |                    | <1%      | <1%                    |         |                    |             |                        | (n:             |
| Podon/Pleopsis spp.             |         | 4%    | 14%         | 68%         | <1%                | <1%               | <1%          | <1%             | 8%                     | <1%       | 2%         | <1%      |               |                   |                           |          |                 | 1%     | 1%          |             |                    |          | <1%                    | <1%     |                    |             | <1%                    | (n=             |
| Oithona spp.                    | <1%     |       | <1%         | <1%         | 82%                | 4%                | 5%           |                 |                        |           | <1%        |          |               | 2%                |                           | 2%       |                 | 1%     | 1%          |             |                    | 1%       | <1%                    |         |                    |             |                        | Poo<br>(n:      |
| Calanoida (ci-ciii)             | 1%      |       | 4%          | 3%          | 16%                | 33%               | 13%          |                 | <1%                    |           | 2%         | <1%      |               | 3%                |                           | 3%       |                 | 13%    | 6%          |             |                    | 1%       | <1%                    | <1%     |                    |             |                        | (n:             |
| Pseudodiaptomus spp.            | 3%      |       | 2%          | <1%         | 20%                | 5%                | 57%          |                 | <1%                    | <1%       | <1%        | <1%      |               | <1%               | <1%                       | <1%      |                 | 3%     | 4%          | <1%         |                    |          | <1%                    | 2%      |                    |             | <1%                    | (n:             |
| Hydrozoa (medusa)               | <1%     | 2%    | <1%         | 6%          | <1%                | <1%               | <1%          | 69%             | 6%                     | <1%       | <1%        | <1%      |               |                   |                           | <1%      | <1%             | 7%     | <1%         | <1%         |                    | 2%       |                        | 1%      |                    |             |                        | Pseu            |
| Gastropoda (larvae/Limacina)    | <1%     | 13%   | 8%          | 12%         | <1%                | <1%               |              | <1%             | 63%                    |           | <1%        | <1%      |               |                   |                           |          |                 | <1%    | <1%         |             |                    |          |                        |         |                    |             |                        | (n:<br>Hi       |
| Temora spp.                     | 5%      |       | 3%          | <1%         | 5%                 | 8%                | 17%          |                 |                        | 28%       |            | 3%       |               |                   | 2%                        |          |                 | 11%    | 5%          | 8%          |                    |          |                        | 5%      |                    |             | <1%                    | (1              |
| Bryozoa (larvae)                |         | <1%   | 27%         | 23%         | <1%                | <1%               |              |                 | 8%                     |           | 37%        | 2%       |               |                   |                           |          |                 |        | <1%         |             |                    |          | <1%                    |         |                    |             |                        | Gastropoda<br>( |
| Polychaeta (larvae)             | <1%     |       | 23%         | 6%          | <1%                | 2%                | 3%           |                 | 2%                     | <1%       | <1%        | 38%      |               |                   |                           | 3%       |                 | 6%     | 14%         |             | <1%                | <1%      |                        |         | <1%                | <1%         |                        | (1              |
| Ascidiacea (larvae)             | <1%     |       |             |             | 4%                 |                   | <1%          |                 |                        |           |            | 2%       | 90%           |                   |                           |          |                 |        |             |             | 1%                 | <1%      | 2%                     |         |                    |             |                        | (               |
| Harpacticoida- epibenthic       | 2%      |       | 5%          |             | 38%                | 11%               | 13%          |                 |                        | <1%       | <1%        |          |               | 19%               |                           | 2%       |                 | 2%     | <1%         | 2%          |                    | 3%       |                        | <1%     |                    |             | <1%                    | Po              |
| Centropages spp.                | 27%     |       |             |             | 34%                | 11%               |              |                 |                        | 9%        |            |          |               |                   | 14%                       |          |                 |        |             |             |                    |          |                        | 2%      |                    |             | 2%                     | A:              |
| Echinodermata (larvae)          |         |       | 11%         | 11%         |                    |                   | 3%           |                 |                        |           |            |          |               |                   |                           | 27%      |                 | 19%    | 30%         |             |                    |          |                        |         |                    |             |                        | Harpacti        |
| Obelia spp. (medusa)            |         |       |             | 5%          | 14%                | 5%                |              | 5%              |                        |           |            |          |               |                   |                           | 5%       | 24%             | 29%    |             |             |                    | 10%      |                        | 5%      |                    |             |                        | Tiarpacti       |
| Evadne spp.                     |         |       |             |             | 6%                 |                   |              | 6%              |                        |           |            |          |               |                   |                           |          |                 | 75%    | 12%         |             |                    |          |                        |         |                    |             |                        |                 |
| Cirripedia (larvae)             |         |       | 44%         | 6%          |                    |                   |              |                 |                        |           | 6%         | 6%       |               |                   |                           | 6%       |                 |        | 31%         |             |                    |          |                        |         |                    |             |                        | Echin           |
| Chaetognatha                    |         |       |             |             | 8%                 |                   |              |                 |                        |           |            |          | 8%            |                   |                           |          |                 |        |             |             |                    | 15%      | 69%                    |         |                    |             |                        | Obe             |
| Pseudocalanus spp.              | 29%     |       |             |             |                    |                   | 14%          |                 |                        | 29%       |            |          |               |                   |                           |          |                 |        |             | 29%         |                    |          |                        |         |                    |             |                        |                 |
| Decapoda-non brachyura (larvae) |         |       |             |             |                    |                   |              |                 |                        |           |            |          |               |                   |                           |          |                 |        |             |             | 100%               |          |                        |         |                    |             |                        |                 |
| Fritillaria spp.                |         |       |             |             |                    |                   |              |                 |                        |           |            |          |               |                   |                           |          |                 |        |             |             |                    | 67%      | 33%                    |         |                    |             |                        |                 |
| Oikopleura spp.                 |         |       |             |             |                    |                   |              |                 |                        |           |            |          |               |                   |                           |          |                 |        |             |             |                    | 100%     |                        |         |                    |             |                        |                 |
| Paracalanus spp.                |         |       |             |             |                    |                   |              |                 |                        |           |            |          |               |                   |                           |          |                 |        |             |             |                    |          |                        |         |                    |             | 100%                   | Ps              |
| Osteichthyes (larvae)           |         |       |             |             |                    |                   |              |                 |                        |           |            |          |               |                   |                           |          |                 |        |             |             |                    |          | 100%                   |         |                    |             |                        | Decapoda-non b  |
| Decapoda-brachyura (zoeae)      |         |       |             |             |                    |                   |              |                 |                        |           |            |          |               |                   |                           |          |                 |        |             |             |                    |          |                        |         |                    | 100%        |                        |                 |
| Eurytemora spp.                 |         |       |             |             |                    |                   |              |                 |                        |           |            |          |               |                   |                           |          |                 |        |             | 100%        |                    |          |                        |         |                    |             |                        |                 |
|                                 | Acartic | Birah | Copel       | Podol (naul | Oithon<br>Pleopsis | Calant<br>Od Spp. | PSelle       | Hydrono<br>iii) | Castro<br>Medicis Spp. | Temo,     | Bryon      | Polyc    | Ascial Ascial | Harpa land        | Centro                    | Chin     | Obelic Odernata | E Vada | Ciripedia ( | haeto Sella | Decap<br>localanus | Stitell. | Oifop                  | Parac   | Ostell<br>Nanus Sp | Chippes (la | Curytenora Pracy Uracy |                 |
|                                 | •       | 500   | Copep Copep | Oda (nau)   | Pleopsis           | 800.              | Pseulo Ci-Ci | Hydrono (iii)   | Od (med                | POHO (la) | Bryon Spp. | d (larva | Deta (la)     | acea (lan         | Centrol Citicolda Company | Odges Sp | dermata         | SPD (M | Spp. dia    | hactognatha | ocalanus.          | Odanon   | Oikople<br>Bria Spp.   | CUTASPO | lanus Sp           | Thyes (1    | oda brack              | , <i>SD</i> ,   |
|                                 |         |       | 9           | / %         | Viij               | 500               | ٠,           | (ii) (i         | 500.                   | (Sa)      | delin      | 9        | <i>'</i>      | de)               | Per !                     | Pibents. | <i>?</i>        | (ande) | dusa)       | 90)         |                    |          | Drachyyr               | 74.     | 2                  | ડે. ્ઠ્     | Tracy Myura            | Osto            |
|                                 |         |       |             |             |                    |                   |              |                 |                        |           | . AC       | inal     |               |                   |                           | "lic     |                 |        |             |             |                    |          | Oikople Spp. brachyura | lander  |                    |             |                        | Decapoda-l      |
|                                 |         |       |             |             |                    |                   |              |                 |                        |           |            |          | -             | 1.                | 1.37                      |          |                 |        |             |             |                    |          |                        | ツ       |                    |             |                        |                 |
|                                 |         |       |             |             |                    |                   |              |                 |                        |           |            |          | Pr            | edicte            | d Valı                    | ies      |                 |        |             |             |                    |          |                        |         |                    |             |                        |                 |
|                                 |         |       |             |             |                    |                   |              |                 |                        |           |            |          |               |                   |                           |          |                 |        |             |             |                    |          |                        |         |                    |             |                        |                 |

| Acartia spp. (n=18062-train=20000)                 | 0.99      | 0.50   | 0.66     |
|--|-----------|--------|----------|
| Bivalvia (larvae)<br>(n=7955-train=3764)           | 0.97      | 0.93   | 0.95     |
| Copepoda (nauplii)<br>(n=2753-train=11555)         | 0.76      | 0.94   | 0.84     |
| Podon/Pleopsis spp. (n=2715-train=7347)            | 0.83      | 0.68   | 0.75     |
| Oithona spp. (n=2572-train=5881)                   | 0.28      | 0.82   | 0.42     |
| Calanoida (ci-ciii)<br>(n=1348-train=5557)         | 0.22      | 0.33   | 0.27     |
| Pseudodiaptomus spp. (n=1059-train=2113)           | 0.38      | 0.57   | 0.46     |
| <b>Hydrozoa (medusa)</b> (n=671-train=4052)        | 0.90      | 0.69   | 0.78     |
| Gastropoda (larvae/Limacina)<br>(n=629-train=3272) | 0.40      | 0.63   | 0.49     |
| <b>Temora spp.</b> (n=308-train=7347)              | 0.29      | 0.28   | 0.28     |
| Bryozoa (larvae)<br>(n=247-train=1142)             | 0.40      | 0.37   | 0.38     |
| Polychaeta (larvae)<br>(n=237-train=1577)          | 0.57      | 0.38   | 0.46     |
| Ascidiacea (larvae)<br>(n=194-train=861)           | 0.96      | 0.90   | 0.93     |
| Harpacticoida- epibenthic (n=108-train=555)        | 0.10      | 0.19   | 0.13     |
| Centropages spp. (n=44-train=3620)                 | 0.03      | 0.14   | 0.05     |
| Echinodermata (larvae)<br>(n=37-train=3043)        | 0.04      | 0.27   | 0.07     |
| Obelia spp. (medusa)<br>(n=21-train=1003)          | 0.24      | 0.24   | 0.24     |
| Evadne spp. (n=16-train=11064)                     | 0.02      | 0.75   | 0.03     |
| Cirripedia (larvae)<br>(n=16-train=7685)           | 0.01      | 0.31   | 0.02     |
| Chaetognatha<br>(n=13-train=89)                    | 0.00      | 0.00   | 0.00     |
| Pseudocalanus spp. (n=7-train=4845)                | 0.02      | 0.29   | 0.04     |
| rapoda-non brachyura (larvae)<br>(n=4-train=423)   | 0.50      | 1.00   | 0.67     |
| Fritillaria spp. (n=3-train=6992)                  | 0.01      | 0.67   | 0.03     |
| Oikopleura spp. (n=2-train=5305)                   | 0.00      | 0.00   | 0.00     |
| Paracalanus spp. (n=1-train=1619)                  | 0.00      | 0.00   | 0.00     |
| Osteichthyes (larvae)<br>(n=1-train=45)            | 0.00      | 0.00   | 0.00     |
| Decapoda-brachyura (zoeae)<br>(n=1-train=628)      | 0.10      | 1.00   | 0.18     |
| Eurytemora spp. (n=1-train=1818)                   | 0.00      | 0.00   | 0.00     |
| macro avg  | 0.32      | 0.46   | 0.33     |
| weighted avg                                       | 0.84      | 0.65   | 0.70     |
|  | precision | recall | f1-score |

|                | Acartia spn.                 | 3.6% (n=277)        | 0.0%  | 0.0%                                    | 0.0%   | 0.0%  | 0.0%  | 0.0%                                |         | 100 |
|----------------|------------------------------|---------------------|---|---|--|---|---|-------------------------------------|---------|-----|
|                | Ascidiacea (larvae)          |                     | 0.0%  | 0.0%                                    | 0.0%   | 0.0%  | 0.0%  | 0.1% (n=2)                          |         |     |
|                | Bivalvia (larvae)            |                     | 0.0%  | 0.0%                                    | 0.0%   | 0.0%  | 0.0%  | 30.4% (n=553)                       |         |     |
|                | Bryozoa (larvae)             | ` '                 | 0.0%  | 8.7% (n=2)                              | 0.0%   | 0.0%  | 0.0%  | 5.3% (n=97)                         |         |     |
|                | Calanoida (ci-ciii)          | , ,                 |   | 0.0%                                    | 0.0%   | 0.0%  | 0.0%  | 1.5% (n=27)                         |         | 00  |
|                | Centropages spp.             |                     | 0.0%  | 0.0%                                    | 0.0%   | 50.0% (n=1)   | 0.0%  | 0.0%                                |         | 80  |
|                | Cirripedia (larvae)          |                     | 28.6% (n=2)   |   | 100.0% (n=1)   |   | 0.0%  | 1.6% (n=29)                         |         |     |
|                | Copepoda (nauplii)           | 5.5% (n=422)        | 28.6% (n=2)   | 17.4% (n=4)                             | 0.0%   | 0.0%  | 0.0%  | 26.2% (n=477)                       |         |     |
|                | Echinodermata (larvae)       | 4.1% (n=316)        | 0.0%  | 0.0%                                    | 0.0%   | 0.0%  | 0.0%  | 0.8% (n=15)                         |         |     |
| g              | Eurytemora spp.              | 0.0% (n=3)          | 0.0%  | 0.0%                                    | 0.0%   | 0.0%  | 0.0%  | 0.0%                                |         | 60  |
| Тах            | Evadne spp.                  | 8.6% (n=661)        | 0.0%  | 4.3% (n=1)                              | 0.0%   | 0.0%  | 0.0%  | 1.4% (n=26)                         |         |     |
| Pá             | Fritillaria spp.             | 1.0% (n=76)         | 0.0%  | 0.0%                                    | 0.0%   | 50.0% (n=1)   | 0.0%  | 0.3% (n=6)                          |         |     |
| Predicted Taxa | Gastropoda (larvae/Limacina) | 0.6% (n=46)         | 14.3% (n=1)   | 0.0%                                    | 0.0%   | 0.0%  | 100.0% (n=1                                 | 12.8% (n=234)                       |         |     |
| red            | Harpacticoida- epibenthic    | 1.2% (n=96)         | 0.0%  | 30.4% (n=7)                             | 0.0%   | 0.0%  | 0.0%  | 0.0%                                |         |     |
| Д              | Hydrozoa (medusa)            | 0.1% (n=5)          | 0.0%  | 0.0%                                    | 0.0%   | 0.0%  | 0.0%  | 1.6% (n=30)                         |         | 40  |
|                | Obelia spp. (medusa)         | 0.0% (n=2)          | 0.0%  | 0.0%                                    | 0.0%   | 0.0%  | 0.0%  | 0.0%                                |         |     |
|                | Oikopleura spp.              | 0.4% (n=31)         | 0.0%  | 0.0%                                    | 0.0%   | 0.0%  | 0.0%  | 0.4% (n=7)                          |         |     |
|                | Oithona spp.                 | 19.4% (n=1495)      | 0.0%  | 4.3% (n=1)                              | 0.0%   | 0.0%  | 0.0%  | 0.4% (n=7)                          |         |     |
|                | Paracalanus spp.             | 0.7% (n=54)         | 0.0%  | 0.0%                                    | 0.0%   | 0.0%  | 0.0%  | 0.0%                                |         | 20  |
|                | Podon/Pleopsis spp.          | 2.7% (n=212)        | 14.3% (n=1)   | 4.3% (n=1)                              | 0.0%   | 0.0%  | 0.0%  | 15.7% (n=286)                       |         | 20  |
|                | Polychaeta (larvae)          |                     | 0.0%  | 8.7% (n=2)                              | 0.0%   | 0.0%  | 0.0%  | 1.0% (n=18)                         |         |     |
|                | Pseudocalanus spp.           | 0.1% (n=6)          | 0.0%  | 0.0%                                    | 0.0%   | 0.0%  | 0.0%  | 0.0%                                |         |     |
|                | Pseudodiaptomus spp.         |                     |   | 17.4% (n=4)                             |  | 0.0%  | 0.0%  | 0.4% (n=8)                          |         |     |
|                | Temora spp.                  |                     | 0.0%  | 0.0%                                    | 0.0%   | 0.0%  | 0.0%  | 0.0%                                |         | 0   |
|                |                              | Calanoi             | Cnida   | Cyclope<br>n≥23<br>(la <sub>rvae)</sub> | $Mi_{cros}$ $pid_{m{a}} \stackrel{n_{\sim 1}}{(unid)}$ | $M_{o_{oldsymbol{\eta}_{Str}}}^{oldsymbol{\mathcal{M}}_{o_{oldsymbol{\eta}_{Str}}}}$ e $t_{ell_{oldsymbol{	heta}}}^{oldsymbol{\eta}_{Sp_{oldsymbol{eta}}}}$ | $O_{St_{r_{\partial_{\Omega}}}}$            | Zooplanki<br>Coda <sup>n≥1822</sup> |         | U   |
|                |                              | ">>>> <sub>10</sub> | $d_{a} \stackrel{(i) > \gamma}{(u_{ni}, \dots, n_{ni})} d_{ni}$ | $a(l_{a_{r_{V_{2}}}})^{p_{l_{1}}}$      | $Pid_{a} \stackrel{   \geq 1}{   u_{r} } = 0$          | etella ">? "str   | $ill_{id_{\partial_{\mathbf{e}}}}^{">_{1}}$ | oda "=1822                          | ton (i. |     |
|                |                              |                     | "(d)  | "de)                                    | ("Ild)   | Spp.  | •   |                                     | (unid)  |     |

Actual discarded Taxa

Relative Abundance of Top Taxonomic Instances per Sample



