NL 2021 Selected Samples prediction using NL 2021 training set,
Learning with all classes present in the selected samples, with extra training categories,
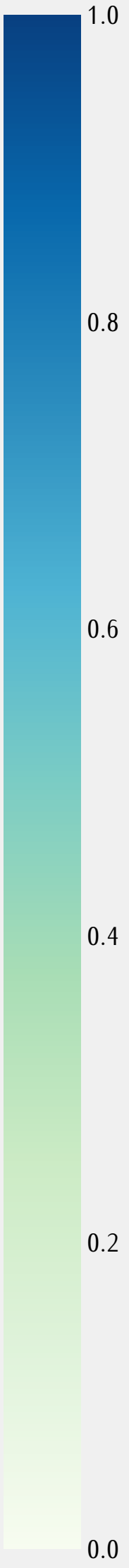**No Calanoida (civ-vi), Cyclopoida, Zooplankton classes in learning set**

Use of SCN features: Yes
Max learning objects: 200 objects/class
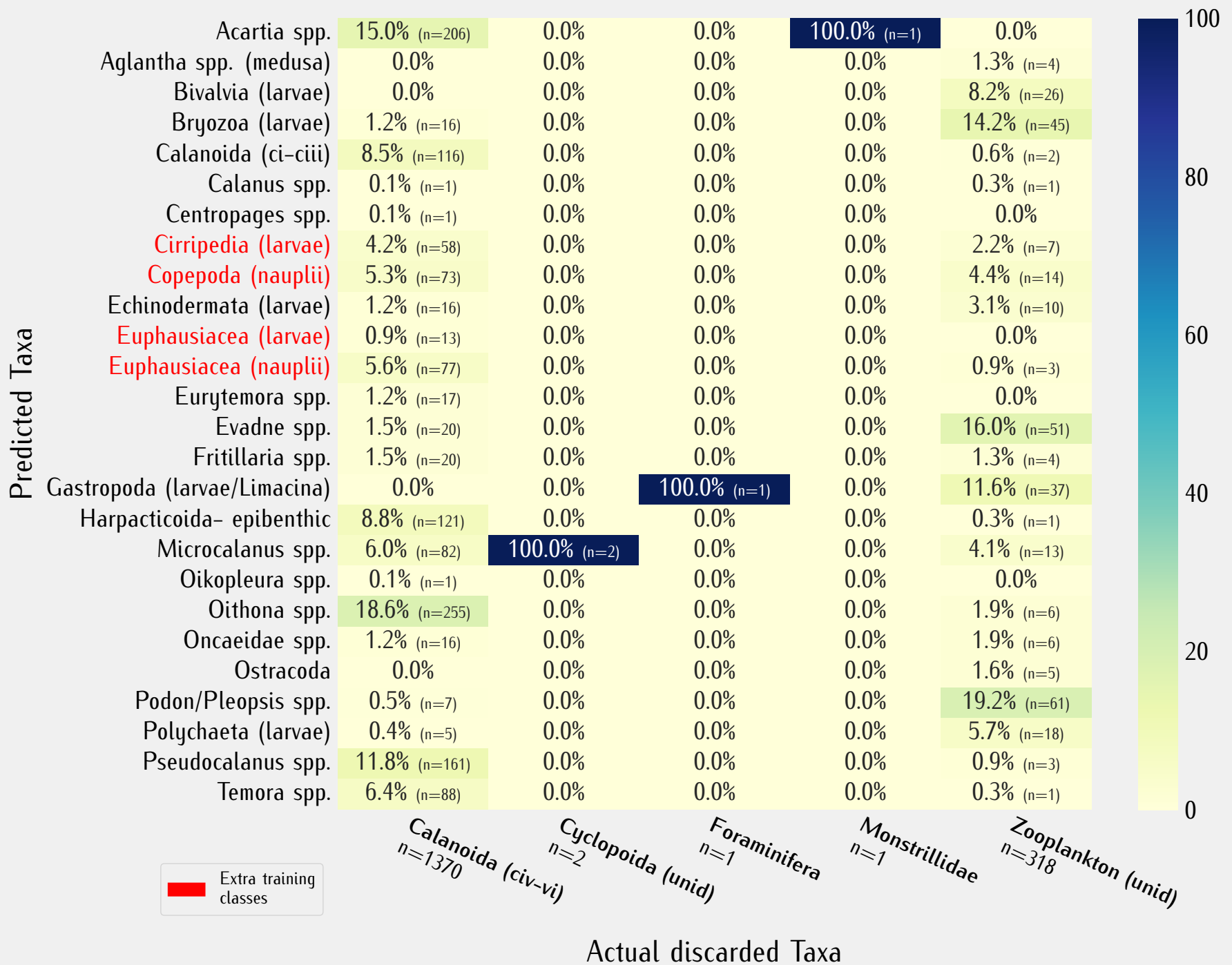Strategy N° 2

Confusion Matrix - In percent of Actual Value

Actual Values / Predicted Values

Actual Values	Acartia spp.	Evadne spp.	Temora spp.	Pseudocalanus spp.	Oithona spp.	Bryozoa (larvae)	Podon/Pleopsis spp.	Calanoida (ci-ciii)	Oikopleura spp.	Centropages spp.	Echinodermata (larvae)	Harpacticoida- epibenthic	Hydrozoa (medusa)	Gastropoda (larvae/Limacina)	Bivalvia (larvae)	Fritillaria spp.	Microcalanus spp.	Chaetognatha	Polychaeta (larvae)	Calanus spp.	Eurytemora spp.	Aglantha spp. (medusa)	Oncaeidae spp.	Sarsia spp. (medusa)	Ostracoda	Tortanus spp.	Decapoda-non brachyura (larvae)	Cirripedia (larvae)	Copepoda (nauplii)	Obelia spp. (medusa)	Euphausiacea (larvae)	Euphausiacea (nauplii)
Acartia spp.	47%	<1%	7%	16%	4%		3%	<1%	<1%	<1%	11%			<1%	2%			1%		<1%								<1%	<1%		2%	4%
Evadne spp.		77%		<1%	<1%	5%	7%	<1%		<1%		2%	<1%		<1%		<1%		<1%		<1%				3%	3%	<1%					<1%
Temora spp.	11%	1%	36%	12%	7%	<1%	<1%	11%		<1%	<1%	3%			3%			3%	<1%	<1%						4%	2%				<1%	6%
Pseudocalanus spp.	21%		11%	46%	<1%			5%		<1%	<1%	4%			<1%	5%			<1%	<1%	5%								<1%		<1%	2%
Oithona spp.	9%	<1%	<1%	<1%	81%	<1%		<1%			<1%	<1%			2%				<1%		<1%					<1%	<1%				<1%	2%
Bryozoa (larvae)		5%				85%	2%			1%			2%			<1%											<1%	3%				
Podon/Pleopsis spp.		6%	3%	<1%		2%	23%		<1%	<1%		<1%			12%		16%		<1%	<1%					17%	17%			<1%	<1%		
Calanoida (ci-ciii)	8%	7%	2%	4%	5%	3%	5%	3%			2%	2%			17%		<1%	<1%	5%						5%	25%						5%
Oikopleura spp.		3%	3%	3%	<1%		<1%	66%		<1%			9%		10%		2%	2%														<1%
Centropages spp.	17%		1%	2%					69%					1%	5%				1%						1%					2%	
Echinodermata (larvae)	10%				24%		2%		28%			28%			4%										2%	2%						
Harpacticoida- epibenthic		4%	4%	9%	2%		6%			64%									2%						2%	2%						4%
Hydrozoa (medusa)		2%			6%	9%		6%			6%	2%	2%	11%	4%		4%			15%					19%		13%					
Gastropoda (larvae/Limacina)		4%				15%						60%	11%			4%			4%			2%										
Bivalvia (larvae)					5%	2%						18%	75%																			
Fritillaria spp.				15%			3%		9%					74%																		
Microcalanus spp.		6%	3%	3%		10%									48%	6%								3%	13%						6%
Chaetognatha						14%										79%	4%		4%													
Polychaeta (larvae)		5%		10%	15%				5%		5%	25%						10%	15%	5%										5%		
Calanus spp.							7%										86%	7%														
Eurytemora spp.	30%		10%	30%														10%											20%			
Aglantha spp. (medusa)												11%							67%							11%	11%					
Oncaeidae spp.						17%				67%									17%													
Sarsia spp. (medusa)																	25%	25%						50%								
Ostracoda					100%																											
Tortanus spp.	50%																50%															
Decapoda-non brachyura (larvae)																	100%															

Extra training classes

Classification Report Matrix
max 200 learning objects per class

	precision	recall	f1-score
Acartia spp. (n=2490-train=200)	0.73	0.47	0.57
Evadne spp. (n=1931-train=200)	0.96	0.77	0.85
Temora spp. (n=1416-train=200)	0.62	0.36	0.45
Pseudocalanus spp. (n=1044-train=200)	0.45	0.46	0.45
Oithona spp. (n=345-train=200)	0.51	0.81	0.63
Bryozoa (larvae) (n=248-train=119)	0.62	0.85	0.72
Podon/Pleopsis spp. (n=230-train=200)	0.23	0.23	0.23
Calanoida (ci-ciii) (n=130-train=200)	0.01	0.03	0.02
Oikopleura spp. (n=115-train=200)	0.90	0.66	0.76
Centropages spp. (n=88-train=40)	0.90	0.69	0.78
Echinodermata (larvae) (n=50-train=200)	0.33	0.28	0.30
Harpacticoida- epibenthic (n=47-train=136)	0.08	0.64	0.13
Hydrozoa (medusa) (n=47-train=21)	1.00	0.06	0.12
Gastropoda (larvae/Limacina) (n=47-train=110)	0.39	0.60	0.47
Bivalvia (larvae) (n=44-train=71)	0.73	0.75	0.74
Fritillaria spp. (n=34-train=200)	0.29	0.74	0.41
Microcalanus spp. (n=31-train=80)	0.07	0.48	0.12
Chaetognatha (n=28-train=67)	0.67	0.79	0.72
Polychaeta (larvae) (n=20-train=200)	0.08	0.25	0.13
Calanus spp. (n=14-train=200)	0.48	0.86	0.62
Eurytemora spp. (n=10-train=88)	0.01	0.10	0.01
Aglantha spp. (medusa) (n=9-train=21)	0.27	0.67	0.39
Oncaeidae spp. (n=6-train=16)	0.08	0.17	0.11
Sarsia spp. (medusa) (n=4-train=4)	0.00	0.00	0.00
Ostracoda (n=2-train=6)	0.00	0.00	0.00
Tortanus spp. (n=2-train=4)	0.00	0.00	0.00
Decapoda-non brachyura (larvae) (n=1-train=7)	0.00	0.00	0.00
Cirripedia (larvae) (n=0-train=200)	–	–	–
Copepoda (nauplii) (n=0-train=200)	–	–	–
Obelia spp. (medusa) (n=0-train=43)	–	–	–
Euphausiacea (larvae) (n=0-train=75)	–	–	–
Euphausiacea (nauplii) (n=0-train=122)	–	–	–
macro avg (corr)	0.39	0.43	0.36
weighted avg	0.68	0.54	0.58

Predictions of discarded taxa from training

Predicted Taxa	Calanoida (civ-vi) n=1370	Cyclopoida (unid) n=2	Foraminifera n=1	Monstrillidae n=1	Zooplankton (unid) n=318
Acartia spp.	15.0% (n=206)	0.0%	0.0%	100.0% (n=1)	0.0%
Aglantha spp. (medusa)	0.0%	0.0%	0.0%	0.0%	1.3% (n=4)
Bivalvia (larvae)	0.0%	0.0%	0.0%	0.0%	8.2% (n=26)
Bryozoa (larvae)	1.2% (n=16)	0.0%	0.0%	0.0%	14.2% (n=45)
Calanoida (ci-ciii)	8.5% (n=116)	0.0%	0.0%	0.0%	0.6% (n=2)
Calanus spp.	0.1% (n=1)	0.0%	0.0%	0.0%	0.3% (n=1)
Centropages spp.	0.1% (n=1)	0.0%	0.0%	0.0%	0.0%
Cirripedia (larvae)	4.2% (n=58)	0.0%	0.0%	0.0%	2.2% (n=7)
Copepoda (nauplii)	5.3% (n=73)	0.0%	0.0%	0.0%	4.4% (n=14)
Echinodermata (larvae)	1.2% (n=16)	0.0%	0.0%	0.0%	3.1% (n=10)
Euphausiacea (larvae)	0.9% (n=13)	0.0%	0.0%	0.0%	0.0%
Euphausiacea (nauplii)	5.6% (n=77)	0.0%	0.0%	0.0%	0.9% (n=3)
Eurytemora spp.	1.2% (n=17)	0.0%	0.0%	0.0%	0.0%
Evadne spp.	1.5% (n=20)	0.0%	0.0%	0.0%	16.0% (n=51)
Fritillaria spp.	1.5% (n=20)	0.0%	0.0%	0.0%	1.3% (n=4)
Gastropoda (larvae/Limacina)	0.0%	0.0%	100.0% (n=1)	0.0%	11.6% (n=37)
Harpacticoida- epibenthic	8.8% (n=121)	0.0%	0.0%	0.0%	0.3% (n=1)
Microcalanus spp.	6.0% (n=82)	100.0% (n=2)	0.0%	0.0%	4.1% (n=13)
Oikopleura spp.	0.1% (n=1)	0.0%	0.0%	0.0%	0.0%
Oithona spp.	18.6% (n=255)	0.0%	0.0%	0.0%	1.9% (n=6)
Oncaeidae spp.	1.2% (n=16)	0.0%	0.0%	0.0%	1.9% (n=6)
Ostracoda	0.0%	0.0%	0.0%	0.0%	1.6% (n=5)
Podon/Pleopsis spp.	0.5% (n=7)	0.0%	0.0%	0.0%	19.2% (n=61)
Polychaeta (larvae)	0.4% (n=5)	0.0%	0.0%	0.0%	5.7% (n=18)
Pseudocalanus spp.	11.8% (n=161)	0.0%	0.0%	0.0%	0.9% (n=3)
Temora spp.	6.4% (n=88)	0.0%	0.0%	0.0%	0.3% (n=1)

Actual discarded Taxa

Predicted Taxa

■ Extra training classes (red)

Note: Cirripedia (larvae), Copepoda (nauplii), Euphausiacea (larvae), and Euphausiacea (nauplii) are marked in red (Extra training classes).

Relative Abundance of Top Taxonomic Instances per Sample