

Biotoxin report:

PSP toxins: Nineteen samples were analysed this week. Toxins were not detected.

DSP toxins: Nineteen samples were analysed this week. Toxins were detected at a low concentration in Braewick Voe.

ASP toxins: Nineteen samples were analysed this week. Toxins were not detected.

YTX toxins: Nineteen samples were analysed this week. Toxins were not detected.

AZA toxins: Nineteen samples were analysed this week. No toxins were detected.

Harmful algae report:

Alexandrium: Twelve samples were analysed this week. *Alexandrium* was detected at warning levels in Scarvar Ayre.

Pseudo-nitzschia delicatissima: Twelve samples were analysed this week. *P. delicatissima* was detected at trigger level in Scarvar Ayre and in low numbers in all other sites.

Pseudo-nitzschia seriata: Twelve samples were analysed this week. *P. seriata* was detected in low numbers in Braewick Voe.

Dinophysis: Twelve samples were analysed this week. *Dinophysis* was not detected.

Prorocentrum lima: Twelve samples were analysed this week. *P. lima* was detected at trigger level in Sandsound Voe and in low numbers in Seggi Bight.

Karenia mikimotoi: Twelve samples were analysed this week. *Karenia* was not detected.

Shetland: trends and forecast

Alexandrium/PSP: *Alexandrium* was detected in one site this week. It is extremely unlikely that there will be a toxic bloom this week.

Dinophysis/DSP: *Dinophysis* was not detected this week. Toxins were detected at low concentrations in one site. It is very unlikely that there will be a toxic bloom this week.

Pseudo-nitzschia/ASP: *P. delicatissima* was detected at trigger level in one site and in low numbers in eleven sites this week, *P. seriata* was detected in low numbers in one site. Toxins were not detected. It is unlikely that there will be a toxic bloom this week.

AZA and YTX: It is extremely unlikely that there will be a toxic bloom this week.

Risk for **PSP:** Low

Risk for **DSP:** Low

Risk for **ASP:** Low

Risk for **YTX:** Low

Risk for **AZA:** Low

While this bulletin is based on our expert opinion, SAMS cannot accept responsibility for harvesting or husbandry decisions. Those remain the responsibility of the industry.



Toxin concentrations provided courtesy of the Centre for Environment, Fisheries and Aquaculture Science



European Union
European Structural
and Investment Funds



The Scottish
Government
Riaghaltas na h-Alba



Funding for these bulletins is kindly provided by EMFF

Warning/Threshold Levels

<i>Alexandrium</i> (PSP causative)	Warning 20 cells/l Threshold 40 cells/l
<i>Pseudo nitzschia</i> (ASP causative)	Warning: 40,000 cells/l Threshold: 50,000 cells/l
<i>Dinophysis</i> (DSP causative)	Warning : 80 cells/l Threshold: 80 cells/l
<i>Prorocentrum lima</i> (DSP causative)	Warning: 80 cells/l Threshold: 100 cells/l

The maximum permitted levels of biotoxins in shellfish are:

PSP: 800 µg/kg

ASP: 20 mg/kg

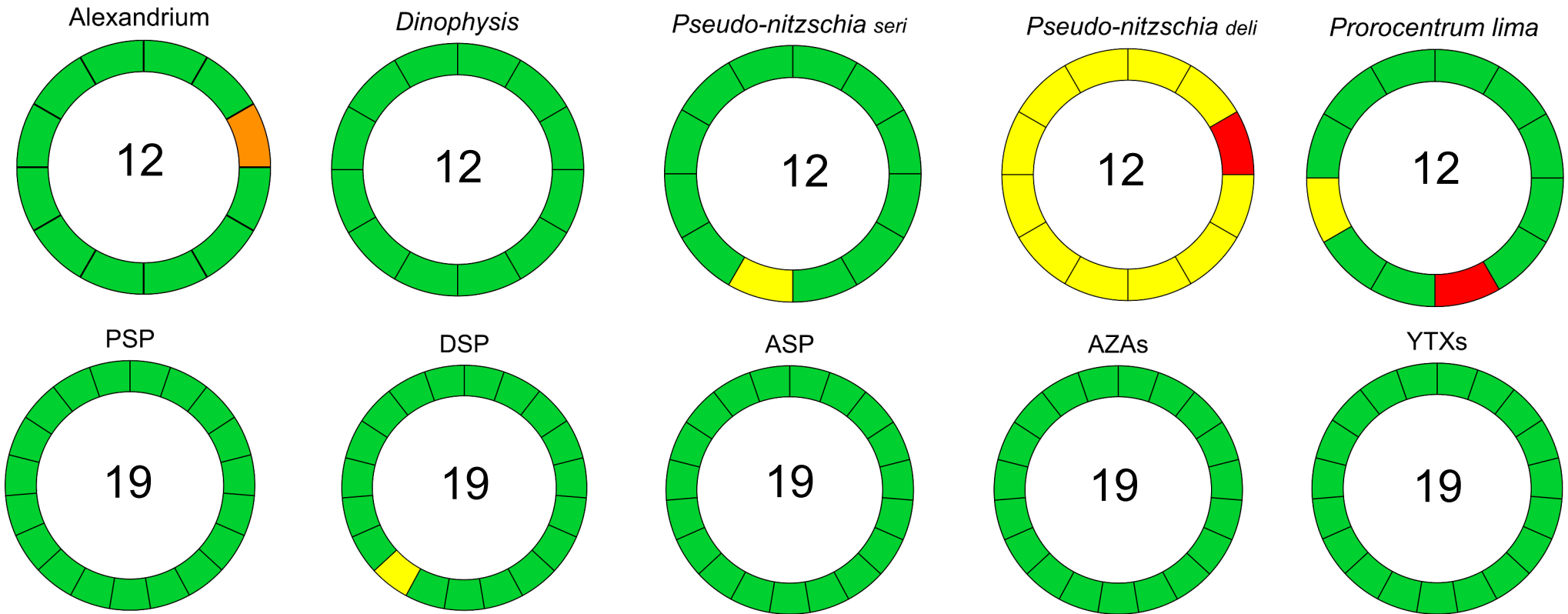
Lipophilic toxins (tested by LC-MS):

OA/DTXs/PTXs: 160 µg/kg of Okadaic acid equivalents

YTXs: 3.75 milligram of yessotoxin equivalent/kilogram

AZAs: 160 micrograms of azaspiracids equivalents/kilogram

Status of biotoxins & harmful algae present in Shetland



Segments - no of individual sites, Colours: Green, red, amber and yellow as per key. Blue - not analysed. Coloured segment indicates approximate position of site in Shetland

Biotoxin & Species	Green	Yellow	Amber	Red	Blue
PSP	<RL	RL - 399 µg/kg	400 - 800 µg/kg	>800 µg/kg	Not analysed
OA/DTX/PTX	<RL	1 - 79 µg/kg	80 - 160 µg/kg	>160 µg/kg	Not analysed
ASP	<LOQ	LOQ - 9.9 mg/kg	10 - 20 mg/kg	>20 mg/kg	Not analysed
YTX	<RL	1 - 1.7 mg/kg	1.8 - 3.75 mg/kg	>3.75 mg/kg	Not analysed
AZA	<RL	1 - 79 µg/kg	80 - 160 µg/kg	>160 µg/kg	Not analysed
<i>Alexandrium</i>	<20 cells/l	n/a	20 cells/l	≥ 40 cells/l	Not sampled
<i>Dinophysis</i>	<20 cells/l	20 - 79 cells/l	80 - 99 cells/l	≥100 cells/l	Not sampled
<i>Pseudo nitzschia</i>	<20 cells/l	20 - 39,999 cells/l	40,000 - 49,999 cells/l	≥50,000 cells/l	Not sampled
<i>Prorocentrum lima</i>	<20 cells/l	20 - 79 cells/l	80 - 99 cells/l	≥100 cells/l	Not sampled

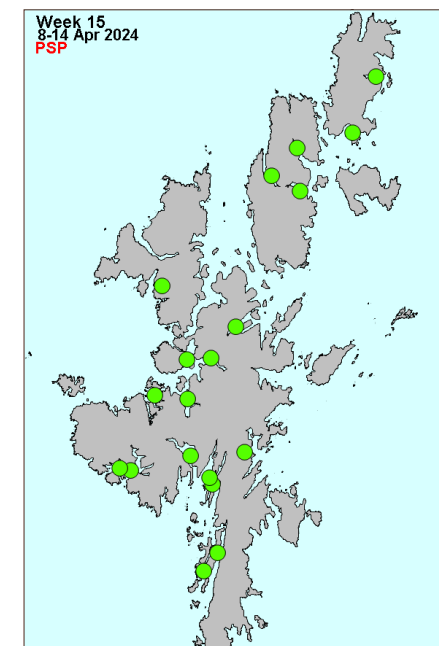
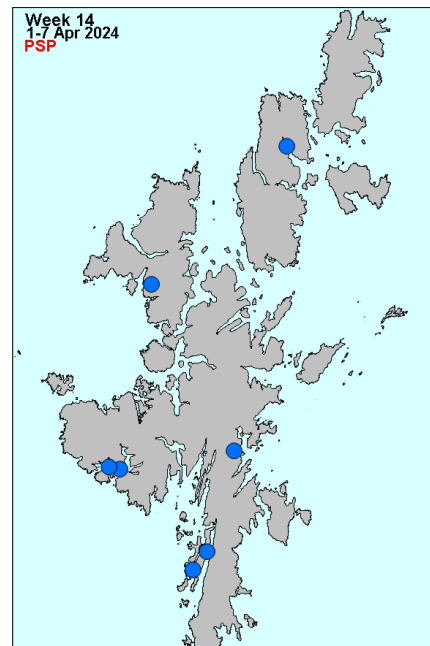
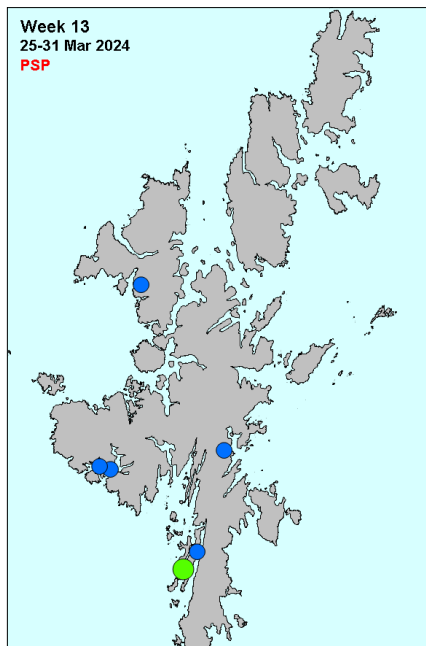
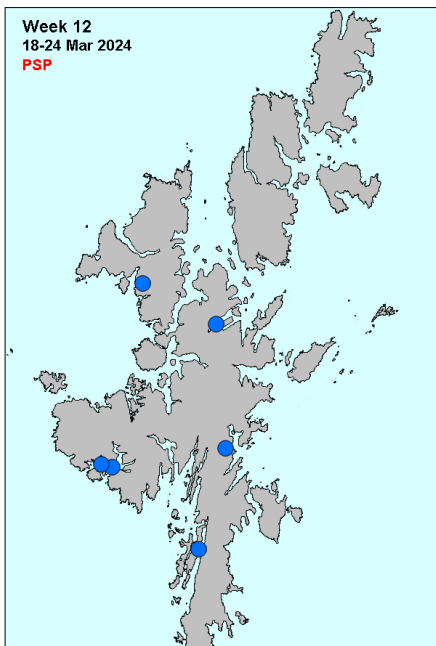
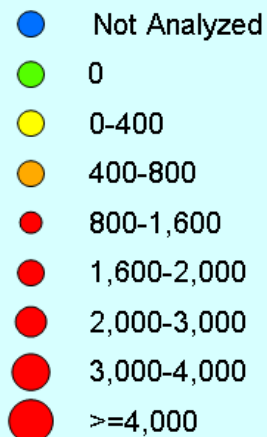
NOTE:
 This page is intended as a quick overview of the situation in the Shetland Islands. If the status for a particular species or biotoxin is amber or red please check the relevant pages in the bulletin for more details and specific locations.
 RL- reporting limit;
 LOQ – Limit of quantification

Shetland Bulletin on the status of harmful & toxic algae Week 15, 8th - 14th Apr 2024

Paralytic shellfish poisoning toxins & causative phytoplankton

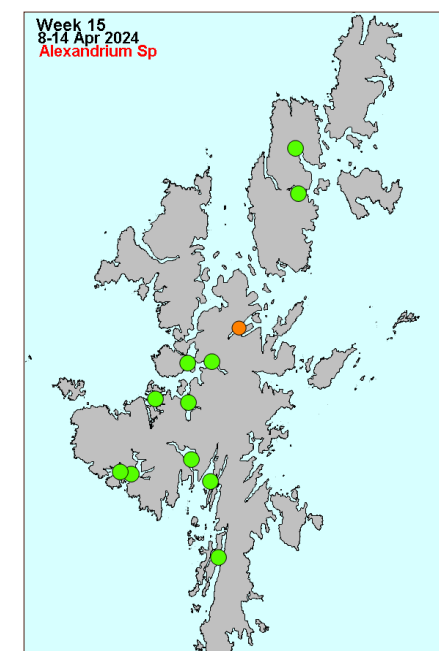
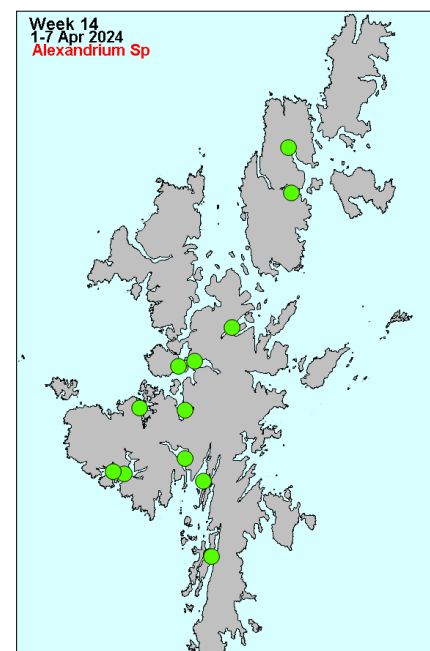
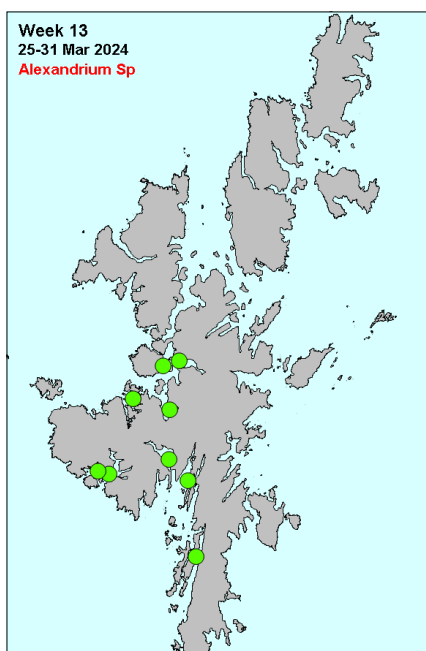
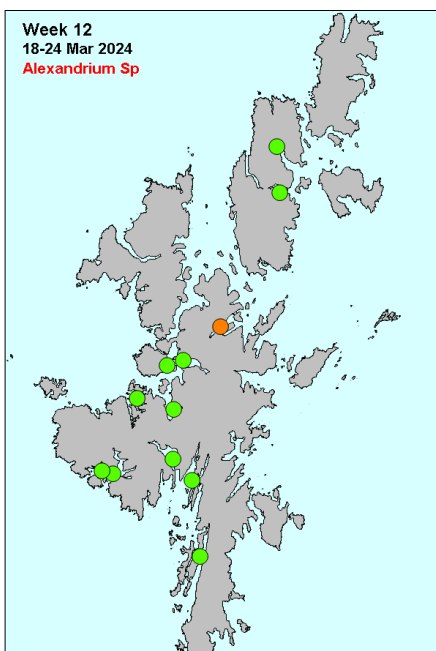
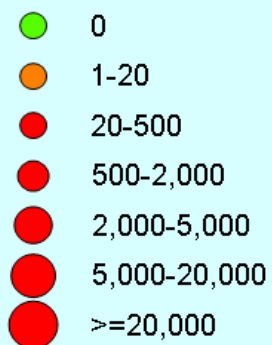
PSP

µg STX eq/kg



Alexandrium Sp.

cells/l

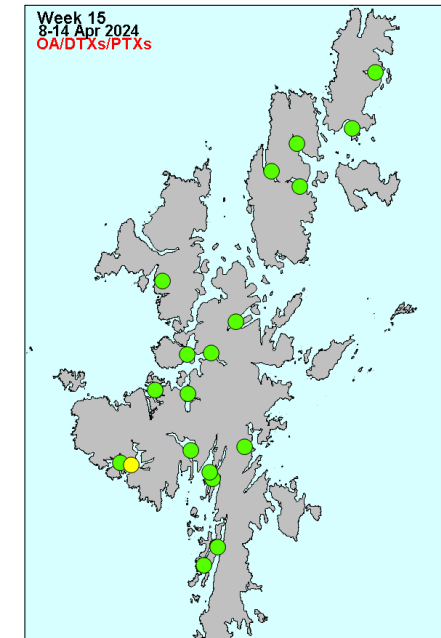
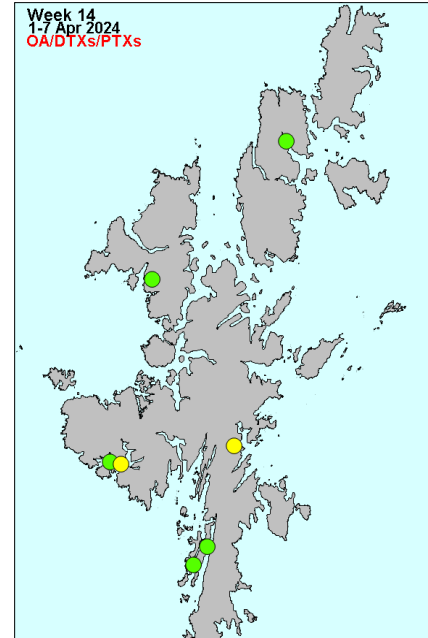
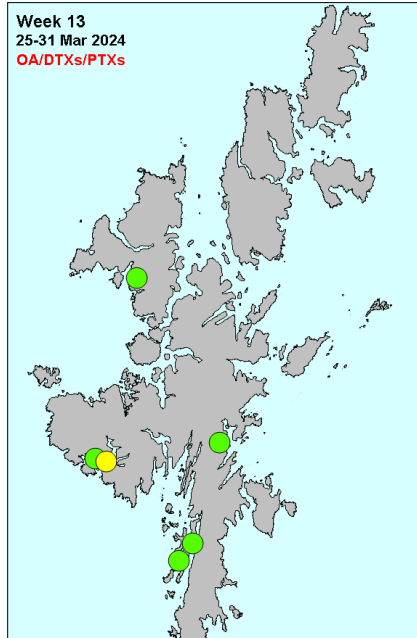
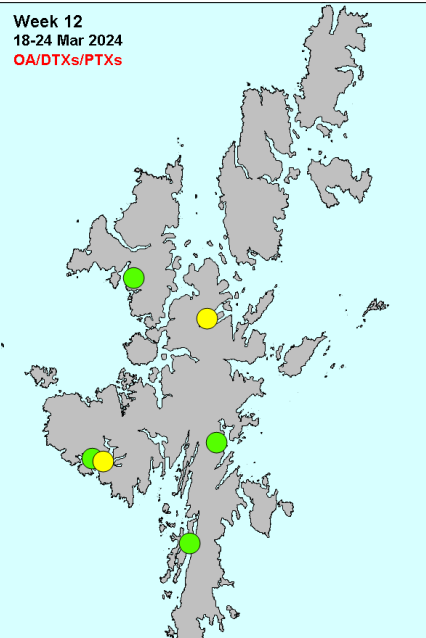


Shetland Bulletin on the status of harmful & toxic algae Week 15, 8th - 14th Apr 2024

Diarrhetic shellfish poisoning toxins & causative phytoplankton

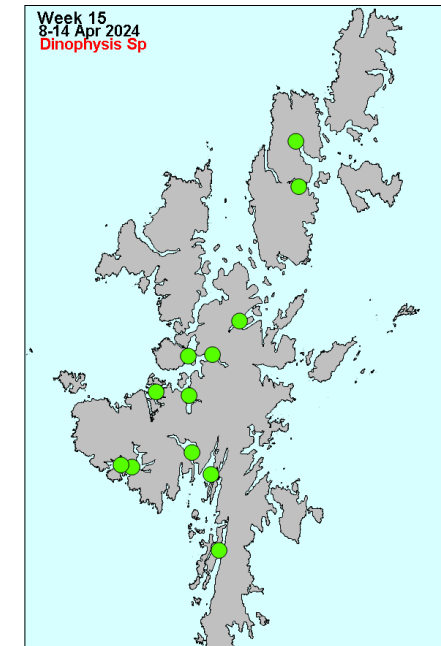
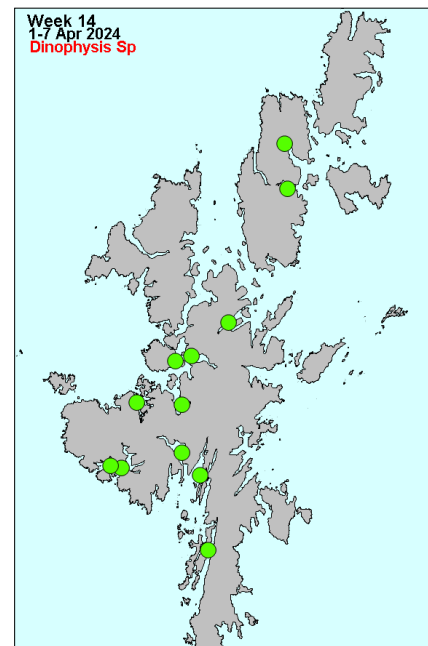
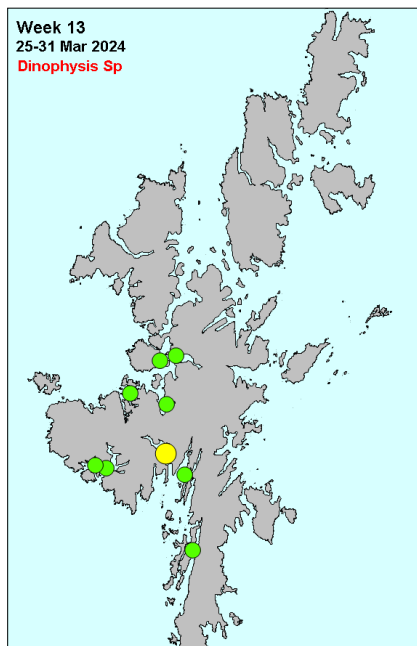
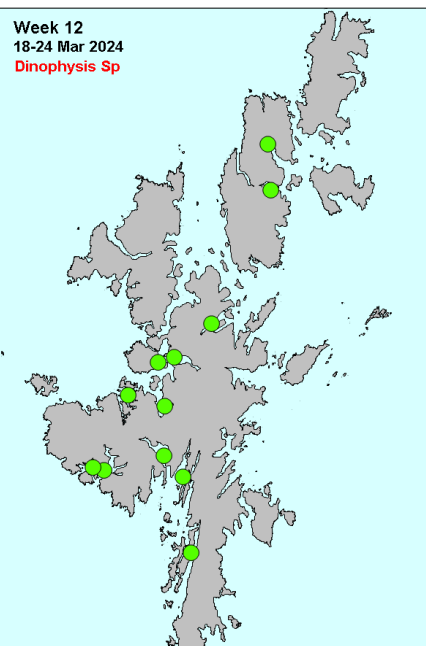
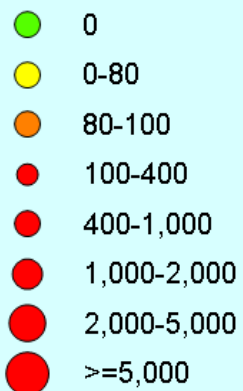
OA/DTXs/PTXs

µg OA eq/kg



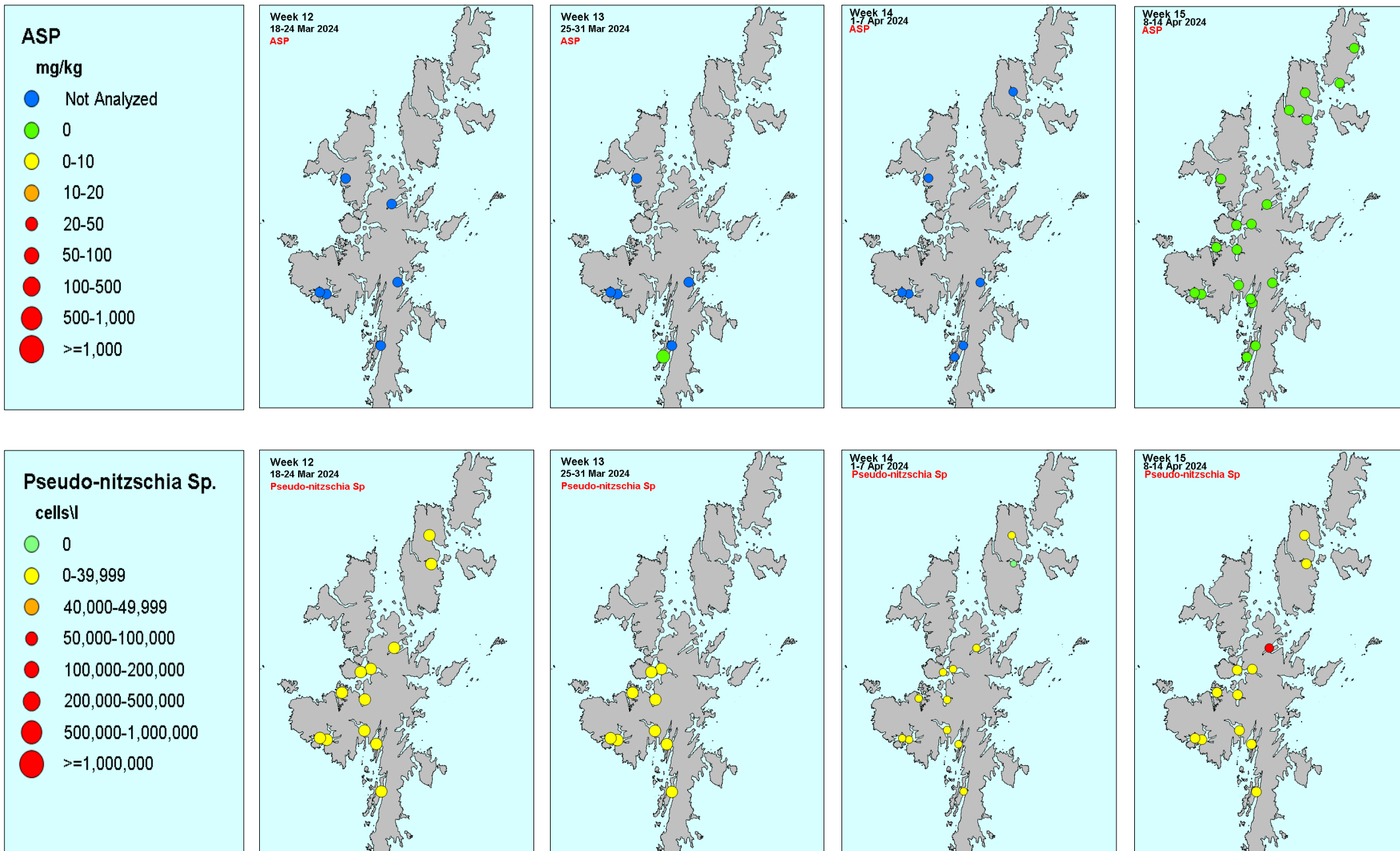
Dinophysis Sp.

cells/l



Shetland Bulletin on the status of harmful & toxic algae Week 15, 8th - 14th Apr 2024

Amnesic Shellfish Poisoning & causative phytoplankton

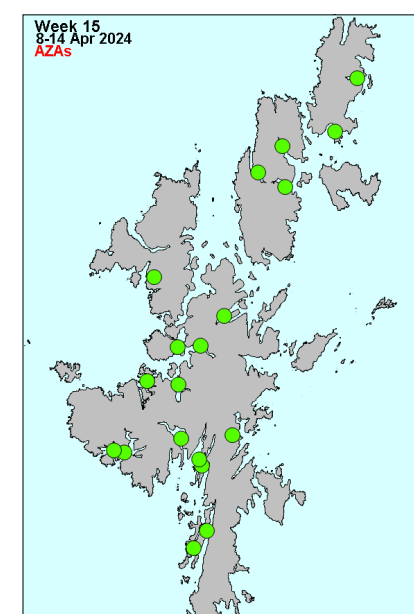
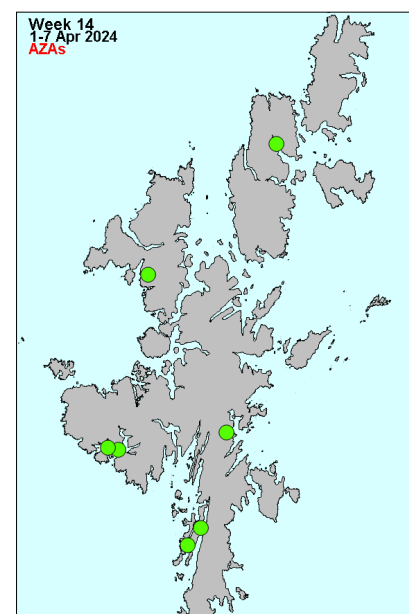
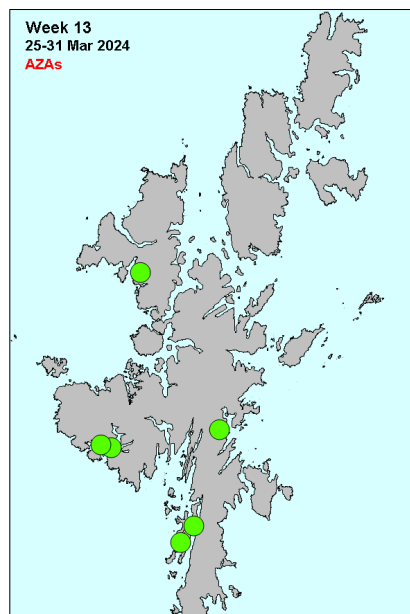
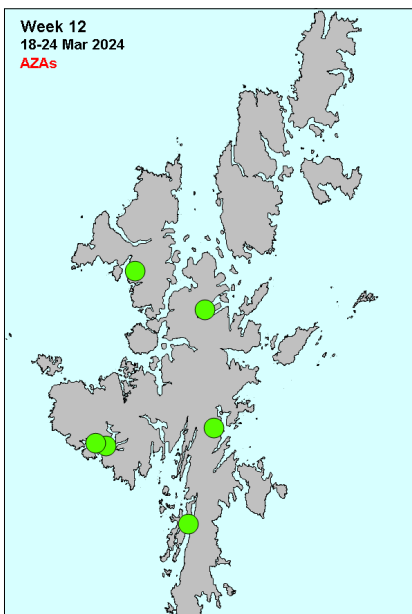


Azaspiracid & Yessotoxin shellfish poisoning toxins

AZAs

µg AZA1 eq/kg

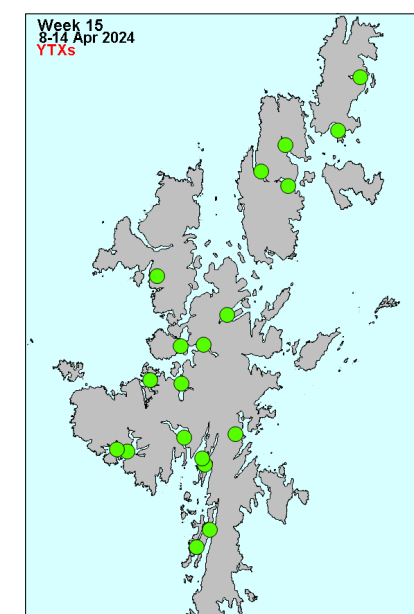
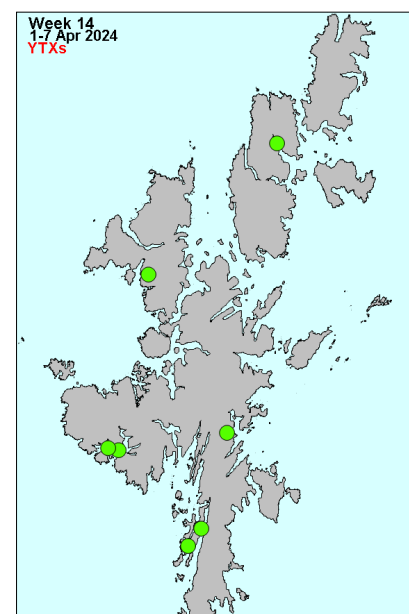
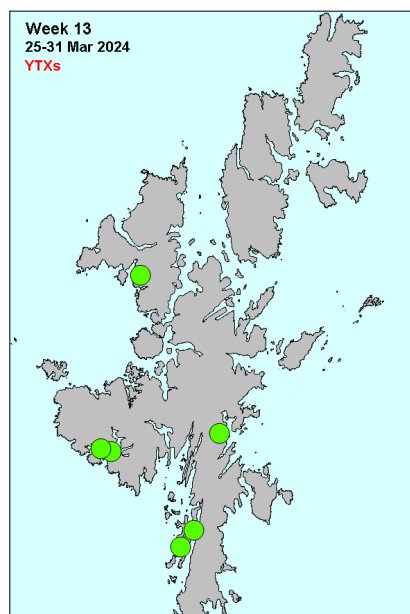
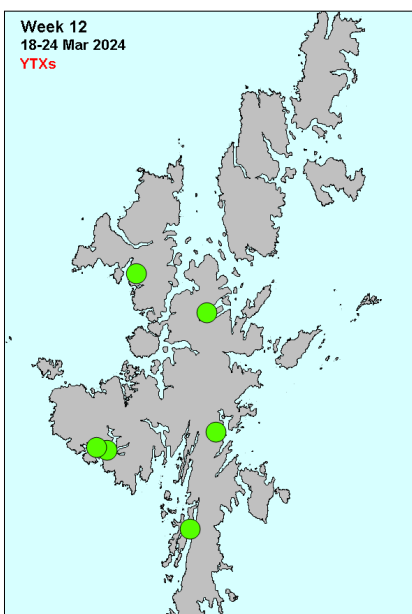
- Not Analyzed
- 0
- 0-100
- 100-160
- 160-500
- 500-1,000
- 1,000-2,000
- 2,000-5,000
- >=5,000



YTXs

mg YTX eq/kg

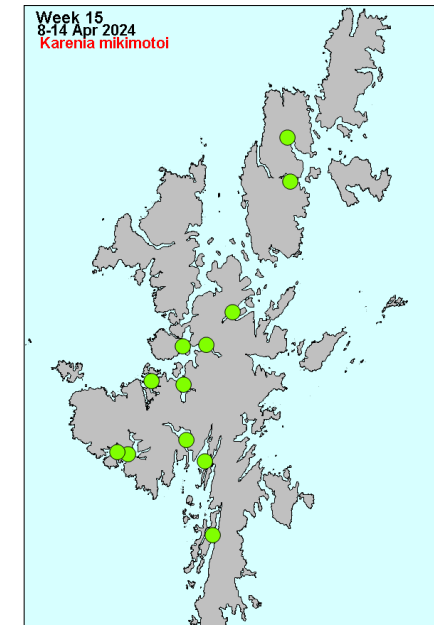
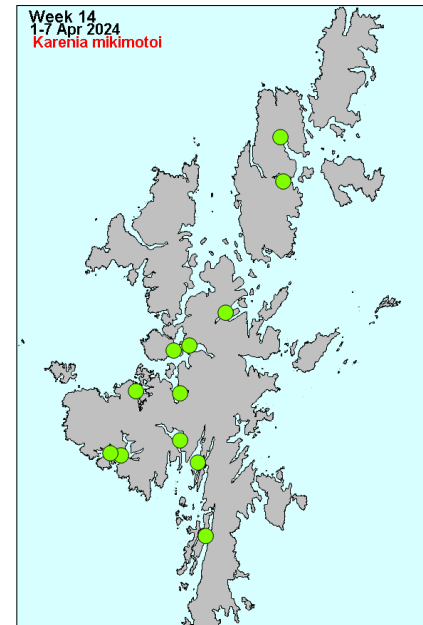
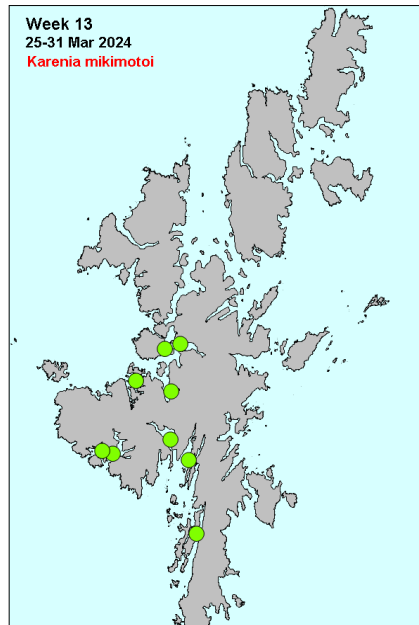
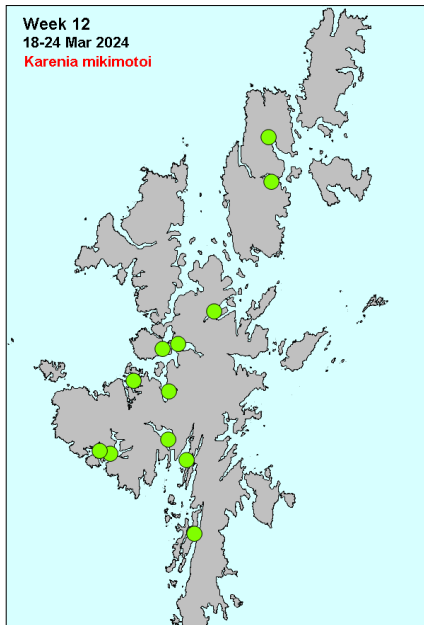
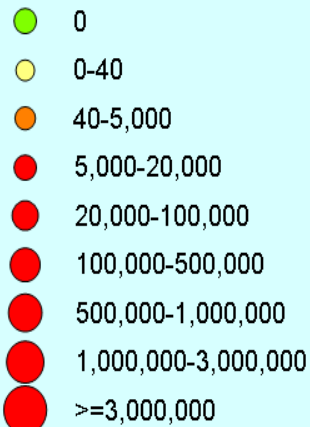
- Not Analyzed
- 0
- 0-1.4
- 1.5-3.74
- >=3.75



Karenia mikimotoi

Karenia mikimotoi

cells/l



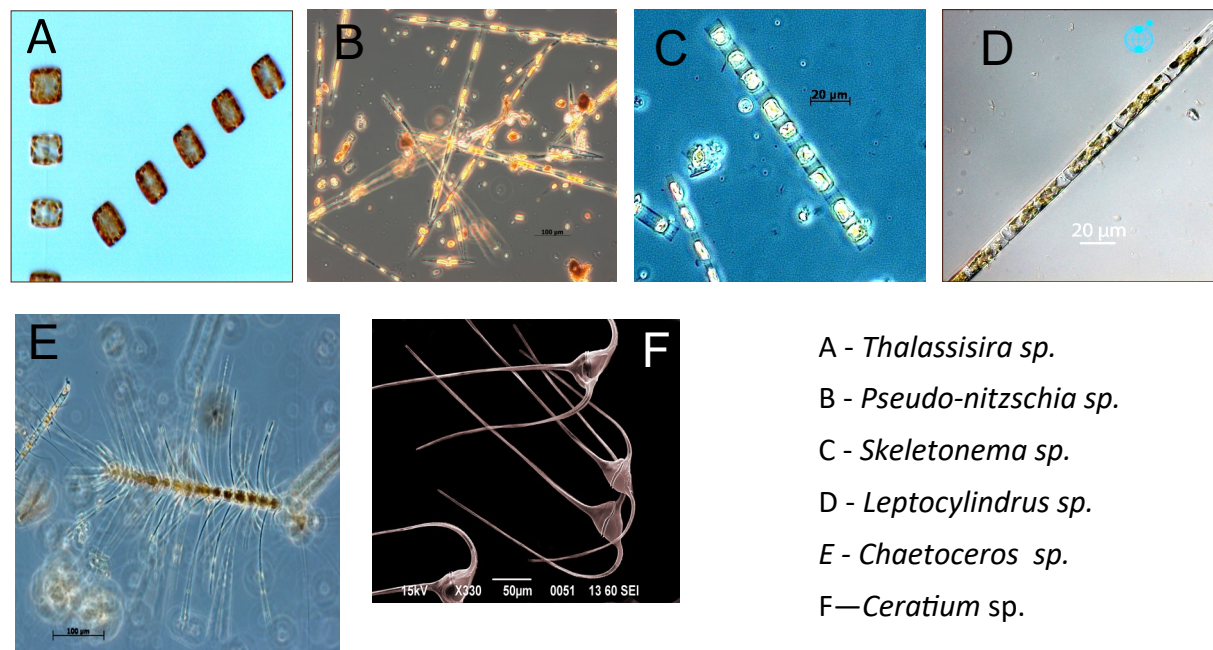
Chain forming Phytoplankton

High densities of chain forming diatoms including, but not limited to the genus, *Chaetoceros*, *Skeletonema*, *Leptocylindrus*, *Rhizosolenia*, *Thalassiosira*, *Corethron* and *Pseudo-nitzschia*, the centric species *Coscinodiscus wailesii*, and species with long spines such as *Ceratium* (*Tripes*) can cause debilitating damage to fish gills.

Status

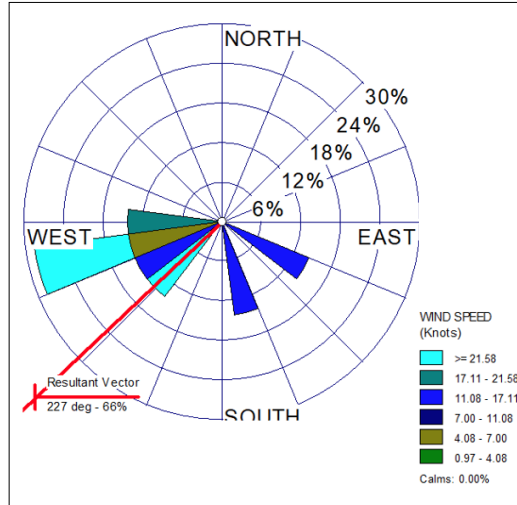
Twelve sites were analysed this week. *Karenia* was not detected. The IFCB's at Scalloway and Cole Deep are detecting long chains of *Skeletonema*, *Thalassiosira* and *Chaetoceros*.

<https://www.habreports.org/ifcb-nafc.php>

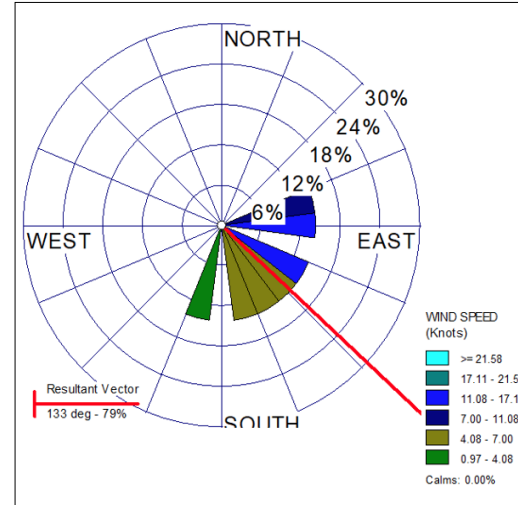


Mean wind direction observed in Shetland for current and three preceding weeks

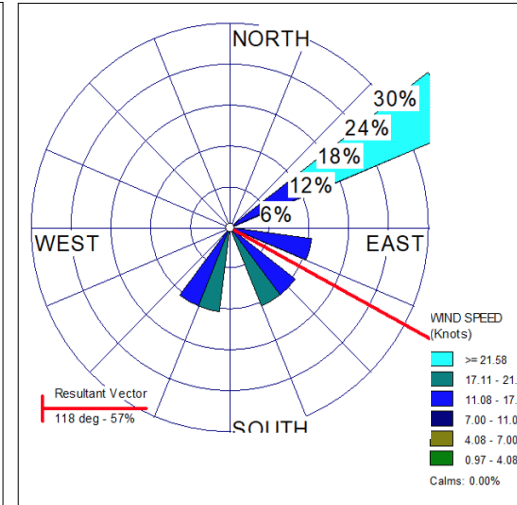
Week 12



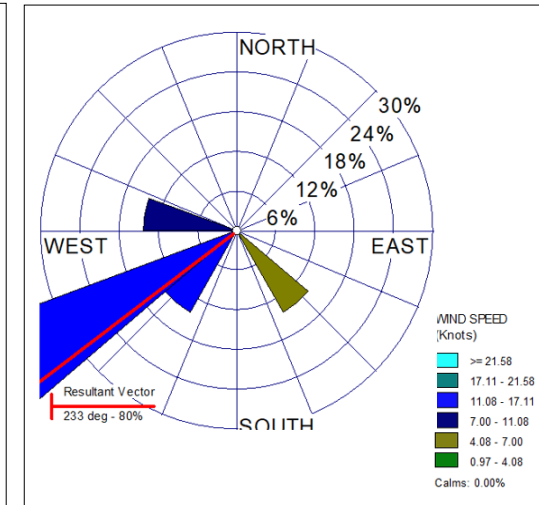
Week 13



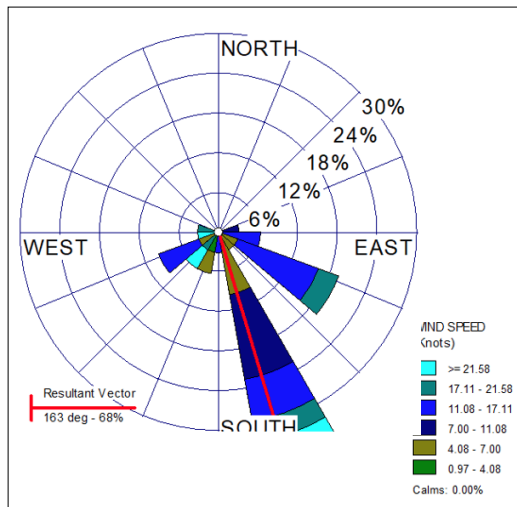
Week 14



Week 15



March



Mean wind direction and speed observed in Shetland over the past four weeks. Higher wind speeds are shown in lighter shades. The percentage of time the wind blew from any particular direction is shown by the length of the triangle. The resultant vector, represented by the red or blue line, shows the average wind direction for the week. It is based on wind direction only and includes periods of calm which are not indicated on the diagram. The data used is taken from the weather station at Sumburgh.

For information the mean wind direction for the month of March is also shown.

Predictions:

The risk of wind blown *Dinophysis* blooms in Shetland is **low** this week.

Why do we think this?

During the summer *Dinophysis* can bloom out at sea and at shelf fronts found off the West of Shetland. Westerly winds can then blow these blooms into shore. Westerly winds may also retain *Dinophysis* cells in Westerly facing voes and inlets where their numbers may increase. Wind for the past week has been predominantly from the south west, However, given the time of the year, it is very unlikely that there will be an advected bloom of *Dinophysis* in the coming week.

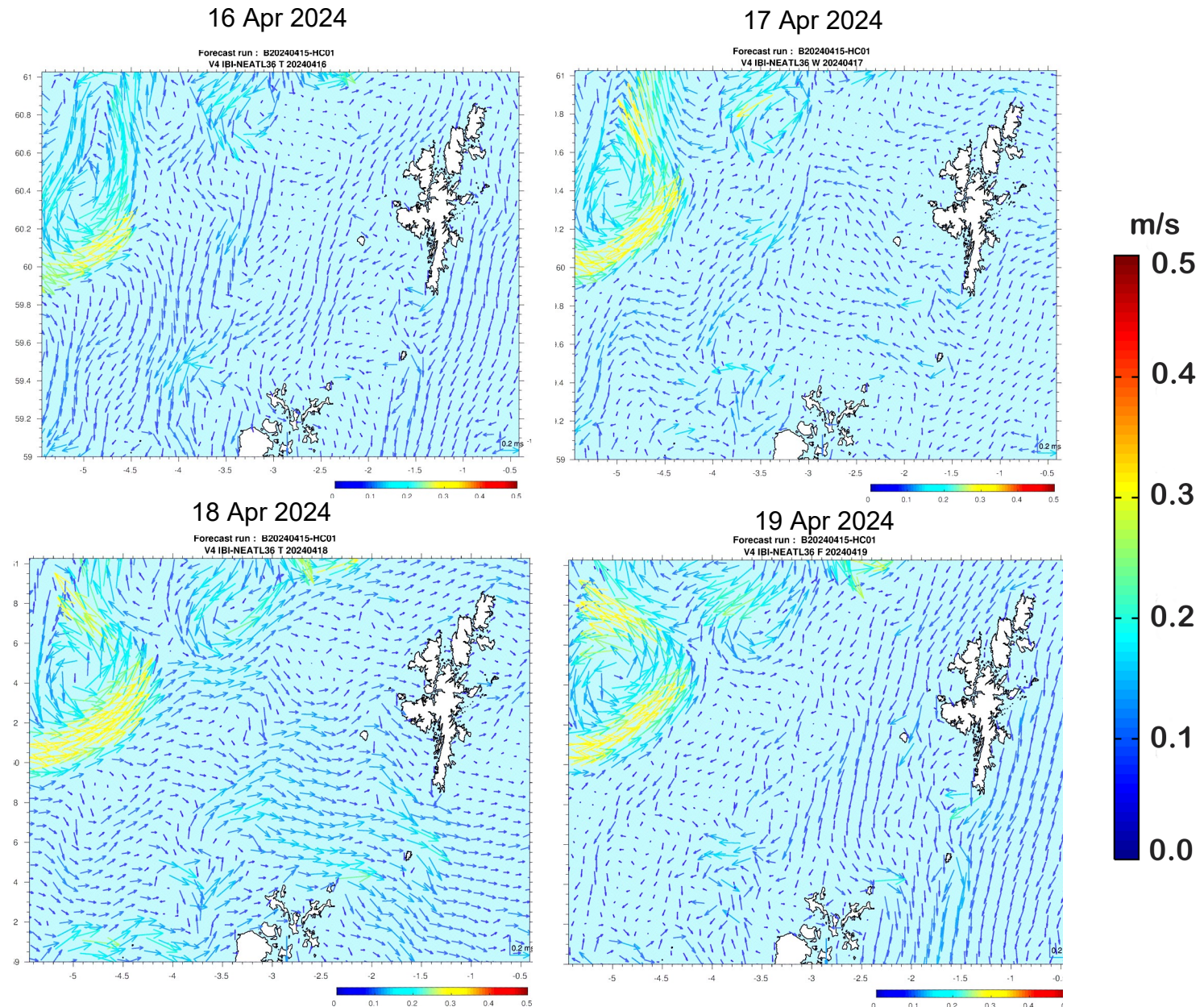
Status:

Over the past week the average wind direction has been from the south west.

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Forecasted Sea Surface currents

These diagrams show the predicted current directions around Shetland for the next couple of days. Greens to reds indicate stronger currents. In general strong currents run parallel to the deep water channel between the Faroes and Shetland. Problems can arise when these currents turn Eastwards potentially carrying *Dinophysis* and *Karenia mikimotoi* blooms, from the shelf edge, into shore.

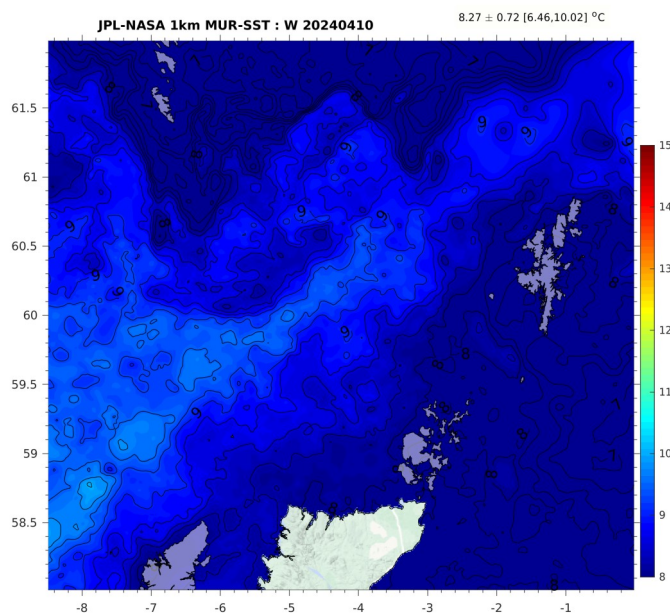


Forecast provided by the model-NEATL-PHY-1/36°-AF-D-PGS (IBI36QV4R1-PGS) courtesy of Mercator.

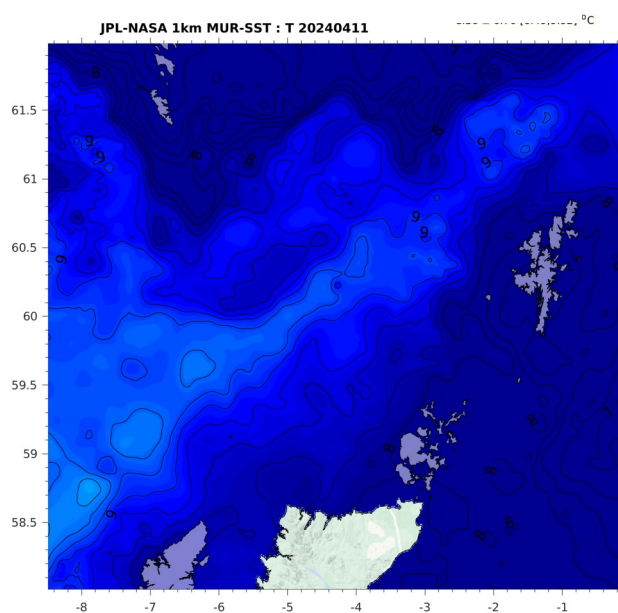
Shetland Bulletin on the status of harmful & toxic algae Week 15, 8th - 14th Apr 2024

Sea Surface temperature (°C) in preceding 6 days in the Shetland Islands

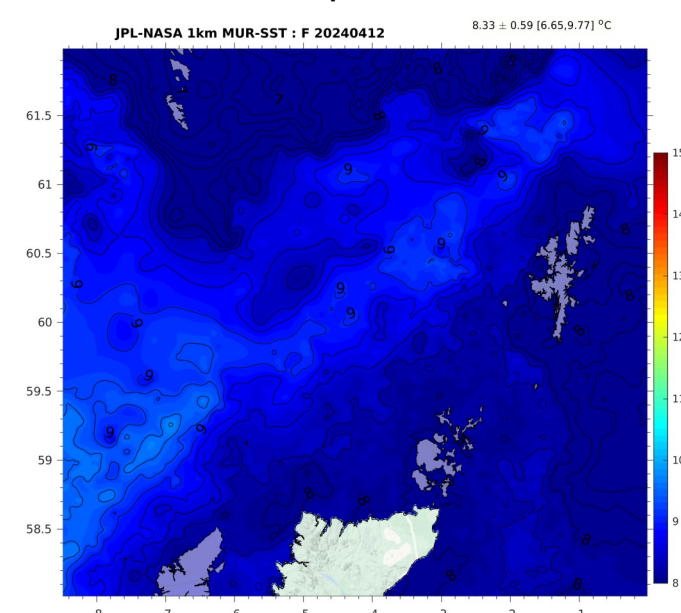
10 Apr 2024



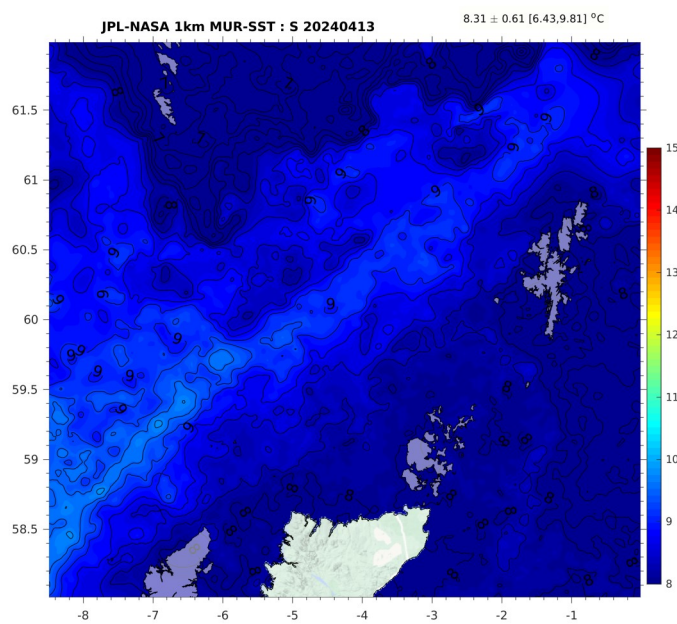
11 Apr 2024



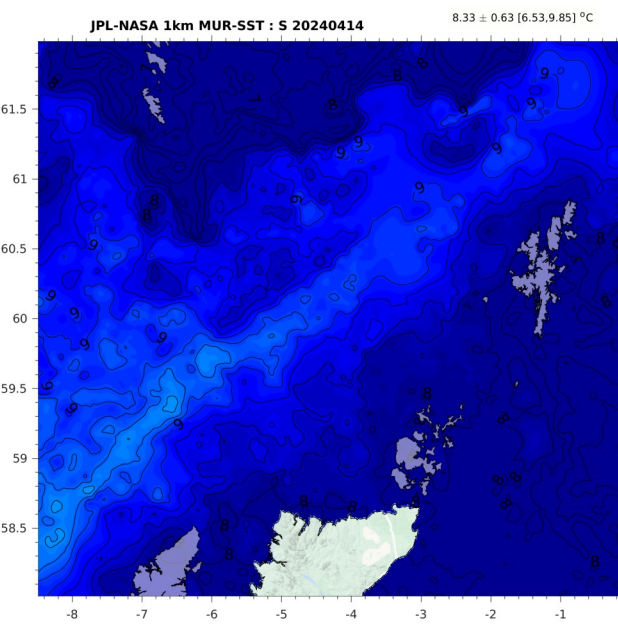
12 Apr 2024



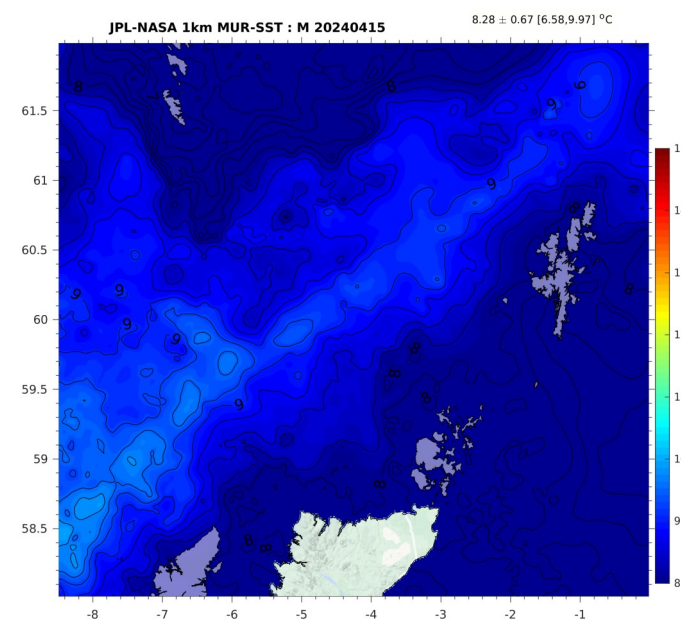
13 Apr 2024



14 Apr 2024



15 Apr 2024



Shetland Bulletin on the status of harmful & toxic algae Week 15, 8th - 14th Apr 2024

Wind and rain forecast for next three days in Shetland

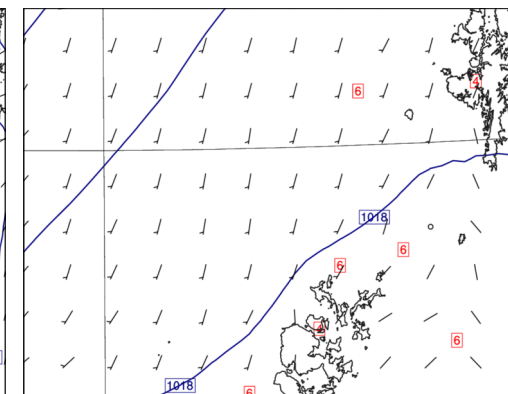
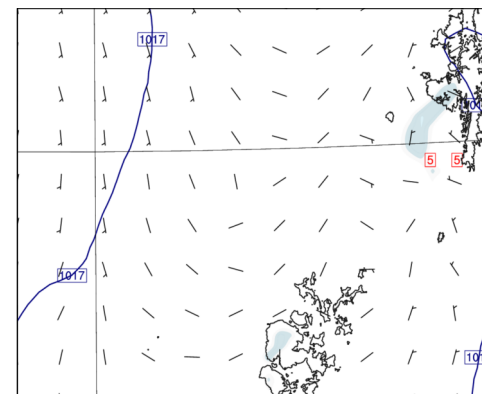
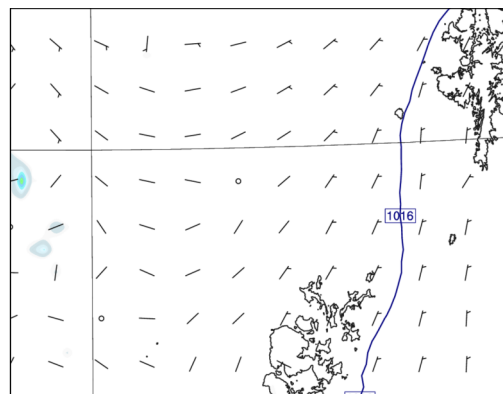
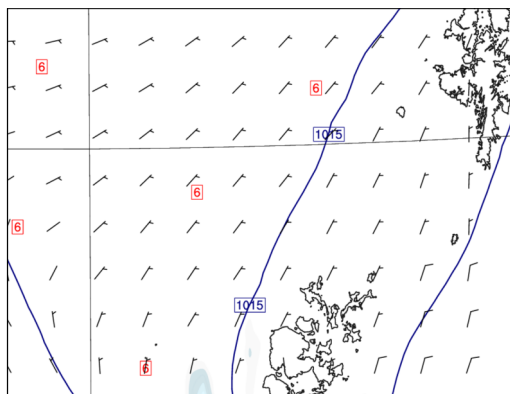
6 AM

12 Noon

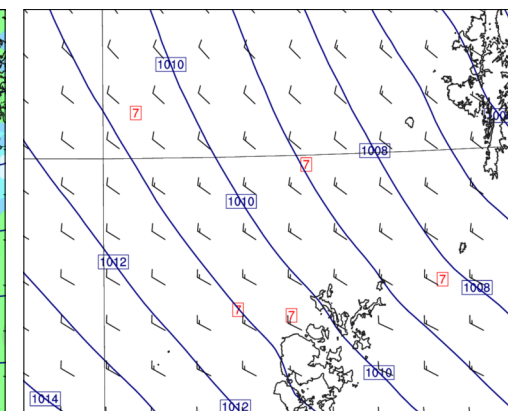
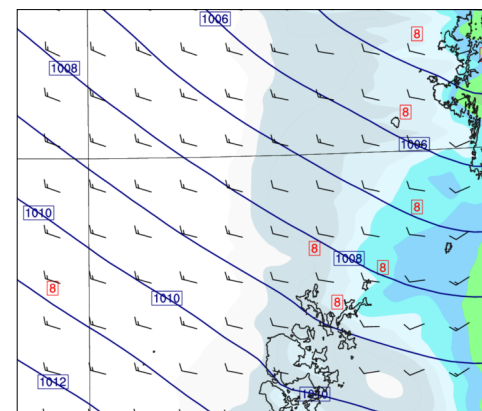
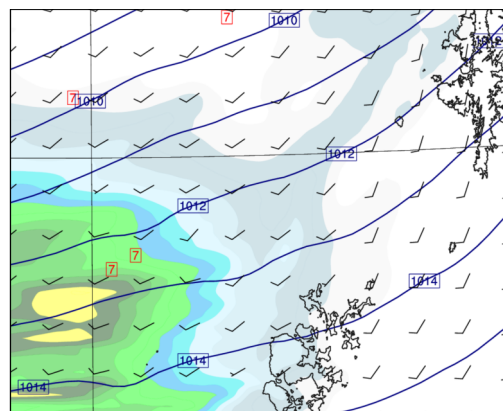
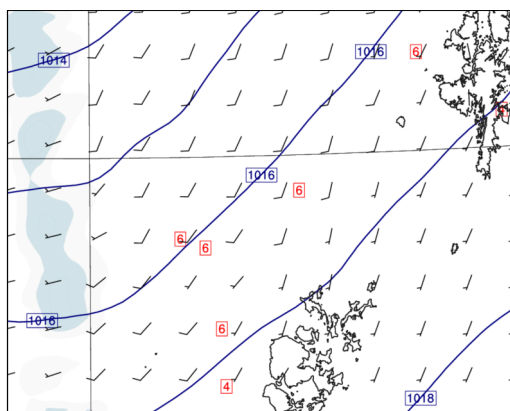
6 PM

12 PM

17 Apr



18 Apr



19 Apr

