**Appendix 1**. Check-list of phytoplankton species and their occurrences in the GHE during two sampling periods.

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Sampling periods** | |  |
| **Taxa** | **2009-2010** | **2013-2014** | |
| **BACILLARIOPHYCEAE** |  |  | |
| *Achnanthes* cf*. longipes* | - | + | |
| *Actinocyclus* sp. | + | - | |
| *Asterionellopsis glacialis* Castracane | + | + | |
| *Bacteriastrum elongatum* Cleve | + | - | |
| *Bacteriastrum hyalinum* Lauder | - | + | |
| *Cerataulina pelagica* (Cleve) Hendey | - | + | |
| *Chaetoceros aequatorialis* Cleve | - | + | |
| *Chaetoceros affinis* Lauder | + | + | |
| *Chaetoceros brevis* Schütt | + | + | |
| *Chaetoceros compressus* Lauder | + | + | |
| *Chaetoceros constrictus* Gran | + | + | |
| *Chaetoceros costatus* Pavillard | + | + | |
| *Chaetoceros curvisetus* Cleve | + | + | |
| *Chaetoceros danicus* Cleve | + | + | |
| *Chaetoceros debilis* Cleve | + | + | |
| *Chaetoceros* *decipiens* Cleve | + | + | |
| *Chaetoceros* *diadema* (Ehrenberg) Gran | + | + | |
| *Chaetoceros didymus* Ehrenberg | + | + | |
| *Chaetoceros* *holsaticus* Schütt | + | + | |
| *Chaetoceros lauderi* Ralfs in Lauder | + | + | |
| *Chaetoceros lorenzianus* Grunow | + | + | |
| *Chaetoceros peruvianus* Brightwell | + | + | |
| *Chaetoceros socialis* Lauder | + | + | |
| *Chaetoceros teres* Cleve | + | + | |
| *Chaetoceros tortissimus* Gran | + | + | |
| *Chaetoceros wighamii* Brightwell | + | + | |
| *Chaetoceros* sp. | + | + | |
| *Climacosphenia* cf. *moniligera* Ehrenberg | + | + | |
| *Coscinodiscus concinnus* Smith | + | + | |
| *Coscinodiscus granii* Gough | + | + | |
| *Coscinodiscus lineatus* Ehrenberg | + | - | |
| *Coscinodiscus oculus-iridis* Ehrenberg | + | - | |
| *Coscinodiscus radiatus* Ehrenberg | + | + | |
| *Coscinodiscus* sp. | + | + | |
| *Cylindrotheca closterium* (Ehrenberg) Lewin & Reimann | + | + | |
| *Dactyliosolen fragilissimus* (Bergon) Hasle comb. nov. | + | + | |
| *Detonula confervacea* (Cleve) Gran | + | + | |
| *Ditylum brightwellii* (T.West) Grunow | + | + | |
| *Guinardia delicatula (*Cleve) Hasle | + | + | |
| *Guinardia striata* (Stolterfoth) Hasle comb. nov. | + | + | |
| *Gyrosigma* sp. | + | + | |
| *Hemiaulus hauckii* Grunow in Van Heurck | + | - | |
| *Hemiaulus sinensis* Greville | - | + | |
| *Lauderia annulata* Cleve | - | + | |
| *Leptocylindrus danicus* Cleve | + | + | |
| *Leptocylindrus minimus* Gran | + | + | |
| *Licmophora abbreviata* Agardh | + | + | |
| *Licmophora flabellata* Agardh | + | - | |
| *Melosira moniliformis* (Müller) Agardh | - | + | |
| *Melosira nummuloides* Agardh | + | + | |
| *Navicula* sp. | + | + | |
| *Neocalyptrella robusta* (G.Norman ex Ralfs) H.-Becerril&Meave del Castillo | + | + | |
| *Nitzschia longissima* (Brébisson) Ralfs | + | + | |
| *Petrodictyon gemma* (Ehrenberg) Mann | - | + | |
| *Pleurosigma normanii* Ralfs in Pritchard | + | - | |
| *Pleurosigma* sp. | + | + | |
| *Proboscia alata* (Brightwell) Sundström | + | + | |
| ***Pseudo-nitzschia calliantha* Lundholm, Moestrup&Hasle** | **+** | **+** | |
| ***Pseudo-nitzschia pungens* (Grunow ex Cleve) Hasle** | **+** | **+** | |
| *Pseudosolenia calcar-avis* (Schultze) B.G.Sundström | + | + | |
| *Rhizosolenia castracanei H. Peragallo* | + | + | |
| *Rhizosolenia hebetata* (Hensen) Gran | + | + | |
| *Rhizosolenia imbricata* Brightwell | + | + | |
| *Rhizosolenia setigera* Brightwell | - | + | |
| **Taxa** | **2009-2010** | **2013-2014** | |
| *Rhizosolenia styliformis* Brightwell | + | - | |
| *Skeletonema marinoi* Sarno & Zingone | + | + | |
| *Striatella unipunctata* (Lyngbye) C.Agardh | - | + | |
| *Thalassionema frauenfeldii* (Grunow) Tempère & Peragallo | - | + | |
| *Thalassionema nitzschioides* (Grunow) Mereschkowsky | + | + | |
| *Thalassiosira anguste-lineata*  (A. Schmidt) G. Fryxell & Hasle | + | - | |
| *Thalassiosira eccentrica* (Ehrenberg) Cleve | + | - | |
| *Thalassiosira gravida* Cleve | + | + | |
| *Thalassiosira hyalina* (Grunow) Gran | + | - | |
| *Thalassiosira* cf. *minima* Gaarder | - | + | |
| *Thalassiosira nordenskioeldii* Cleve | + | + | |
| *Thalassiosira* sp. | + | + | |
| *Thalassiothrix longissima* Cleve & Grunow | + | - | |
| *Toxarium undulatum* Bailey | - | + | |
| **DINOPHYCEAE** |  |  | |
| *Alexandrium* sp. | - | + | |
| ***Dinophysis acuminata* Claparedé & Lachmann** | + | + | |
| ***Dinophysis acuta* Ehrenberg** | + | + | |
| ***Dinophysis caudata* Saville-Kent** | + | + | |
| ***Dinophysis fortii* Pavillard** | + | - | |
| *Dinophysis hastata* Stein | + | + | |
| *Dinophysis odiosa* (Pavillard) Tai & Skogsberg | + | - | |
| ***Dinophysis tripos* Gourret** | - | + | |
| *Diplopsalis lenticula* Bergh | + | + | |
| *Gonyaulax hyalina* (Schütt) Kofoid | - | + | |
| ***Gonyaulax* *spinifera* (Claparedé & Lachmann)** | + | - | |
| *Gyrodinium spirale* (Bergh) Kofoid & Swezy | + | + | |
| *Heterocapsa triquetra* (Ehrenberg) Stein | + | + | |
| *Katodinium* sp. | - | + | |
| *Kofoidinium velleloides* Pavillard | + | + | |
| ***Lingulodinium polyedra* (Stein) Dodge** | + | + | |
| *Noctulica scintillans* (Macartney) Kofoid & Swezy | + | + | |
| *Oxytoxum scolopax* Stein | + | + | |
| *Phalacroma oxytoxoides* (Kofoid) Gomez, Lopez-Garcia & Moreira | - | + | |
| ***Phalacroma rotundatum* (Claparedé & Lachmann) Kofoid Michener** | + | + | |
| *Podolampas palmipes* Stein | + | + | |
| *Pronoctiluca* cf. *acuta* (Lohmann) Schiller | + | - | |
| *Prorocentrum compressum* (J.W.Bailey) Abé ex J.D.Dodge | + | + | |
| ***Prorocentrum cordatum* (Ostenfeld) J.D.Dodge** | + | + | |
| *Prorocentrum micans* Ehrenberg | + | + | |
| *Prorocentrum scutellum* Schröder | + | + | |
| *Prorocentrum triestinum* Schiller | + | + | |
| ***Protoceratium reticulatum* (Claparède & Lachmann) Bütschli** | + | - | |
| *Protoperidinium bipes* (Paulsen) Balech | + | + | |
| *Protoperidinium brevipes* (Paulsen) Balech | + | + | |
| *Protoperidinium brochii* (Kofoid & Swezy) Balech | + | + | |
| *Protoperidinium claudicans* (Paulsen) Balech | + | + | |
| *Protoperidinium conicoides* (Paulsen) Balech | + | + | |
| *Protoperidinium conicum* (Gran) Balech | + | + | |
| *Protoperidinium crassipes* (Kofoid) Balech | + | + | |
| *Protoperidinium depressum* (Bailey) Balech | + | + | |
| *Protoperidinium divergens* (Ehrenberg) Balech | + | + | |
| *Protoperidinium grande* (Kofoid) Balech | + | + | |
| *Protoperidinium mite* (Pavillard) Balech | + | - | |
| *Protoperidinium oblongum* (Aurivillius) Parke & Dodge | + | + | |
| *Protoperidinium oceanicum* (Vanhöffen) Balech | + | + | |
| *Protoperidinium pallidum* (Ostenfeld) Balech | + | + | |
| *Protoperidinium pellucidum* Bergh | + | + | |
| *Protoperidinium pentagonum* (Gran) Balech | + | + | |
| *Protoperidinium punctulatum* (Paulsen) Balech | + | + | |
| *Protoperidinium pyriforme* (Paulsen) Balech | + | + | |
| *Protoperidinium steinii* (Jørgensen) Balech | + | + | |
| *Protoperidinium subinerme* (Paulsen) Balech | + | + | |
| *Protoperidinium* sp. | + | - | |
| *Pyrophacus horologium* Stein | - | + | |
| *Scrippsiella acuminata* (Ehrenberg) Kretschmann, Elbrächter, Zinssmeister, S.Soehner, Kirsch, Kusber & Gottschling | + | + | |
| **Taxa** | **2009-2010** | **2013-2014** | |
| *Tripos furca* (Ehrenberg) F.Gómez | + | + | |
| *Tripos fusus* (Ehrenberg) F.Gómez | + | + | |
| *Tripos horridus* (Cleve) F.Gómez | - | + | |
| *Tripos lineatus* (Ehrenberg) F.Gómez | + | - | |
| *Tripos muelleri* Bory de Saint-Vincent | + | + | |
| *Tripos pentagonus (*Gourret) F.Gómez | + | - | |
| *Tripos pulchellus (*Schröder) F.Gómez | + | - | |
| *Tripos trichoceros* (Ehrenberg) F.Gómez | + | + | |
| **DICTYOCHOPHYCEAE** |  |  | |
| *Dictyocha fibula* Ehrenberg | + | + | |
| *Dictyocha speculum* Ehrenberg | + | + | |
| *Octactis octonaria* (Ehrenberg) Hovasse | + | + | |
| **CRYSOPHYCEAE** |  |  | |
| *Dinobryon* cf. *belgicae* A.F.Meunier | + | + | |
| **RAPHIDOPHYCEAE** |  |  | |
| ***Heterosigma akashiwo* (Y.Hada) Y.Hada ex Y.Hara & M.Chihara** | + | + | |
| **CRYPTOPHYCEAE** |  |  | |
| *Plagioselmis prolonga* Butcher | + | + | |
| **EUGLENOPHYCEAE** |  |  | |
| *Euglena viridis* Perty | + | + | |
| *Eutreptiella* cf. *acusformis* Schiller | + | - | |
| *Eutreptiella* cf. *gymnastica* Throndsen | - | + | |
| *Eutreptiella marina* da Cunha | + | + | |
| **PRASINOPHYCEAE** |  |  | |
| *Pyramimonas* grossii Parke | + | + | |
| **CHLOROPHYCEAE** |  |  | |
| *Desmodesmus bicaudatus* (Dedusenko) P.M.Tsarenko (Freshwater algae) | - | + | |
| *Olltmannsiella lineata* Zimmermann | + | + | |
| *Pediastrum boryanum (*Turpin) Meneghini (Freshwater algae) | + | - | |
| *Staurastrum* sp. (Freshwater algae) | + | - | |

**Note**: The species marked bold are the potentially toxic.