

Analysis for:

Aquatic Bioassay & Consulting laboratories, inc
 29 North Olive
 Ventura CA 93001



Aquatic EcoTechnologies, LLC
 P.O. Box 7605
 188 Beaver Trail
 Mammoth Lakes, CA 93546

Laboratory Analysis Results

Project description

Oxnard Channel Islands
 Sample collection date: 03/26/2020 – 06/24/2020
 Number of samples: 54
 Replication: None
 Sample received as: Whole water + Lugol's preservative (3% final concentration)
 Sample received on: 03/26/2020; 06/26/2020
 Sample analyzed on: 06/28 – 07/02/2020
 Report date: 07/08/2020

Analysis details

Analyte: Phytoplankton community composition
 Instrument: Olympus BX51 + Sedgewick Rafter counting chamber
 Detection limit: 2 cells/ml

Samples overview

Sample date	Station/Sample	Cells/ml (rounded to 3 significant digits)	Community composition			Dominant phytoplankton	Remarks
			Diatom	Dinoflagellate	Others		
3/26/2020	6	1790	0%	0%	99%	Euglenoid/Cryptophyte	
3/26/2020	7	363	3%	5%	92%	Euglenoid/Cryptophyte	
4/3/2020	6	459	6%	0%	94%	Cryptophyte	
4/3/2020	7	450	11%	0%	88%	Cryptophyte	
4/3/2020	20	385	9%	0%	91%	Cryptophyte	
4/3/2020	23	1080	6%	0%	94%	Cryptophyte	Bottle lid broken upon arrival; Sample not concentrated for enumeration
4/8/2020	6	1130	7%	1%	92%	Cryptophyte	
4/8/2020	7	310	26%	2%	73%	Non-distinct round cells	Bottle lid broken upon arrival
4/8/2020	20	121	19%	0%	81%	Non-distinct round cells	
4/8/2020	23	226	28%	1%	72%	Cryptophyte	
4/15/2020	6	454	23%	0%	76%	Cryptophyte	
4/15/2020	7	202	28%	0%	72%	Non-distinct round cells	
4/15/2020	20	161	12%	2%	87%	Cryptophyte	
4/15/2020	23	253	13%	0%	87%	Cryptophyte	
4/22/2020	6	6880	73%	0%	27%	<i>Chaetoceros</i>	
4/22/2020	7	2590	91%	0%	9%	<i>Chaetoceros</i>	
4/22/2020	20	418	66%	0%	34%	<i>Chaetoceros</i>	Bottle lid broken upon arrival
4/22/2020	23	2340	80%	0%	20%	<i>Chaetoceros</i>	

Sample date	Station/Sample	Cells/ml (rounded to 3 significant digits)	Community composition			Dominant phytoplankton	Remarks
			Diatom	Dinoflagellate	Others		
4/29/2020	6	599	31%	0%	68%	Cryptophyte	
4/29/2020	7	506	48%	0%	52%	<i>Chaetoceros</i>	
4/29/2020	20	461	39%	1%	61%	<i>Chaetoceros</i>	
4/29/2020	23	905	31%	0%	69%	Cryptophyte	Bottle lid broken upon arrival
5/5/2020	6	288	8%	1%	91%	Cryptophyte	
5/5/2020	7	319	6%	0%	93%	Non-distinct round cells	
5/5/2020	20	88	9%	0%	91%	Non-distinct round cells	
5/5/2020	23	2120	1%	0%	99%	<i>Mesodinium</i>	
5/12/2020	6	600	3%	1%	96%	<i>Tetraselmis</i>	
5/12/2020	7	268	3%	0%	97%	Cryptophyte	
5/12/2020	20	227	1%	1%	98%	Cryptophyte	
5/12/2020	23	187	3%	1%	96%	<i>Tetraselmis</i>	
5/20/2020	6	395	5%	2%	92%	Cryptophyte	
5/20/2020	7	93	43%	1%	56%	<i>Cylindrotheca</i>	
5/20/2020	20	49	9%	2%	89%	<i>Tetraselmis</i>	
5/20/2020	23	436	3%	2%	95%	<i>Mesodinium</i>	
5/26/2020	6	577	60%	1%	39%	<i>Chaetoceros</i>	
5/26/2020	7	294	83%	0%	17%	<i>Chaetoceros</i>	
5/26/2020	20	107	58%	1%	41%	<i>Chaetoceros</i>	
5/26/2020	23	123	60%	1%	40%	<i>Chaetoceros</i>	
6/3/2020	6	483	49%	0%	51%	<i>Chaetoceros</i>	
6/3/2020	7	92	49%	0%	51%	<i>Chaetoceros</i>	
6/3/2020	20	116	61%	0%	39%	<i>Chaetoceros</i>	
6/3/2020	23	413	48%	1%	51%	<i>Chaetoceros</i>	
6/10/2020	6	1580	46%	1%	53%	<i>Pseudo-nitzschia</i>	
6/10/2020	7	673	76%	1%	23%	<i>Pseudo-nitzschia</i>	
6/10/2020	20	244	76%	1%	24%	<i>Chaetoceros</i>	
6/10/2020	23	829	87%	0%	13%	<i>Pseudo-nitzschia</i>	
6/16/2020	6	4600	86%	0%	14%	<i>Pseudo-nitzschia</i>	
6/16/2020	7	4630	86%	0%	14%	<i>Pseudo-nitzschia</i>	
6/16/2020	20	2130	86%	0%	14%	<i>Pseudo-nitzschia</i>	
6/16/2020	23	3680	90%	0%	10%	<i>Pseudo-nitzschia</i>	

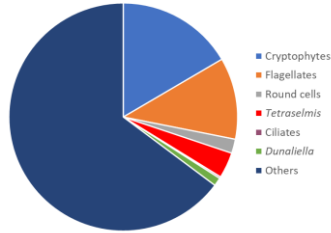
Sample date	Station/Sample	Cells/ml (rounded to 3 significant digits)	Community composition			Dominant phytoplankton	Remarks
			Diatom	Dinoflagellate	Others		
6/24/2020	6	5060	93%	0%	7%	<i>Pseudo-nitzschia</i>	
6/24/2020	7	5200	92%	0%	8%	<i>Pseudo-nitzschia</i>	
6/24/2020	20	1020	60%	0%	40%	<i>Pseudo-nitzschia</i>	
6/24/2020	23	1640	75%	0%	25%	<i>Pseudo-nitzschia</i>	

Samples details

Sample: 03/26/2020 Station 6

Others

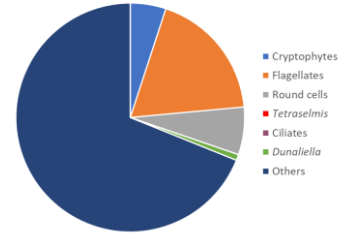
- Euglenoid/cryptophyte 65%
- Cryptophytes 17%
- Flagellates 12%
- *Tetraselmis* 4%
- Round cells 2%
- *Dunaliella* 1%



Sample: 03/26/2020 Station 7

Others

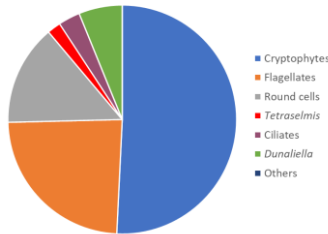
- Euglenoid/cryptophyte 69%
- Flagellates 18%
- Round cells 7%
- Cryptophytes 5%
- *Dunaliella* 1%



Sample: 04/03/2020 Station 6

Others

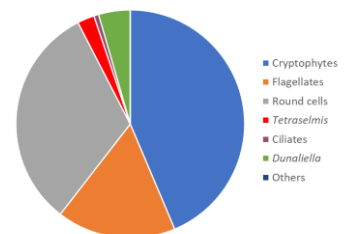
- Cryptophytes 51%
- Flagellates 24%
- Round cells 14%
- *Dunaliella* 6%
- Ciliates 3%
- *Tetraselmis* 2%



Sample: 04/03/2020 Station 7

Others

- Cryptophytes 44%
- Round cells 32%
- Flagellates 17%
- *Dunaliella* 4%
- *Tetraselmis* 2%
- Ciliates 1%



Diatoms

- *Cylindrotheca* (Rare)

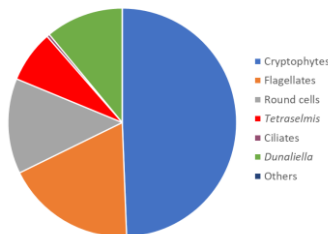
Diatoms

- *Cylindrotheca* (Present)
- *Chaetoceros* (Rare)

Sample: 04/03/2020 Station 20

Others

- Cryptophytes 49%
- Flagellates 18%
- Round cells 13%
- *Dunaliella* 11%
- *Tetraselmis* 7%



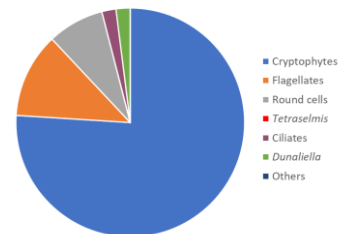
Diatoms

- *Cylindrotheca* (Rare)

Sample: 04/03/2020 Station 23

Others

- Cryptophytes 76%
- Flagellates 12%
- Round cells 8%
- Ciliates 2%
- *Dunaliella* 2%



Diatoms

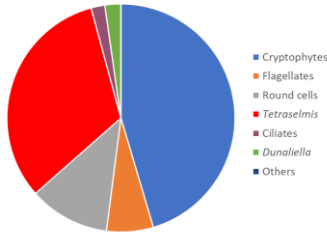
- *Cylindrotheca* (Present)
- *Chaetoceros* (Rare)

Abundant: > 500 cells/ml
Common: 100 - 500 cells/ml
Present: 30 - 99 cells/ml
Rare: 10 - 29 cells/ml

Sample: 04/08/2020 Station 6

Others

- Cryptophytes 45%
- *Tetraselmis* 32%
- Round cells 11%
- Flagellates 7%
- Ciliates 2%
- *Dunaliella* 2%



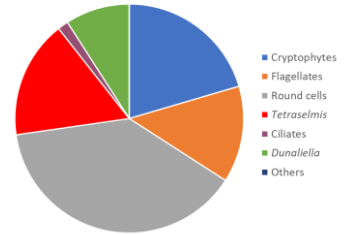
Diatoms

- *Chaetoceros* (Present)
- *Cylindrotheca* (Rare)

Sample: 04/08/2020 Station 7

Others

- Round cells 39%
- Cryptophytes 20%
- *Tetraselmis* 17%
- Flagellates 14%
- *Dunaliella* 9%
- Ciliates 2%



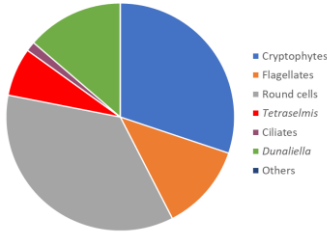
Diatoms

- *Chaetoceros* (Present)
- *Cylindrotheca* (Rare)

Sample: 04/08/2020 Station 20

Others

- Round cells 36%
- Cryptophytes 30%
- Flagellates 12%
- *Dunaliella* 14%
- *Tetraselmis* 7%
- Ciliates 1%



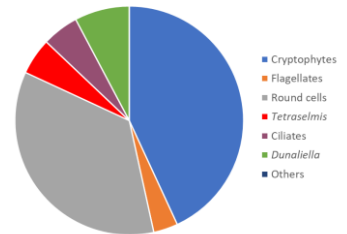
Diatoms

- *Chaetoceros* (Rare)

Sample: 04/08/2020 Station 23

Others

- Cryptophytes 43%
- Round cells 35%
- *Dunaliella* 8%
- *Tetraselmis* 5%
- Ciliates 5%
- Flagellates 3%

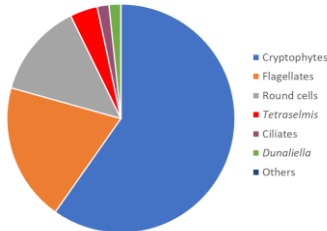


- *Chaetoceros* (Present)

Sample: 04/15/2020 Station 6

Others

- Cryptophytes 60%
- Flagellates 20%
- Round cells 13%
- *Tetraselmis* 4%
- Ciliates 2%
- *Dunaliella* 2%



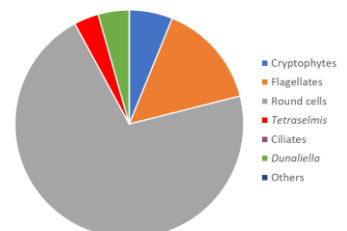
Diatoms

- *Chaetoceros* (Present)

Sample: 04/15/2020 Station 7

Others

- Round cells 71%
- Flagellates 15%
- Cryptophytes 6%
- *Tetraselmis* 4%
- *Dunaliella* 4%



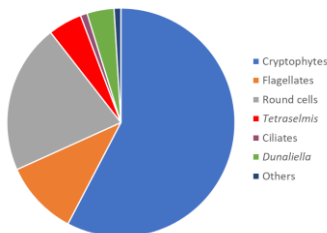
Diatoms

- *Chaetoceros* (Present)

Sample: 04/15/2020 Station 20

Others

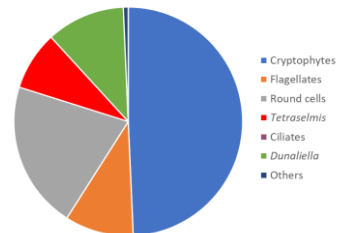
- Cryptophytes 58%
- Round cells 21%
- Flagellates 11%
- *Tetraselmis* 5%
- *Dunaliella* 4%
- Ciliates 1%
- Euglenoid/cryptophyte 1%



Sample: 04/15/2020 Station 23

Others

- Cryptophytes 49%
- Round cells 21%
- *Dunaliella* 11%
- Flagellates 10%
- *Tetraselmis* 8%
- Amoeba 1%



Diatoms

- *Chaetoceros* (Rare)

Abundant: > 500 cells/ml
 Common: 100 - 500 cells/ml
 Present: 30 - 99 cells/ml
 Rare: 10 - 29 cells/ml

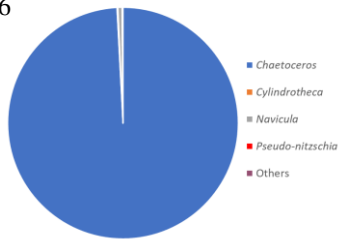
Sample: 04/22/2020 Station 6

Diatoms

- *Chaetoceros* 99%
- *Navicula* 1%

Others

- Cryptophytes (Abundant)
- Round cells (Common)
- Flagellates (Present)
- *Dunaliella* (Rare)



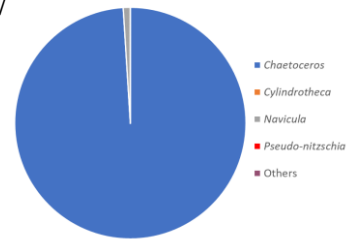
Sample: 04/22/2020 Station 7

Diatoms

- *Chaetoceros* 99%
- *Navicula* 1%

Others

- Round cells (Common)
- Flagellates (Present)
- Cryptophytes (Present)
- *Dunaliella* (Rare)



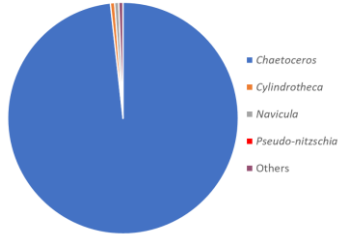
Sample: 04/22/2020 Station 20

Diatoms

- *Chaetoceros* 98%
- *Cylindrotheca* 1%
- *Navicula* 1%
- *Coconeis* 1%

Others

- Cryptophytes (Present)
- Round cells (Present)
- Flagellates (Rare)
- *Tetraselmis* (Rare)



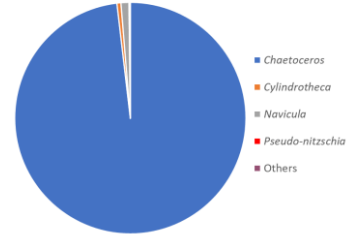
Sample: 04/22/2020 Station 23

Diatoms

- *Chaetoceros* 99%
- *Cylindrotheca* 1%
- *Navicula* 1%

Others

- Cryptophytes (Common)
- Round cells (Present)
- Flagellates (Present)
- Ciliates (Present)
- *Tetraselmis* (Rare)



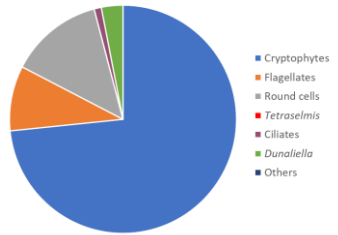
Sample: 04/29/2020 Station 6

Others

- Cryptophytes 73%
- Round cells 13%
- Flagellates 9%
- *Dunaliella* 3%
- Ciliates 1%

Diatoms

- *Chaetoceros* (Common)
- *Cylindrotheca* (Rare)



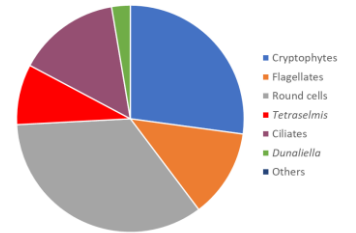
Sample: 04/29/2020 Station 7

Others

- Round cells 34%
- Cryptophytes 27%
- Ciliates 15%
- Flagellates 13%
- *Tetraselmis* 9%
- *Dunaliella* 3%

Diatoms

- *Chaetoceros* (Common)
- *Cylindrotheca* (Rare)



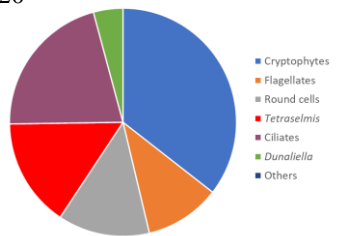
Sample: 04/29/2020 Station 20

Others

- Cryptophytes 36%
- Ciliates 21%
- *Tetraselmis* 15%
- Round cells 13%
- Flagellates 11%
- *Dunaliella* 4%

Diatoms

- *Chaetoceros* (Common)
- *Cylindrotheca* (Rare)



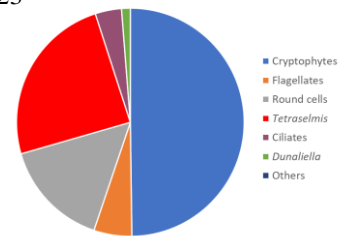
Sample: 04/29/2020 Station 23

Others

- Cryptophytes 50%
- *Tetraselmis* 24%
- Round cells 15%
- Flagellates 5%
- Ciliates 4%
- *Dunaliella* 1%

Diatoms

- *Chaetoceros* (Common)
- *Cylindrotheca* (Present)

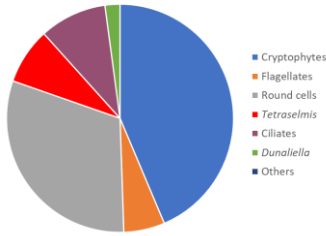


Abundant: > 500 cells/ml
 Common: 100 - 500 cells/ml
 Present: 30 - 99 cells/ml
 Rare: 10 - 29 cells/ml

Sample: 05/05/2020 Station 6

Others

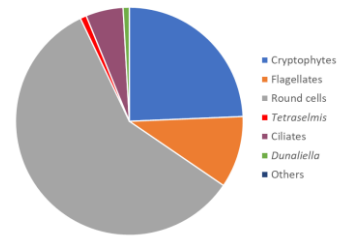
- Cryptophytes 44%
- Round cells 31%
- Ciliates 10%
- *Tetraselmis* 8%
- Flagellates 6%
- *Dunaliella* 2%



Sample: 05/05/2020 Station 7

Others

- Round cells 58%
- Cryptophytes 24%
- Flagellates 10%
- Ciliates 5%
- *Dunaliella* 1%
- *Tetraselmis* 1%



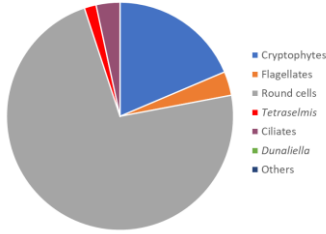
Diatoms

- *Cylindrotheca* (Rare)

Sample: 05/05/2020 Station 20

Others

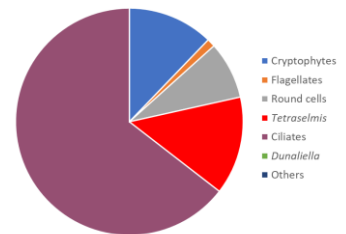
- Round cells 73%
- Cryptophytes 19%
- Flagellates 3%
- Ciliates 3%
- *Tetraselmis* 2%



Sample: 05/05/2020 Station 23

Others

- Ciliates 65%
- *Tetraselmis* 14%
- Cryptophytes 12%
- Round cells 8%
- Flagellates 1%



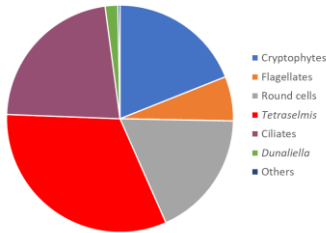
Diatoms

- *Cylindrotheca* (Rare)

Sample: 05/12/2020 Station 6

Others

- *Tetraselmis* 32%
- Ciliates 22%
- Cryptophytes 19%
- Round cells 18%
- Flagellates 6%
- *Dunaliella* 2%



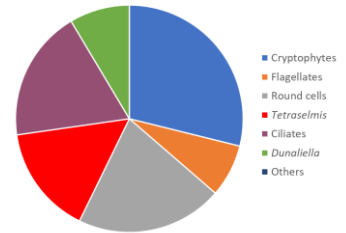
Diatoms

- *Navicula* (Rare)

Sample: 05/12/2020 Station 7

Others

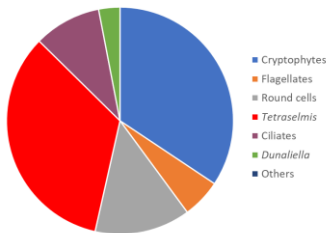
- Cryptophytes 29%
- Round cells 21%
- Ciliates 19%
- *Tetraselmis* 16%
- *Dunaliella* 9%
- Flagellates 7%



Sample: 05/12/2020 Station 20

Others

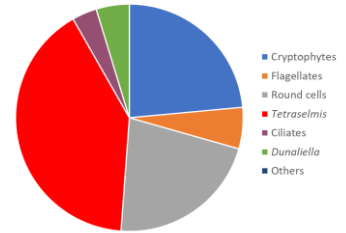
- Cryptophytes 34%
- *Tetraselmis* 34%
- Round cells 14%
- Ciliates 10%
- Flagellates 6%
- *Dunaliella* 3%



Sample: 05/12/2020 Station 23

Others

- *Tetraselmis* 41%
- Cryptophytes 24%
- Round cells 22%
- Flagellates 6%
- *Dunaliella* 5%
- Ciliates 4%

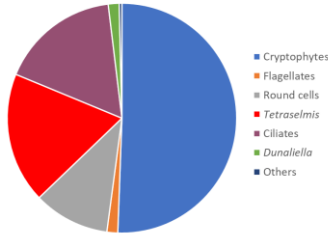


Abundant: > 500 cells/ml
 Common: 100 - 500 cells/ml
 Present: 30 - 99 cells/ml
 Rare: 10 - 29 cells/ml

Sample: 05/20/2020 Station 6

Others

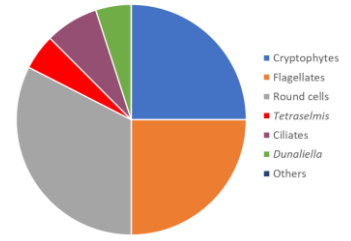
- Cryptophytes 51%
- *Tetraselmis* 18%
- Ciliates 17%
- Round cells 11%
- *Dunaliella* 2%
- Flagellates 2%



Sample: 05/20/2020 Station 7

Others

- Round cells 33%
- Cryptophytes 25%
- Flagellates 25%
- Ciliates 8%
- *Dunaliella* 5%
- *Tetraselmis* 5%



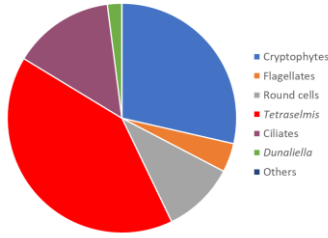
Diatoms

- *Chaetoceros* (Rare)
- *Cylindrotheca* (Rare)

Sample: 05/20/2020 Station 20

Others

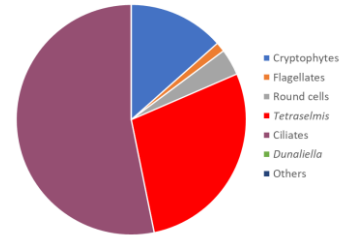
- *Tetraselmis* 41%
- Cryptophytes 29%
- Ciliates 14%
- Round cells 10%
- Flagellates 4%
- *Dunaliella* 2%



Sample: 05/20/2020 Station 23

Others

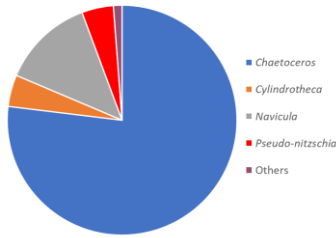
- Ciliates 53%
- *Tetraselmis* 28%
- Cryptophytes 13%
- Round cells 4%
- Flagellates 1%



Sample: 05/26/2020 Station 6

Diatoms

- *Chaetoceros* 77%
- *Navicula* 13%
- *Cylindrotheca* 4%
- *Pseudo-nitzschia* 4%
- Others 1%



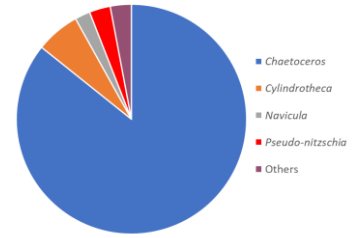
Others

- Round cells (Present)
- Ciliates (Present)
- Cryptophytes (Present)
- *Tetraselmis* (Present)

Sample: 05/26/2020 Station 7

Diatoms

- *Chaetoceros* 86%
- *Cylindrotheca* 6%
- *Pseudo-nitzschia* 4%
- Others 3%
- *Navicula* 2%



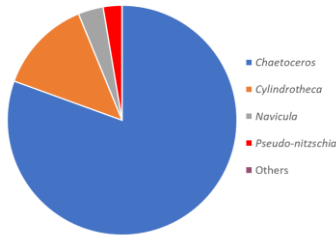
Others

- Round cells (Present)

Sample: 05/26/2020 Station 20

Diatoms

- *Chaetoceros* 81%
- *Cylindrotheca* 13%
- *Navicula* 4%
- *Pseudo-nitzschia* 3%



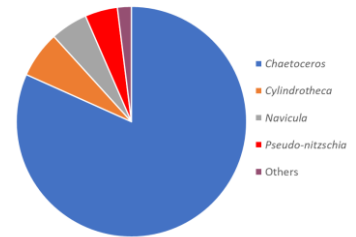
Others

- Round cells (Rare)
- Cryptophytes (Rare)

Sample: 05/26/2020 Station 23

Diatoms

- *Chaetoceros* 82%
- *Cylindrotheca* 7%
- *Navicula* 5%
- *Pseudo-nitzschia* 5%
- Others 2%



Others

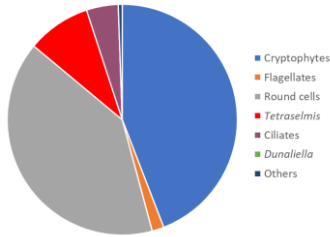
- Round cells (Rare)
- Ciliates (Rare)
- Cryptophytes (Rare)

Abundant: > 500 cells/ml
 Common: 100 - 500 cells/ml
 Present: 30 - 99 cells/ml
 Rare: 10 - 29 cells/ml

Sample: 06/03/2020 Station 6

Others

- Cryptophytes 44%
- Round cells 40%
- *Tetraselmis* 9%
- Ciliates 4%
- Flagellates 2%
- Others 1%



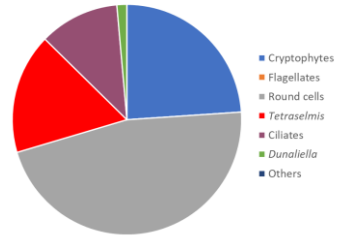
Diatoms

- *Chaetoceros* (Common)
- *Pseudo-nitzschia* (Present)

Sample: 06/03/2020 Station 7

Others

- Round cells 46%
- Cryptophytes 24%
- *Tetraselmis* 17%
- Ciliates 11%
- *Dunaliella* 1%



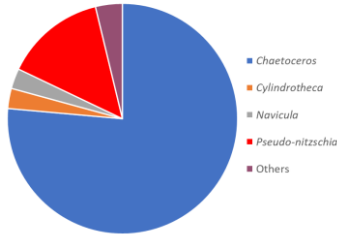
Diatoms

- *Chaetoceros* (Rare)
- *Pseudo-nitzschia* (Rare)

Sample: 06/03/2020 Station 20

Diatoms

- *Chaetoceros* 76%
- *Pseudo-nitzschia* 14%
- Others 4%
- *Cylindrotheca* 3%
- *Navicula* 3%



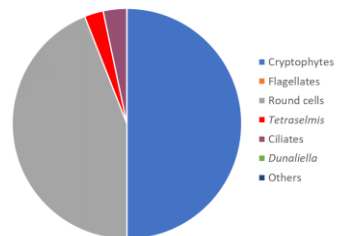
Others

- Round cells (Rare)

Sample: 06/03/2020 Station 23

Others

- Cryptophytes 50%
- Round cells 44%
- *Tetraselmis* 3%
- Ciliates 3%



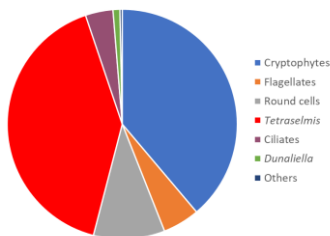
Diatoms

- *Chaetoceros* (Common)
- *Pseudo-nitzschia* (Rare)

Sample: 06/10/2020 Station 6

Others

- *Tetraselmis* 41%
- Cryptophytes 39%
- Round cells 10%
- Flagellates 5%
- Ciliates 4%
- *Dunaliella* 1%



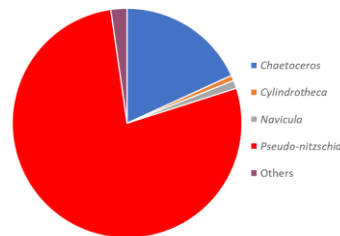
Diatoms

- *Chaetoceros* (Common)
- *Pseudo-nitzschia* (Common)
- *Navicula* (Rare)

Sample: 06/10/2020 Station 7

Diatoms

- *Pseudo-nitzschia* 78%
- *Chaetoceros* 18%
- Others 2%
- *Cylindrotheca* 1%
- *Navicula* 1%



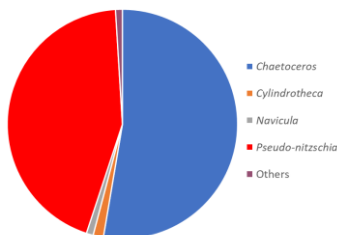
Others

- Cryptophyte (Present)
- *Tetraselmis* (Present)
- Round cells (Rare)
- Flagellates (Rare)

Sample: 06/10/2020 Station 20

Diatoms

- *Chaetoceros* 53%
- *Pseudo-nitzschia* 44%
- *Cylindrotheca* 1%
- *Navicula* 1%
- Others 1%



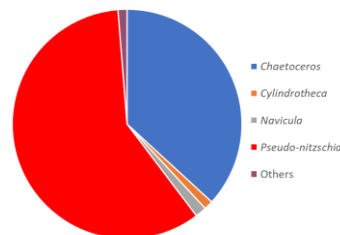
Others

- Round cells (Rare)
- Cryptophyte (Rare)
- *Tetraselmis* (Rare)

Sample: 06/10/2020 Station 23

Diatoms

- *Pseudo-nitzschia* 59%
- *Chaetoceros* 37%
- *Navicula* 2%
- *Cylindrotheca* 1%
- Others 1%



Others

- Round cells (Present)
- Cryptophyte (Present)
- Flagellate (Rare)

Abundant: > 500 cells/ml
 Common: 100 - 500 cells/ml
 Present: 30 - 99 cells/ml
 Rare: 10 - 29 cells/ml

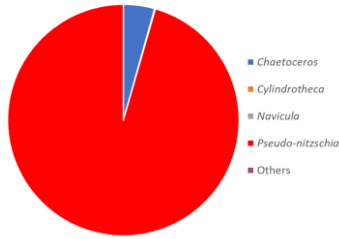
Sample: 06/16/2020 Station 6

Diatoms

- *Pseudo-nitzschia* 96%
- *Chaetoceros* 4%

Others

- Cryptophyte (Common)
- *Tetraselmis* (Common)
- Round cells (Present)
- Flagellates (Present)



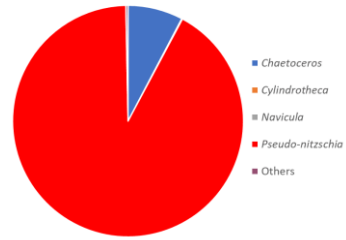
Sample: 06/16/2020 Station 7

Diatoms

- *Pseudo-nitzschia* 92%
- *Chaetoceros* 8%

Others

- Cryptophyte (Common)
- *Tetraselmis* (Common)
- Round cells (Present)
- Flagellates (Present)
- Euglenoid/cryptophyte (Rare)



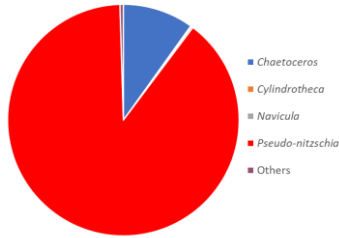
Sample: 06/16/2020 Station 20

Diatoms

- *Pseudo-nitzschia* 89%
- *Chaetoceros* 10%

Others

- *Tetraselmis* (Common)
- Round cells (Present)
- Cryptophyte (Present)
- Flagellates (Rare)



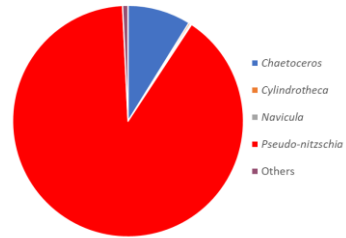
Sample: 06/16/2020 Station 23

Diatoms

- *Pseudo-nitzschia* 90%
- *Chaetoceros* 9%
- Others 1%

Others

- Cryptophyte (Common)
- *Tetraselmis* (Present)
- Round cells (Present)
- Flagellates (Rare)



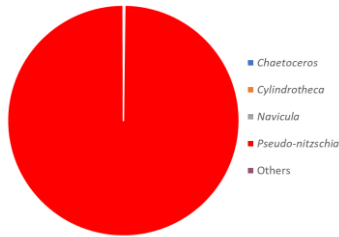
Sample: 06/24/2020 Station 6

Diatoms

- *Pseudo-nitzschia* 100%

Others

- Cryptophyte (Common)
- *Tetraselmis* (Present)
- Round cells (Rare)
- Flagellates (Rare)



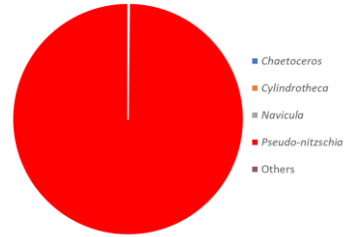
Sample: 06/24/2020 Station 7

Diatoms

- *Pseudo-nitzschia* 100%

Others

- Cryptophyte (Common)
- *Tetraselmis* (Common)
- Round cells (Present)
- Ciliate (Rare)



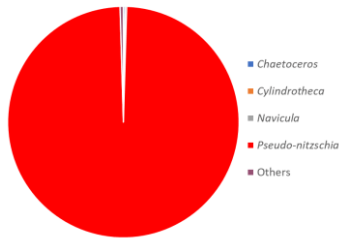
Sample: 06/24/2020 Station 20

Diatoms

- *Pseudo-nitzschia* 99%

Others

- Cryptophyte (Common)
- *Tetraselmis* (Present)



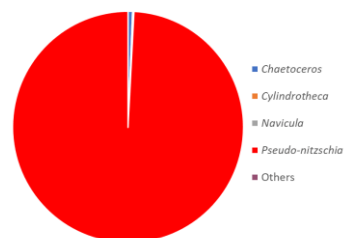
Sample: 06/24/2020 Station 23

Diatoms

- *Pseudo-nitzschia* 99%
- *Chaetoceros* 1%

Others

- Cryptophyte (Common)
- *Tetraselmis* (Present)



Abundant: > 500 cells/ml
 Common: 100 - 500 cells/ml
 Present: 30 - 99 cells/ml
 Rare: 10 - 29 cells/ml

Pictures of organisms

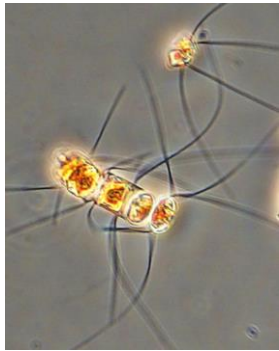
Diatoms



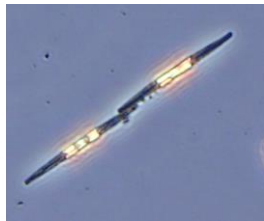
Cylindrotheca



Navicula



Chaetoceros

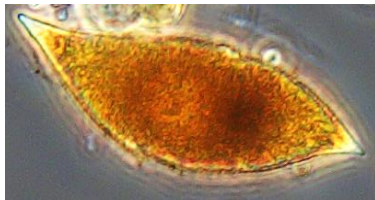


Pseudo-nitzschia

Dinoflagellates

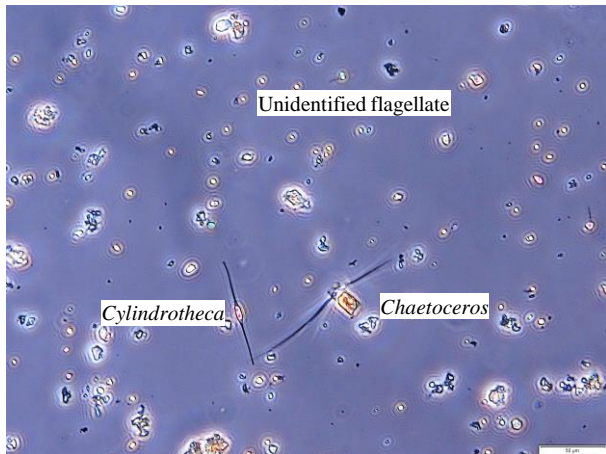


Prorocentrum micans



Gyrodinium spirale

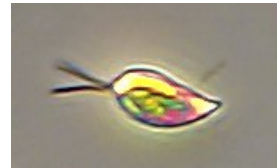
4/15/2020 S6 – Concentrated 30x



Others



Euglenoid/cryptophyte



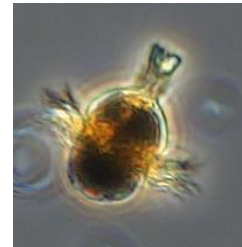
Cryptophyte



Tetraselmis



Non-distinct round cell



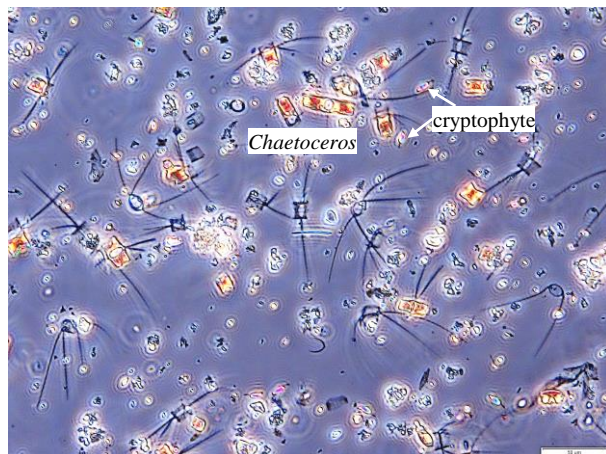
Mesodinium

Pictures of samples

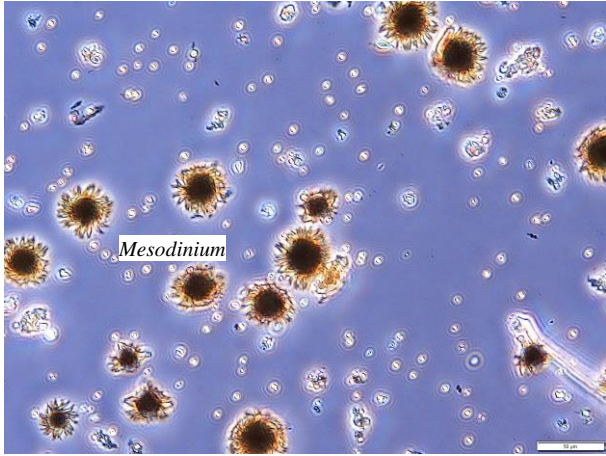
3/26/2020 S6 – Concentrated 20x



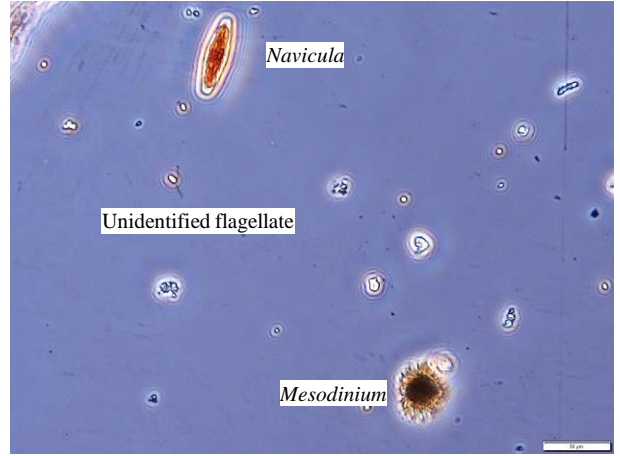
4/22/2020 S6 – Concentrated 30x



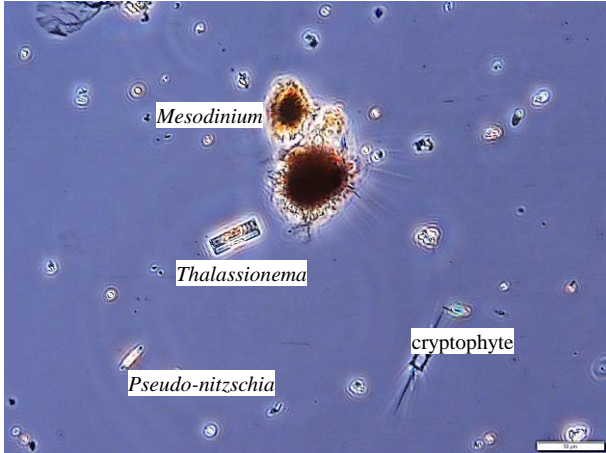
5/5/2020 S23 – Concentrated 30x



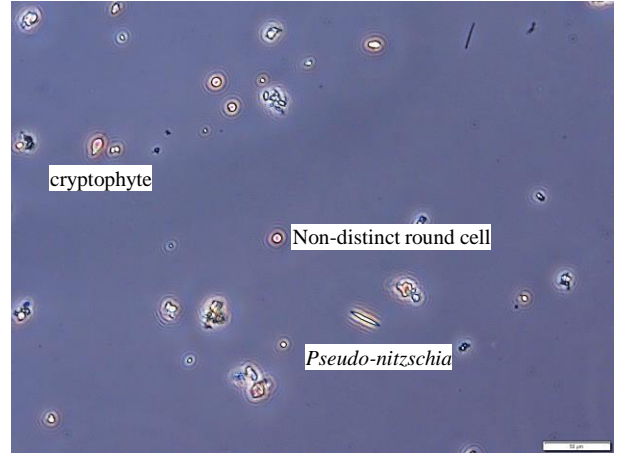
5/12/2020 S23 – Concentrated 30x



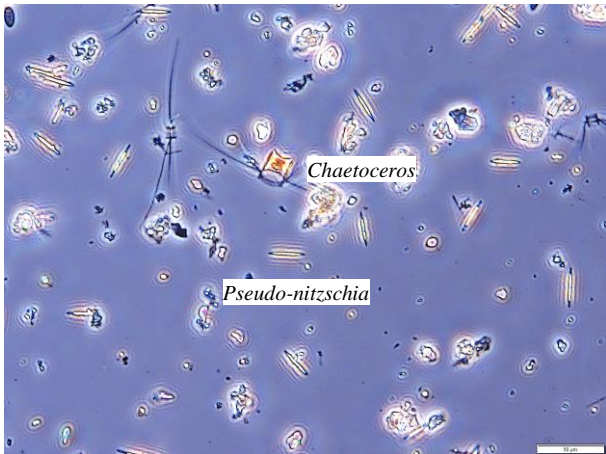
5/26/2020 S6 – Concentrated 30x



6/3/2020 S6 – Concentrated 30x



6/16/2020 S6 – Concentrated 30x



6/24/2020 S6 – Concentrated 30x

