

[illegible]

[illegible]

[illegible]

Trentepohlia sp1	0	0	0	0	1	1	0	1	1	1	1	0	0	0
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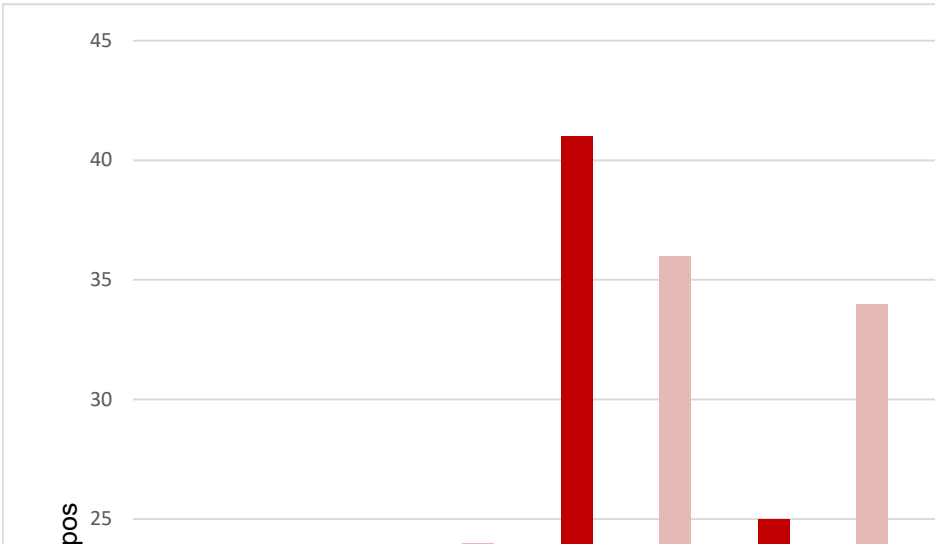
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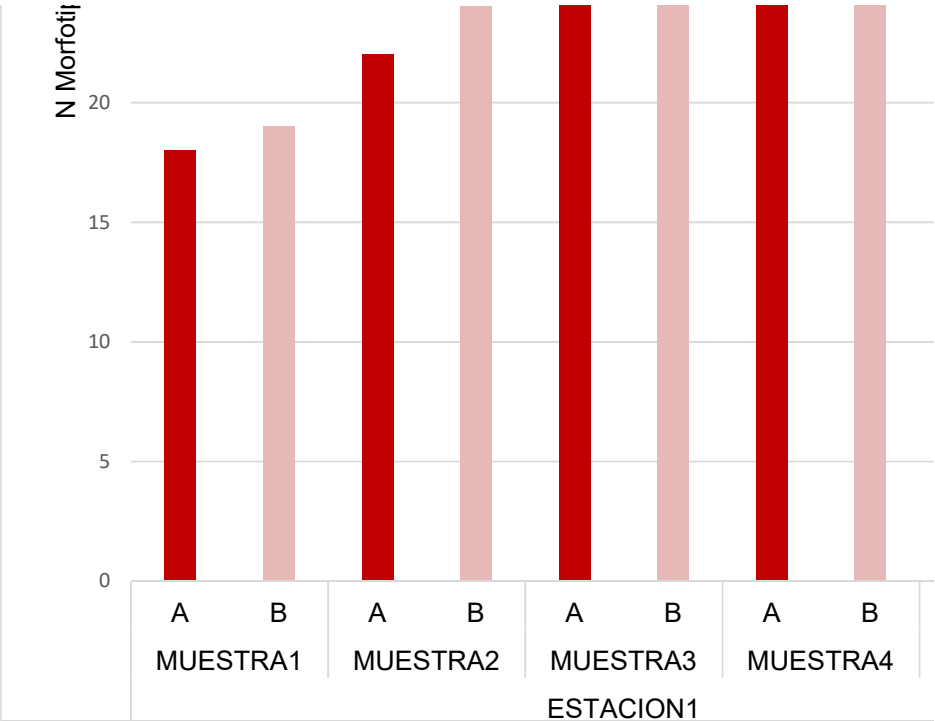
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0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	3
1	0	1	0	1	0	0	0	1	0	1	1	0	0	0	0	2	0
0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	8	7
1	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	4	0
1	1	1	0	0	0	0	0	1	0	1	1	0	0	0	0	5	0
1	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	7	4

0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	5	3
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1	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	2	2
0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	6
0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	2	2
0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	1	2
0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	0	1	4
1	1	0	0	0	1	0	0	1	0	0	0	0	0	0	0	2	2
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	7
0	1	0	0	0	0	0	0	0	1	1	0	0	0	0	0	2	4
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0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	7
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0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	3
0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	3
0	1	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	2
1	0	0	0	0	0	0	0	1	1	1	1	0	1	1	1	3	7
1	1	0	0	1	0	0	0	0	1	0	0	0	0	0	0	6	6
0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	4	4
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	2

1	0	0	0	1	1	0	0	0	0	1	1	0	1	0	0	15	15
37	37	28	26	31	26	16	16	35	24	35	36	23	27	23	27		

	MUESTRA1	
	A	B
	18	19
		18.5
Suma por estaciones		





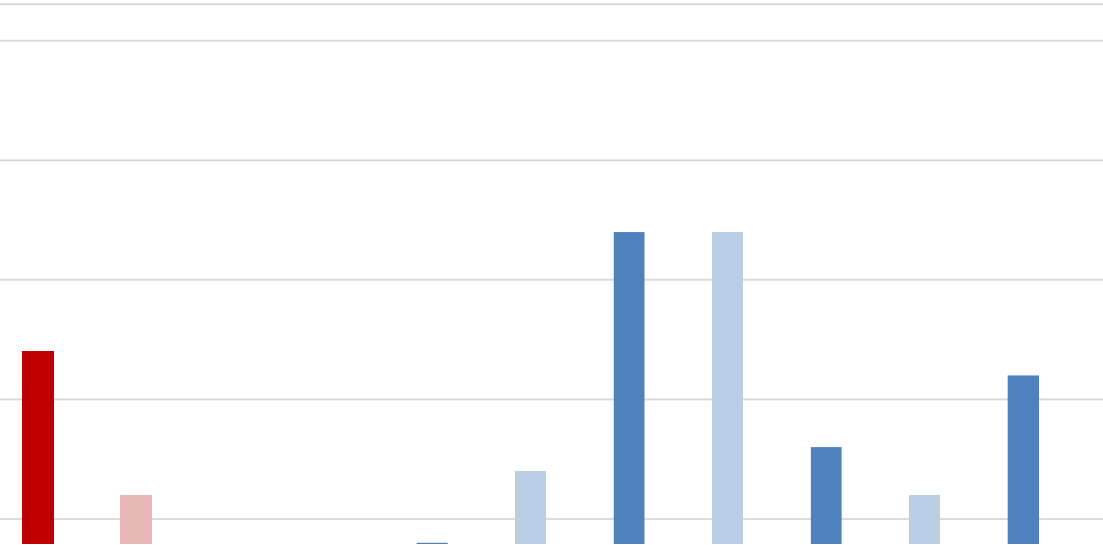
Muestra 1	104
Muestra 2	156
Muestra 3	222
Muestra 4	163
Muestra 5	165

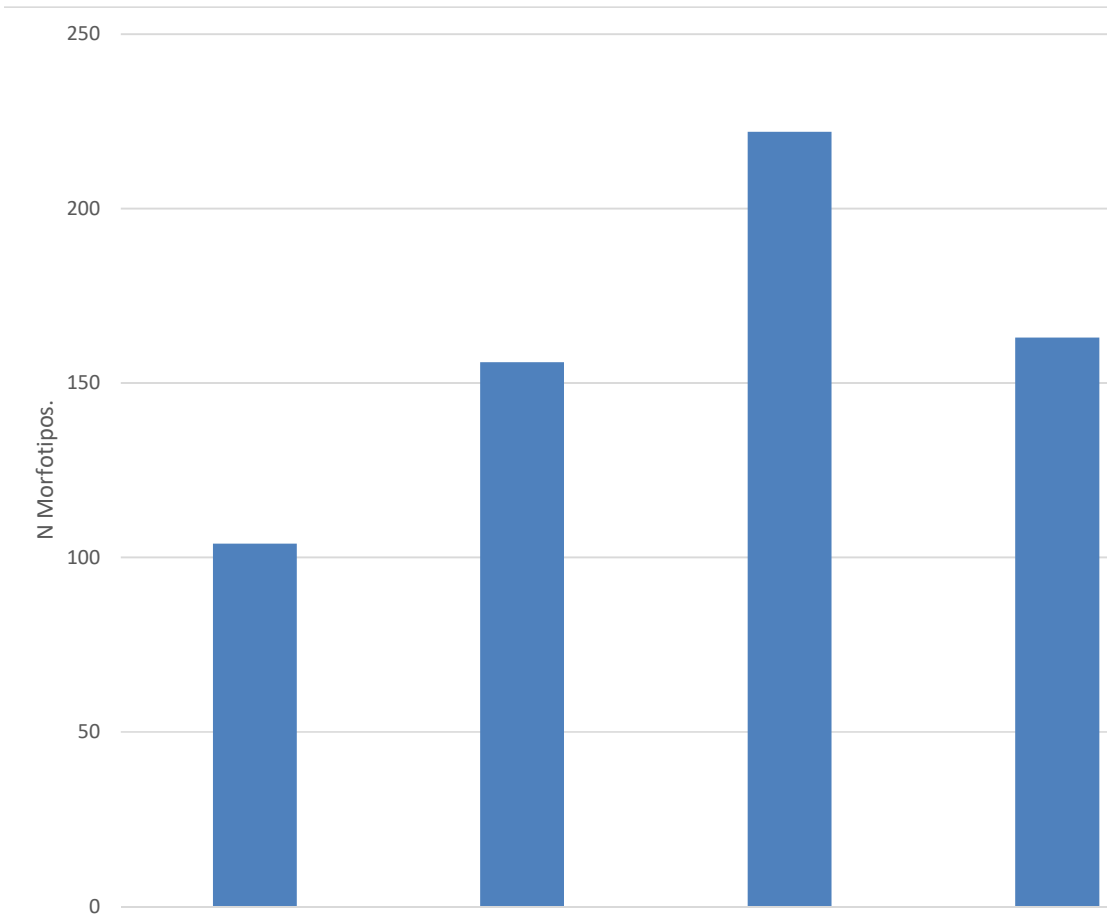
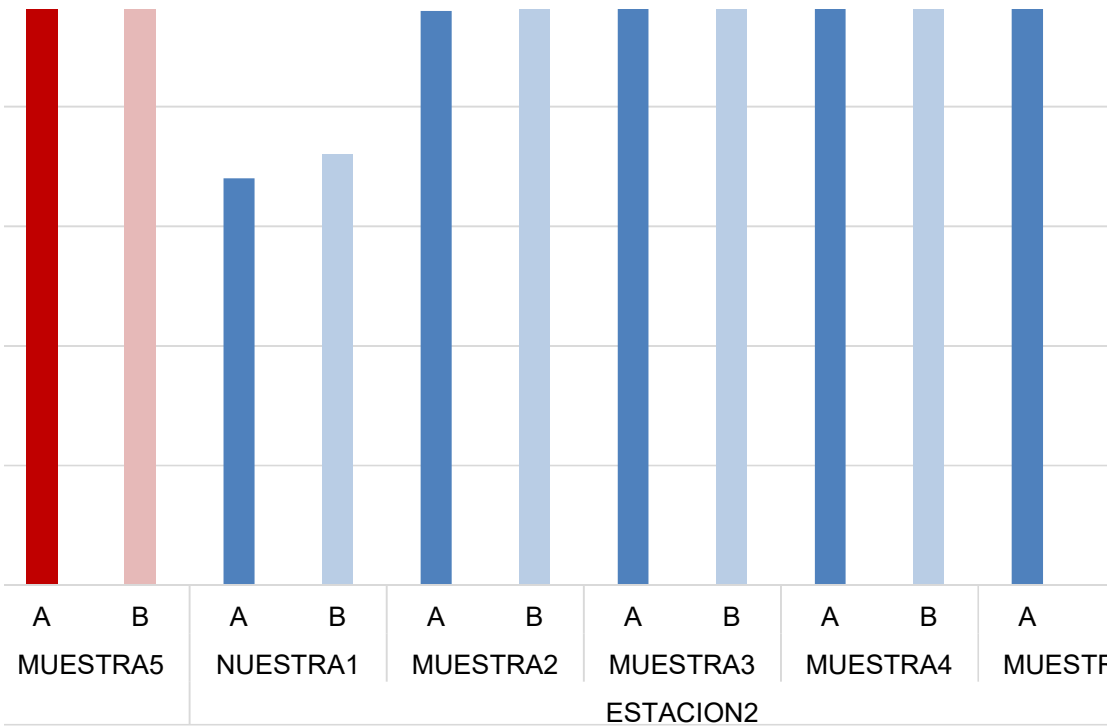
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Muestra 1	A	51
	B	53
Muestra 2	A	81
	B	75
Muestra 3	A	113
	B	109
Muestra 4	A	76
	B	87
Muestra 5	A	86
	B	79

Estación 1	277
Estación 2	271
Estación 3	262

ESTACION1						
MUESTRA2		MUESTRA3		MUESTRA4		MUES
A	B	A	B	A	B	A
22	24	41	36	25	34	32
	23		38.5		29.5	
277						



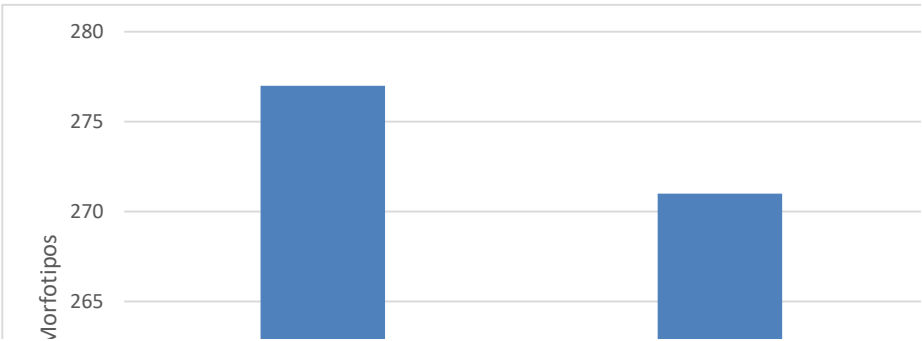
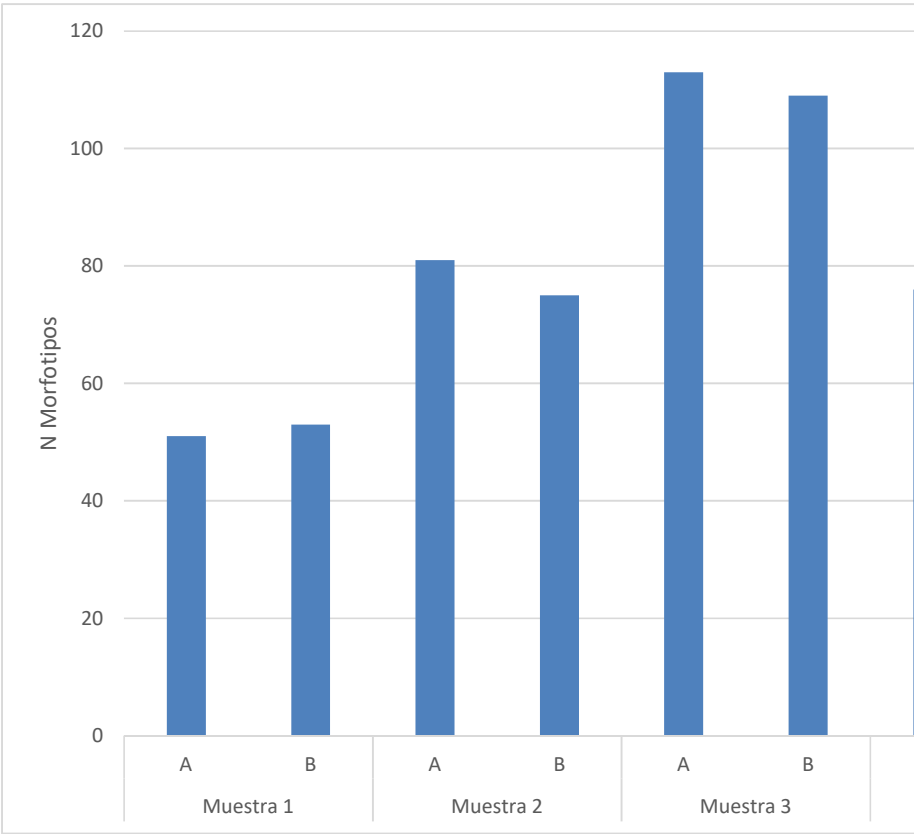


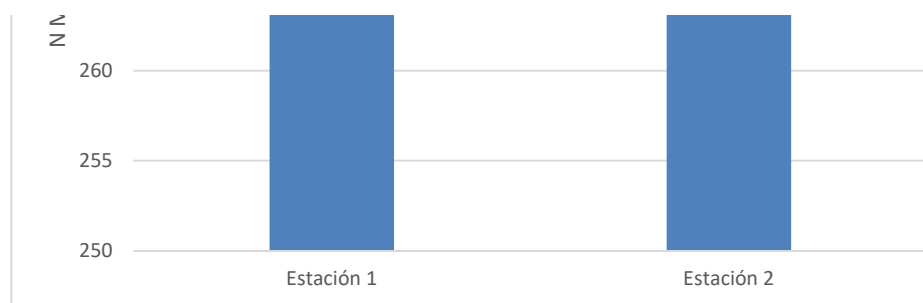
Muestra 1

Muestra 2

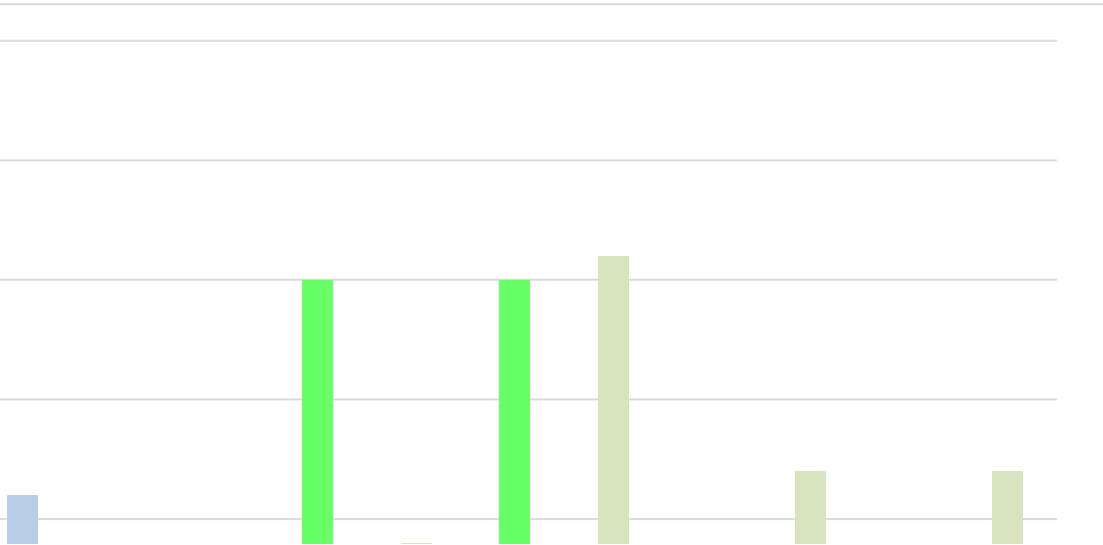
Muestra 3

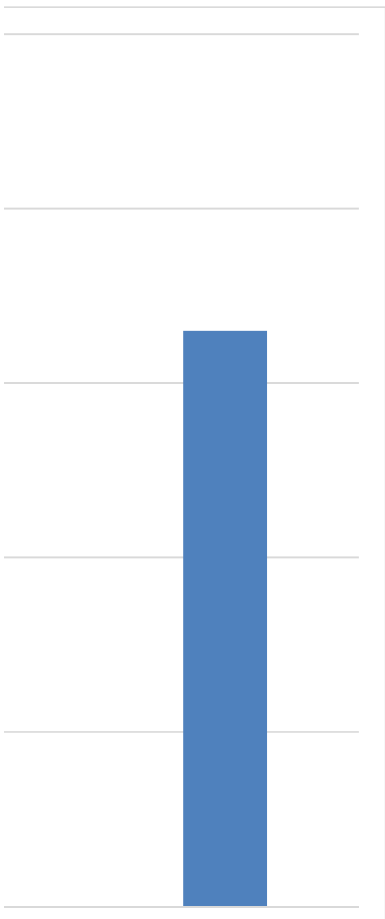
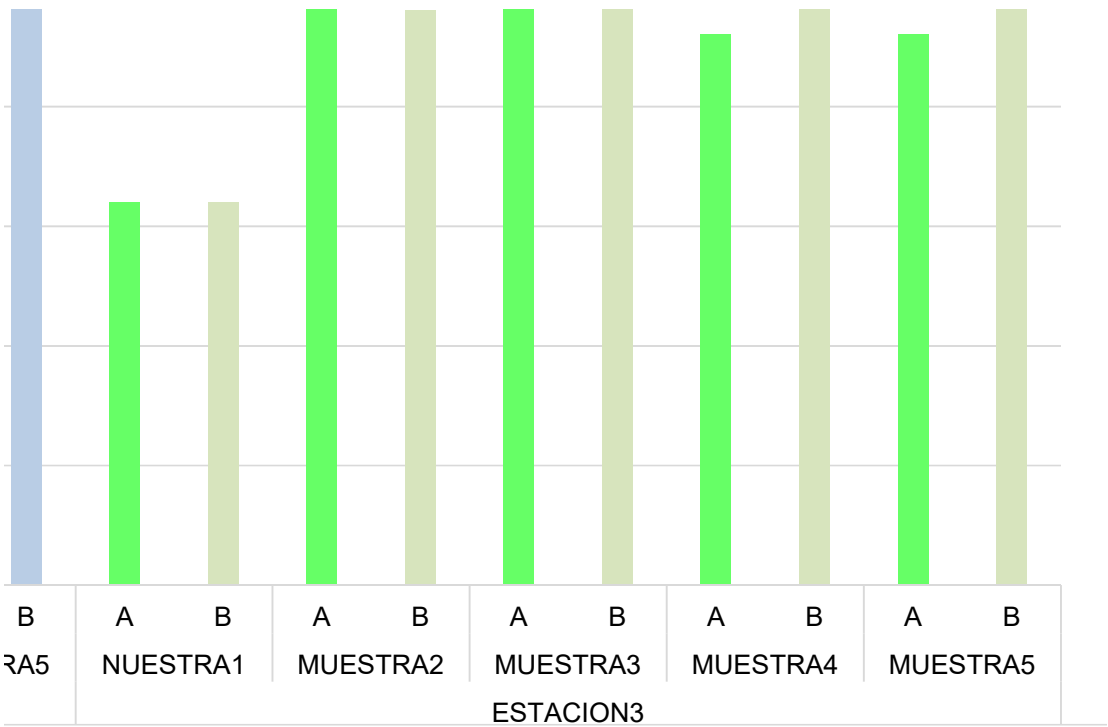
Muestra 4



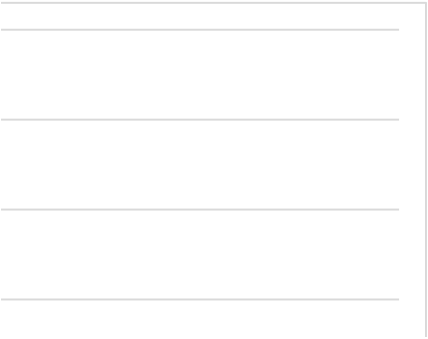
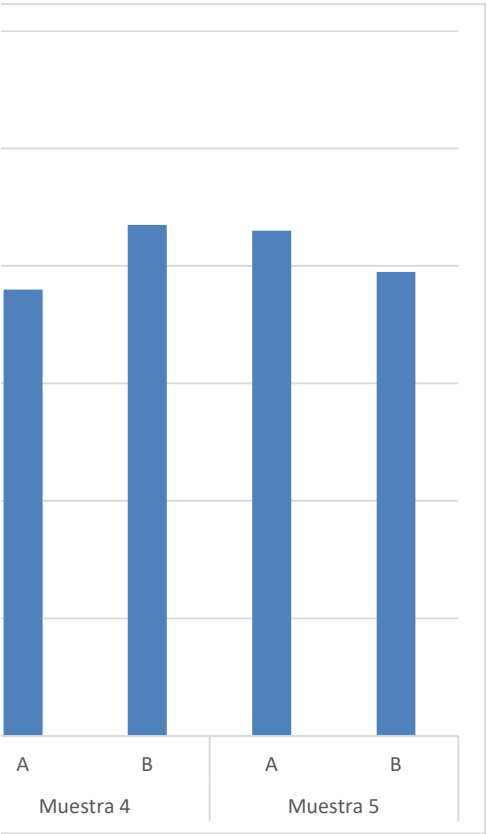


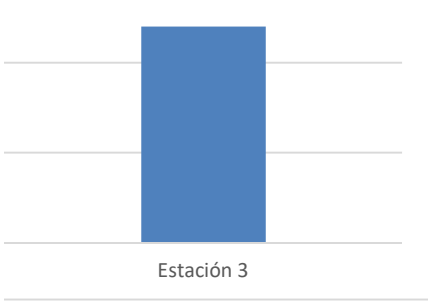
	ESTACION2					
MUESTRA5	MUESTRA1		MUESTRA2		MUESTRA3	
B	A	B	A	B	A	B
26	17	18	24	27	37	37
29		17.5		25.5		37
	271					





Muestra 5





MUESTRA4		MUESTRA5		MUESTRA1		MUES
A	B	A	B	A	B	A
28	26	31	26	16	16	35
	27		28.5		16	

ESPECIE	ESTADO TROFICO	TEMPERATURA	pH
Navicula sp	Mesotrofia		
Meridium	Mesotrofia		
Eunotia	Eutrofia		Neutro o ligeramente acido
Cymbella	Eutrofia		Neutro o ligeramente acido
Gonatozygon	Oligotrofia		Con tendencia a acidez
Amphora	Eutrofia		Neutro o ligeramente acido
Gomphonema	Eutrofia		Neutro o ligeramente acido
Diploneis	Mesotrofia		
Nitzschia	Mesotrofia		
Cosmarium	Oligotrofia		Con tendencia a acidez
Euglena	Eutrofia		Alcalino
Rhopalodia			
Chroococcus	Sucesion avanzada		
Microcystis	Eutrofia		Alcalino
Oocystis	Eutrofia		
Snowella			
Peridium	Oligotrofia fria		Neutro o ligeramente alcalino
Mougeotia	Eutrofia		Con tendencia a acidez
Spirogyra	Eutrofia		Con tendencia a acidez
Lyngbya	Hipereutrofia		Alcalino
Diatoma			
Microspora			
Ophiocytium			
Sphaerosoma	Oligotrofia		Con tendencia a la acidez

Phormidium	Mesotrofia		Alcalino
Centronella			
Fragilaria	Eutrofia		Neutro o ligeramente acido
Closterium	Oligotrofia		Con tendencia a acidez
Aanabaena	Mesotrofia		Alcalino
Oscillatoria	Mesotrofia		Alcalino
Spirulina			
Anathece			
Nostoc			
Staurastrum	Oligotrofia		Con tendencia a acidez
Scenedesmus	Eutrofia		
Hyalotheca	Oligotrofia		Con tendencia a acidez
Struktur	De meso a eutrofia		
Pediastrum	Eutrofia		
Hyalotheca	Oligotrofia		Con tendencia a acidez
Tribonema	Oligotrofia		
Klebsormidium	Oligotrofia		
fremyella			
bumilleria	Oligotrofia		
Polycistis sp			
Trentepohlia			

ANEXO 2.3. VALORES NUMERICOS ASIGNADOS A CADA CARACTERISTICA DE BIOINDICACION		
ESTADO TROFICO	carencia de datos	0
	Ultraoligotrofico	1
	Oligotrofico	2
	Mesotrofico	3
	Eutrofico	4
	Supereutrofico	5
	Hipereutrofico	6
pH	carencia de datos	0
	tendencia a acido	1
	Acidos	2
	Tendencia a neutro	3
	Neutro	4
	Tendencia a Alcalino	5

	Alcalino	6
CARACTERIZACION	carencia de datos	0
	Tubulenta	1
	Turbias	2
	Aguas poco profundas	3
	Aguas mineralizadas	4
	periodo lluvioso	5
TOLERANCIA DE HIDROCARBUROS	carencia de datos	0
	No	1
	Si	2
SEDIMENTOS Y CONDUCTIVIDAD	carencia de datos	0
	Bajos mineralizacion	1
	Altos	2
TOLERANCIA A PESTICIDAS	carencia de datos	0
	No	1
	Si	2
MATERIA ORGANICA	carencia de datos	0
	No	1
	posible	2
	Si	3
N2, Mg, Ca	carencia de datos	0
	carencia	1
	baja	2
	Altos	3
	abundane	4

CARACTERIZACION	TOLERANCIA DE HIDROCARBUROS	SEDIMENTOS Y CONDUCTIVIDAD	TOLERANCIA A PESTICIDAS
Tubulenta		Altos	Si
Tubulenta		Altos	Si
Turbulenta			
Turbulenta			
Poco profundas		Baja (baja mineralización)	
Turbulenta			
Turbulenta		Altos	
Tubulenta		Altos	Si
Turbulenta			
Aguas poco profundas		Baja (baja mineralización)	
	SI		Si
	SI		
			Si
Aguas mineralizadas			
Turbias		Baja (baja mineralización)	
Turbias		Baja (baja mineralización)	
	SI	Altos	
Aguas poco profundad		Baja (baja mineralización)	

	Si	Altos	Si
Turbulenta			
Poco profundas		Baja (baja mineralización)	
Turbulenta	Si		
	Si		
Poco profundas		Baja (baja mineralización)	
		Altos	Si
Poco profundas		Baja (baja mineralización)	
Periodo lluvioso		(baja mineralización)	Si
			Si
Poco profundas		Baja (baja mineralización)	

ANEXO 2.4. RESULTADO DE LA ASIG		
		HighPoint
Genero	Navicula	0.1111
Genero	Meridium	0.1111
Genero	Eunotia	0.0500
Genero	Cymbella	0.0500
Genero	Gonatozygon	0.0909
Genero	Amphora	0.0500
Genero	Gomphonema	0.0833
Genero	Diploneis	0.1111
Genero	Nitzschia	0.0300
Genero	Cosmarium	0.1364
Genero	Euglena	0.1667
Genero	Rhopalodia	0.0000
Genero	Chroococcus	0.0000

Genero	Microcystis	0.1667
Genero	Oocystis	0.1111
Genero	Snowella	0.0000
Genero	Peridium	0.0909
Genero	Mougeotia	0.0909
Genero	Spirogyra	0.0909
Genero	Lyngbya	0.1667
Genero	Diatoma	0.0000
Genero	Microspora	0.0000
Genero	Ophiocytium	0.0000
Genero	Sphaeroszoma	0.0909
Genero	Phormidium	0.1667
Genero	Centronella	0.0000
Genero	Fragilaria	0.0500
Genero	Closterium	0.0909
Genero	Aanabaena	0.1667
Genero	Oscillatoria	0.1667
Genero	Spirulina	0.0000
Genero	Anathece	0.0000
Genero	Nostoc	0.0000
Genero	Staurostrum	0.0909
Genero	Scenedesmus	0.1111
Genero	Hyalotheca	0.0909
Genero	Struktur	0.1136
Genero	Pediastrum	0.1111
Genero	Hyalotheca	0.0909
Genero	Tribonema	0.0200
Genero	Klebsormidium	0.0200
Genero	fremyella	0.0000
Genero	bumilleria	0.0200
Genero	Polycistis sp	0.0000
Genero	Trentepohlia	0.0000

ANEXO 2.1. CARACTERISTICAS COMO BIOINDICADORES DE CADA MORFOTIPO

MATERIA ORGANICA	N2, Mg, Ca
	Bajas concentraciones Ca; N/P alta
	Bajas concentraciones Ca; N/P alta
Posible presencia	Carencia Ca y Mg
	Bajas concentraciones Ca; N/P alta
	Bajas concentraciones Ca; N/P alta
Si	Carencia de Ca y Mg
Si	Abundancia de N2
	Carencia de N2
	Altas concentraciones de Ca, Relacion N/P alto
Posible presencia	Carencia Ca y Mg
Posible presencia	Carencia Ca y Mg
	Carencia de N2
Posible presencia	Carencia de Ca y Mg

ESPECIE	ESTADO TROFICO
Navicula sp	Mesotrofia
Meridium	Mesotrofia
Eunotia	Eutrofia
Cymbella	Eutrofia
Gonatozygon	Oligotrofia
Amphora	Eutrofia
Gomphonema	Eutrofia
Diploneis	Mesotrofia
Nitzschia	Mesotrofia
Cosmarium	Oligotrofia
Euglena	Eutrofia
Rhopalodia	
Chroococcus	Sucesion avanzada
Microcystis	Eutrofia
Oocystis	Eutrofia
Snowella	
Peridium	Oligotrofia
Mougeotia	Eutrofia
Spirogyra	Eutrofia
Lyngbya	Hipereutrofia
Diatoma	
Microspora	
Ophiocytium	
Sphaeroszma	Oligotrofia

	Carencia de N2
	Bajas concentraciones Ca; N/P alta
Posible presencia	Carencia Ca y Mg
	Carencia de N2
	Carencia de N2
Posible presencia	Carencia Ca y Mg
	Altas concentraciones de Ca, Relacion N/P alto
Posible presencia	Carencia Ca y Mg
	Altas concentraciones de Ca, Relacion N/P alto
	Altas concentraciones de Ca, Relacion N/P alto
Posible presencia	Carencia Ca y Mg

Phormidium	Mesotrofia
Centronella	
Fragilaria	Eutrofia
Closterium	Oligotrofia
Aanabaena	Mesotrofia
Oscillatoria	Mesotrofia
Spirulina	
Anathece	
Nostoc	
Staurostrum	Oligotrofia
Scenedesmus	Eutrofia
Hyalotheca	Oligotrofia
Struktur	De meso a eutrofia
Pediastrum	Eutrofia
Hyalotheca	Oligotrofia
Tribonema	Oligotrofia
Klebsormidium	Oligotrofia
fremyella	
bumilleria	Oligotrofia
Polycistis sp	
Trentepohlia	

INACION NUMERICA A CADA CARACTERISTICA BIOINDICACION Y AJUSTE AL FORMARTO SEGÚN LA METODOLOG

ESTADO TROFICO	pH	CARACTERIZACION	TOLERANCIA DE HIDROCARBUROS	SEDIMENTOS Y CONDUCTIVIDAD
0.0300	0.0000	0.0227	0.0000	0.0833
0.0300	0.0000	0.0227	0.0000	0.0833
0.0400	0.0462	0.0227	0.0000	0.0000
0.0400	0.0462	0.0227	0.0000	0.0000
0.0200	0.0154	0.0682	0.0000	0.0417
0.0400	0.0462	0.0227	0.0000	0.0000
0.0400	0.0462	0.0227	0.0000	0.0833
0.0300	0.0000	0.0227	0.0000	0.0833
0.0300	0.0000	0.0227	0.0000	0.0000
0.0200	0.0154	0.0682	0.0000	0.0417
0.0400	0.0923	0.0000	0.1667	0.0000
0.0000	0.0000	0.0000	0.0000	0.0000
0.0000	0.0000	0.0000	0.0000	0.0000

0.0400	0.0923	0.0000	0.1667	0.0000
0.0400	0.0000	0.0000	0.0000	0.0000
0.0000	0.0000	0.0000	0.0000	0.0000
0.0200	0.0769	0.0909	0.0000	0.0000
0.0400	0.0154	0.0455	0.0000	0.0417
0.0400	0.0154	0.0455	0.0000	0.0417
0.0600	0.0923	0.0000	0.1667	0.0833
0.0000	0.0000	0.0000	0.0000	0.0000
0.0000	0.0000	0.0000	0.0000	0.0000
0.0000	0.0000	0.0000	0.0000	0.0000
0.0200	0.0154	0.0682	0.0000	0.0417
0.0300	0.0923	0.0000	0.1667	0.0833
0.0000	0.0000	0.0000	0.0000	0.0000
0.0400	0.0462	0.0227	0.0000	0.0000
0.0200	0.0154	0.0682	0.0000	0.0417
0.0300	0.0923	0.0227	0.1667	0.0000
0.0300	0.0923	0.0000	0.1667	0.0000
0.0000	0.0000	0.0000	0.0000	0.0000
0.0000	0.0000	0.0000	0.0000	0.0000
0.0000	0.0000	0.0000	0.0000	0.0000
0.0200	0.0154	0.0682	0.0000	0.0417
0.0400	0.0000	0.0000	0.0000	0.0833
0.0200	0.0154	0.0682	0.0000	0.0417
0.0300	0.0000	0.1136	0.0000	0.0417
0.0400	0.0000	0.0000	0.0000	0.0000
0.0200	0.0154	0.0682	0.0000	0.0417
0.0200	0.0000	0.0000	0.0000	0.0000
0.0200	0.0000	0.0000	0.0000	0.0000
0.0000	0.0000	0.0000	0.0000	0.0000
0.0200	0.0000	0.0000	0.0000	0.0000
0.0000	0.0000	0.0000	0.0000	0.0000
0.0000	0.0000	0.0000	0.0000	0.0000

TEMPERATURA	pH	CARACTERIZACION	TOLERANCIA DE HIDROCARBUROS
		Tubulenta	No
		Tubulenta	No
	Neutro o ligeramente acido	Turbulenta	No
	Neutro o ligeramente acido	Turbulenta	No
	Con tendencia a acidez	Poco profundas	No
	Neutro o ligeramente acido	Turbulenta	No
	Neutro o ligeramente acido	Turbulenta	No
		Tubulenta	No
		Turbulenta	No
	Con tendencia a acidez	Aguas poco profundas	No
	Alcalino		SI
			No
			No
	Alcalino		SI
			No
			No
	Neutro o ligeramente alcalino	Aguas mineralizadas	No
	Con tendencia a acidez	Turbias	No
	Con tendencia a acidez	Turbias	No
	Alcalino		SI
			No
			No
			No
	Con tendencia a la acidez	Aguas poco profundad	No

	Alcalino		SI
			No
	Neutro o ligeramente acido	Turbulenta	No
	Con tendencia a acidez	Poco profundas	No
	Alcalino	Turbulenta	SI
	Alcalino		SI
			No
			No
			No
	Con tendencia a acidez	Poco profundas	No
			No
	Con tendencia a acidez	Poco profundas	No
		Periodo lluvioso	No
			No
	Con tendencia a acidez	Poco profundas	No
			No
			No
			No
			No
			No

IA PROPUESTA POR SAATY

TOLERANCIA A PESTICIDAS	MATERIA ORGANICA	N2, Mg, Ca
0.1111	0.0000	0.0000
0.1111	0.0000	0.0000
0.0000	0.0000	0.0500
0.0000	0.0000	0.0500
0.0000	0.0909	0.0250
0.0000	0.0000	0.0500
0.0000	0.0000	0.0500
0.1111	0.0000	0.0000
0.0000	0.0000	0.0000
0.0000	0.1364	0.0250
0.1111	0.1364	0.1000
0.0000	0.0000	0.0000
0.0000	0.0000	0.0000

[illegible]

SEDIMENTOS Y CONDUCTIVIDAD	TOLERANCIA A PESTICIDAS	MATERIA ORGANICA	N2, Mg, Ca
Altos	Si		
Altos	Si		
	No		Bajas concentraciones Ca; N/P alta
	No		Bajas concentraciones Ca; N/P alta
Baja (baja mineralización)	No	Posible presencia	Carencia Ca y Mg
	No		Bajas concentraciones Ca; N/P alta
Altos	No		Bajas concentraciones Ca; N/P alta
Altos	Si		
	No		
Baja (baja mineralización)	No	Si	Carencia de Ca y Mg
	Si	Si	Abundancia de N2
	No		
	No		
	No		Carencia de N2
	Si		Altas concentraciones de Ca, Relacion N/P alto
	No		
	No		
Baja (baja mineralización)	No	Posible presencia	Carencia Ca y Mg
Baja (baja mineralización)	No	Posible presencia	Carencia Ca y Mg
Altos	No		Carencia de N2
	No		
	No		
	No		
Baja (baja mineralización)	No	Posible presencia	Carencia de Ca y Mg

Altos	Si		Carencia de N2
	No		
	No		Bajas concentraciones Ca; N/P alta
Baja (baja mineralización)	No	Posible presencia	Carencia Ca y Mg
	No		Carencia de N2
	No		Carencia de N2
	No		
	No		
	No		
Baja (baja mineralización)	No	Posible presencia	Carencia Ca y Mg
Altos	Si		Altas concentraciones de Ca, Relacion N/P alto
Baja (baja mineralización)	No	Posible presencia	Carencia Ca y Mg
(baja mineralización)	Si		Altas concentraciones de Ca, Relacion N/P alto
	Si		Altas concentraciones de Ca, Relacion N/P alto
Baja (baja mineralización)	No	Posible presencia	Carencia Ca y Mg
	No		
	No		
	No		
	No		
	No		
	No		

			1
		1	Polycistis
			257
1	Polycistis	257	1.00
2	Microcystis	252.6666667	1.02
	Gomphonema	138	1.86
	Eunotia	67.33333333	3.82
	Navicula	35	7.34
	Trentepohlia	23	11.17
	Meridion	17	15.12
	Gonatozygon	16	16.06
	Amphora	14	18.36

	Cymbella	9	28.56
	Chroococcus	9	28.56
	Klebsormidium	8	32.13
	Nitzschia	6.5	39.54
	Centronella	6	42.83
	Diploneis	5	51.40
	Rhopalodia	5	51.40
	Fremyella	5	51.40
	Peridinium	4	64.25
	Diatoma	3	85.67
	Phormidium	3	85.67
	Nostoc	3	85.67
	Mougeotia	2	128.50
	Oscillatoria	2	128.50
	Anathece	2	128.50
	Bumilleria	2	128.50
	Lyngbya	1	257.00
	Microspora	1	257.00
	Anabaena	1	257.00
	Spirulina	1	257.00
	Scenedesmus	1	257.00
	Pediastrum	0.5	514.00
	#REF!	#REF!	#REF!
	#REF!	#REF!	#REF!
	#REF!	#REF!	#REF!
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	#REF!	#REF!	#REF!
	#REF!	#REF!	#REF!
	#REF!	#REF!	#REF!
	#REF!	#REF!	#REF!

Abundancia promedio para cada género, el valor eigen, su pa

Género	Abundancia promedio	EigenValue
Polycistis	257	0.6498
Microcystis	253	0.6389
Gomphonema	138	0.3489
Eunotia	67	0.1703
Navicula	35	0.0885

Trentepohlia	23	0.0582
Meridion	17	0.0430
Gonatozygon	16	0.0405
Amphora	14	0.0354
Cymbella	9	0.0228
Chroococcus	9	0.0228
Klebsormidium	8	0.0202
Nitzschia	7	0.0164
Centronella	6	0.0152
Diploneis	5	0.0126
Rhopalodia	5	0.0126
Fremyella	5	0.0126
Peridinium	4	0.0101
Diatoma	3	0.0076
Phormidium	3	0.0076
Nostoc	3	0.0076
Mougeotia	2	0.0051
Oscillatoria	2	0.0051
Anathece	2	0.0051
Bumilleria	2	0.0051
Lyngbya	1	0.0025
Microspora	1	0.0025
Anabaena	1	0.0025
Spirulina	1	0.0025
Scenedesmus	1	0.0025
Pediastrum	1	0.0013

ANEXO 2.2. CARACTERISTIC/

ESPECIE	ESTADO TROFICO	pH
Navicula	3	0
Meridium	3	0
Eunotia	4	3
Cymbella	4	3
Gonatozygon	2	1
Amphora	4	3
Gomphonema	4	3
Diploneis	3	0
Nitzschia	3	0
Cosmarium	2	1
Euglena	4	6
Rhopalodia	0	0
Chroococcus	Sucesion avanzada	0
Microcystis	4	6
Oocystis	4	0
Snowella	0	0
Peridium	2	5
Mougeotia	4	1
Spirogyra	4	1
Lyngbya	6	6
Diatoma	0	0
Microspora	0	0
Ophiocytium	0	0
Sphaerososma	2	1

Phormidium	3	6
Centronella	0	0
Fragilaria	4	3
Closterium	2	1
Aanabaena	3	6
Oscillatoria	3	6
Spirulina	0	0
Anathece	0	0
Nostoc	0	0
Staurostrum	2	1
Scenedesmus	4	0
Hyalotheca	2	1
Struktur	3	0
Pediastrum	4	0
Hyalotheca	2	1
Tribonema	2	0
Klebsormidium	2	0
fremyella	0	0
bumilleria	2	0
Polycistis sp	0	0
Trentepohlia	0	0

2	3	4	5
Microcystis	Gomphonema	Eunotia	Navicula
252.6666667	138	67.3333333	35
0.98	0.54	0.26	0.14
1.00	0.55	0.27	0.14
1.83	1.00	0.49	0.25
3.75	2.05	1.00	0.52
7.22	3.94	1.92	1.00
10.99	6.00	2.93	1.52
14.86	8.12	3.96	2.06
15.79	8.63	4.21	2.19
18.05	9.86	4.81	2.50

28.07	15.33	7.48	3.89
28.07	15.33	7.48	3.89
31.58	17.25	8.42	4.38
38.87	21.23	10.36	5.38
42.11	23.00	11.22	5.83
50.53	27.60	13.47	7.00
50.53	27.60	13.47	7.00
50.53	27.60	13.47	7.00
63.17	34.50	16.83	8.75
84.22	46.00	22.44	11.67
84.22	46.00	22.44	11.67
84.22	46.00	22.44	11.67
126.33	69.00	33.67	17.50
126.33	69.00	33.67	17.50
126.33	69.00	33.67	17.50
126.33	69.00	33.67	17.50
252.67	138.00	67.33	35.00
252.67	138.00	67.33	35.00
252.67	138.00	67.33	35.00
252.67	138.00	67.33	35.00
252.67	138.00	67.33	35.00
505.33	276.00	134.67	70.00
#REF!	#REF!	#REF!	#REF!
#REF!	#REF!	#REF!	#REF!
#REF!	#REF!	#REF!	#REF!
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#REF!	#REF!	#REF!	#REF!
#REF!	#REF!	#REF!	#REF!
#REF!	#REF!	#REF!	#REF!

apel como bioindicador y el nivel para los datos del Muestreo 5

Bioindicador	Nivel
0	
TOLERANCIA DE HIDROCARBUROS	2
SEDIMENTOS Y CONDUCTIVIDAD	2
N2, Mg, Ca	2
TOLERANCIA A PESTICIDAS	2

CARACTERIZACION	5
TOLERANCIA DE HIDROCARBUROS	2
MATERIA ORGANICA	2
N2, Mg, Ca	2
N2, Mg, Ca	2
0	
ESTADO TROFICO	2
ESTADO TROFICO	3
0	
TOLERANCIA A PESTICIDAS	2
0	
0	
TOLERANCIA A PESTICIDAS	2
0	
TOLERANCIA DE HIDROCARBUROS	2
0	
MATERIA ORGANICA	2
TOLERANCIA DE HIDROCARBUROS	2
0	
ESTADO TROFICO	2
TOLERANCIA DE HIDROCARBUROS	2
0	
N2, Mg, Ca	2
0	
TOLERANCIA A PESTICIDAS	2
TOLERANCIA A PESTICIDAS	2

AS COMO BIOINDICADORES DE CADA MORFOTIPO CON VALORES

CARACTERIZACION	TOLERANCIA DE HIDROCARBUROS	SEDIMENTOS Y CONDUCTIVIDAD	TOLERANCIA A PESTICIDAS	MATERIA ORGANICA	N2, Mg, Ca
1	0	2	2	0	0
1	0	2	2	0	0
1	0	0	0	0	2
1	0	0	0	0	2
3	0	1	0	2	1
1	0	0	0	0	2
1	0	2	0	0	2
1	0	2	2	0	0
1	0	0	0	0	0
3	0	1	0	3	1
0	2	0	2	3	4
0	0	0	0	0	0
0	0	0	0	0	0
0	2	0	0	0	1
0	0	0	2	0	3
0	0	0	0	0	0
4	0	0	0	0	0
2	0	1	0	2	1
2	0	1	0	2	1
0	2	2	0	0	1
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
3	0	1		2	1

0	2	2	2	0	1
0	0	0	0	0	0
1	0	0	0	0	2
3	0	1	0	2	1
1	2	0	0	0	1
0	2	0	0	0	1
0		0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
3	0	1	0	2	1
0	0	2	2	0	3
3	0	1	0	2	1
5	0	1	2	0	3
0	0	0	2	0	3
3	0	1	0	2	1
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0

6	7	8	9	10	11	12
Trentepohlia	Meridion	Gonatozygon	Amphora	Cymbella	Chroococcus	Klebsormidium
23	17	16	14	9	9	8
0.09	0.07	0.06	0.05	0.04	0.04	0.03
0.09	0.07	0.06	0.06	0.04	0.04	0.03
0.17	0.12	0.12	0.10	0.07	0.07	0.06
0.34	0.25	0.24	0.21	0.13	0.13	0.12
0.66	0.49	0.46	0.40	0.26	0.26	0.23
1.00	0.74	0.70	0.61	0.39	0.39	0.35
1.35	1.00	0.94	0.82	0.53	0.53	0.47
1.44	1.06	1.00	0.88	0.56	0.56	0.50
1.64	1.21	1.14	1.00	0.64	0.64	0.57

2.56	1.89	1.78	1.56	1.00	1.00	0.89
2.56	1.89	1.78	1.56	1.00	1.00	0.89
2.88	2.13	2.00	1.75	1.13	1.13	1.00
3.54	2.62	2.46	2.15	1.38	1.38	1.23
3.83	2.83	2.67	2.33	1.50	1.50	1.33
4.60	3.40	3.20	2.80	1.80	1.80	1.60
4.60	3.40	3.20	2.80	1.80	1.80	1.60
4.60	3.40	3.20	2.80	1.80	1.80	1.60
5.75	4.25	4.00	3.50	2.25	2.25	2.00
7.67	5.67	5.33	4.67	3.00	3.00	2.67
7.67	5.67	5.33	4.67	3.00	3.00	2.67
7.67	5.67	5.33	4.67	3.00	3.00	2.67
11.50	8.50	8.00	7.00	4.50	4.50	4.00
11.50	8.50	8.00	7.00	4.50	4.50	4.00
11.50	8.50	8.00	7.00	4.50	4.50	4.00
11.50	8.50	8.00	7.00	4.50	4.50	4.00
23.00	17.00	16.00	14.00	9.00	9.00	8.00
23.00	17.00	16.00	14.00	9.00	9.00	8.00
23.00	17.00	16.00	14.00	9.00	9.00	8.00
23.00	17.00	16.00	14.00	9.00	9.00	8.00
23.00	17.00	16.00	14.00	9.00	9.00	8.00
46.00	34.00	32.00	28.00	18.00	18.00	16.00
#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!
#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!
#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!
#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!
#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!
#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!
#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!
#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!
#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!
#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!

ANEXO 2.6. FUNCION DESARROLLADA PARA EL CALCULO DEL VALOR EIGEN

```
EigenValues_AHP <- function(){BasePCA_Muestreo <-  
read.csv(readline(prompt="Arrastre la base de datos .csv con los  
promedios hasta aca: "),header=TRUE);Muestra <-  
readline(prompt="Indique el numero de muestreo o estación:  
");DataFrame_Muestreo <- BasePCA_Muestreo[,  
1];rownames(DataFrame_Muestreo) <-  
BasePCA_Muestreo[,1];PCA_Muestreo <-  
prcomp(DataFrame_Muestreo);write.csv(PCA_Muestreo$rotation[,1],  
paste("/Volumes/Macintosh HD  
2/Galadriel/Docencia/USTA/Investigacion/Tesis/Zulmis/PCA_Zulmis/Ei  
gen/Eigen_",Muestra,".csv"));biplot(PCA_Muestreo,cex=0.5)}
```


ANEXO 2.5. ABUNDANCIA RELATIVA ENTRE MORFOTIPOS

13	14	15	16	17	18	19
Nitzschia	Centronella	Diploneis	Rhopalodia	Fremyella	Peridinium	Diatoma
6.5	6	5	5	5	4	3
0.03	0.02	0.02	0.02	0.02	0.02	0.01
0.03	0.02	0.02	0.02	0.02	0.02	0.01
0.05	0.04	0.04	0.04	0.04	0.03	0.02
0.10	0.09	0.07	0.07	0.07	0.06	0.04
0.19	0.17	0.14	0.14	0.14	0.11	0.09
0.28	0.26	0.22	0.22	0.22	0.17	0.13
0.38	0.35	0.29	0.29	0.29	0.24	0.18
0.41	0.38	0.31	0.31	0.31	0.25	0.19
0.46	0.43	0.36	0.36	0.36	0.29	0.21

[illegible]

20	21	22	23	24	25	26
Phormidium	Nostoc	Mougeotia	Oscillatoria	Anathece	Bumilleria	Lyngbya
3	3	2	2	2	2	1
0.01	0.01	0.01	0.01	0.01	0.01	0.00
0.01	0.01	0.01	0.01	0.01	0.01	0.00
0.02	0.02	0.01	0.01	0.01	0.01	0.01
0.04	0.04	0.03	0.03	0.03	0.03	0.01
0.09	0.09	0.06	0.06	0.06	0.06	0.03
0.13	0.13	0.09	0.09	0.09	0.09	0.04
0.18	0.18	0.12	0.12	0.12	0.12	0.06
0.19	0.19	0.13	0.13	0.13	0.13	0.06
0.21	0.21	0.14	0.14	0.14	0.14	0.07

[illegible]

27	28	29	30	31	32	33
Microspora	Anabaena	Spirulina	Scenedesmus	Pediastrum		
1	1	1	1	0.5		
0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.01	0.01	0.01	0.01	0.00	0.00	0.00
0.01	0.01	0.01	0.01	0.01	0.00	0.00
0.03	0.03	0.03	0.03	0.01	0.00	0.00
0.04	0.04	0.04	0.04	0.02	0.00	0.00
0.06	0.06	0.06	0.06	0.03	0.00	0.00
0.06	0.06	0.06	0.06	0.03	0.00	0.00
0.07	0.07	0.07	0.07	0.04	0.00	0.00

[illegible]

[illegible]

[illegible]

FECHA	23 DE SEPTIEM		07 DE OCTUBR		22 DE OCTUBR		04 DE NOVIEM	
	PUNTO 1							
ORGANISMO	profundidad		profundidad		profundidad		profundidad	
	20	40	20	40	20	40	20	40
N Crucicula Donkin	4	2	5	4	21	7	21	4
N Rhynchocephala Kutz	1	2	2	6	6	2	7	9
Navicula pupula Kützing	0	0	0	5	1	0	0	1
Navicula Bacillariophyceae	1	0	5	4	27	11	5	21
Navicula Phicokey	2	0	3	9	10	6	3	7
Navicula Vanhoeffenii	0	3	4	4	10	7	14	9
Navicula Actinoptychus	0	0	0	0	2	0	2	3
Navicula Distans	0	0	5	6	25	39	3	55
Diploneis ovalis	0	0	0	0	0	2	1	0
Phormidium uncinatum	1	3	6	2	17	8	0	9
Phormidium Subfuscum	1	3	0	0	1	2	4	2
Oscyllatoria Princeps	0	0	0	0	2	0	0	0
Phormidium limosum	0	1	0	0	0	0	0	0
Lyngbya Martensiana	0	0	3	0	0	0	0	0
Lyngbya C.Agardh ex Gomont	0	0	0	0	0	1	2	0
Microcystis Phycokey	10	13	21	24	16	13	14	19
Microcystis aeruginosa	15	18	22	24	36	34	26	46
Mycroscistis Onniformis	29	24	41	40	35	54	52	61
Polycistis sp	15	12	19	15	29	37	43	39
Sphaerososma excavatum	3	0	0	0	1	0	0	0
Staurastrum paradoxum	0	1	3	13	9	3	0	2
Staurastrum Gracile	0	0	1	4	1	2	0	4
Staurastrum lunatum	0	0	1	1	1	0	0	0
Hyalotheca Dissiliens	0	0	0	3	0	0	0	0
Centronella Reicheltii	2	0	0	0	0	0	0	0
Frafilaria Crotonensis	0	0	0	0	0	0	1	0
Fragilaria Ulna	1	0	0	0	1	1	1	6
Diatoma Vulgaris	0	0	0	0	0	0	0	0
Meridion Circulare	1	0	3	0	4	2	0	4
Closterium prunum	2	0	1	0	0	0	0	0

Closterium incurvum	0	0	0	0	0	0	0	0
Cosmarium Contractum	0	0	0	0	0	0	0	0
Gonatozygon Brebissonii	0	0	0	0	2	5	3	14
Aanabaena Crassa	1	0	0	0	0	0	0	0
Nostoc carneum	0	6	0	0	0	6	0	12
fremyella Diplosiphon	0	0	0	0	0	0	1	0
Chroococcus Limneticus	0	0	0	0	1	1	0	0
Spirulina jenneri	0	1	0	0	0	0	0	0
Snowella Litoralis	0	0	0	0	3	33	1	0
Anathece clathrata	0	0	0	0	0	0	0	0
Scenedesmus Subspicatus	0	0	2	4	2	5	0	2
Scenedesmus arcuatus Lemmermann	0	0	0	0	1	0	0	0
Microspora pachyderma	0	2	4	18	1	22	0	1
Pediastrum Duplex	0	0	0	0	0	0	0	0
Pediastrum tetras (Ehrenberg)	0	0	2	4	0	2	0	3
Oocystis Gnus	0	0	0	0	2	3	0	0
Struktur Volvox	0	0	0	0	0	0	0	0
Trentepohlia Jolithus	0	0	0	0	21	21	0	22
Gomphonema Truncatum Ehrenberg	2	4	2	17	47	77	3	209
Gomphonema acuminatum Ehrenberg	0	0	0	0	1	0	0	1
Cymbella Helvetica	0	0	0	0	0	0	0	0
Amphora Coffeiformis Kutzing	0	0	0	0	1	0	1	0
Eunotia arcus Ehrenberg	0	1	4	0	17	11	6	26
Eunotia Praerupta	0	0	0	2	12	7	0	20
Eunotia Lunaris	0	1	0	0	7	2	5	9

Nitzschia linearis W.Smith	0	0	0	0	0	0	1	0
Nitzschia acicularis (Kützing) W.Smith	0	1	0	0	0	0	0	1
Rhopalodia gibba	0	0	0	0	1	0	1	7
Mougeotia C.Agardh	0	0	0	1	5	6	0	0
Spirogyra Link	0	0	0	1	0	0	0	0
Klebsormidium flaccidum	0	0	0	0	4	6	0	8
Tribonema minus	5	5	0	12	5	22	0	22
bumilleria Sicola Borzi	0	0	0	0	0	0	0	0
Euglena Hemichromata	0	0	0	0	1	1	0	0
Peridinium Cinctum	0	0	0	0	0	0	0	0
Ophiocytium capitatum var	0	0	0	0	12	2	0	7
116 143 179 263 421 505 241 705								

18 DE NOVIEM		23 DE SEPTIEN		07 DE OCTUBR		22 DE OCTUBR		04 DE NOVIEM		18 DE NOVIEM		23 DE SEPTIEN		07 DE C	
		PUNTO 2													
profundidad		profundidad		profundidad		profundidad		profundidad		profundidad		profundidad		profun	
20	40	20	40	20	40	20	40	20	40	20	40	20	40	20	
NAVICULALES (orden)															
Naviculaceae															
5	2	3	4	4	2	3	1	8	7	5	2	5	2	3	
2	3	1	0	1	1	2	0	8	1	2	3	0	0	1	
0	1	10	2	13	8	1	0	11	4	5	1	0	0	4	
1	4	5	5	18	14	25	17	14	7	9	4	2	3	15	
4	2	0	4	0	4	14	10	10	5	4	2	0	0	5	
1	1	2	0	10	5	22	13	11	13	2	1	1	3	6	
7	2	2	0	4	0	3	0	36	10	6	2	0	0	3	
49	36	0	3	6	4	5	6	28	22	20	36	10	9	4	
Diploneidaceae															
2	0	0	0	0	9	23	24	11	6	2	0	0	0	2	
Oscillatoriaceae															
0	0	0	1	0	1	6	0	1	0	1	0	0	0	1	
1	0	0	1	0	0	1	2	0	0	0	0	0	0	0	
2	0	0	0	0	2	0	2	0	0	0	0	0	0	0	
0	2	0	1	0	0	0	0	0	0	0	2	0	0	0	
0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	
0	0	0	4	2	7	0	83	0	0	2	0	0	0	2	
Microcystaceae															
23	22	7	11	13	8	10	11	20	19	16	22	13	12	19	
37	33	25	23	20	22	21	20	14	19	23	33	24	20	28	
63	59	50	43	44	67	64	74	73	95	108	59	30	41	45	
36	37	35	25	41	37	41	48	36	40	46	37	16	18	25	
Desmidiaceae															
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	
FRAGILARIOPHYCEAE															
Fragilariaceae															
2	0	0	0	0	0	0	0	0	0	4	0	0	0	0	
0	0	0	0	1	0	1	0	2	0	0	0	0	0	0	
0	0	0	0	0	0	17	2	3	0	0	0	0	0	2	
Tabellariaceae															
0	0	0	0	0	0	2	1	0	0	1	0	0	0	2	
2	5	0	0	4	3	4	1	6	1	4	5	1	2	2	
DESMIDIALES															
Closteriaceae															
0	0	0	1	1	4	6	7	0	0	0	0	0	0	1	

0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Desmidiaceae														
0	0	0	0	0	0	0	2	0	0	0	0	0	0	0
Gonatozygacea														
3	5	3	0	0	0	8	4	14	1	2	5	0	0	4
CYANOPHYCEAE														
Nostocaceae														
0	0	0	0	0	0	1	4	0	0	0	0	0	0	0
1	1	0	3	0	0	2	8	0	0	0	1	0	0	3
Microchaetaceae														
1	0	0	2	0	1	1	1	0	0	4	0	0	0	0
Chroococcaceae														
3	2	0	0	0	0	0	0	0	0	0	2	0	0	0
Spirulinaceae														
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Coelosphaeriaceae														
0	0	0	0	0	0	1	5	0	0	0	0	0	0	3
Synechococcaceae														
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CLOROPHYTINA														
Scenedesmaceae														
1	0	0	0	4	2	8	14	0	0	0	0	2	6	3
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Microsporaceae														
0	0	0	0	11	2	0	1	0	0	1	0	0	0	3
Hydrodictyaceae														
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Oocystaceae														
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chlamydomonadales														
0	0	0	0	0	1	0	0	0	1	0	0	0	0	0
Trentepohliaceae														
13	4	3	0	0	0	2	0	0	0	2	4	0	0	0
BACILLARIOPHYCEAE														
Gomphonemataceae														
114	63	0	0	12	17	28	15	24	10	6	63	1	2	5
0	2	0	0	0	3	7	9	8	7	5	2	0	0	0
Cymbellaceae														
0	0	2	2	4	18	10	27	8	19	1	0	1	7	6
Catenulaceae														
1	2	0	0	3	3	5	2	7	12	4	2	2	4	4
Eunotiaceae														
29	17	3	0	4	1	10	3	19	13	10	17	11	11	8
22	19	0	0	0	0	8	3	16	5	4	19	3	2	2
6	6	4	1	3	1	8	6	37	9	10	6	0	0	4
BACCILLARIALES														

Bacillariaceae														
1	1	2	0	2	0	13	3	25	4	8	1	0	0	0
0	0	0	0	1	0	0	0	0	0	0	0	1	2	5
Rhopalodia														
1	0	1	0	0	0	2	0	4	0	3	0	0	0	0
Zygnemataceae														
0	1	0	0	0	0	0	0	0	0	0	1	0	0	3
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tribonemataceae														
6	0	0	0	0	0	1	0	0	0	0	0	0	0	1
0	0	0	0	0	0	0	1	0	0	0	0	0	0	2
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Euglenaceae														
0	0	0	0	0	0	0	0	1	4	0	0	0	0	0
Peridiniaceae														
0	0	0	0	0	0	0	3	0	0	0	0	0	0	0
Ophiocytaceae														
0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
461	372	178	176	246	287	408	477	475	375	340	372	143	184	247

OCTUBRE 22 DE OCTUBRE 04 DE NOVIEMBRE 18 DE NOVIEMBRE

PUNTO 3						
profundidad	profundidad	profundidad	profundidad	profundidad	profundidad	profundidad
40	20	40	20	40	20	40
3	1	4	2	6	0	0
0	3	0	0	0	1	0
0	0	0	0	1	0	1
15	14	17	3	4	3	4
10	4	8	2	9	1	8
2	6	17	3	2	3	3
0	0	0	0	6	1	2
8	24	24	20	24	5	24
0	2	1	1	4	0	1
0	2	11	0	0	0	0
0	0	7	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	3	0
0	0	0	0	0	0	0
0	1	0	0	0	0	0
16	16	21	14	12	19	11
32	36	38	26	35	52	33
29	51	51	61	68	73	72
35	36	46	29	35	54	47
0	0	0	0	0	0	0
0	0	0	0	0	0	0
2	1	0	0	0	0	0
2	0	0	0	0	0	0
0	0	14	0	0	0	0
0	0	0	1	0	0	0
0	1	0	0	0	0	0
0	4	4	0	0	0	0
0	2	1	0	0	1	1
0	1	1	2	2	0	1
0	0	0	0	0	0	0

Punto 1			
23-Sep	7-Oct	22-Oct	4-Nov
6	9	28	25
3	8	8	16
0	5	1	1
1	9	38	26
2	12	16	10
3	8	17	23
0	0	2	5
0	11	64	58
0	0	0	0
0	0	2	1
0	0	0	0
4	8	25	9
4	0	3	6
0	0	2	0
1	0	0	0
0	3	0	0
0	0	1	2
0	0	0	0
23	45	29	33
33	46	70	72
53	81	89	113
27	34	66	82
0	0	0	0
3	0	1	0
1	16	12	2
0	5	3	4
0	2	1	0
0	3	0	0
0	0	0	0
0	0	0	0
2	0	0	0
0	0	0	1
1	0	2	7
0	0	0	0
0	0	0	0
1	3	6	4
0	0	0	0
0	0	0	0
2	1	0	0

0	0	0	1	0	0	0
0	0	0	0	0	0	0
2	13	23	0	1	0	1
0	0	0	0	0	0	1
0	0	0	0	0	0	0
2	0	0	0	0	0	0
0	0	21	0	1	1	1
0	0	0	1	0	0	1
0	18	3	0	0	0	0
0	0	3	0	1	1	0
4	1	0	0	0	1	0
0	0	0	0	0	0	0
0	1	5	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	5	0	0	0	0
0	0	0	0	0	0	0
0	1	4	0	6	0	0
13	33	76	24	32	3	17
0	0	0	0	0	0	1
2	5	6	2	10	4	4
9	2	1	2	4	5	0
7	17	10	17	17	9	7
11	16	7	12	9	1	6
10	15	25	16	14	7	7

0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	7	17
0	0	0	0
0	0	0	0
1	0	0	0
6	0	6	12
0	0	0	0
0	0	0	1
0	0	0	0
0	0	2	0
0	0	0	0
1	0	0	0
0	0	0	0
0	0	36	1
0	0	0	0
0	0	0	0
0	0	0	0
0	6	7	2
0	0	1	0
0	0	0	0
2	22	23	1
0	0	0	0
0	0	0	0
0	6	2	3
0	0	0	0
0	0	5	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	42	22
0	0	0	0
0	0	0	0
6	19	124	212
0	0	1	1
0	0	0	0
0	0	0	0
0	0	0	0
0	0	1	1
0	0	0	0
1	4	28	32
0	2	19	20
1	0	9	14
0	0	0	0

0	0	1	20	3	0	0
17	24	42	4	1	0	2
0	0	1	1	0	1	0
0	8	4	0	0	0	0
0	1	0	0	0	0	0
6	3	27	0	4	1	1
5	0	19	0	0	0	0
2	0	0	0	0	0	2
0	2	0	0	3	0	0
0	1	0	0	0	0	4
0	0	23	0	0	0	0
284	386	611	284	354	270	303

0	0	0	0
0	0	0	1
1	0	0	1
0	0	0	0
0	0	1	8
0	0	0	0
0	1	11	0
0	1	0	0
0	0	0	0
0	0	10	8
10	12	27	22
0	0	0	0
0	0	0	0
0	0	2	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	14	7
2625			

	Punto 2					
18-Nov	23-Sep	7-Oct	22-Oct	4-Nov	18-Nov	23-Sep
7	7	6	4	15	7	7
1	1	2	2	9	5	0
12	12	21	1	15	6	0
10	10	32	42	21	13	5
4	4	4	24	15	6	0
2	2	15	35	24	3	4
2	2	4	3	46	8	0
3	3	10	11	50	56	19
0	0	0	0	0	0	0
0	0	9	47	17	2	0
0	0	0	0	0	0	0
1	1	1	6	1	1	0
1	1	0	3	0	0	0
0	0	2	2	0	0	0
1	1	0	0	0	2	0
0	0	0	0	1	0	0
4	4	9	83	0	2	0
0	0	0	0	0	0	0
18	18	21	21	39	38	25
48	48	42	41	33	56	44
93	93	111	138	168	167	71
60	60	78	89	76	83	34
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	1	0	0	0
0	0	0	0	0	0	0
0	0	0	2	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	4	0
0	0	1	1	2	0	0
0	0	0	19	3	0	0
0	0	0	0	0	0	0
0	0	0	3	0	1	0
0	0	7	5	7	9	3
0	0	0	0	0	0	0
0	0	0	0	0	0	0
1	1	5	13	0	0	0

0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	2	0	0	0
0	0	0	0	0	0	0
3	3	0	12	15	7	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	5	0	0	0
3	3	0	10	0	1	0
0	0	0	0	0	0	0
2	2	1	2	0	4	0
0	0	0	0	0	0	0
0	0	0	0	0	2	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	6	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	6	22	0	0	8
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	13	1	0	1	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	1	0	1	0	0
0	0	0	0	0	0	0
3	3	0	2	0	6	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	29	43	34	69	3
0	0	3	16	15	7	0
0	0	0	0	0	0	0
4	4	22	37	27	1	8
0	0	0	0	0	0	0
0	0	6	7	19	6	6
0	0	0	0	0	0	0
3	3	5	13	32	27	22
0	0	0	11	21	23	5
5	5	4	14	46	16	0
0	0	0	0	0	0	0

[illegible]

Punto 3			
7-Oct	22-Oct	4-Nov	18-Nov
6	5	8	0
1	3	0	1
4	0	1	1
30	31	7	7
15	12	11	9
8	23	5	6
3	0	6	3
12	48	44	29
0	0	0	0
2	3	5	1
0	0	0	0
1	13	0	0
0	7	0	0
0	0	0	0
0	0	0	3
0	0	0	0
2	1	0	0
0	0	0	0
35	37	26	30
60	74	61	85
74	102	129	145
60	82	64	101
0	0	0	0
0	0	0	0
0	0	0	0
2	1	0	0
2	0	0	0
0	14	0	0
0	0	0	0
0	0	0	0
0	0	1	0
0	1	0	0
2	8	0	0
0	0	0	0
2	3	0	2
2	2	4	1
0	0	0	0
0	0	0	0
1	0	0	0

0	0	1	0
0	0	0	0
0	0	0	0
0	0	0	0
6	36	1	1
0	0	0	0
0	0	0	0
0	0	0	1
3	0	0	0
0	0	0	0
2	0	0	0
0	0	0	0
0	21	1	2
0	0	0	0
0	0	1	1
0	0	0	0
3	21	0	0
0	0	0	0
0	3	1	1
0	0	0	0
0	0	0	0
7	1	0	1
0	0	0	0
0	0	0	0
3	6	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	5	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	5	6	0
0	0	0	0
0	0	0	0
18	109	56	20
0	0	0	1
0	0	0	0
8	11	12	8
0	0	0	0
13	3	6	5
0	0	0	0
15	27	34	16
13	23	21	7
14	40	30	14
0	0	0	0

0	0	0	0
0	1	23	0
22	66	5	2
0	0	0	0
0	1	1	1
0	0	0	0
3	12	0	0
0	1	0	0
0	0	0	0
7	30	4	2
7	19	0	0
2	0	0	2
0	0	0	0
0	2	3	0
0	0	0	0
0	1	0	4
0	0	0	0
1	23	0	0
2766			Promedio
			2807.33333

FECHA	TOMA1		TOMA2		TOMA3		TOMA4		TOMA5		TOMA1	
	ESTACION 1											
	profundidad		profundidad		profundidad		profundidad		profundidad		profundidad	
ORGANISMO	A	B	A	B	A	B	A	B	A	B	A	B
Navicula sp1	4	2	5	4	21	7	21	4	5	2	3	4
Navicula sp2	1	2	2	6	6	2	7	9	2	3	1	0
Navicula sp3	0	0	0	5	1	0	0	1	0	1	10	2
Navicula sp4	1	0	5	4	27	11	5	21	1	4	5	5
Navicula sp5	2	0	3	9	10	6	3	7	4	2	0	4
Navicula sp6	0	3	4	4	10	7	14	9	1	1	2	0
Navicula sp7	0	0	0	0	2	0	2	3	7	2	2	0
Meridion sp1	1	0	3	0	4	2	0	4	2	5	0	0
Eunotia sp1	0	1	4	0	17	11	6	26	29	17	3	0
Eunotia sp2	0	0	0	2	12	7	0	20	22	19	0	0
Eunotia sp3	0	1	0	0	7	2	5	9	6	6	4	1
Cymbella sp1	0	0	0	0	0	0	0	0	0	0	2	2
Navicula sp8	0	0	5	6	25	39	3	55	49	36	0	3
Gonatozygon sp1	0	0	0	0	2	5	3	14	3	5	3	0
Amphora sp1	0	0	0	0	1	0	1	0	1	2	0	0
Gomphonema sp1	2	4	2	17	47	77	3	209	114	63	0	0
Gomphonema sp2	0	0	0	0	1	0	0	1	0	2	0	0
Diploneis sp1	0	0	0	0	0	2	1	0	2	0	0	0
Nitzschia sp1	0	0	0	0	0	0	1	0	1	1	2	0

Nitzschia sp2	0	1	0	0	0	0	0	1	0	0	0	0
Cosmarium sp1	0	0	0	0	0	0	0	0	0	0	0	0
Euglena sp1	0	0	0	0	1	1	0	0	0	0	0	0
Rhopalodia sp1	0	0	0	0	1	0	1	7	1	0	1	0
Chroococcus sp1	0	0	0	0	1	1	0	0	3	2	0	0
Microcystis sp1	10	13	21	24	16	13	14	19	23	22	7	11
Microcystis sp2	15	18	22	24	36	34	26	46	37	33	25	23
Microcystis sp3	29	24	41	40	35	54	52	61	63	59	50	43
Oocystis sp1	0	0	0	0	2	3	0	0	0	0	0	0
Snowella sp1	0	0	0	0	3	33	1	0	0	0	0	0
Peridinium sp1	0	0	0	0	0	0	0	0	0	0	0	0
Mougeotia sp1	0	0	0	1	5	6	0	0	0	1	0	0
Spirogyra sp1	0	0	0	1	0	0	0	0	0	0	0	0
Lyngbya sp1	0	0	0	0	0	1	2	0	0	0	0	4
Diatoma sp1	0	0	0	0	0	0	0	0	0	0	0	0
Microspora sp1	0	2	4	18	1	22	0	1	0	0	0	0
Lyngbya sp2	0	0	3	0	0	0	0	0	0	0	0	0
Ophiocytium sp1	0	0	0	0	12	2	0	7	0	0	0	0
Sphaeroszoma sp1	3	0	0	0	1	0	0	0	0	0	0	0
Phormidium sp1	1	3	6	2	17	8	0	9	0	0	0	1
Centronella sp1	2	0	0	0	0	0	0	0	2	0	0	0

Fragilaria sp1	0	0	0	0	0	0	1	0	0	0	0	0
Fragilaria sp2	1	0	0	0	1	1	1	6	0	0	0	0
Closterium sp1	2	0	1	0	0	0	0	0	0	0	0	1
Closterium sp2	0	0	0	0	0	0	0	0	0	0	0	0
Anabaena sp1	1	0	0	0	0	0	0	0	0	0	0	0
Phormidium sp2	1	3	0	0	1	2	4	2	1	0	0	1
Oscillatoria sp1	0	0	0	0	2	0	0	0	2	0	0	0
Spirulina sp1	0	1	0	0	0	0	0	0	0	0	0	0
Phormidium sp3	0	1	0	0	0	0	0	0	0	2	0	1
Anathece sp1	0	0	0	0	0	0	0	0	1	0	0	0
Nostoc sp1	0	6	0	0	0	6	0	12	1	1	0	3
Staurastrum sp1	0	1	3	13	9	3	0	2	0	0	0	0
Staurastrum sp2	0	0	1	4	1	2	0	4	0	0	0	0
Staurastrum sp3	0	0	1	1	1	0	0	0	0	0	0	0
Scenedesmus sp1	0	0	2	4	2	5	0	2	1	0	0	0
Scenedesmus sp2	0	0	0	0	1	0	0	0	0	0	0	0
Pediastrum sp1	0	0	0	0	0	0	0	0	1	0	0	0
Pediastrum sp2	0	0	2	4	0	2	0	3	0	0	0	0
Hyalotheca sp1	0	0	0	3	0	0	0	0	0	0	0	0
Struktur sp1	0	0	0	0	0	0	0	0	0	0	0	0
Tribonema sp1	5	5	0	12	5	22	0	22	0	0	0	0

Klebsormidium sp1	0	0	0	0	4	6	0	8	6	0	0	0
fremyella sp1	0	0	0	0	0	0	1	0	1	0	0	2
bumilleria sp1	0	0	0	0	0	0	0	0	0	0	0	0
Polycistis sp	15	12	19	15	29	37	43	39	36	37	35	25
Trentepohlia sp1	0	0	0	0	21	21	0	22	13	4	3	0
	96	103	159	223	401	463	221	665	441	332	158	136

TOMA2		TOMA3		TOMA4		TOMA5		TOMA1		TOMA2		TOMA3		TOMA4		TOMA5
ESTACION 2								ESTACION 3								
profundidad		profundidad		profundidad		profundidad		profundidad		profundidad		profundidad		profundidad		profur
A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A
4	2	3	1	8	7	5	2	5	2	3	3	1	4	2	6	0
1	1	2	0	8	1	2	3	0	0	1	0	3	0	0	0	1
13	8	1	0	11	4	5	1	0	0	4	0	0	0	0	1	0
18	14	25	17	14	7	9	4	2	3	15	15	14	17	3	4	3
0	4	14	10	10	5	4	2	0	0	5	10	4	8	2	9	1
10	5	22	13	11	13	2	1	1	3	6	2	6	17	3	2	3
4	0	3	0	36	10	6	2	0	0	3	0	0	0	0	6	1
4	3	4	1	6	1	4	5	1	2	2	0	1	1	2	2	0
4	1	10	3	19	13	10	17	11	11	8	7	17	10	17	17	9
0	0	8	3	16	5	4	19	3	2	2	11	16	7	12	9	1
3	1	8	6	37	9	10	6	0	0	4	10	15	25	16	14	7
4	18	10	27	8	19	1	0	1	7	6	2	5	6	2	10	4
6	4	5	6	28	22	20	36	10	9	4	8	24	24	20	24	5
0	0	8	4	14	1	2	5	0	0	4	2	13	23	0	1	0
3	3	5	2	7	12	4	2	2	4	4	9	2	1	2	4	5
12	17	28	15	24	10	6	63	1	2	5	13	33	76	24	32	3
0	3	7	9	8	7	5	2	0	0	0	0	0	0	0	0	0
0	9	23	24	11	6	2	0	0	0	2	0	2	1	1	4	0
2	0	13	3	25	4	8	1	0	0	0	0	0	1	20	3	0

[illegible]

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1	4	6	7	0	0	0	0	0	0	1	0	0	0	0	0	0
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0	0	2	8	0	0	0	1	0	0	3	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	1	0	0	0	0	0	0	0	2	1	0	0	0	0
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4	2	8	14	0	0	0	0	2	6	3	4	1	0	0	0	1
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0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
0	0	0	1	0	0	0	0	0	0	2	5	0	19	0	0	0

0	0	1	0	0	0	0	0	0	0	1	6	3	27	0	4	1
0	1	1	1	0	0	4	0	0	0	0	2	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
41	37	41	48	36	40	46	37	16	18	25	35	36	46	29	35	54
0	0	2	0	0	0	2	4	0	0	0	0	1	4	0	6	0
226	247	386	436	455	335	320	332	123	144	227	244	366	571	264	314	250

MA5	TOTAL		TOTAL
ndidad	profundidad		
B	A	B	
0	90	50	140
0	37	27	64
1	45	24	69
4	147	130	277
8	62	84	146
3	95	83	178
2	66	25	91
1	34	27	61
7	164	141	305
6	96	110	206
7	122	97	219
4	43	95	138
24	204	296	500
1	52	61	113
0	37	39	76
17	304	615	919
1	21	25	46
1	44	47	91
0	72	13	85

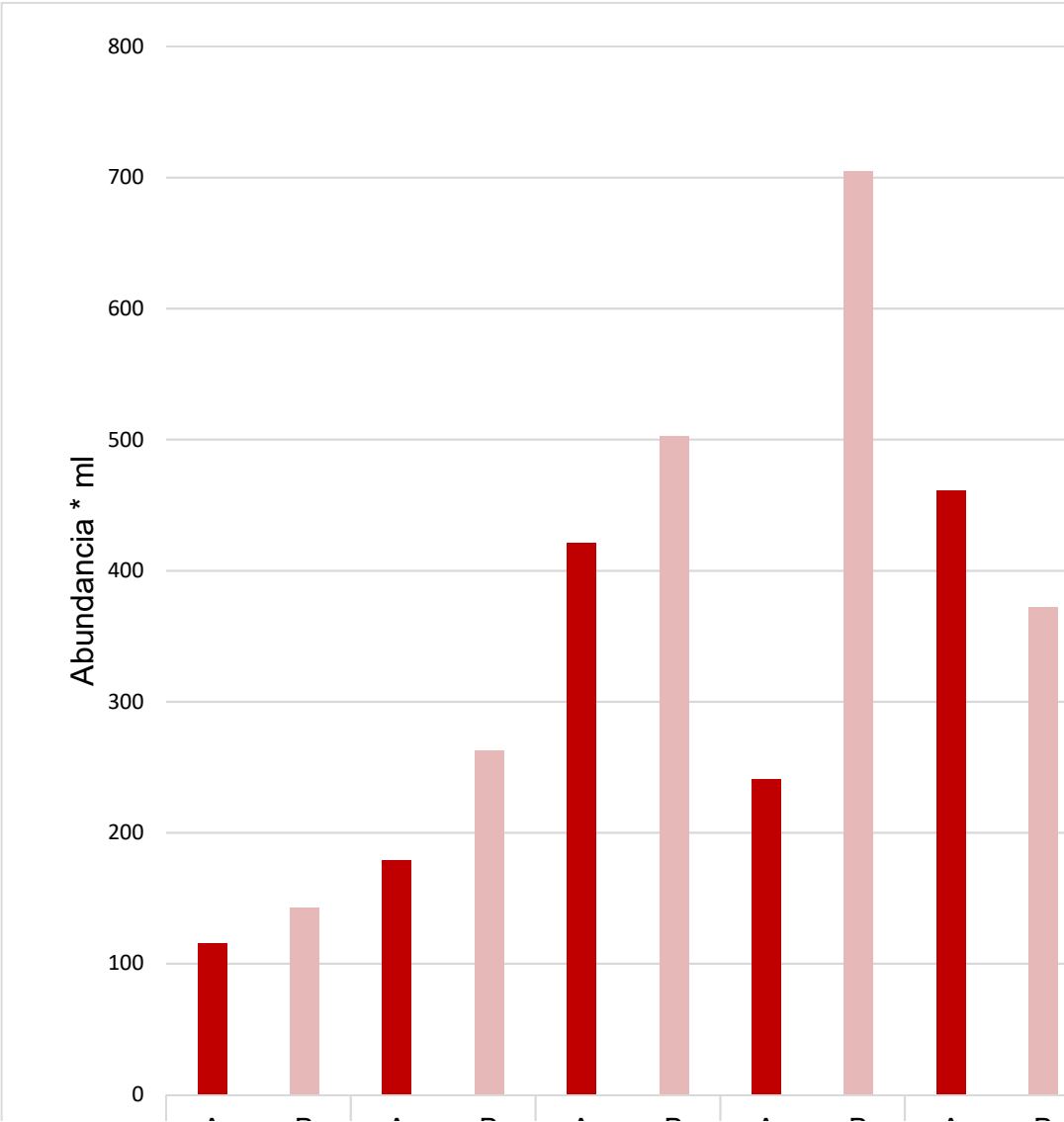
MUESTRA1		MUES
A	B	A
116	143	179

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0	4	8	12
0	15	8	23
1	5	28	33
11	231	234	465
33	405	430	835
72	819	837	1656
0	2	8	10
0	26	41	67
4	1	7	8
0	16	13	29
0	1	1	2
0	9	95	104
1	8	3	11
0	21	51	72
0	3	1	4
0	13	32	45
0	4	0	4
0	35	35	70
0	9	0	9

0	6	0	6
0	29	13	42
0	11	12	23
0	1	0	1
1	2	5	7
0	8	17	25
0	4	4	8
1	1	2	3
0	3	6	9
0	2	4	6
0	6	37	43
0	12	19	31
0	3	13	16
0	2	3	5
0	24	37	61
0	1	0	1
0	1	0	1
0	2	9	11
0	0	19	19
0	0	2	2
0	12	86	98

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0	7	6	13
2	0	4	4
47	501	508	1009
0	42	61	103
263			8901

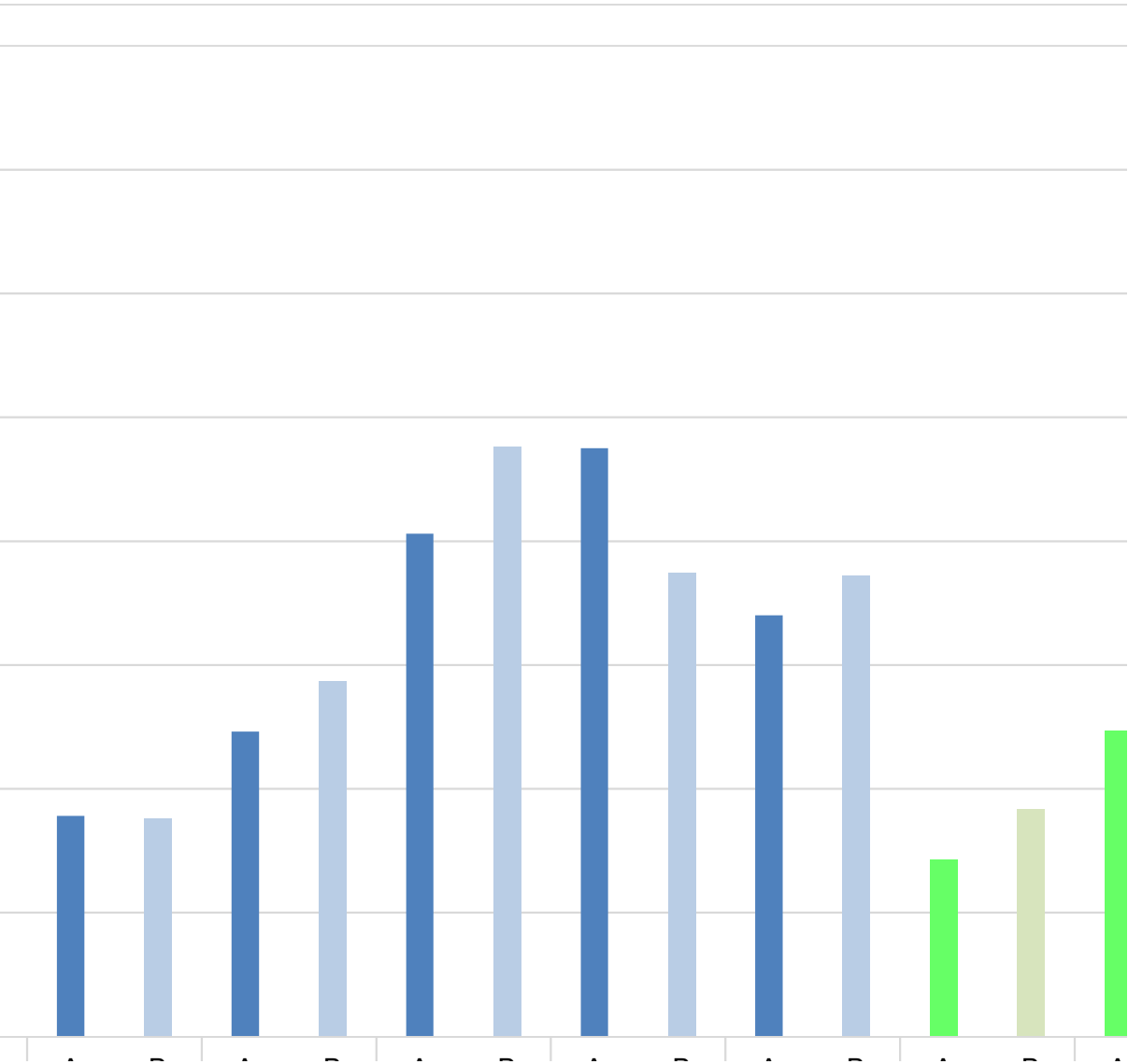
ESTACION 1						
MUESTRA2	MUESTRA3		MUESTRA4		MUESTRA5	
B	A	B	A	B	A	B
263	421	503	241	705	461	372



	A	B	A	B	A	B	A	B	A	B
	MUESTRA1		MUESTRA2		MUESTRA3		MUESTRA4		MUESTRA5	
	ESTACION 1									

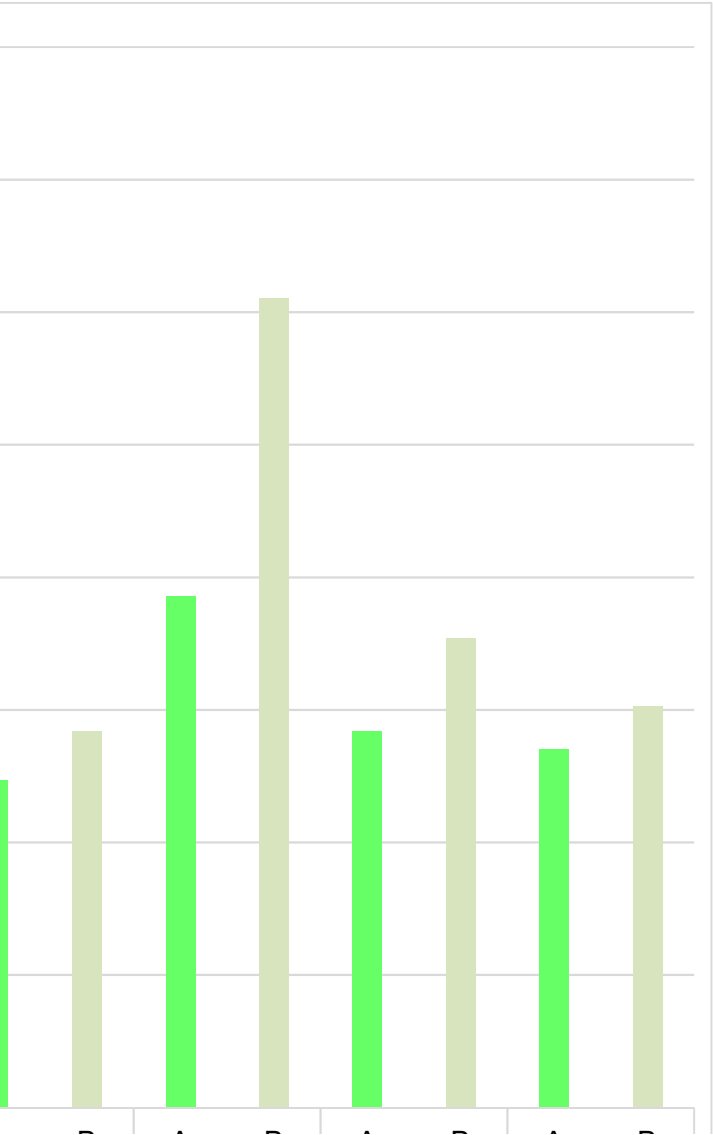
ESTACION 2						
NUESTRA1		MUESTRA2		MUESTRA3		MUES
A	B	A	B	A	B	A
178	176	246	287	406	476	475

333.1



	A	B	A	B	A	B	A	B	A	B	A	B
5	NUESTRA1		MUESTRA2		MUESTRA3		MUESTRA4		MUESTRA5		NUESTRA1	MU

MUESTRA4	MUESTRA5		MUESTRA1		MUESTRA2	
B	A	B	A	B	A	B
375	340	372	143	184	247	284



B	A	B	A	B	A	B
MUESTRA2		MUESTRA3		MUESTRA4		MUESTRA5
ESTACION 3						

ESTACION 3					
MUESTRA3		MUESTRA4		MUESTRA5	
A	B	A	B	A	B
386	611	284	354	270	303

ESTACION 1						
FECHA	TOMA1		TOMA2		TOMA3	
ORGANISMO	profundidad		profundidad		profundidad	
	A	B	A	B	A	B
Navicula sp1	4	2	5	4	21	7
Navicula sp2	1	2	2	6	6	2
Navicula sp3	0	0	0	5	1	0
Navicula sp4	1	0	5	4	27	11
Navicula sp5	2	0	3	9	10	6
Navicula sp6	0	3	4	4	10	7
Navicula sp7	0	0	0	0	2	0
Meridion sp1	1	0	3	0	4	2
Eunotia sp1	0	1	4	0	17	11
Eunotia sp2	0	0	0	2	12	7
Eunotia sp3	0	1	0	0	7	2
Cymbella sp1	0	0	0	0	0	0
Navicula sp8	0	0	5	6	25	39
Gonatozygon sp1	0	0	0	0	2	5
Amphora sp1	0	0	0	0	1	0
Gomphonema sp1	2	4	2	17	47	77
Gomphonema sp2	0	0	0	0	1	0
Diploneis sp1	0	0	0	0	0	2
Nitzschia sp1	0	0	0	0	0	0
Nitzschia sp2	0	1	0	0	0	0
Cosmarium sp1	0	0	0	0	0	0
Euglena sp1	0	0	0	0	1	1
Rhopalodia sp1	0	0	0	0	1	0
Chroococcus sp1	0	0	0	0	1	1
Microcystis sp1	10	13	21	24	16	13
Microcystis sp2	15	18	22	24	36	34
Microcystis sp3	29	24	41	40	35	54
Oocystis sp1	0	0	0	0	2	3
Snowella sp1	0	0	0	0	3	33
Peridinium sp1	0	0	0	0	0	0
Mougeotia sp1	0	0	0	1	5	6
Spirogyra sp1	0	0	0	1	0	0
Lyngbya sp1	0	0	0	0	0	1
Diatoma sp1	0	0	0	0	0	0
Microspora sp1	0	2	4	18	1	22
Lyngbya sp2	0	0	3	0	0	0
Ophiocytium sp1	0	0	0	0	12	2
Sphaeroszoma sp1	3	0	0	0	1	0
Phormidium sp1	1	3	6	2	17	8
Centronella sp1	2	0	0	0	0	0
Fragilaria sp1	0	0	0	0	0	0
Fragilaria sp2	1	0	0	0	1	1

Closterium sp1	2	0	1	0	0	0
Closterium sp2	0	0	0	0	0	0
Anabaena sp1	1	0	0	0	0	0
Phormidium sp2	1	3	0	0	1	2
Oscillatoria sp1	0	0	0	0	2	0
Spirulina sp1	0	1	0	0	0	0
Phormidium sp3	0	1	0	0	0	0
Anathece sp1	0	0	0	0	0	0
Nostoc sp1	0	6	0	0	0	6
Staurastrum sp1	0	1	3	13	9	3
Staurastrum sp2	0	0	1	4	1	2
Staurastrum sp3	0	0	1	1	1	0
Scenedesmus sp1	0	0	2	4	2	5
Scenedesmus sp2	0	0	0	0	1	0
Pediastrum sp1	0	0	0	0	0	0
Pediastrum sp2	0	0	2	4	0	2
Hyalotheca sp1	0	0	0	3	0	0
Struktur sp1	0	0	0	0	0	0
Tribonema sp1	5	5	0	12	5	22
Klebsormidium sp1	0	0	0	0	4	6
fremyella sp1	0	0	0	0	0	0
bumilleria sp1	0	0	0	0	0	0
Polycistis sp	15	12	19	15	29	37
Trentepohlia sp1	0	0	0	0	21	21

ESTACION 2						
FECHA	TOMA1		TOMA2		TOMA3	
ORGANISMO	profundidad		profundidad		profundidad	
	A	B	A	B	A	B
Navicula sp1	3	4	4	2	3	1
Navicula sp2	1	0	1	1	2	0
Navicula sp3	10	2	13	8	1	0
Navicula sp4	5	5	18	14	25	17
Navicula sp5	0	4	0	4	14	10
Navicula sp6	2	0	10	5	22	13
Navicula sp7	2	0	4	0	3	0
Meridion sp1	0	0	4	3	4	1
Eunotia sp1	3	0	4	1	10	3
Eunotia sp2	0	0	0	0	8	3
Eunotia sp3	4	1	3	1	8	6
Cymbella sp1	2	2	4	18	10	27
Navicula sp8	0	3	6	4	5	6
Gonatozygon sp1	3	0	0	0	8	4
Amphora sp1	0	0	3	3	5	2
Gomphonema sp1	0	0	12	17	28	15

Gomphonema sp2	0	0	0	3	7	9
Diploneis sp1	0	0	0	9	23	24
Nitzschia sp1	2	0	2	0	13	3
Nitzschia sp2	0	0	1	0	0	0
Cosmarium sp1	0	0	0	0	0	2
Euglena sp1	0	0	0	0	0	0
Rhopalodia sp1	1	0	0	0	2	0
Chroococcus sp1	0	0	0	0	0	0
Microcystis sp1	7	11	13	8	10	11
Microcystis sp2	25	23	20	22	21	20
Microcystis sp3	50	43	44	67	64	74
Oocystis sp1	0	0	0	0	0	0
Snowella sp1	0	0	0	0	1	5
Peridinium sp1	0	0	0	0	0	3
Mougeotia sp1	0	0	0	0	0	0
Spirogyra sp1	0	0	0	0	0	0
Lyngbya sp1	0	4	2	7	0	83
Diatoma sp1	0	0	0	0	2	1
Microspora sp1	0	0	11	2	0	1
Lyngbya sp2	0	0	0	0	0	0
Ophiocytium sp1	0	0	0	0	0	0
Sphaeroszoma sp1	0	0	0	0	0	0
Phormidium sp1	0	1	0	1	6	0
Centronella sp1	0	0	0	0	0	0
Fragilaria sp1	0	0	1	0	1	0
Fragilaria sp2	0	0	0	0	17	2
Closterium sp1	0	1	1	4	6	7
Closterium sp2	0	0	0	0	0	0
Anabaena sp1	0	0	0	0	1	4
Phormidium sp2	0	1	0	0	1	2
Oscillatoria sp1	0	0	0	2	0	2
Spirulina sp1	0	0	0	0	0	0
Phormidium sp3	0	1	0	0	0	0
Anathece sp1	0	0	0	0	0	0
Nostoc sp1	0	3	0	0	2	8
Staurastrum sp1	0	0	0	0	0	0
Staurastrum sp2	0	0	0	0	0	1
Staurastrum sp3	0	0	0	0	0	0
Scenedesmus sp1	0	0	4	2	8	14
Scenedesmus sp2	0	0	0	0	0	0
Pediastrum sp1	0	0	0	0	0	0
Pediastrum sp2	0	0	0	0	0	0
Hyalotheca sp1	0	0	0	0	0	2
Struktur sp1	0	0	0	1	0	0
Tribonema sp1	0	0	0	0	0	1
Klebsormidium sp1	0	0	0	0	1	0
fremyella sp1	0	2	0	1	1	1

bumilleria sp1	0	0	0	0	0	0
Polycistis sp	35	25	41	37	41	48
Trentepohlia sp1	3	0	0	0	2	0

ESTACION 3						
FECHA	TOMA1		TOMA2		TOMA3	
ORGANISMO	profundidad		profundidad		profundidad	
	A	B	A	B	A	B
Navicula sp1	5	2	3	3	1	4
Navicula sp2	0	0	1	0	3	0
Navicula sp3	0	0	4	0	0	0
Navicula sp4	2	3	15	15	14	17
Navicula sp5	0	0	5	10	4	8
Navicula sp6	1	3	6	2	6	17
Navicula sp7	0	0	3	0	0	0
Meridion sp1	1	2	2	0	1	1
Eunotia sp1	11	11	8	7	17	10
Eunotia sp2	3	2	2	11	16	7
Eunotia sp3	0	0	4	10	15	25
Cymbella sp1	1	7	6	2	5	6
Navicula sp8	10	9	4	8	24	24
Gonatozygon sp1	0	0	4	2	13	23
Amphora sp1	2	4	4	9	2	1
Gomphonema sp1	1	2	5	13	33	76
Gomphonema sp2	0	0	0	0	0	0
Diploneis sp1	0	0	2	0	2	1
Nitzschia sp1	0	0	0	0	0	1
Nitzschia sp2	1	2	5	17	24	42
Cosmarium sp1	0	0	0	0	0	0
Euglena sp1	0	0	0	0	2	0
Rhopalodia sp1	0	0	0	0	0	1
Chroococcus sp1	0	0	0	0	0	21
Microcystis sp1	13	12	19	16	16	21
Microcystis sp2	24	20	28	32	36	38
Microcystis sp3	30	41	45	29	51	51
Oocystis sp1	0	0	0	0	0	5
Snowella sp1	0	0	3	0	18	3
Peridinium sp1	0	0	0	0	1	0
Mougeotia sp1	0	0	3	0	8	4
Spirogyra sp1	0	0	0	0	1	0
Lyngbya sp1	0	0	2	0	1	0
Diatoma sp1	0	0	2	0	2	1
Microspora sp1	0	0	3	0	1	5
Lyngbya sp2	0	0	0	0	0	0
Ophiocytium sp1	0	0	1	0	0	23

Sphaerosoma sp1	0	0	0	0	0	0
Phormidium sp1	0	0	1	0	2	11
Centronella sp1	0	0	0	0	0	0
Fragilaria sp1	0	0	0	0	1	0
Fragilaria sp2	0	0	2	0	4	4
Closterium sp1	0	0	1	0	0	0
Closterium sp2	0	0	0	0	0	0
Anabaena sp1	0	0	0	0	0	0
Phormidium sp2	0	0	0	0	0	7
Oscillatoria sp1	0	0	0	0	0	0
Spirulina sp1	0	0	0	0	0	0
Phormidium sp3	0	0	0	0	0	0
Anathece sp1	0	0	0	0	0	3
Nostoc sp1	0	0	3	0	0	0
Staurastrum sp1	0	0	0	0	0	0
Staurastrum sp2	0	0	0	2	1	0
Staurastrum sp3	0	0	0	2	0	0
Scenedesmus sp1	2	6	3	4	1	0
Scenedesmus sp2	0	0	0	0	0	0
Pediastrum sp1	0	0	0	0	0	0
Pediastrum sp2	0	0	0	0	0	0
Hyalotheca sp1	0	0	0	0	0	14
Struktur sp1	0	0	0	0	0	0
Tribonema sp1	0	0	2	5	0	19
Klebsormidium sp1	0	0	1	6	3	27
fremyella sp1	0	0	0	2	0	0
bumilleria sp1	0	0	0	2	0	0
Polycistis sp	16	18	25	35	36	46
Trentepohlia sp1	0	0	0	0	1	4

				SUMA
TOMA4		TOMA5		
profundidad		profundidad		
A	B	A	B	
21	4	5	2	75
7	9	2	3	40
0	1	0	1	8
5	21	1	4	79
3	7	4	2	46
14	9	1	1	53
2	3	7	2	16
0	4	2	5	21
6	26	29	17	111
0	20	22	19	82
5	9	6	6	36
0	0	0	0	0
3	55	49	36	218
3	14	3	5	32
1	0	1	2	5
3	209	114	63	538
0	1	0	2	4
1	0	2	0	5
1	0	1	1	3
0	1	0	0	2
0	0	0	0	0
0	0	0	0	2
1	7	1	0	10
0	0	3	2	7
14	19	23	22	175
26	46	37	33	291
52	61	63	59	458
0	0	0	0	5
1	0	0	0	37
0	0	0	0	0
0	0	0	1	13
0	0	0	0	1
2	0	0	0	3
0	0	0	0	0
0	1	0	0	48
0	0	0	0	3
0	7	0	0	21
0	0	0	0	4
0	9	0	0	46
0	0	2	0	4
1	0	0	0	1
1	6	0	0	10

GENERO
Navicula
Meridion
Eunotia
Cymbella
Gonatozygon
Amphora
Gomphonema
Diploneis
Nitzschia
Cosmarium
Euglena
Rhopalodia
Chroococcus
Microcystis
Oocystis
Snowella
Peridinium
Mougeotia
Spirogyra
Lyngbya
Diatoma
Microspora
Ophiocytium
Sphaerosozma
Phormidium
Centronella
Fragilaria
Closterium
Anabaena
Oscillatoria
Spirulina
Anathece
Nostoc
Staurastrum
Scenedesmus
Pediastrum
Hyalotheca
Struktur
Tribonema
Klebsormidium
fremyella

0	0	0	0	3
0	0	0	0	0
0	0	0	0	1
4	2	1	0	14
0	0	2	0	4
0	0	0	0	1
0	0	0	2	3
0	0	1	0	1
0	12	1	1	26
0	2	0	0	31
0	4	0	0	12
0	0	0	0	3
0	2	1	0	16
0	0	0	0	1
0	0	1	0	1
0	3	0	0	11
0	0	0	0	3
0	0	0	0	0
0	22	0	0	71
0	8	6	0	24
1	0	1	0	2
0	0	0	0	0
43	39	36	37	282
0	22	13	4	81

bumilleria
Polycistis
Trentepohlia

				SUMA
TOMA4		TOMA5		
profundidad		profundidad		
A	B	A	B	
8	7	5	2	39
8	1	2	3	19
11	4	5	1	55
14	7	9	4	118
10	5	4	2	53
11	13	2	1	79
36	10	6	2	63
6	1	4	5	28
19	13	10	17	80
16	5	4	19	55
37	9	10	6	85
8	19	1	0	91
28	22	20	36	130
14	1	2	5	37
7	12	4	2	38
24	10	6	63	175

GENERO
Navicula
Meridion
Eunotia
Cymbella
Gonatozygon
Amphora
Gomphonema
Diploneis
Nitzschia
Cosmarium
Euglena
Rhopalodia
Chroococcus
Microcystis
Oocystis

8	7	5	2	41
11	6	2	0	75
25	4	8	1	58
0	0	0	0	1
0	0	0	0	2
1	4	0	0	5
4	0	3	0	10
0	0	0	2	2
20	19	16	22	137
14	19	23	33	220
73	95	108	59	677
0	0	0	0	0
0	0	0	0	6
0	0	0	0	3
0	0	0	1	1
0	0	0	0	0
0	0	2	0	98
0	0	1	0	4
0	0	1	0	15
0	1	0	0	1
0	0	0	0	0
0	0	0	0	0
1	0	1	0	10
0	0	4	0	4
2	0	0	0	4
3	0	0	0	22
0	0	0	0	19
0	0	0	0	0
0	0	0	0	5
0	0	0	0	4
0	0	0	0	4
0	0	0	0	0
0	0	0	2	3
0	0	0	0	0
0	0	0	1	14
0	0	0	0	0
0	0	0	0	1
0	0	0	0	0
0	0	0	0	28
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	2
0	1	0	0	2
0	0	0	0	1
0	0	0	0	1
0	0	4	0	9

Snowella
Peridinium
Mougeotia
Spirogyra
Lyngbya
Diatoma
Microspora
Ophiocytium
Sphaerosozma
Phormidium
Centronella
Fragilaria
Closterium
Anabaena
Oscillatoria
Spirulina
Anathece
Nostoc
Staurastrum
Scenedesmus
Pediastrum
Hyalotheca
Struktur
Tribonema
Klebsormidium
fremyella
bumilleria
Polycistis
Trentepohlia

0	0	0	0	0
36	40	46	37	386
0	0	2	4	11

TOMA4		TOMA5		SUMA
profundidad		profundidad		
A	B	A	B	
2	6	0	0	26
0	0	1	0	5
0	1	0	1	6
3	4	3	4	80
2	9	1	8	47
3	2	3	3	46
0	6	1	2	12
2	2	0	1	12
17	17	9	7	114
12	9	1	6	69
16	14	7	7	98
2	10	4	4	47
20	24	5	24	152
0	1	0	1	44
2	4	5	0	33
24	32	3	17	206
0	0	0	1	1
1	4	0	1	11
20	3	0	0	24
4	1	0	2	98
0	0	0	0	0
0	3	0	0	5
1	0	1	0	3
0	1	1	1	24
14	12	19	11	153
26	35	52	33	324
61	68	73	72	521
0	0	0	0	5
0	0	0	0	24
0	0	0	4	5
0	0	0	0	15
0	0	0	0	1
0	0	0	0	3
0	0	1	1	7
0	0	0	0	9
0	0	0	0	0
0	0	0	0	24

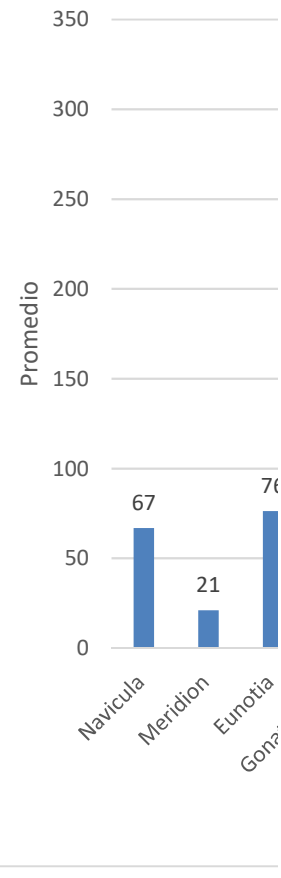
GENERO
Navicula
Meridion
Eunotia
Cymbella
Gonatozygon
Amphora
Gomphonema
Diploneis
Nitzschia
Cosmarium
Euglena
Rhopalodia
Chroococcus
Microcystis
Oocystis
Snowella
Peridinium
Mougeotia
Spirogyra
Lyngbya
Diatoma
Microspora
Ophiocytium
Sphaeroszma
Phormidium
Centronella
Fragilaria
Closterium
Anabaena
Oscillatoria
Spirulina
Anathece
Nostoc
Staurastrum
Scenedesmus
Pediastrum

0	0	0	0	0
0	0	0	0	14
1	0	0	0	1
0	0	0	0	1
0	0	0	0	10
0	0	0	0	1
1	0	0	0	1
0	0	0	1	1
0	0	0	0	7
0	0	0	0	0
1	0	0	1	2
0	0	3	0	3
0	1	1	0	5
0	0	0	0	3
0	0	0	0	0
0	0	0	0	3
0	0	0	0	2
0	0	1	0	17
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	14
0	0	0	0	0
0	0	0	0	26
0	4	1	1	43
0	0	0	0	2
0	0	0	2	4
29	35	54	47	341
0	6	0	0	11

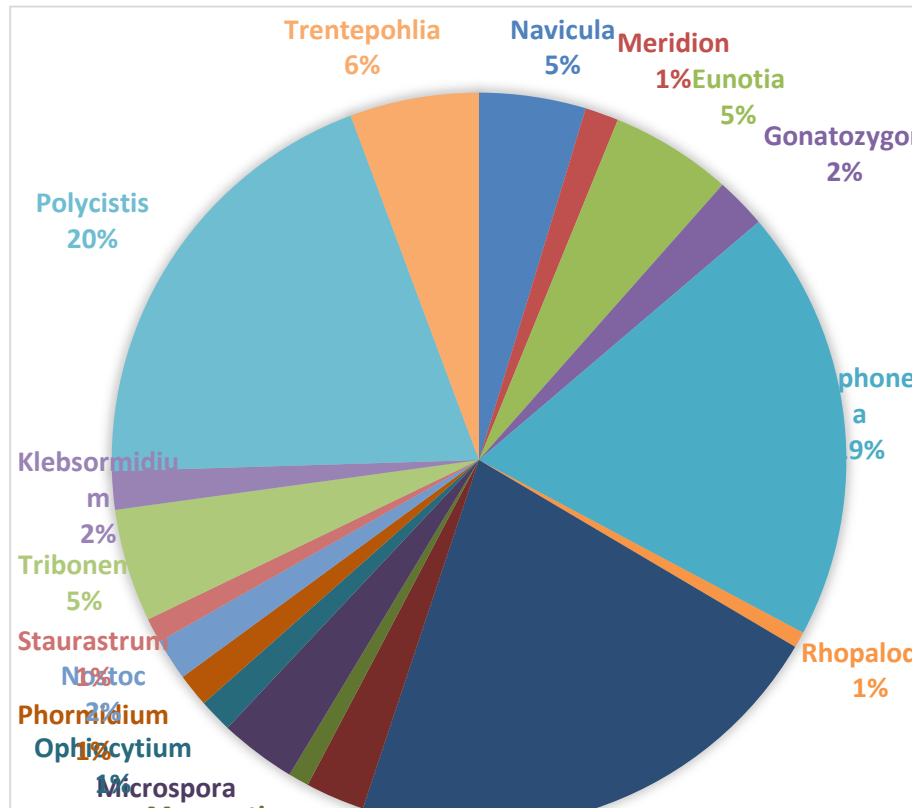
Hyalotheca
Struktur
Tribonema
Klebsormidium
fremyella
bumilleria
Polycistis
Trentepohlia

REPRESENTATIVAS

PROMEDIO	PORCENTAJE	GENERO	PROMEDIO
67	4	Navicula	67
21	1	Meridion	21
76	5	Eunotia	76
0	0	Gonatozygon	32
32	2	Gomphonema	271
5	0	Rhopalodia	10
271	18	Microcystis	308
5	0	Snowella	37
3	0	Mougeotia	13
0	0	Microspora	48
2	0	Ophiocytium	21
10	1	Phormidium	21
7	0	Nostoc	26
308	21	Staurostrum	15
5	0	Tribonema	71
37	2	Klebsormidium	24
0	0	Polycistis	282
13	1	Trentepohlia	81



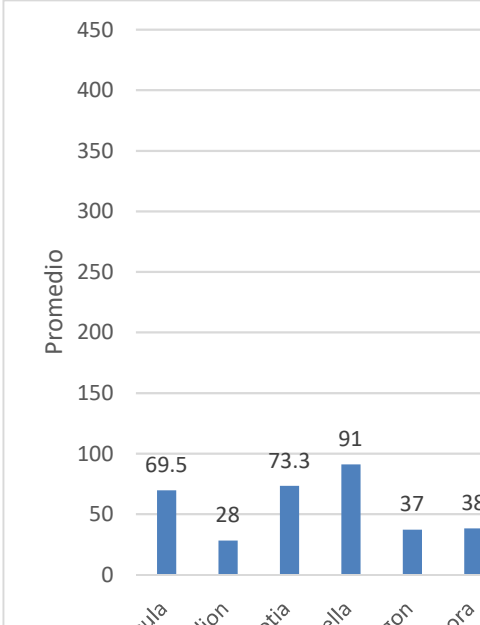
1	0
3	0
0	0
48	3
21	1
4	0
21	1
4	0
6	0
2	0
1	0
4	0
1	0
1	0
26	2
15	1
9	1
6	0
3	0
0	0
71	5
24	2
2	0



0	0
282	19
81	5
1497	100



PROMEDIO	PORCENTAJE	REPRESENTATIVAS	
70	5	GENERO	PROMEDIO
28	2	Navicula	69.5
73	5	Meridion	28
91	6	Eunotia	73.3
37	3	Cymbella	91
38	3	Gonatozygon	37
108	7	Amphora	38
75	5	Gomphonema	108
30	2	Diploneis	75
2	0	Nitzschia	29.5
5	0	Rhopalodia	10
10	1	Microcystis	344.7
2	0	Lyngbya	49.5
345	23	Microspora	15
0	0	Fragilaria	13

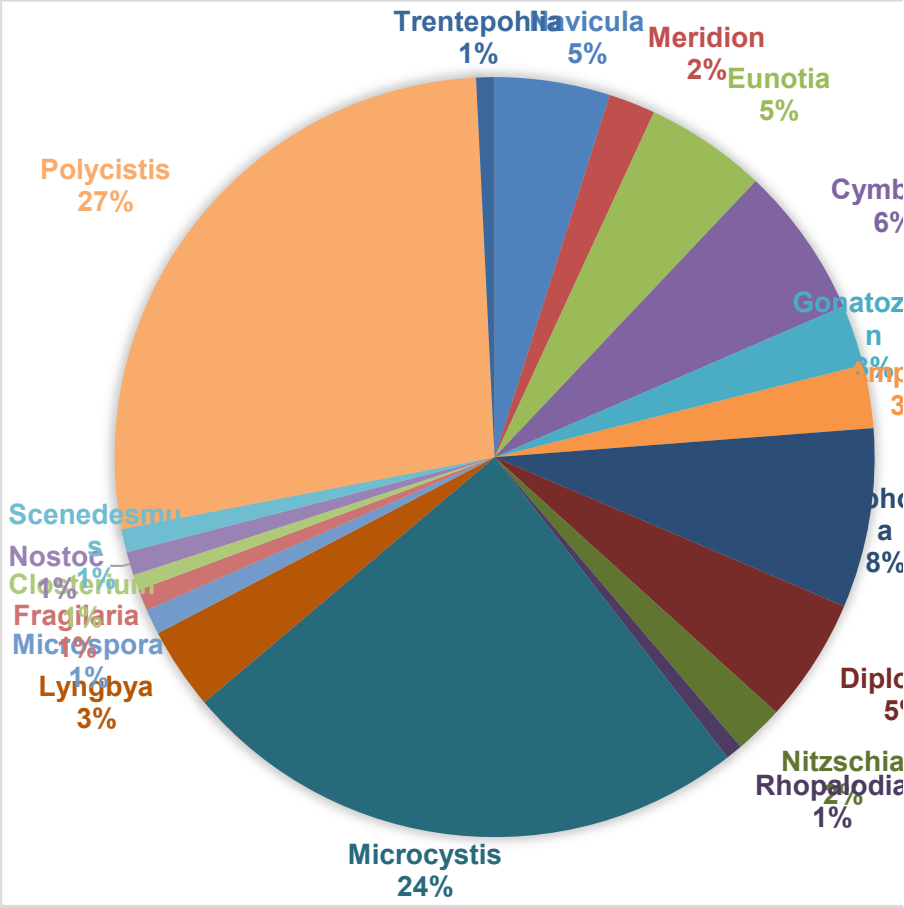
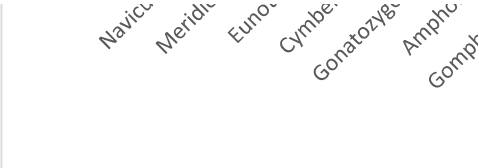


6	0	Closterium	9.5
3	0	Nostoc	14
1	0	Scenedesmus	14
0	0	Polycistis	386
50	3	Trentepohlia	11

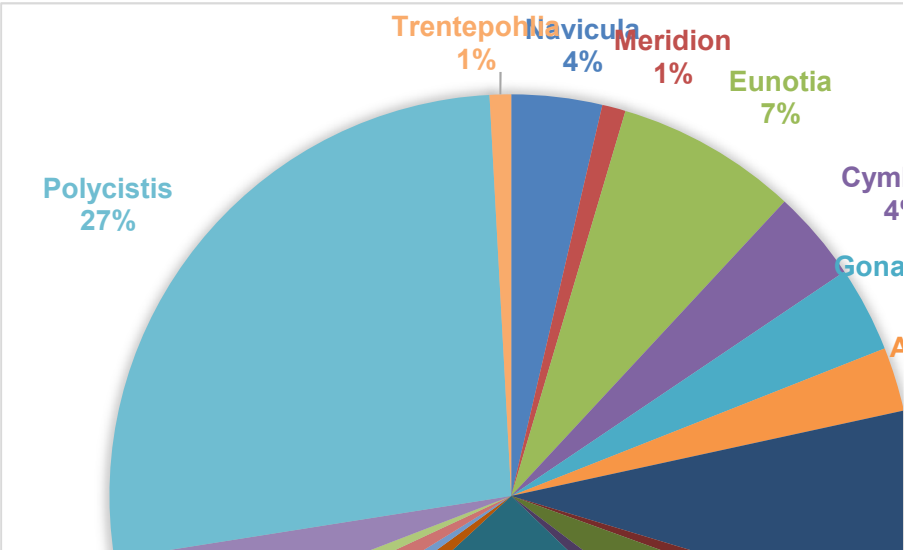
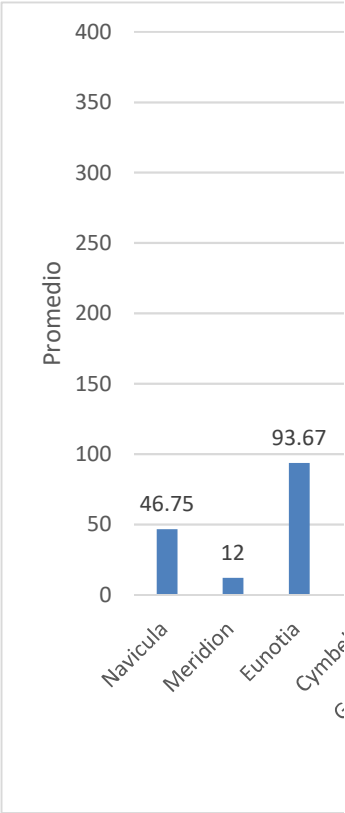
4	0
15	1
0	0
0	0
6	0
4	0
13	1
10	1
5	0
4	0
0	0
0	0
14	1
0	0
14	1
0	0
2	0
2	0
1	0
1	0
9	1
0	0
386	26
11	1

1473

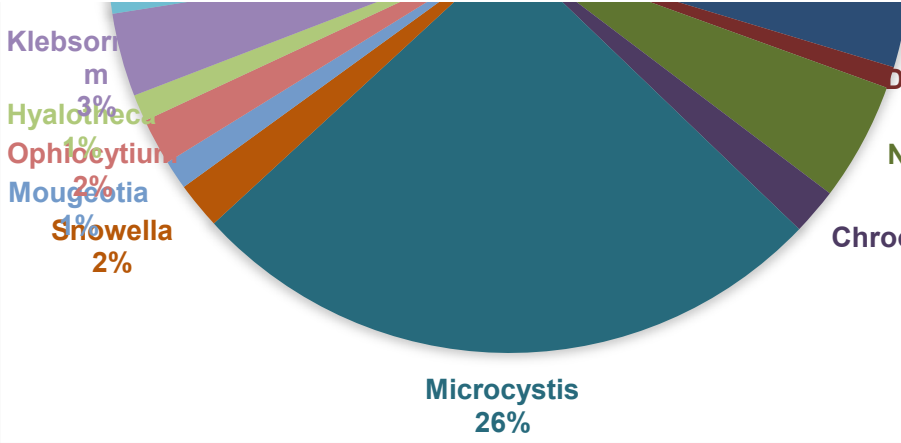
100

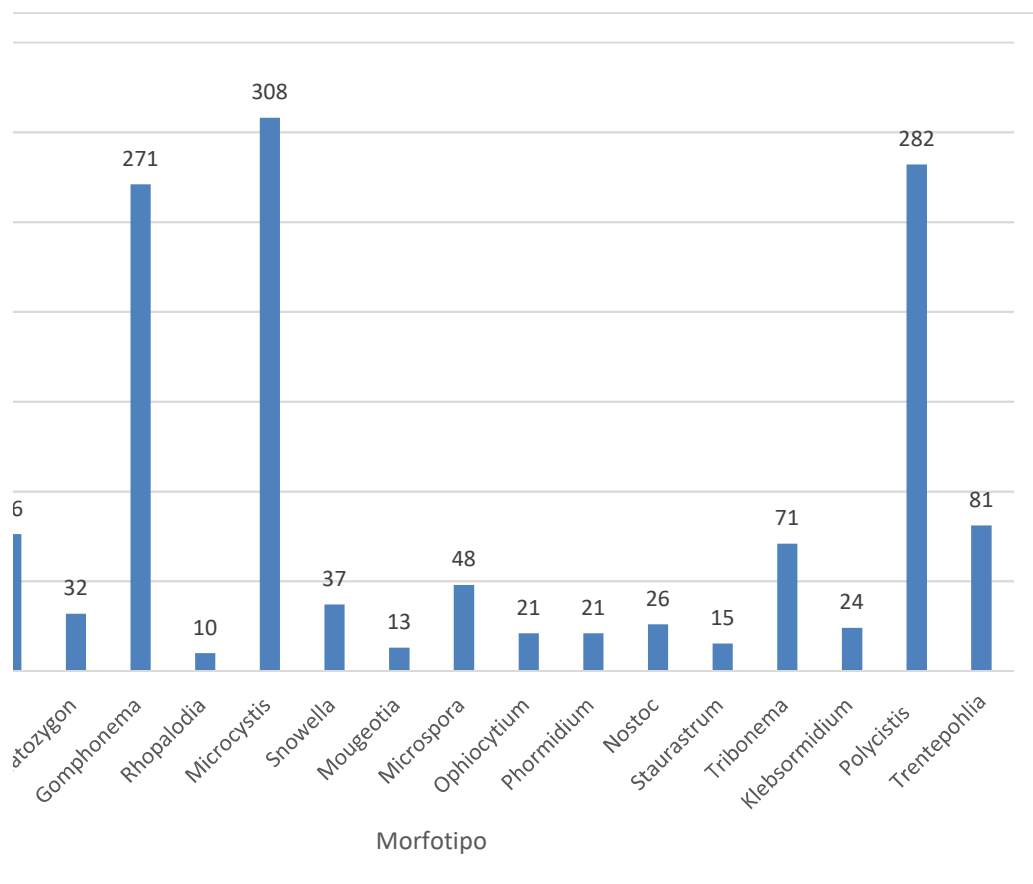


PROMEDIO	PORCENTAJE	REPRESENTATIVAS	
47	3	GENERO	PROMEDIO
12	1	Navicula	46.75
94	7	Meridion	12
47	3	Eunotia	93.67
44	3	Cymbella	47
33	2	Gonatozygon	44
104	7	Amphora	33
11	1	Gomphonema	103.5
61	4	Diploneis	11
0	0	Nitzschia	61
5	0	Chroococcus	24
3	0	Microcystis	332.7
24	2	Snowella	24
333	24	Mougeotia	15
5	0	Ophiocytium	24
24	2	Hyalotheca	14
5	0	Klebsormidium	43
15	1	Polycistis	341
1	0	Trentepohlia	11
1	0		
7	1		
9	1		
24	2		
0	0		
7	0		
1	0		
6	0		
1	0		
1	0		
0	0		
2	0		
5	0		
3	0		
2	0		
9	1		
0	0		



14	1
0	0
26	2
43	3
2	0
4	0
341	25
11	1
1384	100

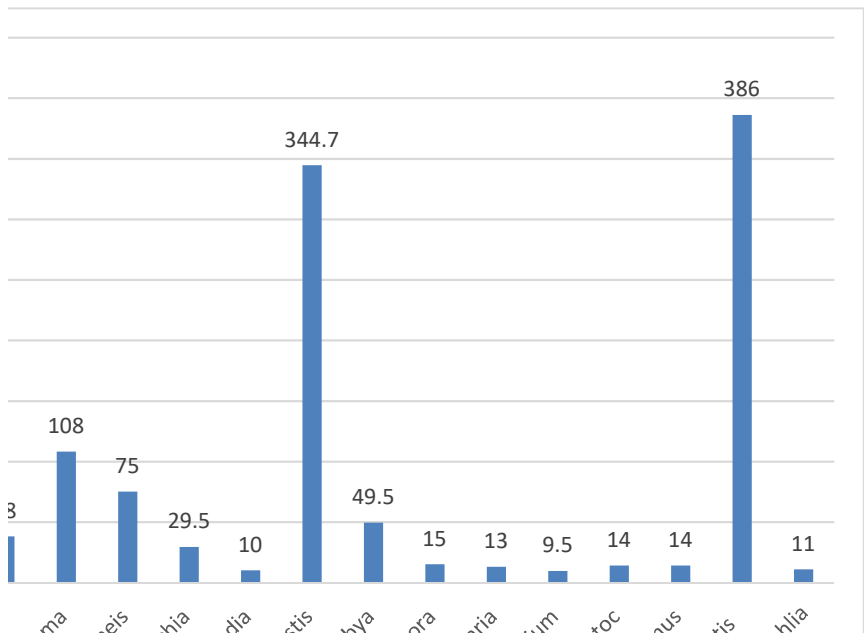




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Moner.
Diplon.
Nitzsch.
Rhopalon.
Microcyst.
Lyngby.
Microspo.
Fragilar.
Closteriu.
Nost.
Scenedesm.
Polycist.
Trenteped.

Morfotipo

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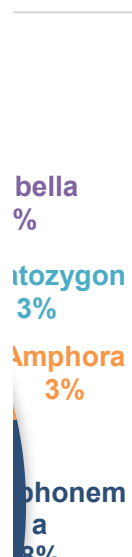
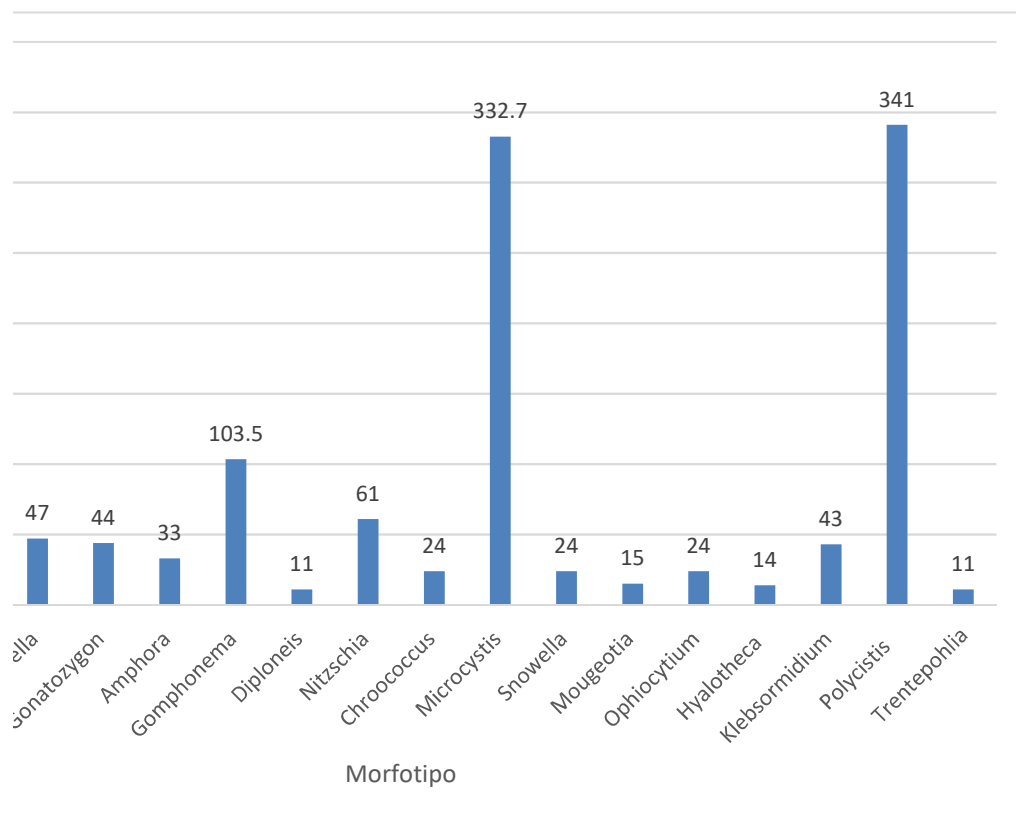
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0%

Diploneis
1%

Nitzschia
5%

Oococcus
2%

TOMA 1						
ORGANISMO	profundidad		profundidad		profundidad	
	A	B	A	B	A	B
Navicula sp1	4	2	3	4	5	2
Navicula sp2	1	2	1	0	0	0
Navicula sp3	0	0	10	2	0	0
Navicula sp4	1	0	5	5	2	3
Navicula sp5	2	0	0	4	0	0
Navicula sp6	0	3	2	0	1	3
Navicula sp7	0	0	2	0	0	0
Meridion sp1	1	0	0	0	1	2
Eunotia sp1	0	1	3	0	11	11
Eunotia sp2	0	0	0	0	3	2
Eunotia sp3	0	1	4	1	0	0
Cymbella sp1	0	0	2	2	1	7
Navicula sp8	0	0	0	3	10	9
Gonatozygon sp1	0	0	3	0	0	0
Amphora sp1	0	0	0	0	2	4
Gomphonema sp1	2	4	0	0	1	2
Gomphonema sp2	0	0	0	0	0	0
Diploneis sp1	0	0	0	0	0	0
Nitzschia sp1	0	0	2	0	0	0
Nitzschia sp2	0	1	0	0	1	2
Cosmarium sp1	0	0	0	0	0	0
Euglena sp1	0	0	0	0	0	0
Rhopalodia sp1	0	0	1	0	0	0
Chroococcus sp1	0	0	0	0	0	0
Microcystis sp1	10	13	7	11	13	12
Microcystis sp2	15	18	25	23	24	20
Microcystis sp3	29	24	50	43	30	41
Oocystis sp1	0	0	0	0	0	0
Snowella sp1	0	0	0	0	0	0
Peridinium sp1	0	0	0	0	0	0
Mougeotia sp1	0	0	0	0	0	0
Spirogyra sp1	0	0	0	0	0	0
Lyngbya sp1	0	0	0	4	0	0
Diatoma sp1	0	0	0	0	0	0
Microspora sp1	0	2	0	0	0	0
Lyngbya sp2	0	0	0	0	0	0
Ophiocytium sp1	0	0	0	0	0	0
Sphaeroszoma sp1	3	0	0	0	0	0
Phormidium sp1	1	3	0	1	0	0
Centronella sp1	2	0	0	0	0	0
Fragilaria sp1	0	0	0	0	0	0
Fragilaria sp2	1	0	0	0	0	0
Closterium sp1	2	0	0	1	0	0

Closterium sp2	0	0	0	0	0	0
Anabaena sp1	1	0	0	0	0	0
Phormidium sp2	1	3	0	1	0	0
Oscillatoria sp1	0	0	0	0	0	0
Spirulina sp1	0	1	0	0	0	0
Phormidium sp3	0	1	0	1	0	0
Anathece sp1	0	0	0	0	0	0
Nostoc sp1	0	6	0	3	0	0
Staurastrum sp1	0	1	0	0	0	0
Staurastrum sp2	0	0	0	0	0	0
Staurastrum sp3	0	0	0	0	0	0
Scenedesmus sp1	0	0	0	0	2	6
Scenedesmus sp2	0	0	0	0	0	0
Pediastrum sp1	0	0	0	0	0	0
Pediastrum sp2	0	0	0	0	0	0
Hyalotheca sp1	0	0	0	0	0	0
Struktur sp1	0	0	0	0	0	0
Tribonema sp1	5	5	0	0	0	0
Klebsormidium sp1	0	0	0	0	0	0
fremyella sp1	0	0	0	2	0	0
bumilleria sp1	0	0	0	0	0	0
Polycystis sp	15	12	35	25	16	18
Trentepohlia sp1	0	0	3	0	0	0

TOMA 2						
ORGANISMO	profundidad		profundidad		profundidad	
	A	B	A	B	A	B
Navicula sp1	5	4	4	2	3	3
Navicula sp2	2	6	1	1	1	0
Navicula sp3	0	5	13	8	4	0
Navicula sp4	5	4	18	14	15	15
Navicula sp5	3	9	0	4	5	10
Navicula sp6	4	4	10	5	6	2
Navicula sp7	0	0	4	0	3	0
Meridion sp1	3	0	4	3	2	0
Eunotia sp1	4	0	4	1	8	7
Eunotia sp2	0	2	0	0	2	11
Eunotia sp3	0	0	3	1	4	10
Cymbella sp1	0	0	4	18	6	2
Navicula sp8	5	6	6	4	4	8
Gonatozygon sp1	0	0	0	0	4	2
Amphora sp1	0	0	3	3	4	9

Gomphonema sp1	2	17	12	17	5	13
Gomphonema sp2	0	0	0	3	0	0
Diploneis sp1	0	0	0	9	2	0
Nitzschia sp1	0	0	2	0	0	0
Nitzschia sp2	0	0	1	0	5	17
Cosmarium sp1	0	0	0	0	0	0
Euglena sp1	0	0	0	0	0	0
Rhopalodia sp1	0	0	0	0	0	0
Chroococcus sp1	0	0	0	0	0	0
Microcystis sp1	21	24	13	8	19	16
Microcystis sp2	22	24	20	22	28	32
Microcystis sp3	41	40	44	67	45	29
Oocystis sp1	0	0	0	0	0	0
Snowella sp1	0	0	0	0	3	0
Peridinium sp1	0	0	0	0	0	0
Mougeotia sp1	0	1	0	0	3	0
Spirogyra sp1	0	1	0	0	0	0
Lyngbya sp1	0	0	2	7	2	0
Diatoma sp1	0	0	0	0	2	0
Microspora sp1	4	18	11	2	3	0
Lyngbya sp2	3	0	0	0	0	0
Ophiocytium sp1	0	0	0	0	1	0
Sphaeroszoma sp1	0	0	0	0	0	0
Phormidium sp1	6	2	0	1	1	0
Centronella sp1	0	0	0	0	0	0
Fragilaria sp1	0	0	1	0	0	0
Fragilaria sp2	0	0	0	0	2	0
Closterium sp1	1	0	1	4	1	0
Closterium sp2	0	0	0	0	0	0
Anabaena sp1	0	0	0	0	0	0
Phormidium sp2	0	0	0	0	0	0
Oscillatoria sp1	0	0	0	2	0	0
Spirulina sp1	0	0	0	0	0	0
Phormidium sp3	0	0	0	0	0	0
Anathece sp1	0	0	0	0	0	0
Nostoc sp1	0	0	0	0	3	0
Staurastrum sp1	3	13	0	0	0	0
Staurastrum sp2	1	4	0	0	0	2
Staurastrum sp3	1	1	0	0	0	2
Scenedesmus sp1	2	4	4	2	3	4
Scenedesmus sp2	0	0	0	0	0	0
Pediastrum sp1	0	0	0	0	0	0
Pediastrum sp2	2	4	0	0	0	0
Hyalotheca sp1	0	3	0	0	0	0
Struktur sp1	0	0	0	1	0	0
Tribonema sp1	0	12	0	0	2	5
Klebsormidium sp1	0	0	0	0	1	6

fremyella sp1	0	0	0	1	0	2
bumilleria sp1	0	0	0	0	0	2
Polycistis sp	19	15	41	37	25	35
Trentepohlia sp1	0	0	0	0	0	0

TOMA 3						
ORGANISMO	profundidad		profundidad		profundidad	
	A	B	A	B	A	B
Navicula sp1	21	7	3	1	1	4
Navicula sp2	6	2	2	0	3	0
Navicula sp3	1	0	1	0	0	0
Navicula sp4	27	11	25	17	14	17
Navicula sp5	10	6	14	10	4	8
Navicula sp6	10	7	22	13	6	17
Navicula sp7	2	0	3	0	0	0
Meridion sp1	4	2	4	1	1	1
Eunotia sp1	17	11	10	3	17	10
Eunotia sp2	12	7	8	3	16	7
Eunotia sp3	7	2	8	6	15	25
Cymbella sp1	0	0	10	27	5	6
Navicula sp8	25	39	5	6	24	24
Gonatozygon sp1	2	5	8	4	13	23
Amphora sp1	1	0	5	2	2	1
Gomphonema sp1	47	77	28	15	33	76
Gomphonema sp2	1	0	7	9	0	0
Diploneis sp1	0	2	23	24	2	1
Nitzschia sp1	0	0	13	3	0	1
Nitzschia sp2	0	0	0	0	24	42
Cosmarium sp1	0	0	0	2	0	0
Euglena sp1	1	1	0	0	2	0
Rhopalodia sp1	1	0	2	0	0	1
Chroococcus sp1	1	1	0	0	0	21
Microcystis sp1	16	13	10	11	16	21
Microcystis sp2	36	34	21	20	36	38
Microcystis sp3	35	54	64	74	51	51
Oocystis sp1	2	3	0	0	0	5
Snowella sp1	3	33	1	5	18	3
Peridinium sp1	0	0	0	3	1	0
Mougeotia sp1	5	6	0	0	8	4
Spirogyra sp1	0	0	0	0	1	0
Lyngbya sp1	0	1	0	83	1	0
Diatoma sp1	0	0	2	1	2	1
Microspora sp1	1	22	0	1	1	5

Lyngbya sp2	0	0	0	0	0	0
Ophiocytium sp1	12	2	0	0	0	23
Sphaeroszoma sp1	1	0	0	0	0	0
Phormidium sp1	17	8	6	0	2	11
Centronella sp1	0	0	0	0	0	0
Fragilaria sp1	0	0	1	0	1	0
Fragilaria sp2	1	1	17	2	4	4
Closterium sp1	0	0	6	7	0	0
Closterium sp2	0	0	0	0	0	0
Anabaena sp1	0	0	1	4	0	0
Phormidium sp2	1	2	1	2	0	7
Oscillatoria sp1	2	0	0	2	0	0
Spirulina sp1	0	0	0	0	0	0
Phormidium sp3	0	0	0	0	0	0
Anathece sp1	0	0	0	0	0	3
Nostoc sp1	0	6	2	8	0	0
Staurastrum sp1	9	3	0	0	0	0
Staurastrum sp2	1	2	0	1	1	0
Staurastrum sp3	1	0	0	0	0	0
Scenedesmus sp1	2	5	8	14	1	0
Scenedesmus sp2	1	0	0	0	0	0
Pediastrum sp1	0	0	0	0	0	0
Pediastrum sp2	0	2	0	0	0	0
Hyalotheca sp1	0	0	0	2	0	14
Struktur sp1	0	0	0	0	0	0
Tribonema sp1	5	22	0	1	0	19
Klebsormidium sp1	4	6	1	0	3	27
fremyella sp1	0	0	1	1	0	0
bumilleria sp1	0	0	0	0	0	0
Polycistis sp	29	37	41	48	36	46
Trentepohlia sp1	21	21	2	0	1	4

TOMA 4						
ORGANISMO	profundidad		profundidad		profundidad	
	A	B	A	B	A	B
Navicula sp1	21	4	8	7	2	6
Navicula sp2	7	9	8	1	0	0
Navicula sp3	0	1	11	4	0	1
Navicula sp4	5	21	14	7	3	4
Navicula sp5	3	7	10	5	2	9
Navicula sp6	14	9	11	13	3	2
Navicula sp7	2	3	36	10	0	6
Meridion sp1	0	4	6	1	2	2

Eunotia sp1	6	26	19	13	17	17
Eunotia sp2	0	20	16	5	12	9
Eunotia sp3	5	9	37	9	16	14
Cymbella sp1	0	0	8	19	2	10
Navicula sp8	3	55	28	22	20	24
Gonatozygon sp1	3	14	14	1	0	1
Amphora sp1	1	0	7	12	2	4
Gomphonema sp1	3	209	24	10	24	32
Gomphonema sp2	0	1	8	7	0	0
Diploneis sp1	1	0	11	6	1	4
Nitzschia sp1	1	0	25	4	20	3
Nitzschia sp2	0	1	0	0	4	1
Cosmarium sp1	0	0	0	0	0	0
Euglena sp1	0	0	1	4	0	3
Rhopalodia sp1	1	7	4	0	1	0
Chroococcus sp1	0	0	0	0	0	1
Microcystis sp1	14	19	20	19	14	12
Microcystis sp2	26	46	14	19	26	35
Microcystis sp3	52	61	73	95	61	68
Oocystis sp1	0	0	0	0	0	0
Snowella sp1	1	0	0	0	0	0
Peridinium sp1	0	0	0	0	0	0
Mougeotia sp1	0	0	0	0	0	0
Spirogyra sp1	0	0	0	0	0	0
Lyngbya sp1	2	0	0	0	0	0
Diatoma sp1	0	0	0	0	0	0
Microspora sp1	0	1	0	0	0	0
Lyngbya sp2	0	0	0	1	0	0
Ophiocytium sp1	0	7	0	0	0	0
Sphaeroszoma sp1	0	0	0	0	0	0
Phormidium sp1	0	9	1	0	0	0
Centronella sp1	0	0	0	0	1	0
Fragilaria sp1	1	0	2	0	0	0
Fragilaria sp2	1	6	3	0	0	0
Closterium sp1	0	0	0	0	0	0
Closterium sp2	0	0	0	0	1	0
Anabaena sp1	0	0	0	0	0	0
Phormidium sp2	4	2	0	0	0	0
Oscillatoria sp1	0	0	0	0	0	0
Spirulina sp1	0	0	0	0	1	0
Phormidium sp3	0	0	0	0	0	0
Anathece sp1	0	0	0	0	0	1
Nostoc sp1	0	12	0	0	0	0
Staurastrum sp1	0	2	0	0	0	0
Staurastrum sp2	0	4	0	0	0	0
Staurastrum sp3	0	0	0	0	0	0
Scenedesmus sp1	0	2	0	0	0	0

Scenedesmus sp2	0	0	0	0	0	0
Pediastrum sp1	0	0	0	0	0	0
Pediastrum sp2	0	3	0	0	0	0
Hyalotheca sp1	0	0	0	0	0	0
Struktur sp1	0	0	0	1	0	0
Tribonema sp1	0	22	0	0	0	0
Klebsormidium sp1	0	8	0	0	0	4
fremyella sp1	1	0	0	0	0	0
bumilleria sp1	0	0	0	0	0	0
Polycistis sp	43	39	36	40	29	35
Trentepohlia sp1	0	22	0	0	0	6

TOMA 5						
ORGANISMO	profundidad		profundidad		profundidad	
	A	B	A	B	A	B
Navicula sp1	5	2	5	2	0	0
Navicula sp2	2	3	2	3	1	0
Navicula sp3	0	1	5	1	0	1
Navicula sp4	1	4	9	4	3	4
Navicula sp5	4	2	4	2	1	8
Navicula sp6	1	1	2	1	3	3
Navicula sp7	7	2	6	2	1	2
Meridion sp1	2	5	4	5	0	1
Eunotia sp1	29	17	10	17	9	7
Eunotia sp2	22	19	4	19	1	6
Eunotia sp3	6	6	10	6	7	7
Cymbella sp1	0	0	1	0	4	4
Navicula sp8	49	36	20	36	5	24
Gonatozygon sp1	3	5	2	5	0	1
Amphora sp1	1	2	4	2	5	0
Gomphonema sp1	114	63	6	63	3	17
Gomphonema sp2	0	2	5	2	0	1
Diploneis sp1	2	0	2	0	0	1
Nitzschia sp1	1	1	8	1	0	0
Nitzschia sp2	0	0	0	0	0	2
Cosmarium sp1	0	0	0	0	0	0
Euglena sp1	0	0	0	0	0	0
Rhopalodia sp1	1	0	3	0	1	0
Chroococcus sp1	3	2	0	2	1	1
Microcystis sp1	23	22	16	22	19	11
Microcystis sp2	37	33	23	33	52	33
Microcystis sp3	63	59	108	59	73	72
Oocystis sp1	0	0	0	0	0	0

Snowella sp1	0	0	0	0	0	0
Peridinium sp1	0	0	0	0	0	4
Mougeotia sp1	0	1	0	1	0	0
Spirogyra sp1	0	0	0	0	0	0
Lyngbya sp1	0	0	2	0	0	0
Diatoma sp1	0	0	1	0	1	1
Microspora sp1	0	0	1	0	0	0
Lyngbya sp2	0	0	0	0	0	0
Ophiocytium sp1	0	0	0	0	0	0
Sphaeroszma sp1	0	0	0	0	0	0
Phormidium sp1	0	0	1	0	0	0
Centronella sp1	2	0	4	0	0	0
Fragilaria sp1	0	0	0	0	0	0
Fragilaria sp2	0	0	0	0	0	0
Closterium sp1	0	0	0	0	0	0
Closterium sp2	0	0	0	0	0	0
Anabaena sp1	0	0	0	0	0	1
Phormidium sp2	1	0	0	0	0	0
Oscillatoria sp1	2	0	0	0	0	0
Spirulina sp1	0	0	0	0	0	1
Phormidium sp3	0	2	0	2	3	0
Anathece sp1	1	0	0	0	1	0
Nostoc sp1	1	1	0	1	0	0
Staurastrum sp1	0	0	0	0	0	0
Staurastrum sp2	0	0	0	0	0	0
Staurastrum sp3	0	0	0	0	0	0
Scenedesmus sp1	1	0	0	0	1	0
Scenedesmus sp2	0	0	0	0	0	0
Pediastrum sp1	1	0	0	0	0	0
Pediastrum sp2	0	0	0	0	0	0
Hyalotheca sp1	0	0	0	0	0	0
Struktur sp1	0	0	0	0	0	0
Tribonema sp1	0	0	0	0	0	0
Klebsormidium sp1	6	0	0	0	1	1
fremyella sp1	1	0	4	0	0	0
bumilleria sp1	0	0	0	0	0	2
Polycistis sp	36	37	46	37	54	47
Trentepohlia sp1	13	4	2	4	0	0

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GENERO	PROMEDIO	PORCENTAJE
Navicula	11	3
Meridion	4	1
Eunotia	12	3
Cymbella	12	3
Gonatozygon	3	1
Amphora	6	2
Gomphonema	5	1
Diploneis	0	0
Nitzschia	3	1
Cosmarium	0	0
Euglena	0	0
Rhopalodia	1	0
Chroococcus	0	0
Microcystis	136	38
Oocystis	0	0
Snowella	0	0
Peridinium	0	0
Mougeotia	0	0
Spirogyra	0	0
Lyngbya	2	1
Diatoma	0	0
Microspora	2	1
Ophiocytium	0	0
Sphaeroszoma	3	1
Phormidium	4	1
Centronella	2	1
Fragilaria	1	0
Closterium	2	0
Anabaena	1	0
Oscillatoria	0	0
Spirulina	1	0
Anathece	0	0
Nostoc	9	3
Staurastrum	0	0
Scenedesmus	4	1
Pediastrum	0	0
Hyalotheca	0	0
Struktur	0	0
Tribonema	10	3
Klebsormidium	0	0
fremyella	2	1
bumilleria	0	0
Polycistis	121	34

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Trentepohlia	3	1
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GENERO	PROMEDIO	PORCENTAJE
Navicula	29	5
Meridion	12	2
Eunotia	19	3
Cymbella	30	5
Gonatozygon	6	1
Amphora	19	3
Gomphonema	35	5
Diploneis	11	2
Nitzschia	13	2
Cosmarium	0	0
Euglena	0	0
Rhopalodia	0	0
Chroococcus	0	0
Microcystis	172	27
Oocystis	0	0

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Snowella	3	0
Peridinium	0	0
Mougeotia	4	1
Spirogyra	1	0
Lyngbya	7	1
Diatoma	2	0
Microspora	38	6
Ophiocytium	0	0
Sphaeroszoma	1	0
Phormidium	3	1
Centronella	0	0
Fragilaria	2	0
Closterium	4	1
Anabaena	0	0
Oscillatoria	2	0
Spirulina	0	0
Anathece	0	0
Nostoc	3	0
Staurastrum	9	1
Scenedesmus	10	1
Pediastrum	3	0
Hyalotheca	3	0
Struktur	1	0
Tribonema	19	3
Klebsormidium	7	1
fremyella	3	0
bumilleria	2	0
Polycistis	172	27
Trentepohlia	0	0
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GENERO	PROMEDIO	PORCENTAJE
Navicula	52	4
Meridion	13	1
Eunotia	61	4
Cymbella	48	3
Gonatozygon	55	4
Amphora	11	1
Gomphonema	147	10
Diploneis	52	4
Nitzschia	42	3
Cosmarium	2	0
Euglena	4	0
Rhopalodia	4	0
Chroococcus	23	2
Microcystis	200	14
Oocystis	10	1
Snowella	63	4
Peridinium	4	0
Mougeotia	23	2
Spirogyra	1	0
Lyngbya	43	3
Diatoma	6	0
Microspora	30	2
Ophiocytium	37	3
Sphaeroszoma	1	0
Phormidium	19	1
Centronella	0	0
Fragilaria	16	1
Closterium	7	0
Anabaena	5	0
Oscillatoria	4	0
Spirulina	0	0
Anathece	3	0
Nostoc	16	1
Staurastrum	6	0
Scenedesmus	6	0

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41
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Pediastrum	1	0
Hyalotheca	16	1
Struktur	0	0
Tribonema	47	3
Klebsormidium	41	3
fremyella	2	0
bumilleria	0	0
Polycistis	237	17
Trentepohlia	49	3
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GENERO	PROMEDIO	PORCENTAJE
Navicula	66	6
Meridion	15	1
Eunotia	83	8
Cymbella	39	4
Gonatozygon	33	3
Amphora	26	2
Gomphonema	159	15
Diploneis	23	2

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Nitzschia	30	3
Cosmarium	0	0
Euglena	8	1
Rhopalodia	13	1
Chroococcus	1	0
Microcystis	225	21
Oocystis	0	0
Snowella	1	0
Peridinium	0	0
Mougeotia	0	0
Spirogyra	0	0
Lyngbya	2	0
Diatoma	0	0
Microspora	1	0
Ophiocytium	7	1
Sphaeroszoma	0	0
Phormidium	5	1
Centronella	1	0
Fragilaria	7	1
Closterium	1	0
Anabaena	0	0
Oscillatoria	0	0
Spirulina	1	0
Anathece	1	0
Nostoc	12	1
Staurastrum	0	0
Scenedesmus	1	0
Pediastrum	2	0
Hyalotheca	0	0
Struktur	1	0
Tribonema	22	2
Klebsormidium	12	1
fremyella	1	0
bumilleria	0	0
Polycistis	222	21
Trentepohlia	28	3
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GENERO	PROMEDIO	PORCENTAJE
Navicula	35	4
Meridion	17	2
Eunotia	67	7
Cymbella	9	1
Gonatozygon	16	2
Amphora	14	2
Gomphonema	138	15
Diploneis	5	1
Nitzschia	7	1
Cosmarium	0	0
Euglena	0	0
Rhopalodia	5	1
Chroococcus	9	1
Microcystis	253	28
Oocystis	0	0
Snowella	0	0
Peridinium	4	0
Mougeotia	2	0
Spirogyra	0	0
Lyngbya	1	0
Diatoma	3	0
Microspora	1	0
Ophiocytium	0	0
Sphaeroszoma	0	0
Phormidium	3	0
Centronella	6	1
Fragilaria	0	0
Closterium	0	0

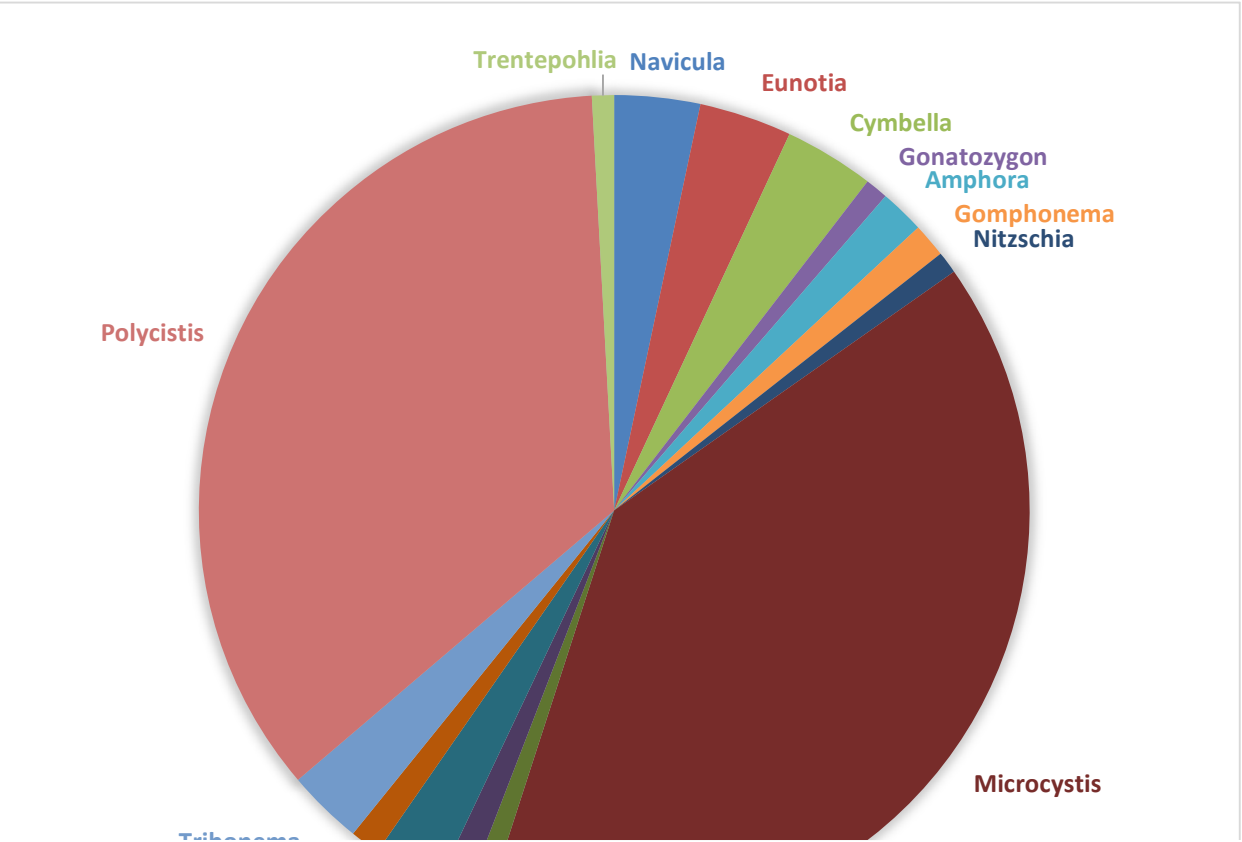
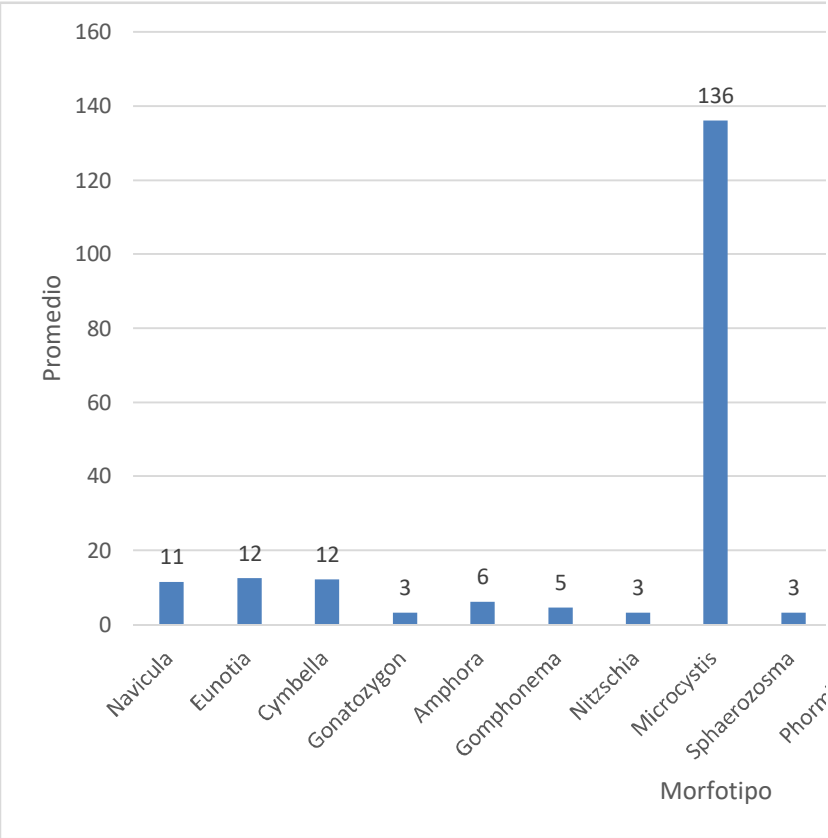
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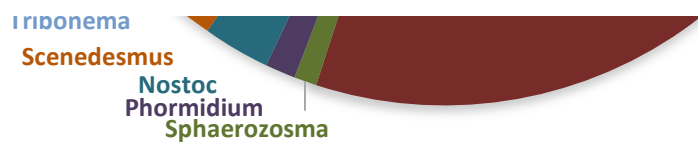
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Oscillatoria	2	0
Spirulina	1	0
Anathece	2	0
Nostoc	3	0
Staurastrum	0	0
Scenedesmus	1	0
Pediastrum	1	0
Hyalotheca	0	0
Struktur	0	0
Tribonema	0	0
Klebsormidium	8	1
fremyella	5	1
bumilleria	2	0
Polycistis	257	29
Trentepohlia	23	3
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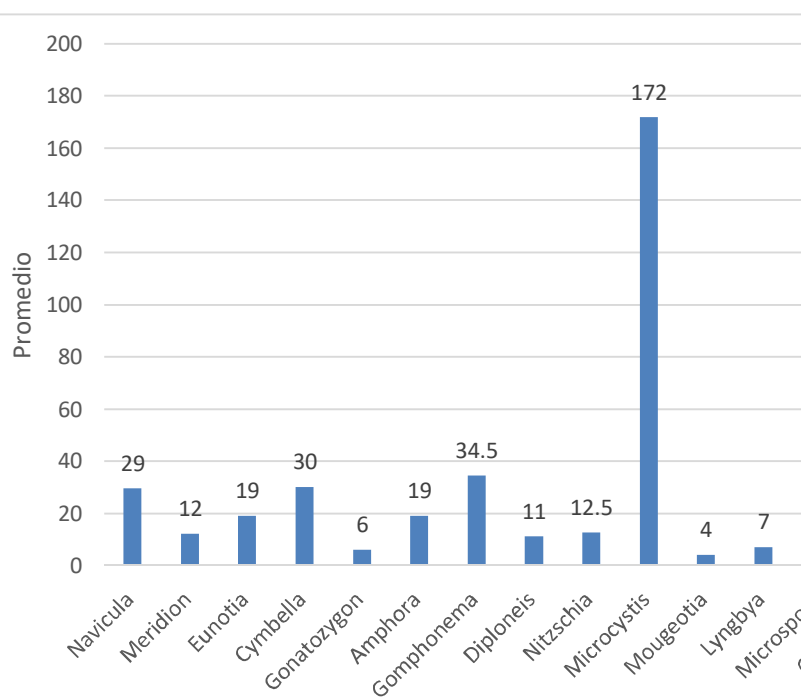
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REPRESENTATIVAS	
GENERO	PROMEDIO
Navicula	11
Eunotia	12
Cymbella	12
Gonatozygon	3
Amphora	6
Gomphonema	5
Nitzschia	3
Microcystis	136
Sphaerososma	3
Phormidium	4
Nostoc	9
Scenedesmus	4
Tribonema	10
Polycistis	121
Trentepohlia	3



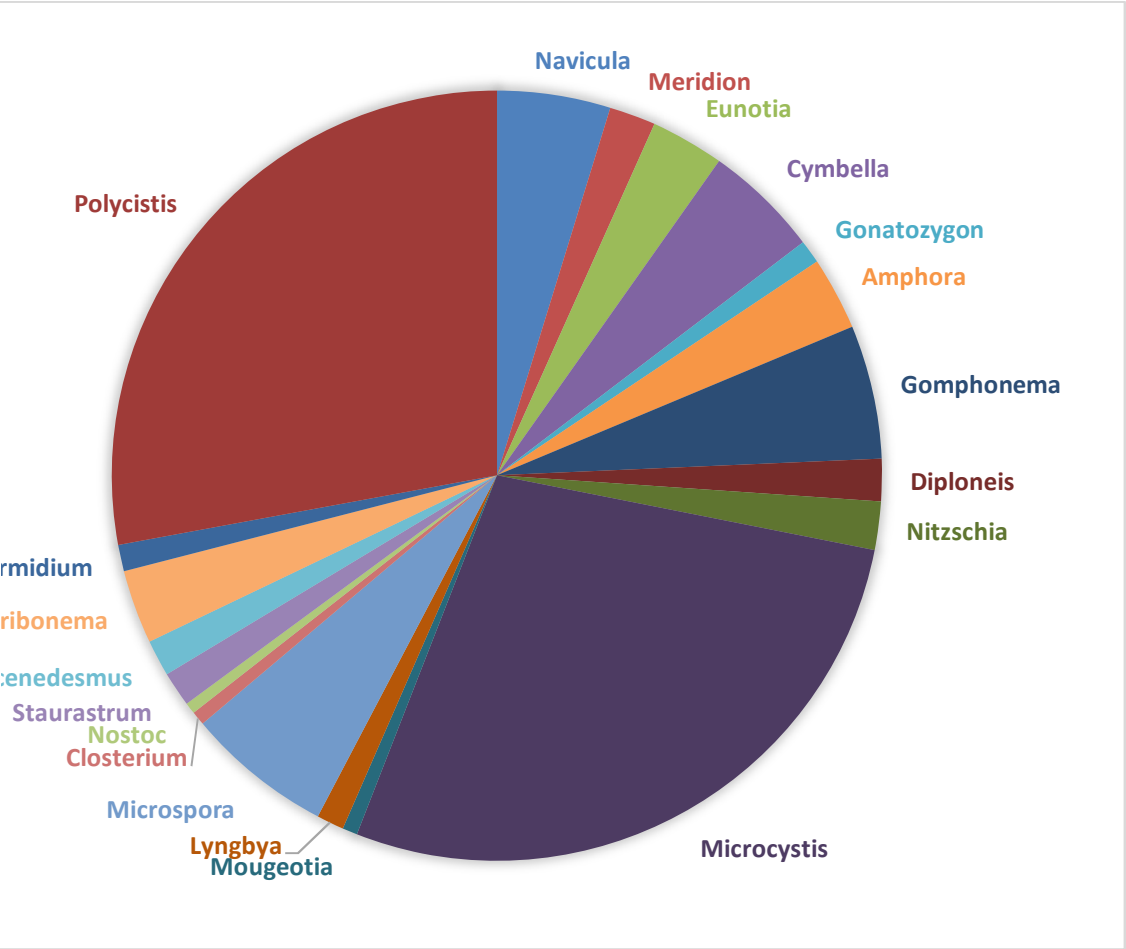


REPRESENTATIVAS	
GENERO	PROMEDIO
Navicula	29
Meridion	12
Eunotia	19
Cymbella	30
Gonatozygon	6
Amphora	19
Gomphonema	34.5
Diploneis	11
Nitzschia	12.5
Microcystis	172
Mougeotia	4
Lyngbya	7
Microspora	38
Closterium	4
Nostoc	3
Staurastrum	9

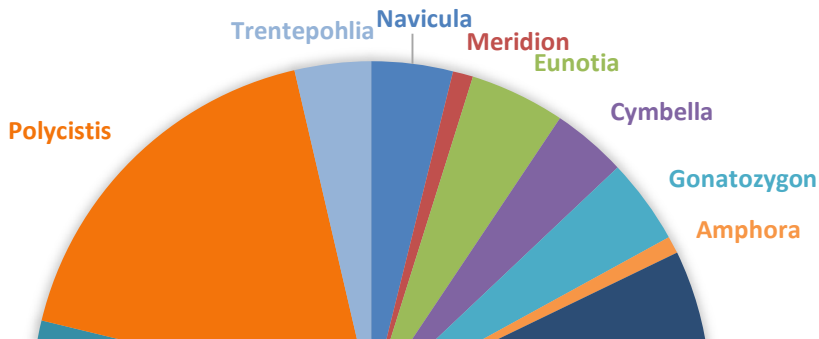
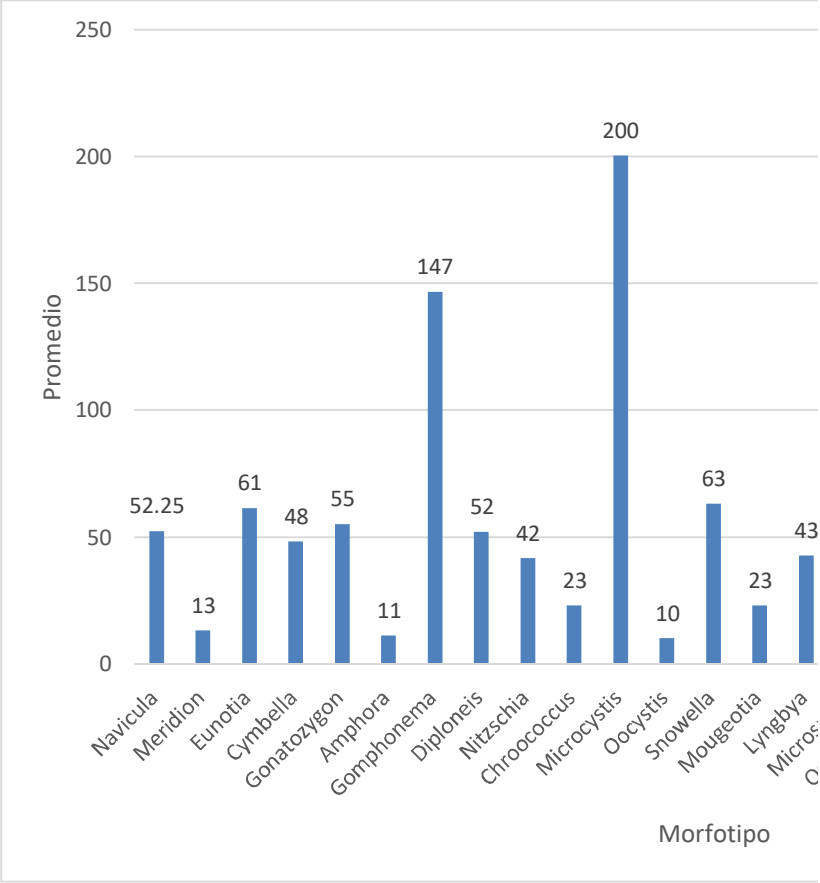


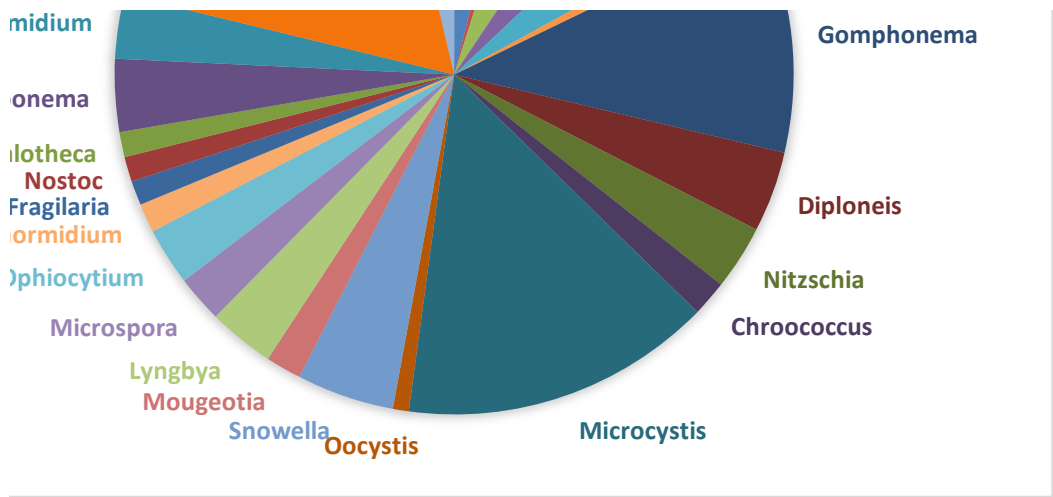
Scenedesmus	10
Tribonema	19
Klebsormidium	7
Polycistis	172

Morfotipo

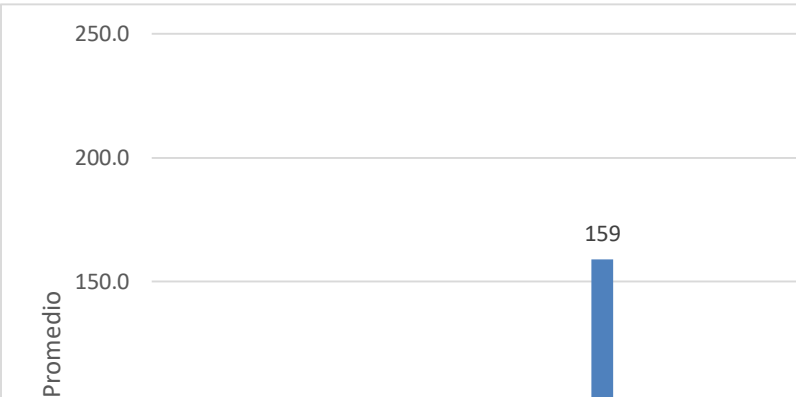


REPRESENTATIVAS	
GENERO	PROMEDIO
Navicula	52.25
Meridion	13
Eunotia	61
Cymbella	48
Gonatozygon	55
Amphora	11
Gomphonema	147
Diploneis	52
Nitzschia	42
Chroococcus	23
Microcystis	200
Oocystis	10
Snowella	63
Mougeotia	23
Lyngbya	43
Microspora	30
Ophiocytium	37
Phormidium	19
Fragilaria	16
Nostoc	16
Hyalotheca	16
Tribonema	47
Klebsormidium	41
Polycistis	237
Trentepohlia	49

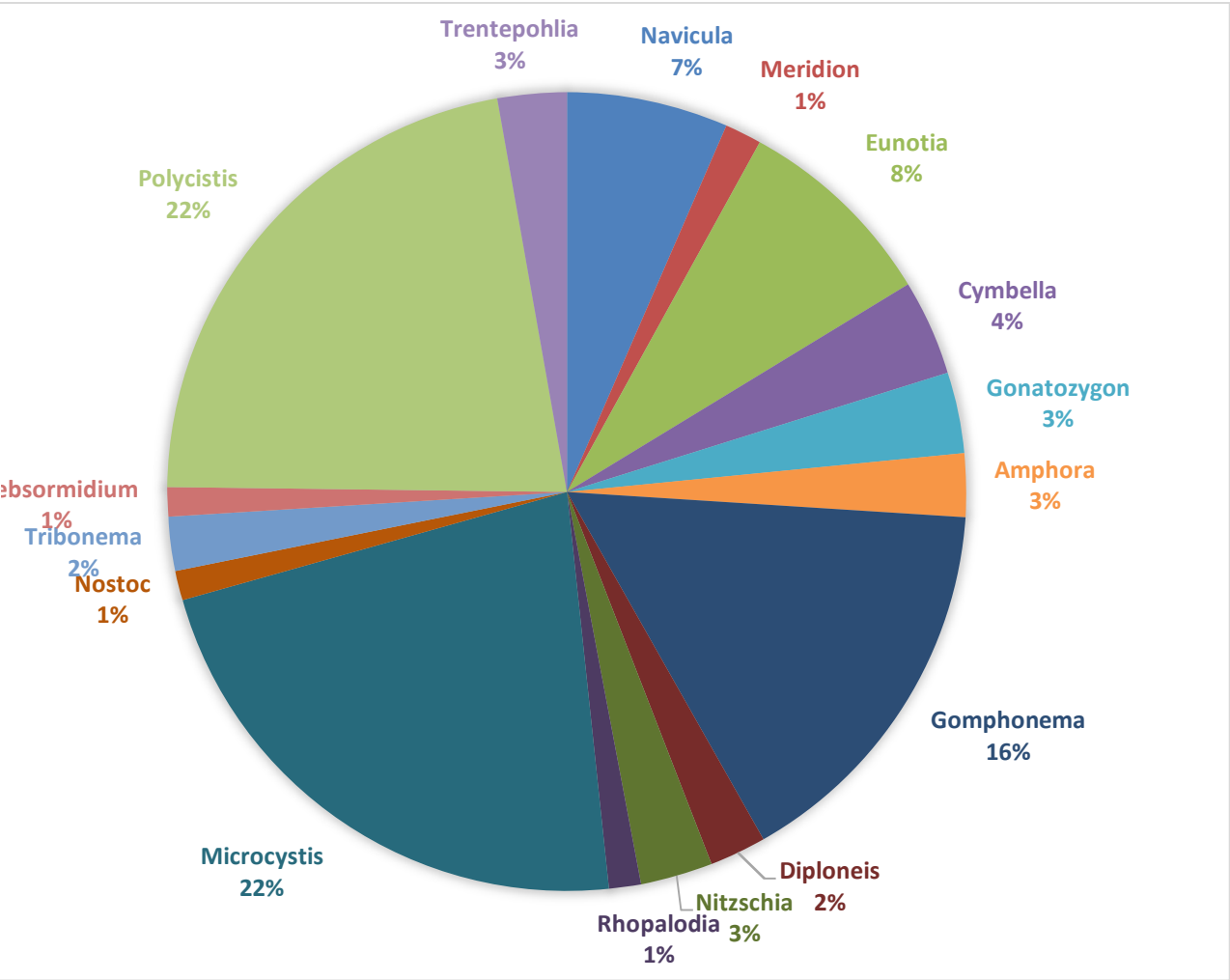
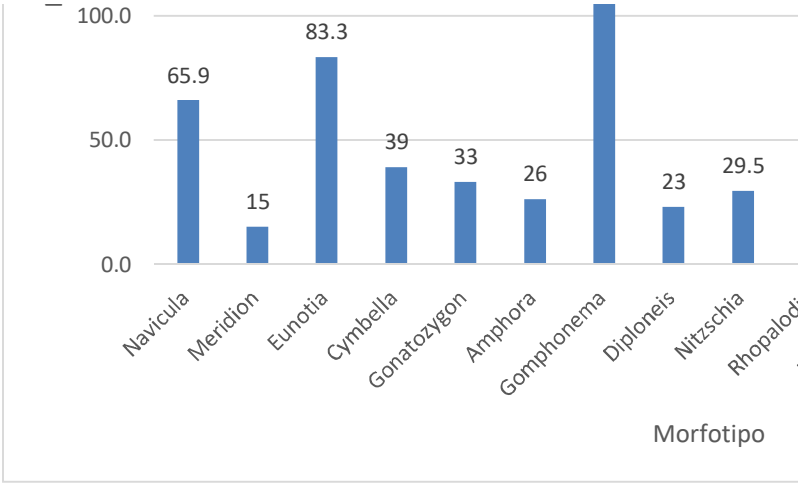




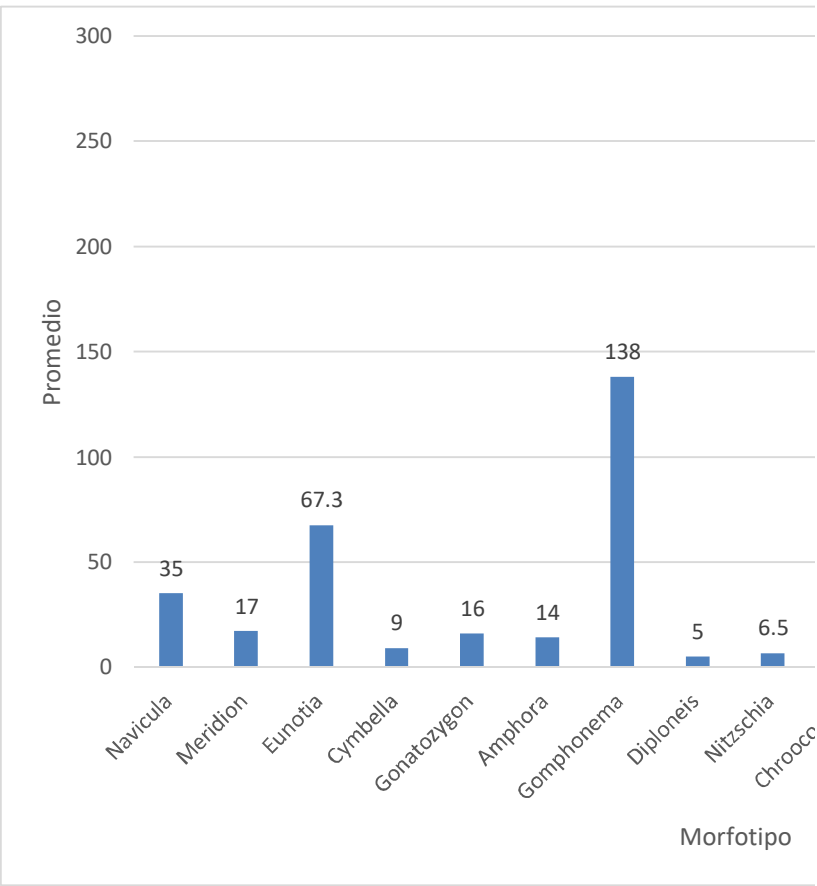
REPRESENTATIVAS	
GENERO	PROMEDIO
Navicula	65.9
Meridion	15
Eunotia	83.3
Cymbella	39
Gonatozygon	33
Amphora	26
Gomphonema	159
Diploneis	23

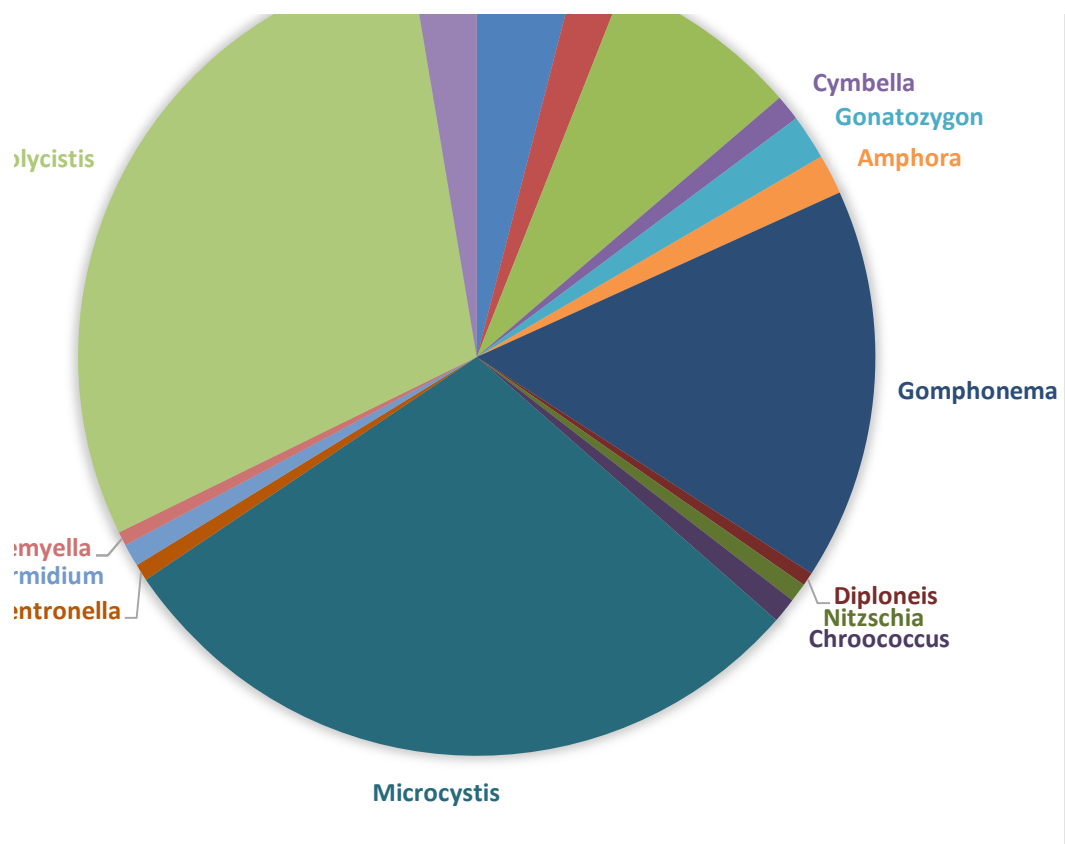


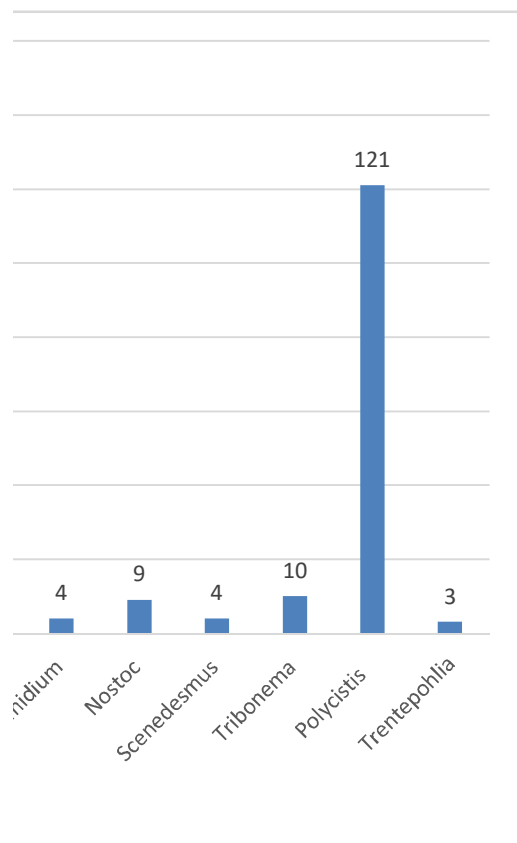
Nitzschia	29.5
Rhopalodia	13
Microcystis	224.7
Nostoc	12
Tribonema	22
Klebsormidium	12
Polycistis	222
Trentepohlia	28

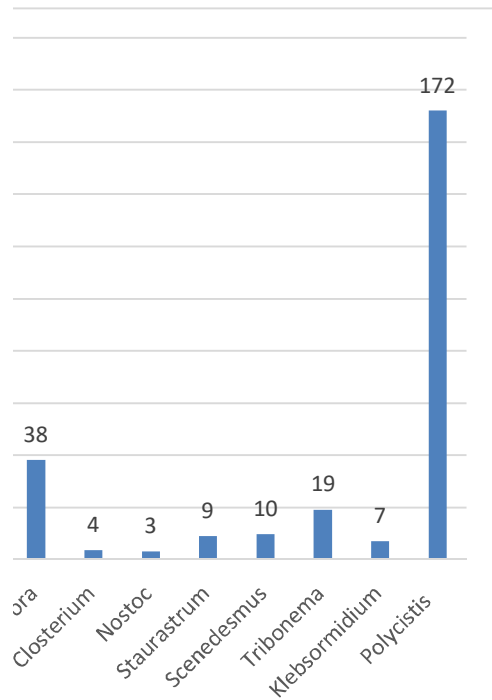


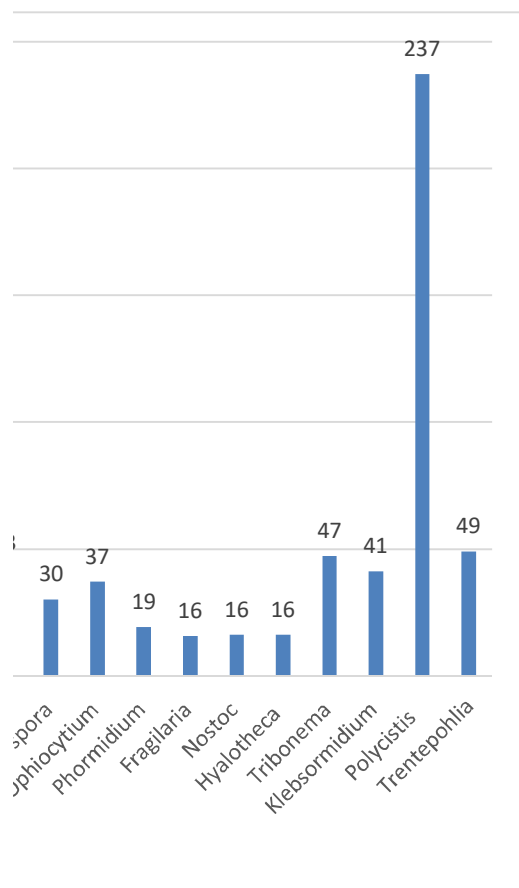
REPRESENTATIVAS	
GENERO	PROMEDIO
Navicula	35
Meridion	17
Eunotia	67.3
Cymbella	9
Gonatozygon	16
Amphora	14
Gomphonema	138
Diploneis	5
Nitzschia	6.5
Chroococcus	9
Microcystis	252.7
Centronella	6
Klebsormidium	8
fremyella	5
Polycystis	257
Trentepohlia	23

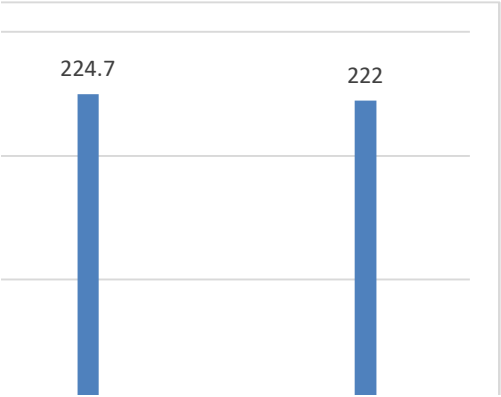


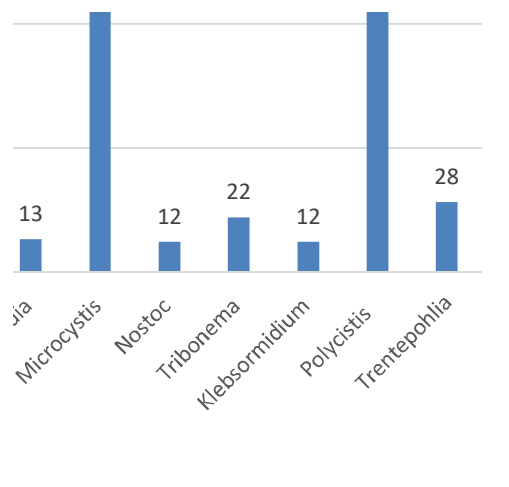


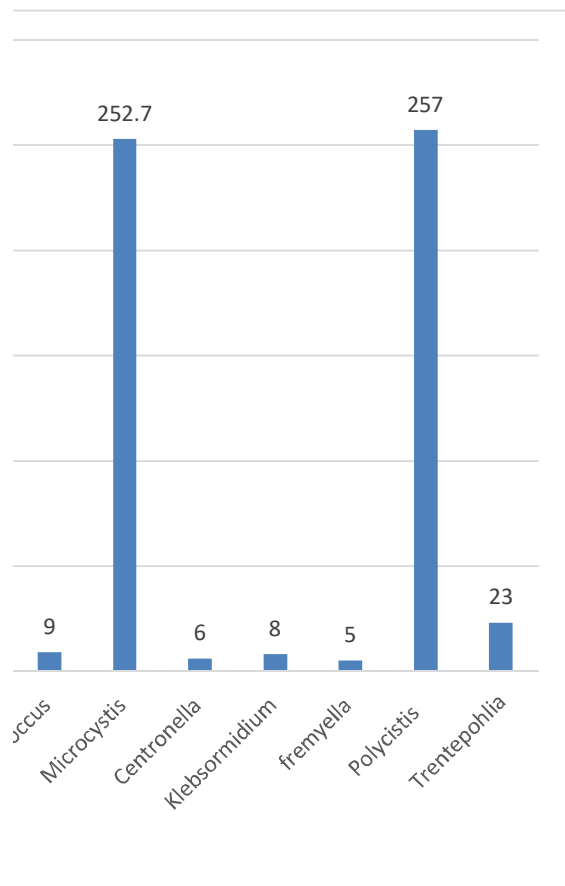












1	Nombre	FECHA	Pt	0	N Crucicula D	N Rhynchocep
2	23 DE SEPTIEN	23 DE SEPTIEN	1	20	4	1
3	23 DE SEPTIEN	23 DE SEPTIEN	1	40	2	2
10	18 DE NOVIEN	18 DE NOVIEN	1	20	5	2
11	18 DE NOVIEN	18 DE NOVIEN	1	40	2	3
12	23 DE SEPTIEN	23 DE SEPTIEN	2	20	3	1
13	23 DE SEPTIEN	23 DE SEPTIEN	2	40	4	0
20	18 DE NOVIEN	18 DE NOVIEN	2	20	5	2
21	18 DE NOVIEN	18 DE NOVIEN	2	40	2	3
22	23 DE SEPTIEN	23 DE SEPTIEN	3	20	5	0
23	23 DE SEPTIEN	23 DE SEPTIEN	3	40	2	0
30	18 DE NOVIEN	18 DE NOVIEN	3	20	0	1
31	18 DE NOVIEN	18 DE NOVIEN	3	40	0	0

NOMBRE	FECHAS	ESTACION	TEMPERATURA (°C)	TDS (ppm)	CONCENTRACION O.D (ppm)
TOMA1	Sept 23 Pt 1	1	18.03	94.3	7
TOMA5	Nov 18 Pt 1	1	19.45	89.2	9
TOMA1	Sept 23 Pt 2	2	16.54	102.5	5
TOMA5	Nov 18 Pt 2	2	15.09	99.5	6
TOMA1	Sept 23Pt 3	3	15.8	90.4	11
TOMA5	Nov 18 Pt 3	3	15.91	86.3	8

Navicula pupu	Navicula Bacil	Navicula Phicc	Navicula Vanh	Navicula Actir	Meridion Circ	Eunotia arcus
0	1	2	0	0	1	0
0	0	0	3	0	0	1
0	1	4	1	7	2	29
1	4	2	1	2	5	17
10	5	0	2	2	0	3
2	5	4	0	0	0	0
5	9	4	2	6	4	10
1	4	2	1	2	5	17
0	2	0	1	0	1	11
0	3	0	3	0	2	11
0	3	1	3	1	0	9
1	4	8	3	2	1	7

Ph	CONDUCTIVIDAD ABSOLUTA (μ S/cm)	SALINIDAD (PSU)	N Crucicula D	N Rhynchoce	Navicula pupu	Navicula Baci
7.0	179	0.09	3	1.5	0	0.5
6.7	163	0.08	3.5	2.5	0.5	2.5
6.5	239	0.19	3.5	0.5	6	5
6.6	250	0.21	3.5	2.5	3	6.5
6.4	168	0.11	3.5	0	0	2.5
6.5	157	0.09	0	0.5	0.5	3.5

Eunotia Praer	Eunotia Lunar	Cymbella Helv	Navicula Dista	Gonatozygon	Amphora Coff	Gomphonema
0	0	0	0	0	0	2
0	1	0	0	0	0	4
22	6	0	49	3	1	114
19	6	0	36	5	2	63
0	4	2	0	3	0	0
0	1	2	3	0	0	0
4	10	1	20	2	4	6
19	6	0	36	5	2	63
3	0	1	10	0	2	1
2	0	7	9	0	4	2
1	7	4	5	0	5	3
6	7	4	24	1	0	17

Navicula Phic	Navicula Vanl	Navicula Actir	Meridion Circ	Eunotia arcus	Eunotia Praer	Eunotia Lunar
1	1.5	0	0.5	0.5	0	0.5
3	1	4.5	3.5	23	20.5	6
2	1	1	0	1.5	0	2.5
3	1.5	4	4.5	13.5	11.5	8
0	2	0	1.5	11	2.5	0
4.5	3	1.5	0.5	8	3.5	7

Gomphonema	Diploneis ova	Nitzschia linea	Nitzschia acicu	Cosmarium C	Euglena Hemi	Rhopalodia gi
0	0	0	0	0	0	0
0	0	0	1	0	0	0
0	2	1	0	0	0	1
2	0	1	0	0	0	0
0	0	2	0	0	0	1
0	0	0	0	0	0	0
5	2	8	0	0	0	3
2	0	1	0	0	0	0
0	0	0	1	0	0	0
0	0	0	2	0	0	0
0	0	0	0	0	0	1
1	1	0	2	0	0	0

Cymbella Hel	Navicula Dist	Gonatozygon	Amphora Coff	Gomphonema	Gomphonema	Diploneis ova
0	0	0	0	3	0	0
0	42.5	4	1.5	88.5	1	1
2	1.5	1.5	0	0	0	0
0.5	28	3.5	3	34.5	3.5	1
4	9.5	0	3	1.5	0	0
4	14.5	0.5	2.5	10	0.5	0.5

Chroococcus	Microcystis P	Microcystis a	Myroscistis C	Oocystis Gnus	Snowella Litor	Peridinium C
0	10	15	29	0	0	0
0	13	18	24	0	0	0
3	23	37	63	0	0	0
2	22	33	59	0	0	0
0	7	25	50	0	0	0
0	11	23	43	0	0	0
0	16	23	108	0	0	0
2	22	33	59	0	0	0
0	13	24	30	0	0	0
0	12	20	41	0	0	0
1	19	52	73	0	0	0
1	11	33	72	0	0	4

Nitzschia line	Nitzschia acic	Cosmarium C	Euglena Hemi	Rhopalodia gi	Chroococcus	Microcystis P
0	0.5	0	0	0	0	11.5
1	0	0	0	0.5	2.5	22.5
1	0	0	0	0.5	0	9
4.5	0	0	0	1.5	1	19
0	1.5	0	0	0	0	12.5
0	1	0	0	0.5	1	15

Mougeotia C.	Spirogyra Link	Lyngbya C.Aga	Diatoma Vulga	Microspora pa	Lyngbya Mart	Ophiocytium c
0	0	0	0	0	0	0
0	0	0	0	2	0	0
0	0	0	0	0	0	0
1	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	4	0	0	0	0
0	0	2	1	1	0	0
1	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	1	0	0	0
0	0	0	1	0	0	0

Microcystis	Myroscistis C	Oocystis Gnu	Snowella Lito	Peridinium C	Mougeotia C.	Spirogyra Link
16.5	26.5	0	0	0	0	0
35	61	0	0	0	0.5	0
24	46.5	0	0	0	0	0
28	83.5	0	0	0	0.5	0
22	35.5	0	0	0	0	0
42.5	72.5	0	0	2	0	0

Sphaerosom	Phormidium u	Centronella R	Fragilaria Crot	Fragilaria Ulna	Closterium pr	Closterium ind
3	1	2	0	1	2	0
0	3	0	0	0	0	0
0	0	2	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	1	0	0	0	1	0
0	1	4	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0

Lyngbya C.Ag	Diatoma Vulg	Microspora p	Lyngbya Mart	Ophiocytium	Sphaerosom	Phormidium u
0	0	1	0	0	1.5	2
0	0	0	0	0	0	0
2	0	0	0	0	0	0.5
1	0.5	0.5	0	0	0	0.5
0	0	0	0	0	0	0
0	1	0	0	0	0	0

Aanabaena Cr	Phormidium S	Oscillatoria P	Spirulina jenn	Phormidium l	Anathece clat	Nostoc carneu
1	1	0	0	0	0	0
0	3	0	1	1	0	6
0	1	2	0	0	1	1
0	0	0	0	2	0	1
0	0	0	0	0	0	0
0	1	0	0	1	0	3
0	0	0	0	0	0	0
0	0	0	0	2	0	1
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	3	1	0
1	0	0	1	0	0	0

Centronella R	Fragilaria Cro	Fragilaria Ul	Closterium pr	Closterium in	Aanabaena C	Phormidium S
1	0	0.5	1	0	0.5	2
1	0	0	0	0	0	0.5
0	0	0	0.5	0	0	0.5
2	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0.5	0

Staurastrum p	Staurastrum G	Staurastrum I	Scenedesmus	Scenedesmus	Pediastrum D	Pediastrum te
0	0	0	0	0	0	0
1	0	0	0	0	0	0
0	0	0	1	0	1	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	2	0	0	0
0	0	0	6	0	0	0
0	0	0	1	0	0	0
0	0	0	0	0	0	0

Oscillatoria l	Spirulina jenn	Phormidium l	Anathece clat	Nostoc carne	Staurastrum p	Staurastrum G
0	0.5	0.5	0	3	0.5	0
1	0	1	0.5	1	0	0
0	0	0.5	0	1.5	0	0
0	0	1	0	0.5	0	0
0	0	0	0	0	0	0
0	0.5	1.5	0.5	0	0	0

Hyalotheca d	Struktur Volv	Tribonema m	Klebsormidiu	fremyella Dip	bumilleria Sid	Polycistis sp
0	0	5	0	0	0	15
0	0	5	0	0	0	12
0	0	0	6	1	0	36
0	0	0	0	0	0	37
0	0	0	0	0	0	35
0	0	0	0	2	0	25
0	0	0	0	4	0	46
0	0	0	0	0	0	37
0	0	0	0	0	0	16
0	0	0	0	0	0	18
0	0	0	1	0	0	54
0	0	0	1	0	2	47

Staurastrum l	Scenedesmus	Scenedesmus	Pediastrum D	Pediastrum te	Hyalotheca d	Struktur Volv
0	0	0	0	0	0	0
0	0.5	0	0.5	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	4	0	0	0	0	0
0	0.5	0	0	0	0	0

Tribonema m	Klebsormidiu	fremyella Dip	bumilleria Sic	Polycistis sp
5	0	0	0	13.5
0	3	0.5	0	36.5
0	0	1	0	30
0	0	2	0	41.5
0	0	0	0	17
0	1	0	1	50.5

FECHA	23 DE SEPTIEMBRE						
ORGANISMO	profundidad						
	20			40			
	M1	M2	M3	M1	M2	M3	M1
Navicula sp1	3	1	0	2	0	0	1
Navicula sp2	1	0	0	1	1	0	0
Navicula sp3	0	0	0	0	0	0	0
Navicula sp4	1	0	0	0	0	0	2
Navicula sp5	0	1	1	0	0	0	1
Navicula sp6	0	0	0	2	0	1	2
Navicula sp7	0	0	0	0	0	0	0
Meridion sp1	0	0	1	0	0	0	1
Eunotia sp1	0	0	0	1	0	0	1
Eunotia sp2	0	0	0	0	0	0	0
Eunotia sp3	0	0	0	1	0	0	0
Cymbella sp1	0	0	0	0	0	0	0
Navicula sp8	0	0	0	0	0	0	2
Gonatozygon sp1	0	0	0	0	0	0	0
Amphora sp1	0	0	0	0	0	0	0
Gomphonema sp1	0	0	2	0	3	1	0
Gomphonema sp2	0	0	0	0	0	0	0
Diploneis sp1	0	0	0	0	0	0	0
Nitzschia sp1	0	0	0	0	0	0	0

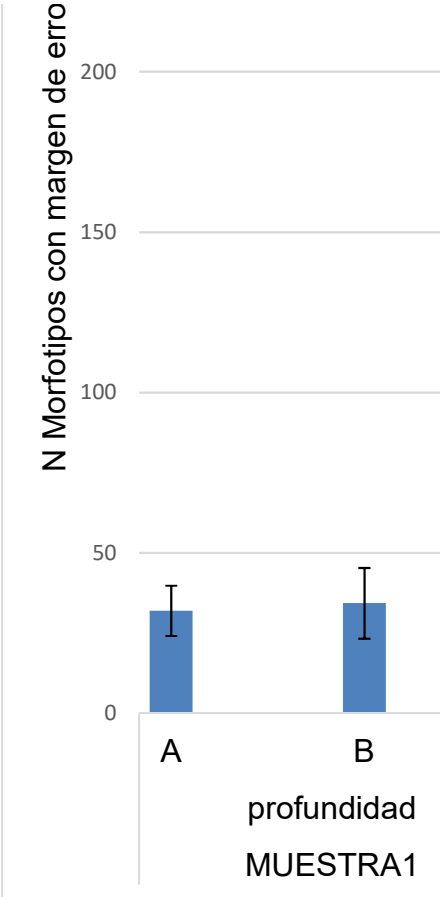
Nitzschia sp2	0	0	0	1	0	0	0
Cosmarium sp1	0	0	0	0	0	0	0
Euglena sp1	0	0	0	0	0	0	0
Rhopalodia sp1	0	0	0	0	0	0	0
Chroococcus sp1	0	0	0	0	0	0	0
Microcystis sp1	3	2	5	4	6	3	6
Microcystis sp2	3	5	7	4	8	6	9
Microcystis sp3	10	5	14	6	11	7	14
Oocystis sp1	0	0	0	0	0	0	0
Snowella sp1	0	0	0	0	0	0	0
Peridinium sp1	0	0	0	0	0	0	0
Mougeotia sp1	0	0	0	0	0	0	0
Spirogyra sp1	0	0	0	0	0	0	0
Lyngbya sp1	0	0	0	0	0	0	0
Diatoma sp1	0	0	0	0	0	0	0
Microspora sp1	0	0	0	1	0	1	2
Lyngbya sp2	0	0	0	0	0	0	1
Ophiocytium sp1	0	0	0	0	0	0	0
Sphaeroszma sp1	3	0	0	0	0	0	0
Phormidium sp1	1	0	0	0	3	0	3

Centronella sp1	2	0	0	0	0	0	0
Fragilaria sp1	0	0	0	0	0	0	0
Fragilaria sp2	1	0	0	0	0	0	0
Closterium sp1	2	0	0	0	0	0	0
Closterium sp2	0	0	0	0	0	0	0
Anabaena sp1	0	1	0	0	0	0	0
Phormidium sp2	1	0	0	3	0	0	0
Oscillatoria sp1	0	0	0	0	0	0	0
Spirulina sp1	0	0	0	1	0	0	0
Phormidium sp3	0	0	0	1	0	0	0
Anathece sp1	0	0	0	0	0	0	0
Nostoc sp1	0	0	0	0	6	0	0
Staurastrum sp1	0	0	0	0	0	1	1
Staurastrum sp2	0	0	0	0	0	0	0
Staurastrum sp3	0	0	0	0	0	0	0
Scenedesmus sp1	0	0	0	0	0	0	0
Scenedesmus sp2	0	0	0	0	0	0	0
Pediastrum sp1	0	0	0	0	0	0	0
Pediastrum sp2	0	0	0	0	0	0	1
Hyalotheca sp1	0	0	0	0	0	0	0

Struktur sp1	0	0	0	0	0	0	0
Tribonema sp1	1	0	4	0	4	1	0
Klebsormidium sp1	0	0	0	0	0	0	0
fremyella sp1	0	0	0	0	0	0	0
bumilleria sp1	0	0	0	0	0	0	0
Polycistis sp	4	8	3	1	5	6	3
Trentepohlia sp1	0	0	0	0	0	0	0
	36	23	37	29	47	27	50

FECHA	MUESTRA1					
ORGANISMO	profundidad					
	A			B		
		M			M	
	36	23	37	29	47	27
Promedio por profundidad	32			34		
desve	7.810249676			11.01514109		





07 DE OCTUBRE					22 DE OCTUBRE						04 DE NOVIEMBRE					
profundidad					profundidad						profundidad					
20		40			20			40			20			40		
M2	M3	M1	M2	M3	M1	M2	M3	M1	M2	M3	M1	M2	M3	M1	M2	M3
2	2	3	1	0	8	11	2	0	4	3	6	11	4	0	3	1
0	2	3	3	0	2	4	0	0	1	1	2	3	2	3	1	5
0	0	5	0	0	1	0	0	0	0	0	0	0	0	0	0	1
1	2	3	1	0	9	6	12	1	5	5	1	1	3	6	7	8
1	1	2	3	4	4	0	6	1	1	4	1	1	1	1	5	1
1	1	1	2	1	4	4	2	2	3	2	2	6	6	4	3	2
0	0	0	0	0	1	1	0	0	0	0	0	0	2	2	0	1
0	2	0	0	0	3	1	0	1	0	1	0	0	0	0	1	3
2	1	0	0	0	5	10	2	3	4	4	4	1	1	10	9	7
0	0	1	1	0	3	9	0	3	1	3	0	0	0	9	5	6
0	0	0	0	0	2	4	1	0	0	2	0	4	1	5	0	4
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	2	2	2	2	7	14	4	8	22	9	1	2	0	20	17	18
0	0	0	0	0	1	1	0	3	1	1	2	1	0	8	1	5
0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0
0	2	10	4	3	11	20	16	9	41	27	0	2	1	79	61	69
0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0
0	0	0	0	0	0	0	0	0	0	2	0	1	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0

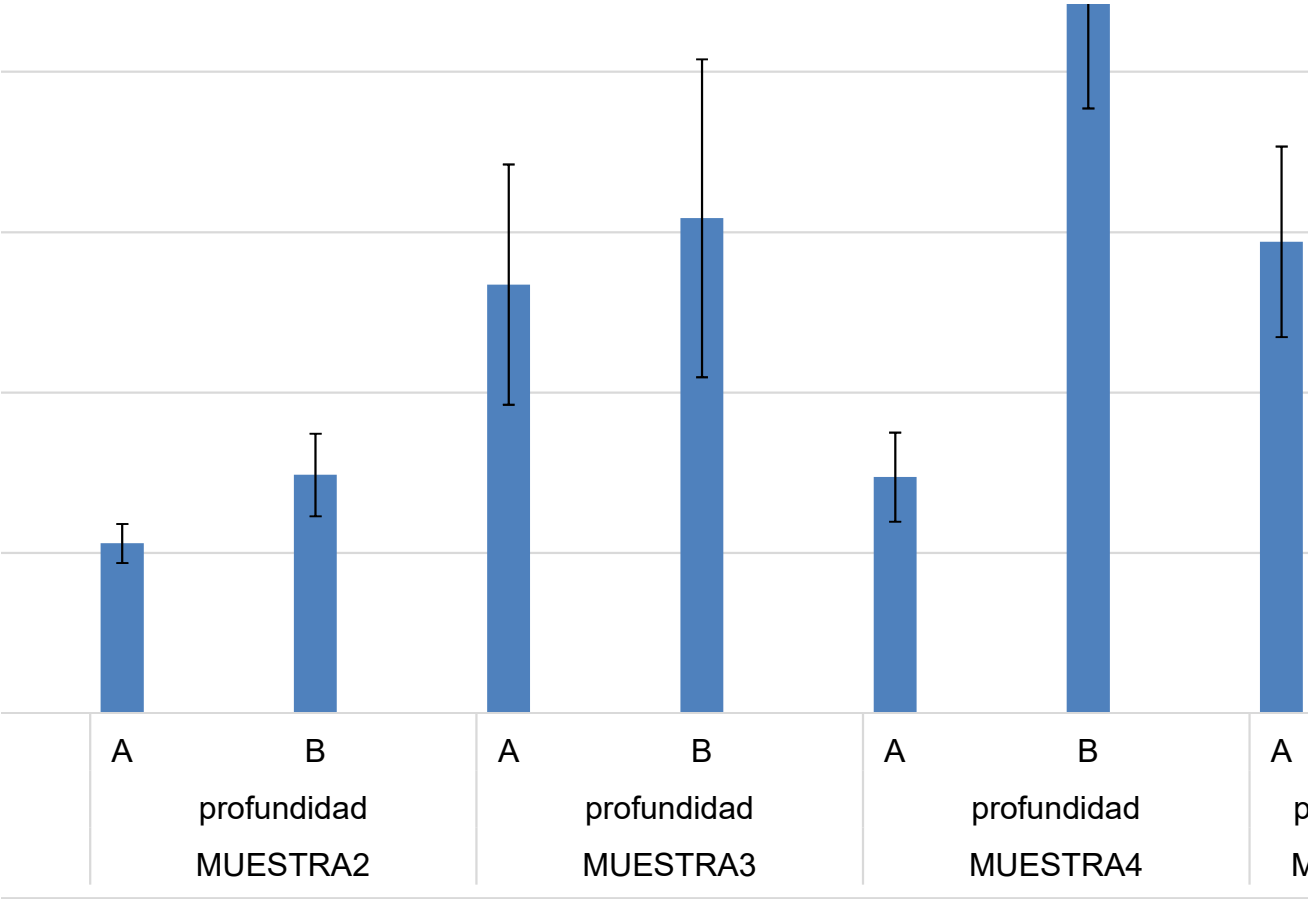
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0
0	0	0	0	0	1	0	0	0	0	0	0	1	0	4	1	2
0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0
7	8	6	9	9	3	5	8	3	6	4	6	6	2	5	6	8
4	9	8	7	9	12	10	14	11	16	7	6	9	11	16	13	17
18	9	14	10	16	8	15	12	17	20	17	14	21	17	23	16	22
0	0	0	0	0	1	1	0	1	2	0	0	0	0	0	0	0
0	0	0	0	0	2	1	0	9	15	9	0	1	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	1	0	0	3	2	0	1	4	1	0	0	0	0	0	0
0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	1	4	8	6	0	1	0	4	6	12	0	0	0	0	1	0
1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	12	0	0	2	0	0	0	0	0	0	0	7
0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
1	2	1	0	1	8	8	1	2	0	6	0	0	0	2	5	2

[illegible]

0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	6	2	4	0	5	0	6	8	8	0	0	0	10	8	4
0	0	0	0	0	0	4	0	0	6	0	0	0	0	3	3	2
0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	10	8	3	4	7	14	8	12	16	9	15	12	16	19	4	16
0	0	0	0	0	4	14	3	4	11	6	0	0	0	7	10	5
49	60	89	69	65	127	174	100	106	205	152	62	89	70	246	184	235

MUESTRA2						MUESTRA3						MUESTRA4					
profundidad						profundidad						profundidad					
A			B			A			B			A			B		
	M			M			M			M			M			M	
50	49	60	89	69	65	127	174	100	106	205	152	62	89	70	246	184	
53			74			134			154			74			222		
6.08276253			12.85820101			37.44774136			49.54122862			13.86842938			33.080709		





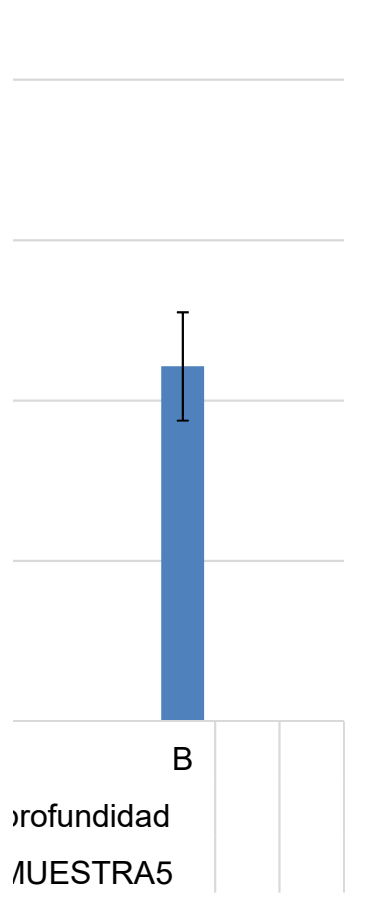
18 DE NOVIEMBRE						
profundidad						
20			40			
M1	M2	M3	M1	M2	M3	
3	2	0	1	1	0	2.5
2	0	0	2	0	1	1.3333
0	0	0	0	1	0	0.2667
1	0	0	2	0	2	2.6333
2	2	0	1	1	0	1.5333
1	0	0	0	0	1	1.7667
4	3	0	0	2	0	0.5333
1	1	0	1	2	2	0.7
7	16	6	6	6	5	3.7
5	10	7	8	4	7	2.7333
2	4	0	3	2	1	1.2
0	0	0	0	0	0	0
19	19	11	7	9	20	7.2667
0	3	0	0	3	2	1.0667
0	1	0	0	0	2	0.1667
50	38	26	10	21	32	17.933
0	0	0	0	2	0	0.1333
1	0	1	0	0	0	0.1667
0	1	0	1	0	0	0.1

0	0	0	0	0	0	0.0667
0	0	0	0	0	0	0
0	0	0	0	0	0	0.0667
1	0	0	0	0	0	0.3333
1	2	0	1	0	1	0.2333
9	6	8	7	9	6	5.8333
15	13	9	14	10	9	9.7
17	25	21	23	16	20	15.267
0	0	0	0	0	0	0.1667
0	0	0	0	0	0	1.2333
0	0	0	0	0	0	0
0	0	0	0	0	1	0.4333
0	0	0	0	0	0	0.0333
0	0	0	0	0	0	0.1
0	0	0	0	0	0	0
0	0	0	0	0	0	1.6
0	0	0	0	0	0	0.1
0	0	0	0	0	0	0.7
0	0	0	0	0	0	0.1333
0	0	0	0	0	0	1.5333

0	2	0	0	0	0	0.1333
0	0	0	0	0	0	0.0333
0	0	0	0	0	0	0.3333
0	0	0	0	0	0	0.1
0	0	0	0	0	0	0
0	0	0	0	0	0	0.0333
0	0	1	0	0	0	0.4667
0	2	0	0	0	0	0.1333
0	0	0	0	0	0	0.0333
0	0	0	0	1	1	0.1
1	0	0	0	0	0	0.0333
0	1	0	0	1	0	0.8667
0	0	0	0	0	0	1.0333
0	0	0	0	0	0	0.4
0	0	0	0	0	0	0.1
0	0	1	0	0	0	0.5333
0	0		0	0	0	0.0345
0	0	1	0	0	0	0.0333
0	0	0	0	0	0	0.3667
0	0	0	0	0	0	0.1

0	0	0	0	0	0	0
0	0	0	0	0	0	2.3667
4	0	2	0	0	0	0.8
1	0	0	0	0	0	0.0667
0	0	0	0	0	0	0
15	7	14	9	11	17	9.4
6	2	5	3	1	0	2.7
168	160	113	99	103	130	

	MUESTRA5					
	profundidad					
	A			B		
		M			M	
235	168	160	113	99	103	130
	147			111		
038	29.71531592			16.86218649		



23 DE SEPTIEMBRE	
20	40
4	2
1	2
0	0
1	0
2	0
0	3
0	0
1	0
0	1
0	0
0	1
0	0
0	0
0	0
0	0
0	0
2	4
0	0
0	0
0	0

0	1
0	0
0	0
0	0
0	0
10	13
15	18
29	24
0	0
0	0
0	0
0	0
0	0
0	0
0	0
0	0
0	2
0	0
0	0
3	0
1	3

[illegible]

0	0
5	5
0	0
0	0
0	0
15	12
0	0

07 DE OCTUBRE	22 DE OCTUBRE	04 DE NOVIEMBRE	18 DE NO
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profundidad

20	40	20	40	20	40	20
5	4	21	7	21	4	5
2	6	6	2	7	9	2
0	5	1	0	0	1	0
5	4	27	11	5	21	1
3	9	10	6	3	7	4
4	4	10	7	14	9	1
0	0	2	0	2	3	7
3	0	4	2	0	4	2
4	0	17	11	6	26	29
0	2	12	7	0	20	22
0	0	7	2	5	9	6
0	0	0	0	0	0	0
5	6	25	39	3	55	49
0	0	2	5	3	14	3
0	0	1	0	1	0	1
2	17	47	77	3	209	114
0	0	1	0	0	1	0
0	0	0	2	1	0	2
0	0	0	0	1	0	1

0	0	0	0	0	1	0
0	0	0	0	0	0	0
0	0	1	1	0	0	0
0	0	1	0	1	7	1
0	0	1	1	0	0	3
21	24	16	13	14	19	23
22	24	36	34	26	46	37
41	40	35	54	52	61	63
0	0	2	3	0	0	0
0	0	3	33	1	0	0
0	0	0	0	0	0	0
0	1	5	6	0	0	0
0	1	0	0	0	0	0
0	0	0	1	2	0	0
0	0	0	0	0	0	0
4	18	1	22	0	1	0
3	0	0	0	0	0	0
0	0	12	2	0	7	0
0	0	1	0	0	0	0
6	2	17	8	0	9	0

0	0	0	0	0	0	2
0	0	0	0	1	0	0
0	0	1	1	1	6	0
1	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	1	2	4	2	1
0	0	2	0	0	0	2
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	1
0	0	0	6	0	12	1
3	13	9	3	0	2	0
1	4	1	2	0	4	0
1	1	1	0	0	0	0
2	4	2	5	0	2	1
0	0	1	0	0	0	0
0	0	0	0	0	0	1
2	4	0	2	0	3	0
0	3	0	0	0	0	0

0	0	0	0	0	0	0
0	12	5	22	0	22	0
0	0	4	6	0	8	6
0	0	0	0	1	0	1
0	0	0	0	0	0	0
19	15	29	37	43	39	36
0	0	21	21	0	22	13

VIEMBRE
40
2
3
1
4
2
1
2
5
17
19
6
0
36
5
2
63
2
0
1

[illegible]

[illegible]

[illegible]

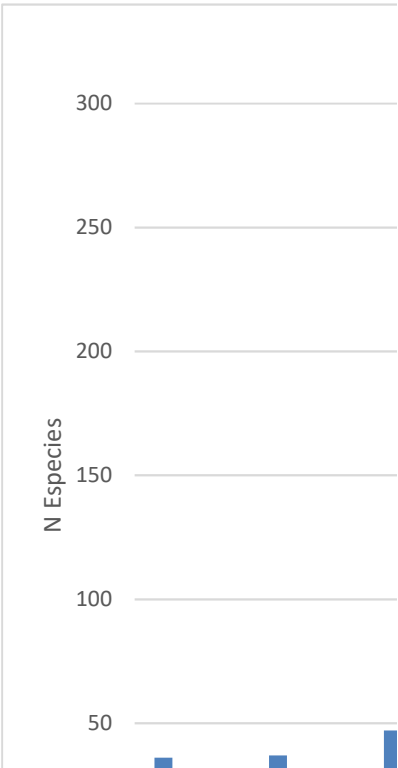
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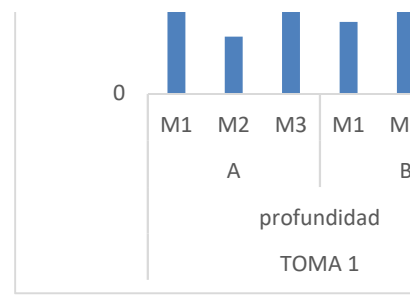
Nitzschia sp2	0	0	0	1	0	0	0	0	0	0	0	0
Cosmarium sp1	0	0	0	0	0	0	0	0	0	0	0	0
Euglena sp1	0	0	0	0	0	0	0	0	0	0	0	0
Rhopalodia sp1	0	0	0	0	0	0	0	0	0	0	0	0
Chroococcus sp1	0	0	0	0	0	0	0	0	0	0	0	0
Microcystis sp1	3	2	5	4	6	3	6	7	8	6	9	9
Microcystis sp2	3	5	7	4	8	6	9	4	9	8	7	9
Microcystis sp3	10	5	14	6	11	7	14	18	9	14	10	16
Oocystis sp1	0	0	0	0	0	0	0	0	0	0	0	0
Snowella sp1	0	0	0	0	0	0	0	0	0	0	0	0
Peridinium sp1	0	0	0	0	0	0	0	0	0	0	0	0
Mougeotia sp1	0	0	0	0	0	0	0	0	0	1	0	0
Spirogyra sp1	0	0	0	0	0	0	0	0	0	0	1	0
Lyngbya sp1	0	0	0	0	0	0	0	0	0	0	0	0
Diatoma sp1	0	0	0	0	0	0	0	0	0	0	0	0
Microspora sp1	0	0	0	1	0	1	2	1	1	4	8	6
Lyngbya sp2	0	0	0	0	0	0	1	1	1	0	0	0
Ophiocytium sp1	0	0	0	0	0	0	0	0	0	0	0	0
Sphaeroszoma sp1	3	0	0	0	0	0	0	0	0	0	0	0
Phormidium sp1	1	0	0	0	3	0	3	1	2	1	0	1

[illegible]

Struktur sp1	0	0	0	0	0	0	0	0	0	0	0	0
Tribonema sp1	1	0	4	0	4	1	0	0	0	6	2	4
Klebsormidium sp1	0	0	0	0	0	0	0	0	0	0	0	0
fremyella sp1	0	0	0	0	0	0	0	0	0	0	0	0
bumilleria sp1	0	0	0	0	0	0	0	0	0	0	0	0
Polycistis sp	4	8	3	1	5	6	3	6	10	8	3	4
Trentepohlia sp1	0	0	0	0	0	0	0	0	0	0	0	0
	36	23	37	29	47	27	50	49	60	89	69	65

FECHA	TOMA 1						TOMA 2					
GANIS	profundidad						profundidad					
	A			B			A			B		
	M1	M2	M3	M1	M2	M3	M1	M2	M3	M1	M2	
	36	23	37	29	47	27	50	49	60	89	69	





22 DE OCTUBRE						04 DE NOVIEMBRE						18 DE NOVIEMBRE			
profundidad						profundidad						profundidad			
20			40			20			40			20			
M1	M2	M3	M1	M2	M3	M1	M2	M3	M1	M2	M3	M1	M2	M3	M1
8	11	2	0	4	3	6	11	4	0	3	1	3	2	0	1
2	4	0	0	1	1	2	3	2	3	1	5	2	0	0	2
1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
9	6	12	1	5	5	1	1	3	6	7	8	1	0	0	2
4	0	6	1	1	4	1	1	1	1	5	1	2	2	0	1
4	4	2	2	3	2	2	6	6	4	3	2	1	0	0	0
1	1	0	0	0	0	0	0	2	2	0	1	4	3	0	0
3	1	0	1	0	1	0	0	0	0	1	3	1	1	0	1
5	10	2	3	4	4	4	1	1	10	9	7	7	16	6	6
3	9	0	3	1	3	0	0	0	9	5	6	5	10	7	8
2	4	1	0	0	2	0	4	1	5	0	4	2	4	0	3
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	14	4	8	22	9	1	2	0	20	17	18	19	19	11	7
1	1	0	3	1	1	2	1	0	8	1	5	0	3	0	0
0	1	0	0	0	0	0	1	0	0	0	0	0	1	0	0
11	20	16	9	41	27	0	2	1	79	61	69	50	38	26	10
0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0
0	0	0	0	0	2	0	1	0	0	0	0	1	0	1	0
0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	1

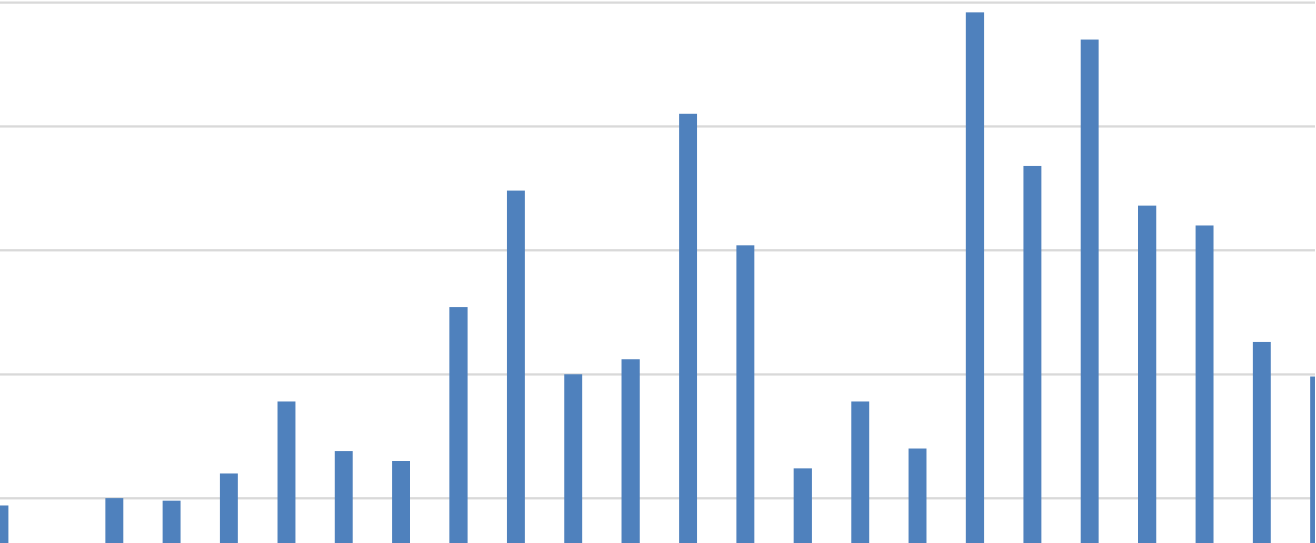
0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
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1	0	0	0	0	0	0	1	0	4	1	2	1	0	0	0
1	0	0	1	0	0	0	0	0	0	0	0	1	2	0	1
3	5	8	3	6	4	6	6	2	5	6	8	9	6	8	7
12	10	14	11	16	7	6	9	11	16	13	17	15	13	9	14
8	15	12	17	20	17	14	21	17	23	16	22	17	25	21	23
1	1	0	1	2	0	0	0	0	0	0	0	0	0	0	0
2	1	0	9	15	9	0	1	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	2	0	1	4	1	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	1	0	4	6	12	0	0	0	0	1	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	2	0	0	0	0	0	0	0	7	0	0	0	0
0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
8	8	1	2	0	6	0	0	0	2	5	2	0	0	0	0

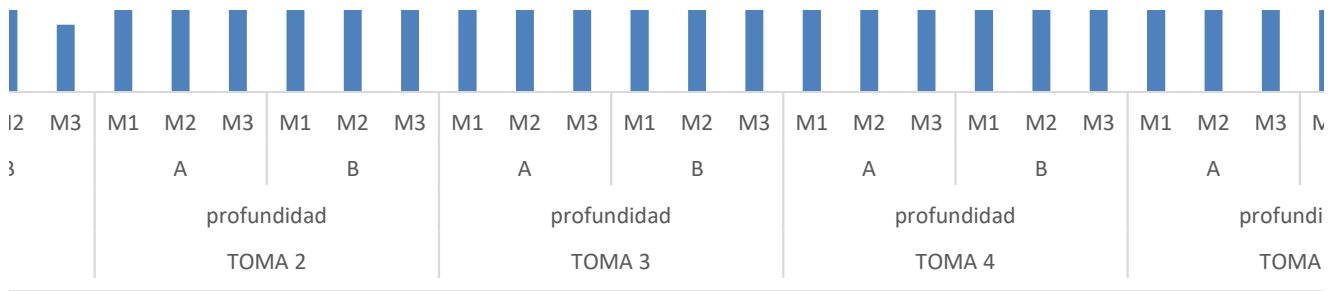
[illegible]

0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	5	0	6	8	8	0	0	0	10	8	4	0	0	0	0
0	4	0	0	6	0	0	0	0	3	3	2	4	0	2	0
0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	14	8	12	16	9	15	12	16	19	4	16	15	7	14	9
4	14	3	4	11	6	0	0	0	7	10	5	6	2	5	3
127	174	100	106	205	152	62	89	70	246	184	235	168	160	113	99

	TOMA 3							TOMA 4								
	profundidad							profundidad						pro		
	A			B				A			B			A		
M3	M1	M2	M3	M1	M2	M3	M1	M2	M3	M1	M2	M3	M1	M2	M3	
65	127	174	100	106	205	152	62	89	70	246	184	235	168	160	113	

PRESENCIA DE MORFOTIPOS ALGALES PERIFITICOS ESTACION 1





RE	
40	
M2	M3
1	0
0	1
1	0
0	2
1	0
0	1
2	0
2	2
6	5
4	7
2	1
0	0
9	20
3	2
0	2
21	32
2	0
0	0
0	0

2.5
1.33333333
0.26666667
2.63333333
1.53333333
1.76666667
0.53333333
0.7
3.7
2.73333333
1.2
0
7.26666667
1.06666667
0.16666667
17.93333333
0.13333333
0.16666667
0.1

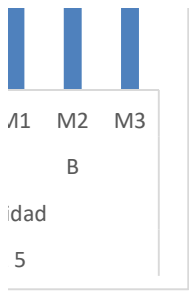
0	0	0.06666667
0	0	0
0	0	0.06666667
0	0	0.33333333
0	1	0.23333333
9	6	5.83333333
10	9	9.7
16	20	15.2666667
0	0	0.16666667
0	0	1.23333333
0	0	0
0	1	0.43333333
0	0	0.03333333
0	0	0.1
0	0	0
0	0	1.6
0	0	0.1
0	0	0.7
0	0	0.13333333
0	0	1.53333333

0	0	0.13333333
0	0	0.03333333
0	0	0.33333333
0	0	0.1
0	0	0
0	0	0.03333333
0	0	0.46666667
0	0	0.13333333
0	0	0.03333333
1	1	0.1
0	0	0.03333333
1	0	0.86666667
0	0	1.03333333
0	0	0.4
0	0	0.1
0	0	0.53333333
0	0	0.03448276
0	0	0.03333333
0	0	0.36666667
0	0	0.1

0	0	0
0	0	2.36666667
0	0	0.8
0	0	0.06666667
0	0	0
11	17	9.4
1	0	2.7
103	130	

TOMA 5		
Profundidad		
B		
M1	M2	M3
99	103	130





23 DE SEPTIEMBRE		07 DE O
20	40	20
4	2	5
1	2	2
0	0	0
1	0	5
2	0	3
0	3	4
0	0	0
1	0	3
0	1	4
0	0	0
0	1	0
0	0	0
0	0	5
0	0	0
0	0	0
2	4	2
0	0	0
0	0	0
0	0	0

0	1	0
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0	0	0
0	0	0
10	13	21
15	18	22
29	24	41
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0	0	0
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0	0	0
0	0	0
0	0	0
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0	0	3
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3	0	0
1	3	6

2	0	0
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1	0	0
2	0	1
0	0	0
1	0	0
1	3	0
0	0	0
0	1	0
0	1	0
0	0	0
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0	0	2
0	0	0
0	0	0
0	0	2
0	0	0

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5	5	0
0	0	0
0	0	0
0	0	0
15	12	19
0	0	0

CTUBRE	22 DE OCTUBRE	04 DE NOVIEMBRE	18 DE NOVIEMBRE
profundidad			
40	20	40	20
4	21	7	21
6	6	2	7
5	1	0	0
4	27	11	5
9	10	6	3
4	10	7	14
0	2	0	2
0	4	2	0
0	17	11	6
2	12	7	0
0	7	2	5
0	0	0	0
6	25	39	3
0	2	5	3
0	1	0	1
17	47	77	3
0	1	0	0
0	0	2	1
0	0	0	1

0	0	0	0	1	0	0
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0	1	1	0	0	0	0
0	1	0	1	7	1	0
0	1	1	0	0	3	2
24	16	13	14	19	23	22
24	36	34	26	46	37	33
40	35	54	52	61	63	59
0	2	3	0	0	0	0
0	3	33	1	0	0	0
0	0	0	0	0	0	0
1	5	6	0	0	0	1
1	0	0	0	0	0	0
0	0	1	2	0	0	0
0	0	0	0	0	0	0
18	1	22	0	1	0	0
0	0	0	0	0	0	0
0	12	2	0	7	0	0
0	1	0	0	0	0	0
2	17	8	0	9	0	0

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0	1	1	1	6	0	0
0	0	0	0	0	0	0
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0	0	0	0	0	0	0
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0	2	0	0	0	2	0
0	0	0	0	0	0	0
0	0	0	0	0	0	2
0	0	0	0	0	1	0
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13	9	3	0	2	0	0
4	1	2	0	4	0	0
1	1	0	0	0	0	0
4	2	5	0	2	1	0
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3	0	0	0	0	0	0

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12	5	22	0	22	0	0
0	4	6	0	8	6	0
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0	21	21	0	22	13	4

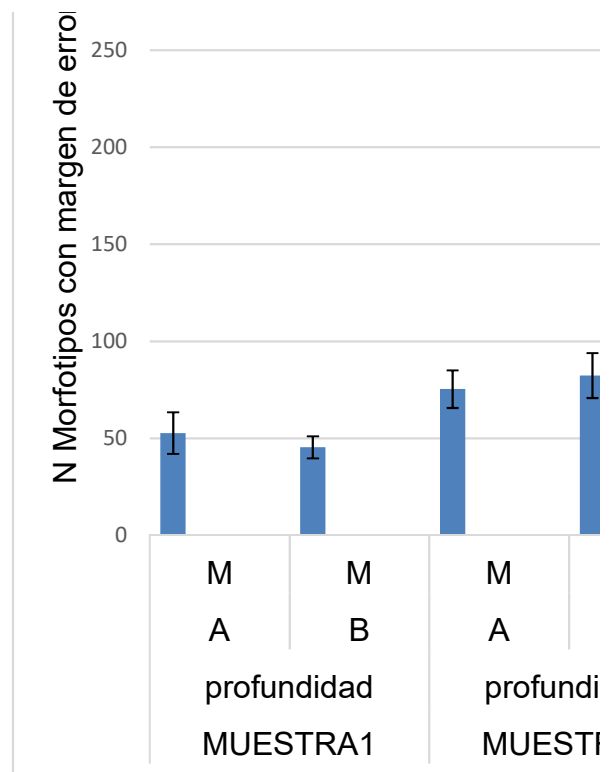
FECHA	23 DE SEPTIEMBRE						07 DE OCTUBRE						
ORGANISMO	profundidad						profundidad						
	20			40			20			40			
	M1	M2	M3	M1	M2	M3	M1	M2	M3	M1	M2	M3	M1
Navicula sp1	1	1	1	1	0	3	2	1	1	0	0	2	1
Navicula sp2	0	1	0	0	0	0	0	0	1	0	0	1	0
Navicula sp3	5	5	0	0	0	2	4	7	2	1	5	2	1
Navicula sp4	4	0	1	1	3	1	5	10	3	3	7	4	11
Navicula sp5	0	0	0	0	2	2	0	0	0	4	0	0	2
Navicula sp6	0	0	2	0	0	0	2	5	3	5	0	0	6
Navicula sp7	1	1	0	0	0	0	2	1	1	0	0	0	1
Meridion sp1	0	0	0	0	0	0	1	1	2	0	2	1	0
Eunotia sp1	0	0	3	0	0	0	2	1	1	1	0	0	0
Eunotia sp2	0	0	0	0	0	0	0	0	0	0	0	0	0
Eunotia sp3	3	1	0	0	0	1	1	1	1	1	0	0	2
Cymbella sp1	0	1	1	1	1	0	1	2	1	0	12	6	0
Navicula sp8	0	0	0	2	1	0	3	2	1	1	1	2	3
Gonatozygon sp1	3	0	0	0	0	0	0	0	0	0	0	0	2
Amphora sp1	0	0	0	0	0	0	1	1	1	0	2	1	0
Gomphonema sp1	0	0	0	0	0	0	4	6	2	3	9	5	5
Gomphonema sp2	0	0	0	0	0	0	0	0	0	0	2	1	0
Diploneis sp1	0	0	0	0	0	0	0	0	0	9	0	0	8

[illegible]

[illegible]

Hyalotheca sp1	0	0	0	0	0	0	0	0	0	0	0	0	0
Struktur sp1	0	0	0	0	0	0	0	0	0	0	1	0	0
Tribonema sp1	0	0	0	0	0	0	0	0	0	0	0	0	0
Klebsormidium sp1	0	0	0	0	0	0	0	0	0	0	0	0	0
fremyella sp1	0	0	0	0	0	2	0	0	0	1	0	0	0
bumilleria sp1	0	0	0	0	0	0	0	0	0	0	0	0	0
Polycistis sp	14	12	9	6	11	8	12	15	14	16	8	13	17
Trentepohlia sp1	3	0	0	0	0	0	0	0	0	0	0	0	2
	62	55	41	39	47	50	67	86	73	88	90	69	107

FECHA	MUESTRA1						MUESTRA2						
ORGANISMO	profundidad						profundidad						
	A			B			A			B			
		M			M			M			M		
	62	55	41	39	47	50	67	86	73	88	90	69	107
Promedio por profundidad	53			45			75			82			
desve	10.69267662			5.686240703			9.712534856			11.59022577			27



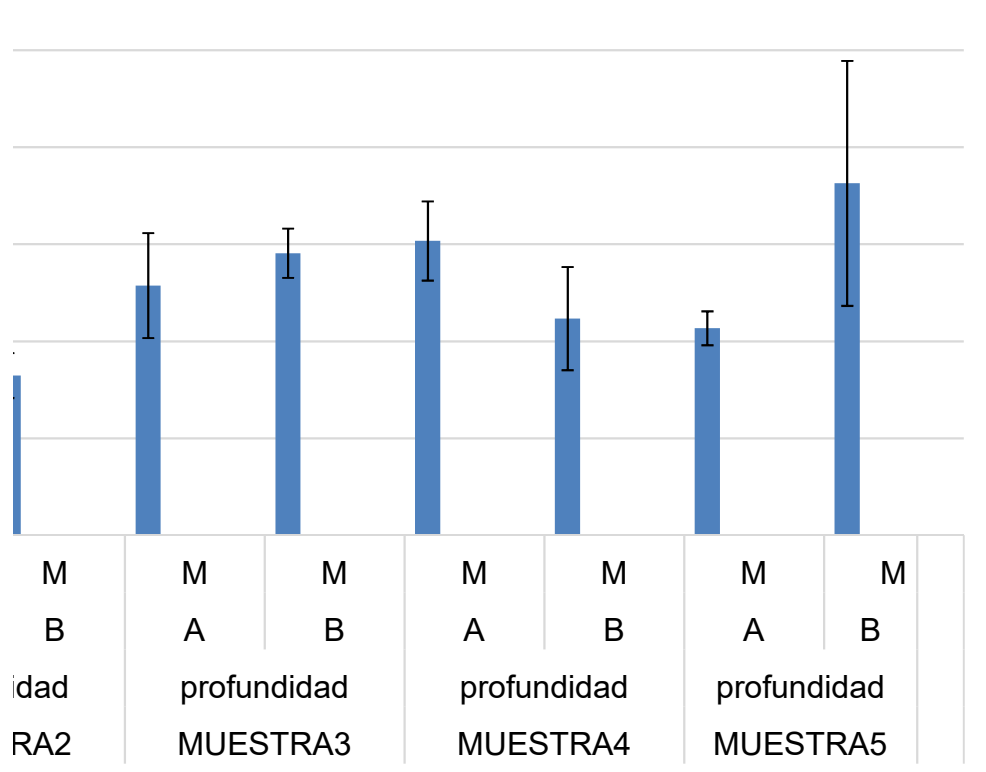
22 DE OCTUBRE					04 DE NOVIEMBRE						18 DE NOVIEMBRE					
profundidad					profundidad						profundidad					
20		40			20			40			20			40		
M2	M3	M1	M2	M3	M1	M2	M3	M1	M2	M3	M1	M2	M3	M1	M2	M3
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8	6	8	5	4	7	5	2	4	1	2	2	5	2	10	1	11
7	5	2	4	4	4	6	0	2	2	1	1	1	2	11	11	9
10	6	0	5	8	5	4	2	3	8	2	2	0	0	14	5	4
2	0	0	0	0	15	11	10	7	3	0	1	1	4	7	4	8
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7	3	1	0	2	8	6	5	6	4	3	4	4	2	8	6	1
6	2	1	1	1	5	5	6	1	1	3	3	1	0	0	0	1
2	4	4	2	0	19	11	7	3	4	2	2	2	6	14	3	9
7	3	7	11	9	1	5	2	7	8	4	0	0	1	12	3	7
2	0	2	3	1	8	7	13	9	7	6	10	5	5	13	11	17
1	5	0	1	3	6	7	1	1	0	0	1	0	1	9	1	0
3	2	0	2	0	4	0	3	5	5	2	3	1	0	4	3	1
17	6	3	8	4	10	4	10	5	4	1	4	1	1	5	2	10
5	2	4	3	2	4	2	2	4	1	2	0	3	2	1	0	3
11	4	9	9	6	3	4	4	4	2	0	2	0	0	4	1	0

[illegible]

[illegible]

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0	1	0	1	0	0	0	0	0	0	0	4	0	0	0	0	0
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15	9	11	16	21	12	15	9	13	10	17	15	19	12	18	22	14
0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
159	120	139	137	160	175	143	137	137	114	84	114	97	109	251	128	165

MUESTRA3					MUESTRA4						MUESTRA5					
profundidad					profundidad						profundidad					
A		B			A			B			A			B		
M			M			M			M			M			M	
159	120	139	137	160	175	143	137	137	114	84	114	97	109	251	128	165
129		145			152			112			107			181		
7.06165799		12.7410099			20.42873793			26.57693235			8.736894948			63.10573138		



23 DE SEPTIEMBRE		07 DE OCTUBRE		22 DE OCTUBRE	
profundidad					
20	40	20	40	20	40
3	4	4	2	3	1
1	0	1	1	2	0
10	2	13	8	1	0
5	5	18	14	25	17
0	4	0	4	14	10
2	0	10	5	22	13
2	0	4	0	3	0
0	0	4	3	4	1
3	0	4	1	10	3
0	0	0	0	8	3
4	1	3	1	8	6
2	2	4	18	10	27
0	3	6	4	5	6
3	0	0	0	8	4
0	0	3	3	5	2
0	0	12	17	28	15
0	0	0	3	7	9
0	0	0	9	23	24

2	0	2	0	13	3
0	0	1	0	0	0
0	0	0	0	0	2
0	0	0	0	0	0
1	0	0	0	2	0
0	0	0	0	0	0
50	43	44	67	64	11
25	23	20	22	21	20
50	43	44	67	64	74
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0	0	0	0	1	5
0	0	0	0	0	3
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0	0	0	0	0	0
0	4	2	7	0	83
0	0	0	0	2	1
0	0	11	2	0	1
0	0	0	0	0	0
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0	0	0	0	0	0

0	1	0	1	6	0
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0	0	0	0	17	2
0	1	1	4	6	7
0	0	0	0	0	0
0	0	0	0	1	4
0	1	0	0	1	2
0	0	0	2	0	2
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0	1	0	0	0	0
0	0	0	0	0	0
0	3	0	0	2	8
0	0	0	0	0	0
0	0	0	0	0	1
0	0	0	0	0	0
0	0	4	2	8	14
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0	0	0	0	0	0
0	0	0	0	0	0

0	0	0	0	0	2
0	0	0	1	0	0
0	0	0	0	0	1
0	0	0	0	1	0
0	2	0	1	1	1
0	0	0	0	0	0
35	25	41	37	41	48
3	0	0	0	2	0

04 DE NOVIEMBRE		18 DE NOVIEMBRE	
20	40	20	40
8	7	5	23
8	1	2	2
11	4	5	7
14	7	9	22
10	5	4	31
11	13	2	23
36	10	6	19
6	1	4	4
19	13	10	15
16	5	4	1
37	9	10	26
8	19	1	22
28	22	20	41
14	1	2	10
7	12	4	8
24	10	6	17
8	7	5	4
11	6	2	5

25	4	8	0
0	0	0	0
0	0	0	0
1	4	0	0
4	0	3	0
0	0	0	9
20	19	16	15
14	19	23	23
73	95	108	73
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0	0	0	0
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0	0	2	1
0	0	1	0
0	0	1	15
0	1	0	2
0	0	0	0
0	0	0	0

[illegible]

0	0	0	6
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36	40	46	54
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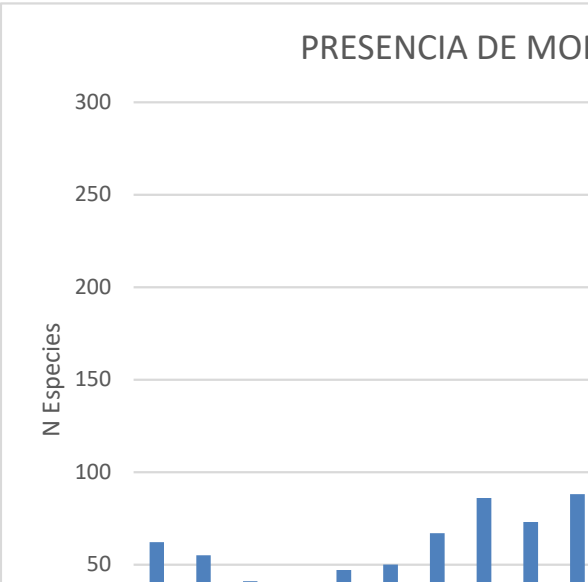
FECHA	23 DE SEPTIEMBRE						07 DE OCTUBRE						
ORGANISMO	profundidad						profundidad						
	20			40			20			40			
	M1	M2	M3	M1	M2	M3	M1	M2	M3	M1	M2	M3	M1
Navicula sp1	1	1	1	1	0	3	2	1	1	0	0	2	1
Navicula sp2	0	1	0	0	0	0	0	0	1	0	0	1	0
Navicula sp3	5	5	0	0	0	2	4	7	2	1	5	2	1
Navicula sp4	4	0	1	1	3	1	5	10	3	3	7	4	11
Navicula sp5	0	0	0	0	2	2	0	0	0	4	0	0	2
Navicula sp6	0	0	2	0	0	0	2	5	3	5	0	0	6
Navicula sp7	1	1	0	0	0	0	2	1	1	0	0	0	1
Meridion sp1	0	0	0	0	0	0	1	1	2	0	2	1	0
Eunotia sp1	0	0	3	0	0	0	2	1	1	1	0	0	0
Eunotia sp2	0	0	0	0	0	0	0	0	0	0	0	0	0
Eunotia sp3	3	1	0	0	0	1	1	1	1	1	0	0	2
Cymbella sp1	0	1	1	1	1	0	1	2	1	0	12	6	0
Navicula sp8	0	0	0	2	1	0	3	2	1	1	1	2	3
Gonatozygon sp1	3	0	0	0	0	0	0	0	0	0	0	0	2
Amphora sp1	0	0	0	0	0	0	1	1	1	0	2	1	0
Gomphonema sp1	0	0	0	0	0	0	4	6	2	3	9	5	5
Gomphonema sp2	0	0	0	0	0	0	0	0	0	0	2	1	0
Diploneis sp1	0	0	0	0	0	0	0	0	0	9	0	0	8

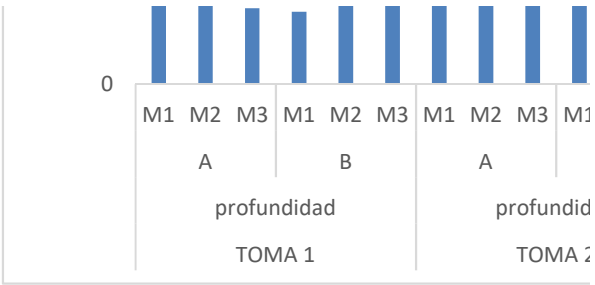
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[illegible]

Hyalotheca sp1	0	0	0	0	0	0	0	0	0	0	0	0	0
Struktur sp1	0	0	0	0	0	0	0	0	0	0	1	0	0
Tribonema sp1	0	0	0	0	0	0	0	0	0	0	0	0	0
Klebsormidium sp1	0	0	0	0	0	0	0	0	0	0	0	0	0
fremyella sp1	0	0	0	0	0	2	0	0	0	1	0	0	0
bumilleria sp1	0	0	0	0	0	0	0	0	0	0	0	0	0
Polycistis sp	14	12	9	6	11	8	12	15	14	16	8	13	17
Trentepohlia sp1	3	0	0	0	0	0	0	0	0	0	0	0	2
	62	55	41	39	47	50	67	86	73	88	90	69	107

FECHA	TOMA 1						TOMA 2						
ORGANISMO	profundidad						profundidad						
	A			B			A			B			
	M1	M2	M3	M1	M2	M3	M1	M2	M3	M1	M2	M3	M1
	62	55	41	39	47	50	67	86	73	88	90	69	107





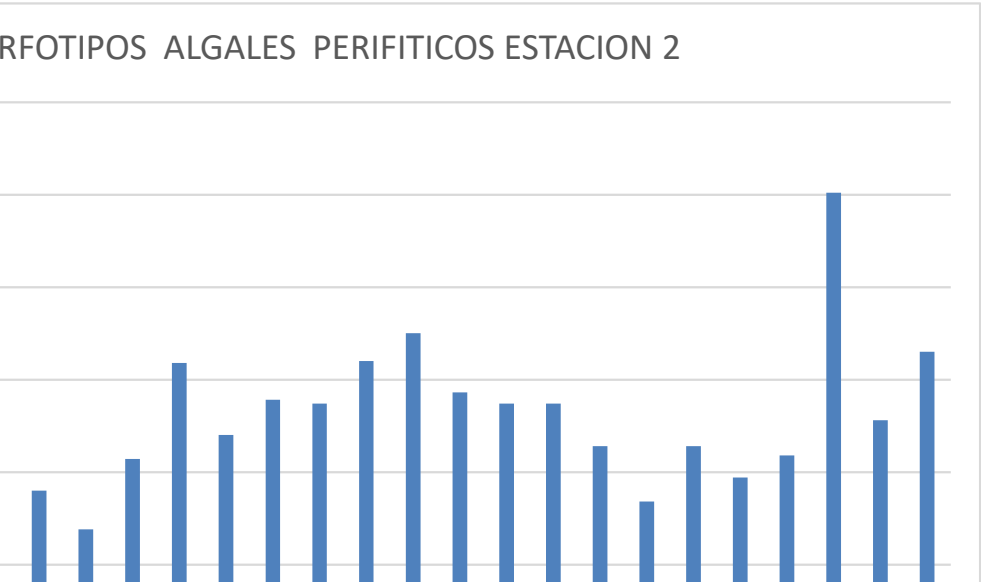
22 DE OCTUBRE					04 DE NOVIEMBRE						18 DE NOVIEMBRE					
profundidad					profundidad						profundidad					
20		40			20			40			20			40		
M2	M3	M1	M2	M3	M1	M2	M3	M1	M2	M3	M1	M2	M3	M1	M2	M3
1	1	0	1	0	2	3	3	5	1	1	3	1	1	15	4	4
1	1	0	0	0	6	1	1	0	1	0	0	2	0	1	0	1
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8	6	8	5	4	7	5	2	4	1	2	2	5	2	10	1	11
7	5	2	4	4	4	6	0	2	2	1	1	1	2	11	11	9
10	6	0	5	8	5	4	2	3	8	2	2	0	0	14	5	4
2	0	0	0	0	15	11	10	7	3	0	1	1	4	7	4	8
2	2	1	0	0	3	0	3	1	0	0	2	0	2	1	0	3
7	3	1	0	2	8	6	5	6	4	3	4	4	2	8	6	1
6	2	1	1	1	5	5	6	1	1	3	3	1	0	0	0	1
2	4	4	2	0	19	11	7	3	4	2	2	2	6	14	3	9
7	3	7	11	9	1	5	2	7	8	4	0	0	1	12	3	7
2	0	2	3	1	8	7	13	9	7	6	10	5	5	13	11	17
1	5	0	1	3	6	7	1	1	0	0	1	0	1	9	1	0
3	2	0	2	0	4	0	3	5	5	2	3	1	0	4	3	1
17	6	3	8	4	10	4	10	5	4	1	4	1	1	5	2	10
5	2	4	3	2	4	2	2	4	1	2	0	3	2	1	0	3
11	4	9	9	6	3	4	4	4	2	0	2	0	0	4	1	0

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[illegible]

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15	9	11	16	21	12	15	9	13	10	17	15	19	12	18	22	14
0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
159	120	139	137	160	175	143	137	137	114	84	114	97	109	251	128	165

TOMA 3					TOMA 4					TOMA 5						
profundidad					profundidad					profundidad						
A		B			A			B			A			B		
M2	M3	M1	M2	M3	M1	M2	M3	M1	M2	M3	M1	M2	M3	M1	M2	M3
159	120	139	137	160	175	143	137	137	114	84	114	97	109	251	128	165



1	M2	M3	M1	M2	M3	M1	M2	M3	M1	M2	M3	M1	M2	M3	M1	M2	M3	M1	M2	M3
	B		A			B			A			B			A			B		
lad			profundidad						profundidad						profundidad					
2			TOMA 3						TOMA 4						TOMA 5					

23 DE SEPTIEMBRE		07 DE OCTUBRE		22 DE OCTUBRE	
profundidad					
20	40	20	40	20	40
3	4	4	2	3	1
1	0	1	1	2	0
10	2	13	8	1	0
5	5	18	14	25	17
0	4	0	4	14	10
2	0	10	5	22	13
2	0	4	0	3	0
0	0	4	3	4	1
3	0	4	1	10	3
0	0	0	0	8	3
4	1	3	1	8	6
2	2	4	18	10	27
0	3	6	4	5	6
3	0	0	0	8	4
0	0	3	3	5	2
0	0	12	17	28	15
0	0	0	3	7	9
0	0	0	9	23	24

2	0	2	0	13	3
0	0	1	0	0	0
0	0	0	0	0	2
0	0	0	0	0	0
1	0	0	0	2	0
0	0	0	0	0	0
50	43	44	67	64	11
25	23	20	22	21	20
50	43	44	67	64	74
0	0	0	0	0	0
0	0	0	0	1	5
0	0	0	0	0	3
0	0	0	0	0	0
0	0	0	0	0	0
0	4	2	7	0	83
0	0	0	0	2	1
0	0	11	2	0	1
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0

0	1	0	1	6	0
0	0	0	0	0	0
0	0	1	0	1	0
0	0	0	0	17	2
0	1	1	4	6	7
0	0	0	0	0	0
0	0	0	0	1	4
0	1	0	0	1	2
0	0	0	2	0	2
0	0	0	0	0	0
0	1	0	0	0	0
0	0	0	0	0	0
0	3	0	0	2	8
0	0	0	0	0	0
0	0	0	0	0	1
0	0	0	0	0	0
0	0	4	2	8	14
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0	0	0	0	0	0
0	0	0	0	0	0

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0	0	0	1	0	0
0	0	0	0	0	1
0	0	0	0	1	0
0	2	0	1	1	1
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35	25	41	37	41	48
3	0	0	0	2	0

04 DE NOVIEMBRE		18 DE NOVIEMBRE	
20	40	20	40
8	7	5	23
8	1	2	2
11	4	5	7
14	7	9	22
10	5	4	31
11	13	2	23
36	10	6	19
6	1	4	4
19	13	10	15
16	5	4	1
37	9	10	26
8	19	1	22
28	22	20	41
14	1	2	10
7	12	4	8
24	10	6	17
8	7	5	4
11	6	2	5

25	4	8	0
0	0	0	0
0	0	0	0
1	4	0	0
4	0	3	0
0	0	0	9
20	19	16	15
14	19	23	23
73	95	108	73
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	2	1
0	0	1	0
0	0	1	15
0	1	0	2
0	0	0	0
0	0	0	0

[illegible]

0	0	0	6
0	1	0	0
0	0	0	0
0	0	0	0
0	0	4	0
0	0	0	0
36	40	46	54
0	0	2	0

[illegible]

[illegible]

Ophiocytium sp1	0	0	0	0	0	0	0	0	1	0	0	0
Sphaerosozma sp1	0	0	0	0	0	0	0	0	0	0	0	0
Phormidium sp1	0	0	0	0	0	0	0	1	0	0	0	0
Centronella sp1	0	0	0	0	0	0	0	0	0	0	0	0
Fragilaria sp1	0	0	0	0	0	0	0	0	0	0	0	0
Fragilaria sp2	0	0	0	0	0	0	0	2	0	0	0	0
Closterium sp1	0	0	0	0	0	0	0	1	0	0	0	0
Closterium sp2	0	0	0	0	0	0	0	0	0	0	0	0
Anabaena sp1	0	0	0	0	0	0	0	0	0	0	0	0
Phormidium sp2	0	0	0	0	0	0	0	0	0	0	0	0
Oscillatoria sp1	0	0	0	0	0	0	0	0	0	0	0	0
Spirulina sp1	0	0	0	0	0	0	0	0	0	0	0	0
Phormidium sp3	0	0	0	0	0	0	0	0	0	0	0	0
Anathece sp1	0	0	0	0	0	0	0	0	0	0	0	0
Nostoc sp1	0	0	0	0	0	0	2	0	1	0	0	0
Staurastrum sp1	0	0	0	0	0	0	0	0	0	0	0	0
Staurastrum sp2	0	0	0	0	0	0	0	0	0	1	0	1
Staurastrum sp3	0	0	0	0	0	0	0	0	0	1	0	1
Scenedesmus sp1	0	1	1	2	1	3	1	0	2	1	2	1

Scenedesmus sp2	0	0	0	0	0	0	0	0	0	0	0	0
Pediastrum sp1	0	0	0	0	0	0	0	0	0	0	0	0
Pediastrum sp2	0	0	0	0	0	0	0	0	0	0	0	0
Hyalotheca sp1	0	0	0	0	0	0	0	0	0	0	0	0
Struktur sp1	0	0	0	0	0	0	0	0	0	0	0	0
Tribonema sp1	0	0	0	0	0	0	0	2	0	2	2	1
Klebsormidium sp1	0	0	0	0	0	0	1	0	0	2	3	1
fremyella sp1	0	0	0	0	0	0	0	0	0	1	0	1
bumilleria sp1	0	0	0	0	0	0	0	0	0	1	0	1
Polycistis sp	8	3	5	2	9	7	10	9	6	12	15	8
Trentepohlia sp1	0	0	0	0	0	0	0	0	0	0	0	0
	42	40	41	39	53	52	68	79	80	85	81	78

FECHA	MUESTRA1						MUESTRA2					
ORGANISMO	profundidad						profundidad					
	A			B			A			B		
		M			M			M			M	
	42	40	41	39	53	52	68	79	80	85	81	78

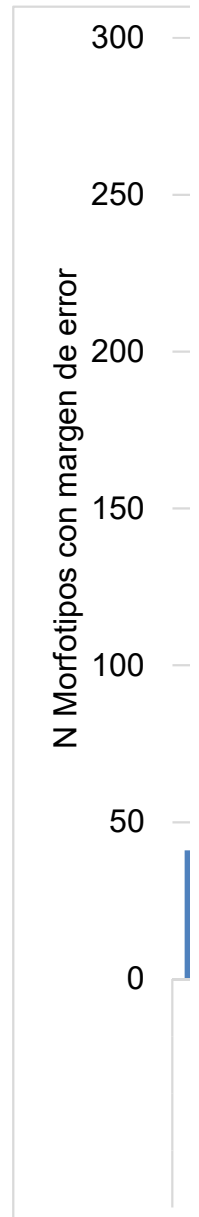
Promedio muestras por
propundidad
desve

41
1

48
7.81024968

76
6.65832812

81
3.51188458



[illegible]

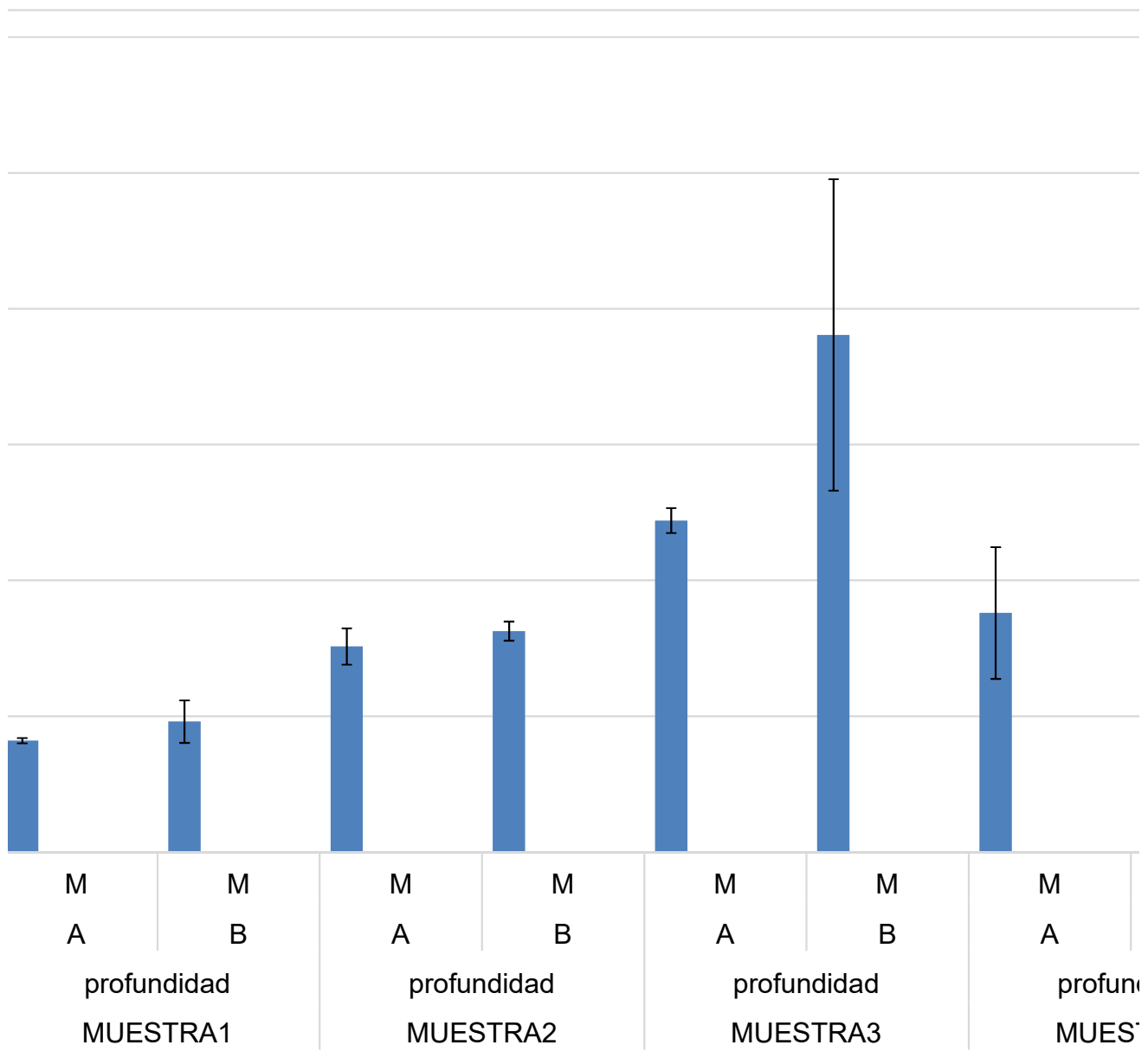
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0	0	0	3	0	0	0	0	0	0	0	1	1	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0

0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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0	0	0	4	2	13	0	0	0	0	0	0	0	0	0	0	0
0	2	1	8	3	16	0	0	0	0	0	4	0	1	0	0	1
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0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	14	12	15	18	13	9	8	12	15	7	13	16	18	20	15	13
0	1	0	1	1	2	0	0	0	0	0	6	0	0	0	0	0
121	118	127	209	126	236	95	108	61	110	88	116	84	79	87	90	90

MUESTRA3						MUESTRA4						MUESTRA5					
profundidad						profundidad						profundidad					
A			B			A			B			A			B		
	M			M			M			M			M			M	
121	118	127	209	126	236	95	108	61	110	88	116	84	79	87	90	90	

122	190	88	105	83	88
4.582575695	57.32654999	24.2693222	14.7422296	4.04145188	4.04145



M3
0
0
0
3
1
1
2
1
1
2
3
2
5
0
0
5
0

23 DE SEPTIEMBRE		07 DE OCTUBRE		22 DE OCTUBRE	
profundidad					
20	40	20	40	20	40
5	2	3	3	1	4
0	0	1	0	3	0
0	0	4	0	0	0
2	3	15	15	14	17
0	0	5	10	4	8
1	3	6	2	6	17
0	0	3	0	0	0
1	2	2	0	1	1
11	11	8	7	17	10
3	2	2	11	16	7
0	0	4	10	15	25
1	7	6	2	5	6
10	9	4	8	24	24
0	0	4	2	13	23
2	4	4	9	2	1
1	2	5	13	33	76
0	0	0	0	0	0

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2
11
19
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1
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0
1
0
0

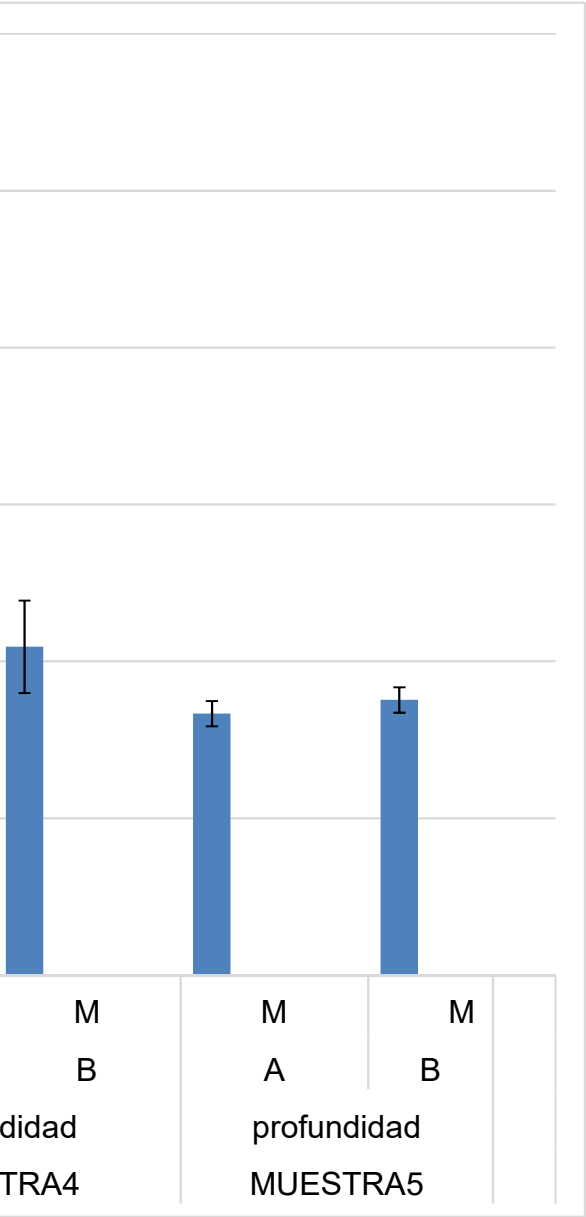
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0	0	0	0	2	0
0	0	0	0	0	1
0	0	0	0	0	21
13	12	19	16	16	21
24	20	28	32	36	38
30	41	45	29	51	51
0	0	0	0	0	5
0	0	3	0	18	3
0	0	0	0	1	0
0	0	3	0	8	4
0	0	0	0	1	0
0	0	2	0	1	0
0	0	2	0	2	1
0	0	3	0	1	5
0	0	0	0	0	0

0
0
0
0
0
0
0
0
2
19
0

83

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0	0	0	0	0	0
0	0	0	0	0	14
0	0	0	0	0	0
0	0	2	5	0	19
0	0	1	6	3	27
0	0	0	2	0	0
0	0	0	2	0	0
16	18	25	35	36	46
72	85	125	119	167	261
195	229	352	363	532	828

83



04 DE NOVIEMBRE		18 DE NOVIEMBRE	
20	40	20	40
2	6	0	0
0	0	1	0
0	1	0	1
3	4	3	4
2	9	1	8
3	2	3	3
0	6	1	2
2	2	0	1
17	17	9	7
12	9	1	6
16	14	7	7
2	10	4	4
20	24	5	24
0	1	0	1
2	4	5	0
24	32	3	17
0	0	0	1

1	4	0	1
20	3	0	0
4	1	0	2
0	0	0	0
0	3	0	0
1	0	1	0
0	1	1	1
14	12	19	11
26	35	52	33
61	68	73	72
0	0	0	0
0	0	0	0
0	0	0	4
0	0	0	0
0	0	0	0
0	0	0	0
0	0	1	1
0	0	0	0
0	0	0	0

0	0	0	0
0	0	0	0
0	0	0	0
1	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
1	0	0	0
0	0	0	1
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1	0	0	1
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0	1	1	0
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0	0	1	0

0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	4	1	1
0	0	0	0
0	0	0	2
29	35	54	47
119	143	186	162
383	451	436	425

[illegible]

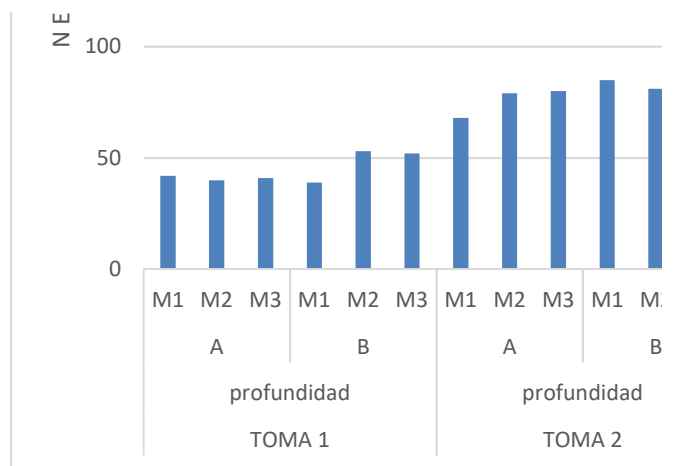
[illegible]

Ophiocytium sp1	0	0	0	0	0	0	0	0	1	0	0	0
Sphaerosozma sp1	0	0	0	0	0	0	0	0	0	0	0	0
Phormidium sp1	0	0	0	0	0	0	0	1	0	0	0	0
Centronella sp1	0	0	0	0	0	0	0	0	0	0	0	0
Fragilaria sp1	0	0	0	0	0	0	0	0	0	0	0	0
Fragilaria sp2	0	0	0	0	0	0	0	2	0	0	0	0
Closterium sp1	0	0	0	0	0	0	0	1	0	0	0	0
Closterium sp2	0	0	0	0	0	0	0	0	0	0	0	0
Anabaena sp1	0	0	0	0	0	0	0	0	0	0	0	0
Phormidium sp2	0	0	0	0	0	0	0	0	0	0	0	0
Oscillatoria sp1	0	0	0	0	0	0	0	0	0	0	0	0
Spirulina sp1	0	0	0	0	0	0	0	0	0	0	0	0
Phormidium sp3	0	0	0	0	0	0	0	0	0	0	0	0
Anathece sp1	0	0	0	0	0	0	0	0	0	0	0	0
Nostoc sp1	0	0	0	0	0	0	2	0	1	0	0	0
Staurastrum sp1	0	0	0	0	0	0	0	0	0	0	0	0
Staurastrum sp2	0	0	0	0	0	0	0	0	0	1	0	1
Staurastrum sp3	0	0	0	0	0	0	0	0	0	1	0	1
Scenedesmus sp1	0	1	1	2	1	3	1	0	2	1	2	1

Scenedesmus sp2	0	0	0	0	0	0	0	0	0	0	0	0
Pediastrum sp1	0	0	0	0	0	0	0	0	0	0	0	0
Pediastrum sp2	0	0	0	0	0	0	0	0	0	0	0	0
Hyalotheca sp1	0	0	0	0	0	0	0	0	0	0	0	0
Struktur sp1	0	0	0	0	0	0	0	0	0	0	0	0
Tribonema sp1	0	0	0	0	0	0	0	2	0	2	2	1
Klebsormidium sp1	0	0	0	0	0	0	1	0	0	2	3	1
fremyella sp1	0	0	0	0	0	0	0	0	0	1	0	1
bumilleria sp1	0	0	0	0	0	0	0	0	0	1	0	1
Polycistis sp	8	3	5	2	9	7	10	9	6	12	15	8
Trentepohlia sp1	0	0	0	0	0	0	0	0	0	0	0	0
	42	40	41	39	53	52	68	79	80	85	81	78

FECHA	TOMA 1						TOMA 2					
ORGANISMO	profundidad						profundidad					
	A			B			A			B		
	M1	M2	M3	M1	M2	M3	M1	M2	M3	M1	M2	M3
	42	40	41	39	53	52	68	79	80	85	81	78





[illegible]

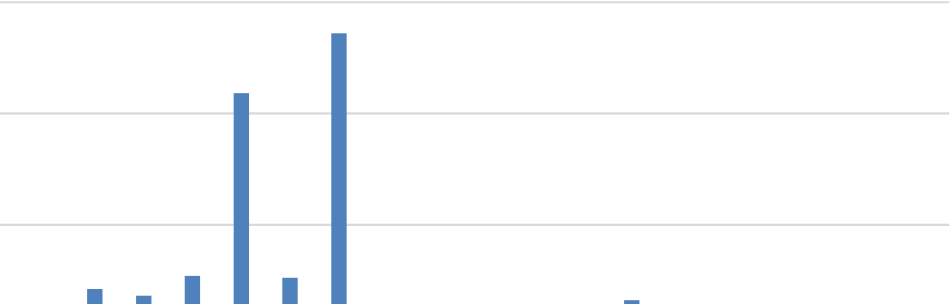
[illegible]

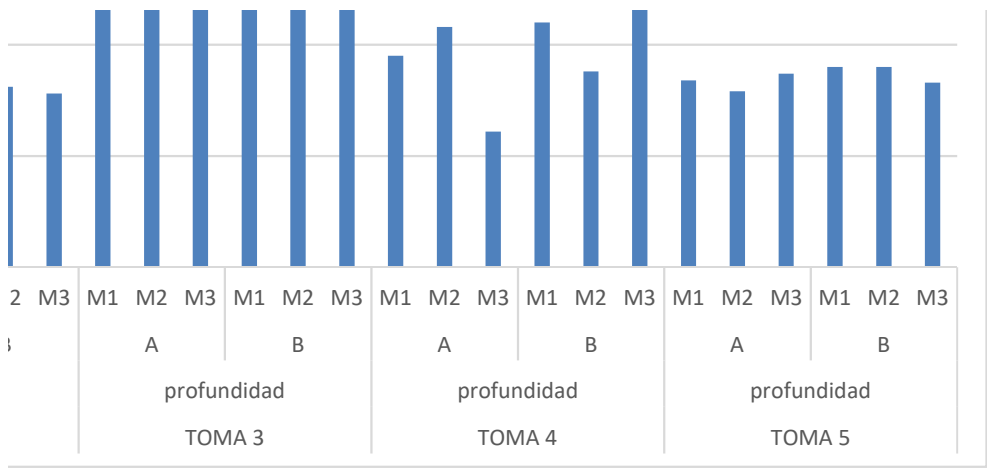
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2	0	2	3	0	1	0	0	0	0	0	0	0	0	0	0	0
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0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	14	12	15	18	13	9	8	12	15	7	13	16	18	20	15	13
0	1	0	1	1	2	0	0	0	0	0	6	0	0	0	0	0
121	118	127	209	126	236	95	108	61	110	88	116	84	79	87	90	90

TOMA 3						TOMA 4						TOMA 5					
profundidad						profundidad						profundidad					
A			B			A			B			A			B		
M1	M2	M3	M1	M2	M3	M1	M2	M3	M1	M2	M3	M1	M2	M3	M1	M2	
121	118	127	209	126	236	95	108	61	110	88	116	84	79	87	90	90	

OTIPOS ALGALES PERIFITICOS ESTACION 3





M3
0
0
0
3
1
1
2
1
1
2
3
2
5
0
0
5
0

23 DE SEPTIEMBRE		07 DE OCTUBRE		22 DE OCTUBRE	
profundidad					
20	40	20	40	20	40
5	2	3	3	1	4
0	0	1	0	3	0
0	0	4	0	0	0
2	3	15	15	14	17
0	0	5	10	4	8
1	3	6	2	6	17
0	0	3	0	0	0
1	2	2	0	1	1
11	11	8	7	17	10
3	2	2	11	16	7
0	0	4	10	15	25
1	7	6	2	5	6
10	9	4	8	24	24
0	0	4	2	13	23
2	4	4	9	2	1
1	2	5	13	33	76
0	0	0	0	0	0

1
0
0
0
0
0
0
2
11
19
0
0
1
0
0
0
1
0
0

0	0	2	0	2	1
0	0	0	0	0	1
1	2	5	17	24	42
0	0	0	0	0	0
0	0	0	0	2	0
0	0	0	0	0	1
0	0	0	0	0	21
13	12	19	16	16	21
24	20	28	32	36	38
30	41	45	29	51	51
0	0	0	0	0	5
0	0	3	0	18	3
0	0	0	0	1	0
0	0	3	0	8	4
0	0	0	0	1	0
0	0	2	0	1	0
0	0	2	0	2	1
0	0	3	0	1	5
0	0	0	0	0	0

0
0
0
0
0
0
0
0
2
19
0

83

0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	14
0	0	0	0	0	0
0	0	2	5	0	19
0	0	1	6	3	27
0	0	0	2	0	0
0	0	0	2	0	0
16	18	25	35	36	46
72	85	125	119	167	261
195	229	352	363	532	828

M3
83

04 DE NOVIEMBRE		18 DE NOVIEMBRE	
20	40	20	40
2	6	0	0
0	0	1	0
0	1	0	1
3	4	3	4
2	9	1	8
3	2	3	3
0	6	1	2
2	2	0	1
17	17	9	7
12	9	1	6
16	14	7	7
2	10	4	4
20	24	5	24
0	1	0	1
2	4	5	0
24	32	3	17
0	0	0	1

1	4	0	1
20	3	0	0
4	1	0	2
0	0	0	0
0	3	0	0
1	0	1	0
0	1	1	1
14	12	19	11
26	35	52	33
61	68	73	72
0	0	0	0
0	0	0	0
0	0	0	4
0	0	0	0
0	0	0	0
0	0	0	0
0	0	1	1
0	0	0	0
0	0	0	0

0	0	0	0
0	0	0	0
0	0	0	0
1	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
1	0	0	0
0	0	0	1
0	0	0	0
0	0	0	0
1	0	0	1
0	0	3	0
0	1	1	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	1	0

0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	4	1	1
0	0	0	0
0	0	0	2
29	35	54	47
119	143	186	162
383	451	436	425

1	Nombre	FECHA	Pt	0	Total	N Crucicula De
2	23 DE SEPTIEN	23 DE SEPTIEN	1	20	96	4
3	23 DE SEPTIEN	23 DE SEPTIEN	1	40	103	2
4	07 DE OCTUB	07 DE OCTUB	1	20	159	5
5	07 DE OCTUB	07 DE OCTUB	1	40	223	4
6	22 DE OCTUB	22 DE OCTUB	1	20	380	21
7	22 DE OCTUB	22 DE OCTUB	1	40	442	7
8	04 DE NOVIEN	04 DE NOVIEN	1	20	221	21
9	04 DE NOVIEN	04 DE NOVIEN	1	40	643	4
10	18 DE NOVIEN	18 DE NOVIEN	1	20	428	5
11	18 DE NOVIEN	18 DE NOVIEN	1	40	328	2
12	23 DE SEPTIEN	23 DE SEPTIEN	2	20	155	3
13	23 DE SEPTIEN	23 DE SEPTIEN	2	40	136	4
14	07 DE OCTUB	07 DE OCTUB	2	20	226	4
15	07 DE OCTUB	07 DE OCTUB	2	40	247	2
16	22 DE OCTUB	22 DE OCTUB	2	20	384	3
17	22 DE OCTUB	22 DE OCTUB	2	40	436	1
18	04 DE NOVIEN	04 DE NOVIEN	2	20	455	8
19	04 DE NOVIEN	04 DE NOVIEN	2	40	335	7
20	18 DE NOVIEN	18 DE NOVIEN	2	20	318	5
21	18 DE NOVIEN	18 DE NOVIEN	2	40	328	2
22	23 DE SEPTIEN	23 DE SEPTIEN	3	20	123	5
23	23 DE SEPTIEN	23 DE SEPTIEN	3	40	144	2
24	07 DE OCTUB	07 DE OCTUB	3	20	227	3
25	07 DE OCTUB	07 DE OCTUB	3	40	244	3
26	22 DE OCTUB	22 DE OCTUB	3	20	365	1
27	22 DE OCTUB	22 DE OCTUB	3	40	567	4
28	04 DE NOVIEN	04 DE NOVIEN	3	20	264	2
29	04 DE NOVIEN	04 DE NOVIEN	3	40	308	6
30	18 DE NOVIEN	18 DE NOVIEN	3	20	250	0
31	18 DE NOVIEN	18 DE NOVIEN	3	40	263	0

N Rhynchocep	Navicula pupu	Navicula Bacil	Navicula Phicc	Navicula VanH	Navicula Actir	Meridion Circ
1	0	1	2	0	0	1
2	0	0	0	3	0	0
2	0	5	3	4	0	3
6	5	4	9	4	0	0
6	1	27	10	10	2	4
2	0	11	6	7	0	2
7	0	5	3	14	2	0
9	1	21	7	9	3	4
2	0	1	4	1	7	2
3	1	4	2	1	2	5
1	10	5	0	2	2	0
0	2	5	4	0	0	0
1	13	18	0	10	4	4
1	8	14	4	5	0	3
2	1	25	14	22	3	4
0	0	17	10	13	0	1
8	11	14	10	11	36	6
1	4	7	5	13	10	1
2	5	9	4	2	6	4
3	1	4	2	1	2	5
0	0	2	0	1	0	1
0	0	3	0	3	0	2
1	4	15	5	6	3	2
0	0	15	10	2	0	0
3	0	14	4	6	0	1
0	0	17	8	17	0	1
0	0	3	2	3	0	2
0	1	4	9	2	6	2
1	0	3	1	3	1	0
0	1	4	8	3	2	1
64	69	277	146	178	91	61

Eunotia arcus	Eunotia Praer	Eunotia Lunar	Cymbella Helv	Navicula Dista	Gonatozygon	Amphora Coff
0	0	0	0	0	0	0
1	0	1	0	0	0	0
4	0	0	0	5	0	0
0	2	0	0	6	0	0
17	12	7	0	25	2	1
11	7	2	0	39	5	0
6	0	5	0	3	3	1
26	20	9	0	55	14	0
29	22	6	0	49	3	1
17	19	6	0	36	5	2
3	0	4	2	0	3	0
0	0	1	2	3	0	0
4	0	3	4	6	0	3
1	0	1	18	4	0	3
10	8	8	10	5	8	5
3	3	6	27	6	4	2
19	16	37	8	28	14	7
13	5	9	19	22	1	12
10	4	10	1	20	2	4
17	19	6	0	36	5	2
11	3	0	1	10	0	2
11	2	0	7	9	0	4
8	2	4	6	4	4	4
7	11	10	2	8	2	9
17	16	15	5	24	13	2
10	7	25	6	24	23	1
17	12	16	2	20	0	2
17	9	14	10	24	1	4
9	1	7	4	5	0	5
7	6	7	4	24	1	0
305	206	219	138	500	113	76

1656
919
835
500
465
305
277
219
206

178
146
140
138
113
104
101
98
91
91
85
76
72
70
69
68

Gomphonema	Gomphonema	Diploneis oval	Nitzschia linea	Nitzschia acic	Cosmarium Co	Euglena Hemi
2	0	0	0	0	0	0
4	0	0	0	1	0	0
2	0	0	0	0	0	0
17	0	0	0	0	0	0
47	1	0	0	0	0	1
77	0	2	0	0	0	1
3	0	1	1	0	0	0
209	1	0	0	1	0	0
114	0	2	1	0	0	0
63	2	0	1	0	0	0
0	0	0	2	0	0	0
0	0	0	0	0	0	0
12	0	0	2	1	0	0
17	3	9	0	0	0	0
28	7	23	13	0	0	0
15	9	24	3	0	2	0
24	8	11	25	0	0	1
10	7	6	4	0	0	4
6	5	2	8	0	0	0
63	2	0	1	0	0	0
1	0	0	0	1	0	0
2	0	0	0	2	0	0
5	0	2	0	5	0	0
13	0	0	0	17	0	0
33	0	2	0	24	0	2
76	0	1	1	42	0	0
24	0	1	20	4	0	0
32	0	4	3	1	0	3
3	0	0	0	0	0	0
17	1	1	0	2	0	0
919	46	91	85	101	2	12

Table

Rhopalodia gi	Chroococcus l	Microcystis Ph	Microcystis a	Mycroscistis C	Oocystis Gnus	Snowella Litor
0	0	10	15	29	0	0
0	0	13	18	24	0	0
0	0	21	22	41	0	0
0	0	24	24	40	0	0
1	1	16	36	35	2	3
0	1	13	34	54	3	33
1	0	14	26	52	0	1
7	0	19	46	61	0	0
1	3	23	37	63	0	0
0	2	22	33	59	0	0
1	0	7	25	50	0	0
0	0	11	23	43	0	0
0	0	13	20	44	0	0
0	0	8	22	67	0	0
2	0	10	21	64	0	1
0	0	11	20	74	0	5
4	0	20	14	73	0	0
0	0	19	19	95	0	0
3	0	16	23	108	0	0
0	2	22	33	59	0	0
0	0	13	24	30	0	0
0	0	12	20	41	0	0
0	0	19	28	45	0	3
0	0	16	32	29	0	0
0	0	16	36	51	0	18
1	21	21	38	51	5	3
1	0	14	26	61	0	0
0	1	12	35	68	0	0
1	1	19	52	73	0	0
0	1	11	33	72	0	0
23	33	465	835	1656	10	67

a 2. Abundancia

Peridinium C	Mougeotia C.	Spirogyra Link	Lyngbya C.Aga	Diatoma Vulg	Microspora pa	Lyngbya Mart
0	0	0	0	0	0	0
0	0	0	0	0	2	0
0	0	0	0	0	4	3
0	1	1	0	0	18	0
0	5	0	0	0	1	0
0	6	0	1	0	22	0
0	0	0	2	0	0	0
0	0	0	0	0	1	0
0	0	0	0	0	0	0
0	1	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	4	0	0	0
0	0	0	2	0	11	0
0	0	0	7	0	2	0
0	0	0	0	2	0	0
3	0	0	83	1	1	0
0	0	0	0	0	0	0
0	0	0	0	0	0	1
0	0	0	2	1	1	0
0	1	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	3	0	2	2	3	0
0	0	0	0	0	0	0
1	8	1	1	2	1	0
0	4	0	0	1	5	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	1	0	0
4	0	0	0	1	0	0
8	29	2	104	11	72	4

Ophiocytium	Sphaerosoma	Phormidium	Centronella R	Fragilaria Crot	Fragilaria Ulna	Closterium pr
0	3	1	2	0	1	2
0	0	3	0	0	0	0
0	0	6	0	0	0	1
0	0	2	0	0	0	0
12	1	17	0	0	1	0
2	0	8	0	0	1	0
0	0	0	0	1	1	0
7	0	9	0	0	6	0
0	0	0	2	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	1	0	0	0	1
0	0	0	0	1	0	1
0	0	1	0	0	0	4
0	0	6	0	1	17	6
0	0	0	0	0	2	7
0	0	1	0	2	3	0
0	0	0	0	0	0	0
0	0	1	4	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
1	0	1	0	0	2	1
0	0	0	0	0	0	0
0	0	2	0	1	4	0
23	0	11	0	0	4	0
0	0	0	1	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
45	4	70	9	6	42	23

Closterium inc	Aanabaena Cr	Phormidium S	Oscillatoria P	Spirulina jenn	Phormidium l	Anathece clat
0	1	1	0	0	0	0
0	0	3	0	1	1	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	1	2	0	0	0
0	0	2	0	0	0	0
0	0	4	0	0	0	0
0	0	2	0	0	0	0
0	0	1	2	0	0	1
0	0	0	0	0	2	0
0	0	0	0	0	0	0
0	0	1	0	0	1	0
0	0	0	0	0	0	0
0	0	0	2	0	0	0
0	1	1	0	0	0	0
0	4	2	2	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	2	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	7	0	0	0	3
1	0	0	0	1	0	0
0	0	0	0	0	0	1
0	0	0	0	0	3	1
0	1	0	0	1	0	0
1	7	25	8	3	9	6

Nostoc carnei	Staurastrum p	Staurastrum G	Staurastrum l	Scenedesmus	Scenedesmus	Pediastrum D
0	0	0	0	0	0	0
6	1	0	0	0	0	0
0	3	1	1	2	0	0
0	13	4	1	4	0	0
0	9	1	1	2	1	0
6	3	2	0	5	0	0
0	0	0	0	0	0	0
12	2	4	0	2	0	0
1	0	0	0	1	0	1
1	0	0	0	0	0	0
0	0	0	0	0	0	0
3	0	0	0	0	0	0
0	0	0	0	4	0	0
0	0	0	0	2	0	0
2	0	0	0	8	0	0
8	0	1	0	14	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
1	0	0	0	0	0	0
0	0	0	0	2	0	0
0	0	0	0	6	0	0
3	0	0	0	3	0	0
0	0	2	2	4	0	0
0	0	1	0	1	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	1	0	0
0	0	0	0	0	0	0
43	31	16	5	61	1	1

Pediastrum te	Hyalotheca d	Struktur Volv	Tribonema mi	Klebsormidiu	fremyella Dipl	bumilleria Sid
0	0	0	5	0	0	0
0	0	0	5	0	0	0
2	0	0	0	0	0	0
4	3	0	12	0	0	0
0	0	0	5	4	0	0
2	0	0	22	6	0	0
0	0	0	0	0	1	0
3	0	0	22	8	0	0
0	0	0	0	6	1	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	2	0
0	0	0	0	0	0	0
0	0	1	0	0	1	0
0	0	0	0	1	1	0
0	2	0	1	0	1	0
0	0	0	0	0	0	0
0	0	1	0	0	0	0
0	0	0	0	0	4	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	2	1	0	0
0	0	0	5	6	2	2
0	0	0	0	3	0	0
0	14	0	19	27	0	0
0	0	0	0	0	0	0
0	0	0	0	4	0	0
0	0	0	0	1	0	0
0	0	0	0	1	0	2
11	19	2	98	68	13	4

Polycistis	sp
	15
	12
	19
	15
	29
	37
	43
	39
	36
	37
	35
	25
	41
	37
	41
	48
	36
	40
	46
	37
	16
	18
	25
	35
	36
	46
	29
	35
	54
	47

1009

	Área del marco de raspado (cm ²)	15	
	Volumen de muestra fijada (ml)	35	
	Volumen de una gota (ml)	0.05	
	Nº gotas observadas	3	

1	Nombre	FECHA	Punto
2		23 DE SEPTIEMBRE	1
3	TOMA1	23 DE SEPTIEMBRE	1
4		07 DE OCTUBRE	1
5	TOMA2	07 DE OCTUBRE	1
6		22 DE OCTUBRE	1
7	TOMA3	22 DE OCTUBRE	1
8		04 DE NOVIEMBRE	1
9	TOMA 4	04 DE NOVIEMBRE	1
10		18 DE NOVIEMBRE	1
11	TOMA5	18 DE NOVIEMBRE	1
12		23 DE SEPTIEMBRE	2
13	TOMA 1	23 DE SEPTIEMBRE	2
14		07 DE OCTUBRE	2
15	TOMA2	07 DE OCTUBRE	2
16		22 DE OCTUBRE	2
17	TOMA 3	22 DE OCTUBRE	2
18		04 DE NOVIEMBRE	2
19	TOMA 4	04 DE NOVIEMBRE	2
20		18 DE NOVIEMBRE	2
21	TOMA 5	18 DE NOVIEMBRE	2
22		23 DE SEPTIEMBRE	3
23	TOMA 1	23 DE SEPTIEMBRE	3
24		07 DE OCTUBRE	3
25	TOMA 2	07 DE OCTUBRE	3
26		22 DE OCTUBRE	3
27	TOMA 3	22 DE OCTUBRE	3
28		04 DE NOVIEMBRE	3
29	TOMA 4	04 DE NOVIEMBRE	3
30		18 DE NOVIEMBRE	3
31	TOMA 5	18 DE NOVIEMBRE	3

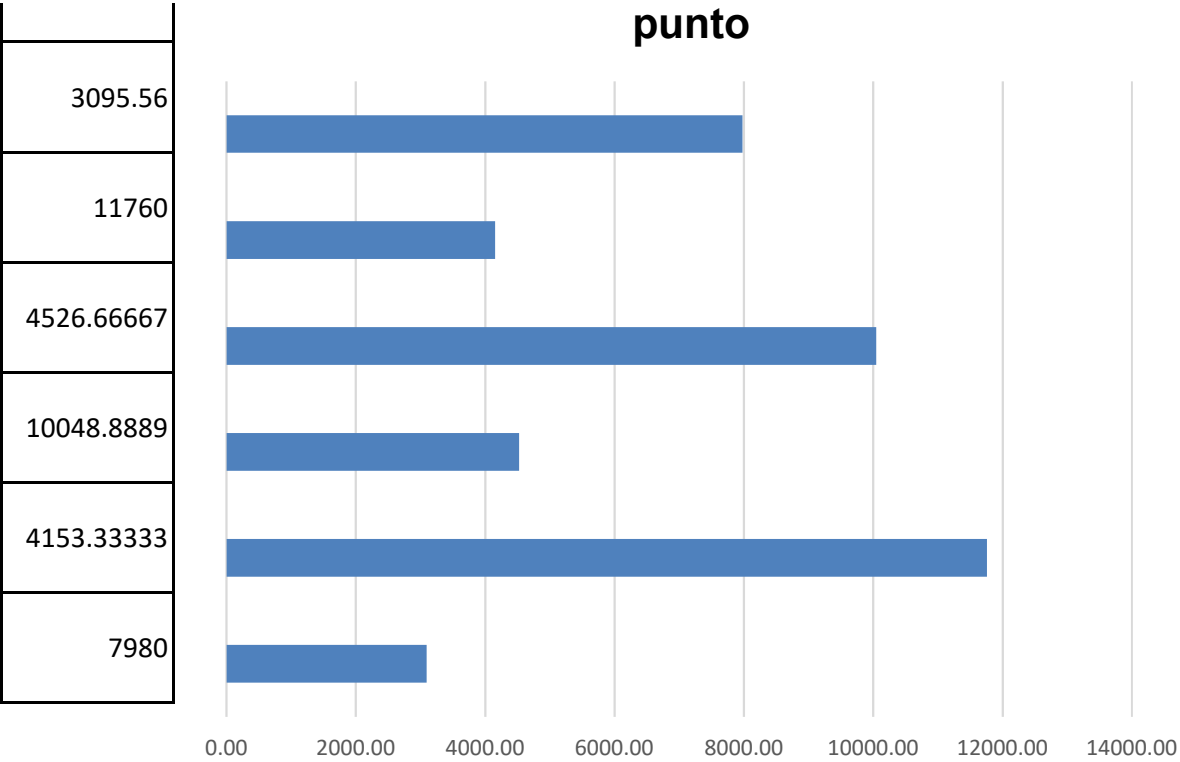
FECHA	PUNTO
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23 DE SEPTIEMBRE	1
18 DE NOVIEMBRE	1
23 DE SEPTIEMBRE	2
18 DE NOVIEMBRE	2
23 DE SEPTIEMBRE	3
18 DE NOVIEMBRE	3

[illegible]

	TOTAL
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Cantidadde especies por cada fecha y

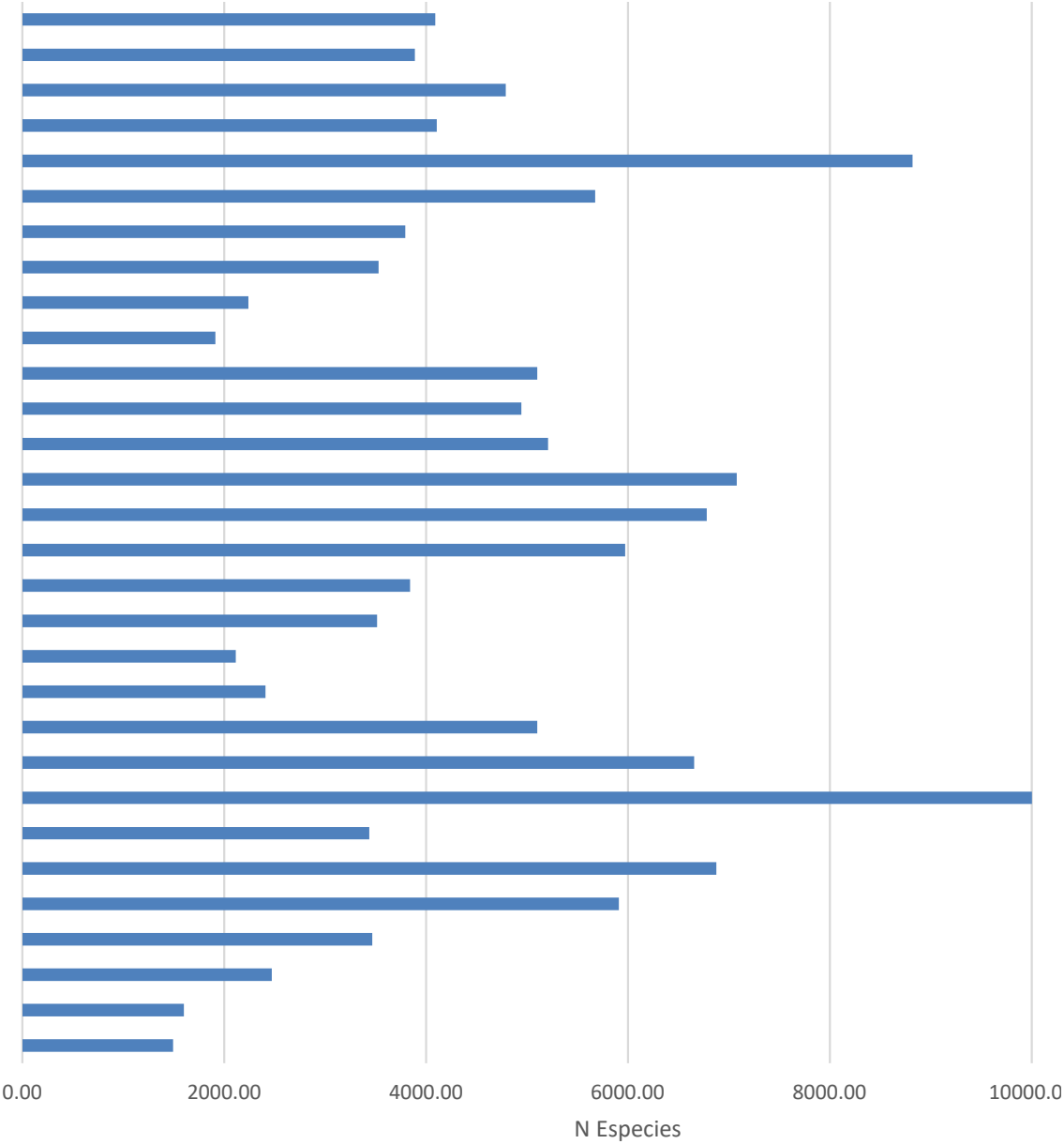


Navicula Vanh	Navicula Actir	Meridion Circ	Eunotia arcus	Eunotia Praer	Eunotia Lunar	Cymbella Helv
0.00	0.00	15.56	0.00	0.00	0.00	0.00
46.67	0.00	0.00	15.56	0.00	15.56	0.00
62.22	0.00	46.67	62.22	0.00	0.00	0.00
62.22	0.00	0.00	0.00	31.11	0.00	0.00
155.56	31.11	62.22	264.44	186.67	108.89	0.00
108.89	0.00	31.11	171.11	108.89	31.11	0.00
217.78	31.11	0.00	93.33	0.00	77.78	0.00
140.00	46.67	62.22	404.44	311.11	140.00	0.00
15.56	108.89	31.11	451.11	342.22	93.33	0.00
15.56	31.11	77.78	264.44	295.56	93.33	0.00
31.11	31.11	0.00	46.67	0.00	62.22	31.11
0.00	0.00	0.00	0.00	0.00	15.56	31.11
155.56	62.22	62.22	62.22	0.00	46.67	62.22
77.78	0.00	46.67	15.56	0.00	15.56	280.00
342.22	46.67	62.22	155.56	124.44	124.44	155.56
202.22	0.00	15.56	46.67	46.67	93.33	420.00
171.11	560.00	93.33	295.56	248.89	575.56	124.44
202.22	155.56	15.56	202.22	77.78	140.00	295.56
31.11	93.33	62.22	155.56	62.22	155.56	15.56
15.56	31.11	77.78	264.44	295.56	93.33	0.00
15.56	0.00	15.56	171.11	46.67	0.00	15.56
46.67	0.00	31.11	171.11	31.11	0.00	108.89
93.33	46.67	31.11	124.44	31.11	62.22	93.33
31.11	0.00	0.00	108.89	171.11	155.56	31.11
93.33	0.00	15.56	264.44	248.89	233.33	77.78
264.44	0.00	15.56	155.56	108.89	388.89	93.33
46.67	0.00	31.11	264.44	186.67	248.89	31.11
31.11	93.33	31.11	264.44	140.00	217.78	155.56
46.67	15.56	0.00	140.00	15.56	108.89	62.22
46.67	31.11	15.56	108.89	93.33	108.89	62.22

CANTIDAD DE MORFOTIPOS ALGALES POR AREA EN CADA FECH

UNTO

PUNTO.



Navicula Dista	Gonatozygon	Amphora Coff	Gomphonema	Gomphonema	Diploneis ova	Nitzschia lineae
0.00	0.00	0.00	31.11	0.00	0.00	0.00
0.00	0.00	0.00	62.22	0.00	0.00	0.00
77.78	0.00	0.00	31.11	0.00	0.00	0.00
93.33	0.00	0.00	264.44	0.00	0.00	0.00
388.89	31.11	15.56	731.11	15.56	0.00	0.00
606.67	77.78	0.00	1197.78	0.00	31.11	0.00
46.67	46.67	15.56	46.67	0.00	15.56	15.56
855.56	217.78	0.00	3251.11	15.56	0.00	0.00
762.22	46.67	15.56	1773.33	0.00	31.11	15.56
560.00	77.78	31.11	980.00	31.11	0.00	15.56
0.00	46.67	0.00	0.00	0.00	0.00	31.11
46.67	0.00	0.00	0.00	0.00	0.00	0.00
93.33	0.00	46.67	186.67	0.00	0.00	31.11
62.22	0.00	46.67	264.44	46.67	140.00	0.00
77.78	124.44	77.78	435.56	108.89	357.78	202.22
93.33	62.22	31.11	233.33	140.00	373.33	46.67
435.56	217.78	108.89	373.33	124.44	171.11	388.89
342.22	15.56	186.67	155.56	108.89	93.33	62.22
311.11	31.11	62.22	93.33	77.78	31.11	124.44
560.00	77.78	31.11	980.00	31.11	0.00	15.56
155.56	0.00	31.11	15.56	0.00	0.00	0.00
140.00	0.00	62.22	31.11	0.00	0.00	0.00
62.22	62.22	62.22	77.78	0.00	31.11	0.00
124.44	31.11	140.00	202.22	0.00	0.00	0.00
373.33	202.22	31.11	513.33	0.00	31.11	0.00
373.33	357.78	15.56	1182.22	0.00	15.56	15.56
311.11	0.00	31.11	373.33	0.00	15.56	311.11
373.33	15.56	62.22	497.78	0.00	62.22	46.67
77.78	0.00	77.78	46.67	0.00	0.00	0.00
373.33	15.56	0.00	264.44	15.56	15.56	0.00

10

12000.00

Nitzschia acic	Cosmarium Cd	Euglena Hemi	Rhopalodia gi	Chroococcus	Microcystis Ph	Microcystis a
0.00	0.00	0.00	0.00	0.00	155.56	233.33
15.56	0.00	0.00	0.00	0.00	202.22	280.00
0.00	0.00	0.00	0.00	0.00	326.67	342.22
0.00	0.00	0.00	0.00	0.00	373.33	373.33
0.00	0.00	15.56	15.56	15.56	248.89	560.00
0.00	0.00	15.56	0.00	15.56	202.22	528.89
0.00	0.00	0.00	15.56	0.00	217.78	404.44
15.56	0.00	0.00	108.89	0.00	295.56	715.56
0.00	0.00	0.00	15.56	46.67	357.78	575.56
0.00	0.00	0.00	0.00	31.11	342.22	513.33
0.00	0.00	0.00	15.56	0.00	108.89	388.89
0.00	0.00	0.00	0.00	0.00	171.11	357.78
15.56	0.00	0.00	0.00	0.00	202.22	311.11
0.00	0.00	0.00	0.00	0.00	124.44	342.22
0.00	0.00	0.00	31.11	0.00	155.56	326.67
0.00	31.11	0.00	0.00	0.00	171.11	311.11
0.00	0.00	15.56	62.22	0.00	311.11	217.78
0.00	0.00	62.22	0.00	0.00	295.56	295.56
0.00	0.00	0.00	46.67	0.00	248.89	357.78
0.00	0.00	0.00	0.00	31.11	342.22	513.33
15.56	0.00	0.00	0.00	0.00	202.22	373.33
31.11	0.00	0.00	0.00	0.00	186.67	311.11
77.78	0.00	0.00	0.00	0.00	295.56	435.56
264.44	0.00	0.00	0.00	0.00	248.89	497.78
373.33	0.00	31.11	0.00	0.00	248.89	560.00
653.33	0.00	0.00	15.56	326.67	326.67	591.11
62.22	0.00	0.00	15.56	0.00	217.78	404.44
15.56	0.00	46.67	0.00	15.56	186.67	544.44
0.00	0.00	0.00	15.56	15.56	295.56	808.89
31.11	0.00	0.00	0.00	15.56	171.11	513.33

Myroscistis C	Oocystis Gnu	Snowella Litor	Peridinium C	Mougeotia C.	Spirogyra Link	Lyngbya C.Aga
451.11	0.00	0.00	0.00	0.00	0.00	0.00
373.33	0.00	0.00	0.00	0.00	0.00	0.00
637.78	0.00	0.00	0.00	0.00	0.00	0.00
622.22	0.00	0.00	0.00	15.56	15.56	0.00
544.44	31.11	46.67	0.00	77.78	0.00	0.00
840.00	46.67	513.33	0.00	93.33	0.00	15.56
808.89	0.00	15.56	0.00	0.00	0.00	31.11
948.89	0.00	0.00	0.00	0.00	0.00	0.00
980.00	0.00	0.00	0.00	0.00	0.00	0.00
917.78	0.00	0.00	0.00	15.56	0.00	0.00
777.78	0.00	0.00	0.00	0.00	0.00	0.00
668.89	0.00	0.00	0.00	0.00	0.00	62.22
684.44	0.00	0.00	0.00	0.00	0.00	31.11
1042.22	0.00	0.00	0.00	0.00	0.00	108.89
995.56	0.00	15.56	0.00	0.00	0.00	0.00
1151.11	0.00	77.78	46.67	0.00	0.00	1291.11
1135.56	0.00	0.00	0.00	0.00	0.00	0.00
1477.78	0.00	0.00	0.00	0.00	0.00	0.00
1680.00	0.00	0.00	0.00	0.00	0.00	31.11
917.78	0.00	0.00	0.00	15.56	0.00	0.00
466.67	0.00	0.00	0.00	0.00	0.00	0.00
637.78	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	46.67	0.00	46.67	0.00	31.11
451.11	0.00	0.00	0.00	0.00	0.00	0.00
793.33	0.00	280.00	15.56	124.44	15.56	15.56
793.33	77.78	46.67	0.00	62.22	0.00	0.00
948.89	0.00	0.00	0.00	0.00	0.00	0.00
1057.78	0.00	0.00	0.00	0.00	0.00	0.00
1135.56	0.00	0.00	0.00	0.00	0.00	0.00
1120.00	0.00	0.00	62.22	0.00	0.00	0.00

Diatoma Vulg	Microspora pa	Lyngbya Mart	Ophiocytium c	Sphaerosom	Phormidium u	Centronella R
0.00	0.00	0.00	0.00	46.67	15.56	31.11
0.00	31.11	0.00	0.00	0.00	46.67	0.00
0.00	62.22	46.67	0.00	0.00	93.33	0.00
0.00	280.00	0.00	0.00	0.00	31.11	0.00
0.00	15.56	0.00	186.67	15.56	264.44	0.00
0.00	342.22	0.00	31.11	0.00	124.44	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	15.56	0.00	108.89	0.00	140.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	31.11
0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	15.56	0.00
0.00	171.11	0.00	0.00	0.00	0.00	0.00
0.00	31.11	0.00	0.00	0.00	15.56	0.00
31.11	0.00	0.00	0.00	0.00	93.33	0.00
15.56	15.56	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	15.56	0.00
0.00	0.00	15.56	0.00	0.00	0.00	0.00
15.56	15.56	0.00	0.00	0.00	15.56	62.22
0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00
31.11	46.67	0.00	15.56	0.00	15.56	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00
31.11	15.56	0.00	0.00	0.00	31.11	0.00
15.56	77.78	0.00	357.78	0.00	171.11	0.00
0.00	0.00	0.00	0.00	0.00	0.00	15.56
0.00	0.00	0.00	0.00	0.00	0.00	0.00
15.56	0.00	0.00	0.00	0.00	0.00	0.00
15.56	0.00	0.00	0.00	0.00	0.00	0.00

Fragilaria Crot	Fragilaria Ulna	Closterium pr	Closterium inc	Aanabaena Cr	Phormidium S	Oscillatoria P
0.00	15.56	31.11	0.00	15.56	15.56	0.00
0.00	0.00	0.00	0.00	0.00	46.67	0.00
0.00	0.00	15.56	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	15.56	0.00	0.00	0.00	15.56	31.11
0.00	15.56	0.00	0.00	0.00	31.11	0.00
15.56	15.56	0.00	0.00	0.00	62.22	0.00
0.00	93.33	0.00	0.00	0.00	31.11	0.00
0.00	0.00	0.00	0.00	0.00	15.56	31.11
0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	15.56	0.00	0.00	15.56	0.00
15.56	0.00	15.56	0.00	0.00	0.00	0.00
0.00	0.00	62.22	0.00	0.00	0.00	31.11
15.56	264.44	93.33	0.00	15.56	15.56	0.00
0.00	31.11	108.89	0.00	62.22	31.11	31.11
31.11	46.67	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	31.11	15.56	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00
15.56	62.22	0.00	0.00	0.00	0.00	0.00
0.00	62.22	0.00	0.00	0.00	108.89	0.00
0.00	0.00	0.00	15.56	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	15.56	0.00	0.00

Spirulina jenn	Phormidium l	Anathece clat	Nostoc carnel	Staurastrum p	Staurastrum C	Staurastrum l
0.00	0.00	0.00	0.00	0.00	0.00	0.00
15.56	15.56	0.00	93.33	15.56	0.00	0.00
0.00	0.00	0.00	0.00	46.67	15.56	15.56
0.00	0.00	0.00	0.00	202.22	62.22	15.56
0.00	0.00	0.00	0.00	140.00	15.56	15.56
0.00	0.00	0.00	93.33	46.67	31.11	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	186.67	31.11	62.22	0.00
0.00	0.00	15.56	15.56	0.00	0.00	0.00
0.00	31.11	0.00	15.56	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	15.56	0.00	46.67	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	31.11	0.00	0.00	0.00
0.00	0.00	0.00	124.44	0.00	15.56	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	31.11	0.00	15.56	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	46.67	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	31.11	31.11
0.00	0.00	0.00	0.00	0.00	15.56	0.00
0.00	0.00	46.67	0.00	0.00	0.00	0.00
15.56	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	15.56	0.00	0.00	0.00	0.00
0.00	46.67	15.56	0.00	0.00	0.00	0.00
15.56	0.00	0.00	0.00	0.00	0.00	0.00

Scenedesmus	Scenedesmus	Pediastrum D	Pediastrum te	Hyalotheca d	Struktur Volv	Tribonema mi
0.00	0.00	0.00	0.00	0.00	0.00	77.78
0.00	0.00	0.00	0.00	0.00	0.00	77.78
31.11	0.00	0.00	31.11	0.00	0.00	0.00
62.22	0.00	0.00	62.22	46.67	0.00	186.67
31.11	15.56	0.00	0.00	0.00	0.00	77.78
77.78	0.00	0.00	31.11	0.00	0.00	342.22
0.00	0.00	0.00	0.00	0.00	0.00	0.00
31.11	0.00	0.00	46.67	0.00	0.00	342.22
15.56	0.00	15.56	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00
62.22	0.00	0.00	0.00	0.00	0.00	0.00
31.11	0.00	0.00	0.00	0.00	15.56	0.00
124.44	0.00	0.00	0.00	0.00	0.00	0.00
217.78	0.00	0.00	0.00	31.11	0.00	15.56
0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	15.56	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00
31.11	0.00	0.00	0.00	0.00	0.00	0.00
93.33	0.00	0.00	0.00	0.00	0.00	0.00
46.67	0.00	0.00	0.00	0.00	0.00	31.11
62.22	0.00	0.00	0.00	0.00	0.00	77.78
15.56	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	217.78	0.00	295.56
0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00
15.56	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00

Klebsormidiu	fremyella Dip	bumilleria Sic	Polycistis sp
0.00	0.00	0.00	233.33
0.00	0.00	0.00	186.67
0.00	0.00	0.00	295.56
0.00	0.00	0.00	233.33
62.22	0.00	0.00	451.11
93.33	0.00	0.00	575.56
0.00	15.56	0.00	668.89
124.44	0.00	0.00	606.67
93.33	15.56	0.00	560.00
0.00	0.00	0.00	575.56
0.00	0.00	0.00	544.44
0.00	31.11	0.00	388.89
0.00	0.00	0.00	637.78
0.00	15.56	0.00	575.56
15.56	15.56	0.00	637.78
0.00	15.56	0.00	746.67
0.00	0.00	0.00	560.00
0.00	0.00	0.00	622.22
0.00	62.22	0.00	715.56
0.00	0.00	0.00	575.56
0.00	0.00	0.00	248.89
0.00	0.00	0.00	280.00
15.56	0.00	0.00	388.89
93.33	31.11	31.11	544.44
46.67	0.00	0.00	560.00
420.00	0.00	0.00	715.56
0.00	0.00	0.00	451.11
62.22	0.00	0.00	544.44
15.56	0.00	0.00	840.00
15.56	0.00	31.11	731.11

NOMBRE	FECHAS	PUNTO	TEMPERATURA (°C)	TDS (ppm)
TOMA1	Sept 23 Pt 1	1	18.03	94
TOMA5	Nov 18 Pt 1	1	19.45	89
TOMA1	Sept 23 Pt 2	2	16.54	170
TOMA5	Nov 18 Pt 2	2	15.09	190
TOMA1	Sept 23Pt 3	3	15.8	90
TOMA5	Nov 18 Pt 3	3	15.91	86

CONCENTRACION O.D (ppm)	pH	CONDUCTIVIDAD ABSOLUTA (μS/cm)	SALINIDAD (PSU)	PRESION (mmHg)
0.12	7.0	179	0.09	562.7
3.82	6.7	163	0.08	562.1
45.6	6.5	273	0.19	561.1
3.05	6.6	335	0.21	560.8
3.15	6.4	168	0.11	560.9
2.85	6.5	157	0.09	561.1

FOSFATOS
0.2
0.25
0.22
0.27
0.18
0.2

NOMBRE	FECHAS	ESTACION	FOSFATOS (mg/l)	FOSFATO (mg/m ³)	TSI pt
TOMA1	Sept 23 Pt 1	1	0.2	200	81
TOMA5	Nov 18 Pt 1	1	0.25	250	84
TOMA1	Sept 23 Pt 2	2	0.22	220	82
TOMA5	Nov 18 Pt 2	2	0.27	270	85
TOMA1	Sept 23Pt 3	3	0.18	180	79
TOMA5	Nov 18 Pt 3	3	0.2	200	81

NOMBRE	FECHAS	ESTACION	TSI pt	ESTADO TROFICO
TOMA1	Sept 23 Pt 1	1	81	Eutrofico (60<TSI<90)
TOMA5	Nov 18 Pt 1	1	84	
TOMA1	Sept 23 Pt 2	2	82	
TOMA5	Nov 18 Pt 2	2	85	
TOMA1	Sept 23Pt 3	3	79	
TOMA5	Nov 18 Pt 3	3	81	

$$TSI_{pt} = 14.42 \ln(Pt) + 4.15.$$

TSI: índice de estado trófico.

Ln: logaritmo natural.

Pt: Fosforo total.

Abundancia promedio para cada género, el valor eigen, su papel como bioindicador
nivel para los datos del Muestreo 5

Género	Abundancia promedio	EigenValue	Bioindicador
Polycistis	257	0.6498	0
Microcystis	253	0.6389	TOLERANCIA DE HIDROCARBUROS
Gomphonema	138	0.3489	SEDIMENTOS Y CONDUCTIVIDAD
Eunotia	67	0.1703	N2, Mg, Ca
Navicula	35	0.0885	TOLERANCIA A PESTICIDAS
Trentepohlia	23	0.0582	CARACTERIZACION
Meridion	17	0.0430	TOLERANCIA DE HIDROCARBUROS
Gonatozygon	16	0.0405	MATERIA ORGANICA
Amphora	14	0.0354	N2, Mg, Ca
Cymbella	9	0.0228	N2, Mg, Ca
Chroococcus	9	0.0228	0
Klebsormidium	8	0.0202	ESTADO TROFICO
Nitzschia	7	0.0164	ESTADO TROFICO
Centronella	6	0.0152	0
Diploneis	5	0.0126	TOLERANCIA A PESTICIDAS
Rhopalodia	5	0.0126	0
Fremyella	5	0.0126	0
Peridinium	4	0.0101	TOLERANCIA A PESTICIDAS
Diatoma	3	0.0076	0
Phormidium	3	0.0076	TOLERANCIA DE HIDROCARBUROS
Nostoc	3	0.0076	0
Mougeotia	2	0.0051	MATERIA ORGANICA
Oscillatoria	2	0.0051	TOLERANCIA DE HIDROCARBUROS
Anathece	2	0.0051	0
Bumilleria	2	0.0051	ESTADO TROFICO
Lyngbya	1	0.0025	TOLERANCIA DE HIDROCARBUROS
Microspora	1	0.0025	0
Anabaena	1	0.0025	N2, Mg, Ca
Spirulina	1	0.0025	0
Scenedesmus	1	0.0025	TOLERANCIA A PESTICIDAS
Pediastrum	1	0.0013	TOLERANCIA A PESTICIDAS

Abundancia promedio para cada género, el valor eigen, su papel como bioindicador
nivel para los datos del Muestreo 4

Género	Abundancia promedio	EigenValue	Bioindicador
Microcystis	225	0.5938	TOLERANCIA DE HIDROCARBUROS
Polycystis	222	0.5867	0
Gomphonema	159	0.4202	SEDIMENTOS Y CONDUCTIVIDAD
Eunotia	83	0.2202	N2, Mg, Ca
Navicula	66	0.1741	TOLERANCIA A PESTICIDAS
Cymbella	39	0.1031	N2, Mg, Ca
Gonatozygon	33	0.0872	MATERIA ORGANICA
Nitzschia	30	0.0780	ESTADO TROFICO
Trentepohlia	28	0.0740	CARACTERIZACION
Amphora	26	0.0687	N2, Mg, Ca
Diploneis	23	0.0608	TOLERANCIA A PESTICIDAS
Tribonema	22	0.0581	ESTADO TROFICO
Meridion	15	0.0396	TOLERANCIA DE HIDROCARBUROS
Rhopalodia	13	0.0344	0
Nostoc	12	0.0317	0
Klebsormidium	12	0.0317	ESTADO TROFICO
Euglena	8	0.0211	TOLERANCIA DE HIDROCARBUROS
Ophiocytium	7	0.0185	0
Fragilaria	7	0.0172	N2, Mg, Ca
Phormidium	5	0.0141	TOLERANCIA DE HIDROCARBUROS
Lyngbya	2	0.0040	TOLERANCIA DE HIDROCARBUROS
Pediastrum	2	0.0040	TOLERANCIA A PESTICIDAS
Chroococcus	1	0.0026	0
Snowella	1	0.0026	0
Microspora	1	0.0026	0
Centronella	1	0.0026	0
Spirulina	1	0.0026	0
Anathece	1	0.0026	0
Scenedesmus	1	0.0026	TOLERANCIA A PESTICIDAS
Struktur	1	0.0026	CARACTERIZACION
Fremyella	1	0.0026	0
Closterium	1	0.0013	MATERIA ORGANICA

Tabla 1. Abundancia promedio para cada género, el valor eigen, su papel como bioindicador y el nivel para los datos del Muestreo 3

Género	Abundancia promedio	EigenValue	Bioindicador
Polycystis	237	0.6096	0
Microcystis	200	0.5153	TOLERANCIA DE HIDROCARBUROS
Gomphonema	147	0.3768	SEDIMENTOS Y CONDUCTIVIDAD
Snowella	63	0.1620	0
Eunotia	61	0.1577	N2, Mg, Ca

Gonatozygon	55	0.1415	MATERIA ORGANICA
Navicula	52	0.1344	TOLERANCIA A PESTICIDAS
Diploneis	52	0.1337	TOLERANCIA A PESTICIDAS
Trentepohlia	49	0.1260	CARACTERIZACION
Cymbella	48	0.1235	N2, Mg, Ca
Tribonema	47	0.1209	ESTADO TROFICO
Lyngbya	43	0.1093	TOLERANCIA DE HIDROCARBUROS
Nitzschia	42	0.1067	ESTADO TROFICO
Klebsormidium	41	0.1055	ESTADO TROFICO
Ophiocytium	37	0.0952	0
Microspora	30	0.0772	0
Chroococcus	23	0.0592	0
Mougeotia	23	0.0592	MATERIA ORGANICA
Phormidium	19	0.0489	TOLERANCIA DE HIDROCARBUROS
Nostoc	16	0.0412	0
Hyalotheca	16	0.0412	MATERIA ORGANICA
Fragilaria	16	0.0399	N2, Mg, Ca
Meridion	13	0.0334	TOLERANCIA DE HIDROCARBUROS
Amphora	11	0.0283	N2, Mg, Ca
Oocystis	10	0.0257	TOLERANCIA A PESTICIDAS
Closterium	7	0.0167	MATERIA ORGANICA
Diatoma	6	0.0154	0
Staurastrum	6	0.0154	MATERIA ORGANICA
Scenedesmus	6	0.0154	TOLERANCIA A PESTICIDAS
Anabaena	5	0.0129	N2, Mg, Ca
Euglena	4	0.0103	TOLERANCIA DE HIDROCARBUROS
Rhopalodia	4	0.0103	0
Peridinium	4	0.0103	TOLERANCIA A PESTICIDAS
Oscillatoria	4	0.0103	TOLERANCIA DE HIDROCARBUROS
Anathece	3	0.0077	0
Cosmarium	2	0.0051	MATERIA ORGANICA
fremyella	2	0.0051	0
Spirogyra	1	0.0026	MATERIA ORGANICA
Sphaerososma	1	0.0026	MATERIA ORGANICA
Pediastrum	1	0.0026	TOLERANCIA A PESTICIDAS

Abundancia promedio para cada género, el valor eigen, su papel como bioindicador
nivel para los datos del Muestreo 2

Género	Abundancia promedio	EigenValue	Bioindicador
Polycystis	172	0.6728	0
Microcystis	172	0.6715	TOLERANCIA DE HIDROCARBUROS
Microspora	38	0.1486	0
Gomphonema	35	0.1349	SEDIMENTOS Y CONDUCTIVIDAD

Cymbella	30	0.1173	N2, Mg, Ca
Navicula	29	0.1149	TOLERANCIA A PESTICIDAS
Eunotia	19	0.0743	N2, Mg, Ca
Amphora	19	0.0743	N2, Mg, Ca
Tribonema	19	0.0743	ESTADO TROFICO
Nitzschia	13	0.0489	ESTADO TROFICO
Meridion	12	0.0469	TOLERANCIA DE HIDROCARBUROS
Diploneis	11	0.0430	TOLERANCIA A PESTICIDAS
Scenedesmus	10	0.0372	TOLERANCIA A PESTICIDAS
Staurostrum	9	0.0352	MATERIA ORGANICA
Lyngbya	7	0.0274	TOLERANCIA DE HIDROCARBUROS
Klebsormidium	7	0.0274	ESTADO TROFICO
Gonatozygon	6	0.0235	MATERIA ORGANICA
Mougeotia	4	0.0156	MATERIA ORGANICA
Closterium	4	0.0137	MATERIA ORGANICA
Phormidium	3	0.0130	TOLERANCIA DE HIDROCARBUROS
Snowella	3	0.0117	0
Nostoc	3	0.0117	0
Pediastrum	3	0.0117	TOLERANCIA A PESTICIDAS
Hyalotheca	3	0.0117	MATERIA ORGANICA
fremyella	3	0.0117	0
Diatoma	2	0.0078	0
Oscillatoria	2	0.0078	TOLERANCIA DE HIDROCARBUROS
bumilleria	2	0.0078	ESTADO TROFICO
Fragilaria	2	0.0059	N2, Mg, Ca
Spirogyra	1	0.0039	MATERIA ORGANICA
Sphaerososma	1	0.0039	MATERIA ORGANICA
Struktur	1	0.0039	CARACTERIZACION

Abundancia promedio para cada género, el valor eigen, su papel como bioindicador
nivel para los datos del Muestreo 1

Género	Abundancia promedio	EigenValue	Bioindicador
Microcystis	136	0.7386	TOLERANCIA DE HIDROCARBUROS
Polycistis	121	0.6571	0
Eunotia	12	0.0670	N2, Mg, Ca
Cymbella	12	0.0652	N2, Mg, Ca
Navicula	11	0.0618	TOLERANCIA A PESTICIDAS
Tribonema	10	0.0543	ESTADO TROFICO
Nostoc	9	0.0489	0
Amphora	6	0.0326	N2, Mg, Ca
Gomphonema	5	0.0244	SEDIMENTOS Y CONDUCTIVIDAD
Meridion	4	0.0217	TOLERANCIA DE HIDROCARBUROS
Phormidium	4	0.0217	TOLERANCIA DE HIDROCARBUROS

Scenedesmus	4	0.0217	TOLERANCIA A PESTICIDAS
Gonatozygon	3	0.0163	MATERIA ORGANICA
Nitzschia	3	0.0163	ESTADO TROFICO
Sphaerosoma	3	0.0163	MATERIA ORGANICA
Trentepohlia	3	0.0163	CARACTERIZACION
Lyngbya	2	0.0109	TOLERANCIA DE HIDROCARBUROS
Microspora	2	0.0109	0
Centronella	2	0.0109	0
fremyella	2	0.0109	0
Closterium	2	0.0081	MATERIA ORGANICA
Rhopalodia	1	0.0054	0
Anabaena	1	0.0054	N2, Mg, Ca
Spirulina	1	0.0054	0
Fragilaria	1	0.0027	N2, Mg, Ca

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Etiquetas de fila
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TOLERANCIA DE HIDROCARBUROS
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Cuenta de Bioindicador Promedio de Nivel

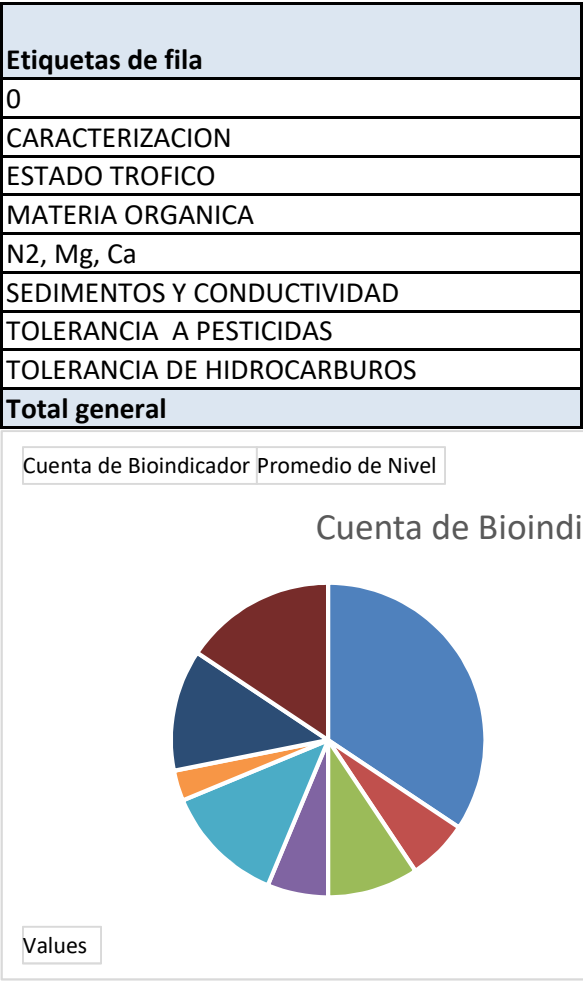
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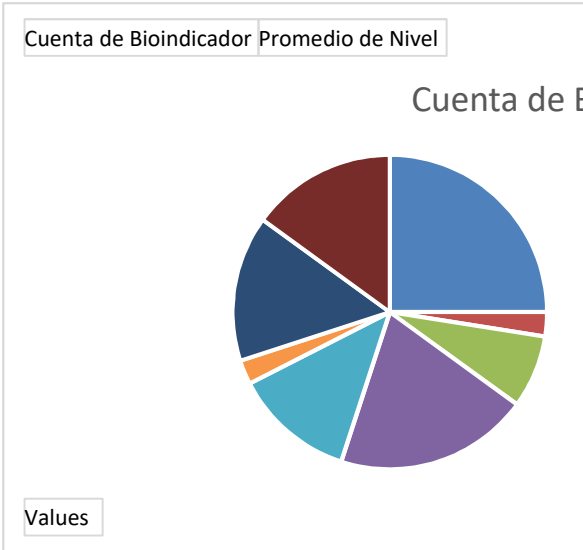


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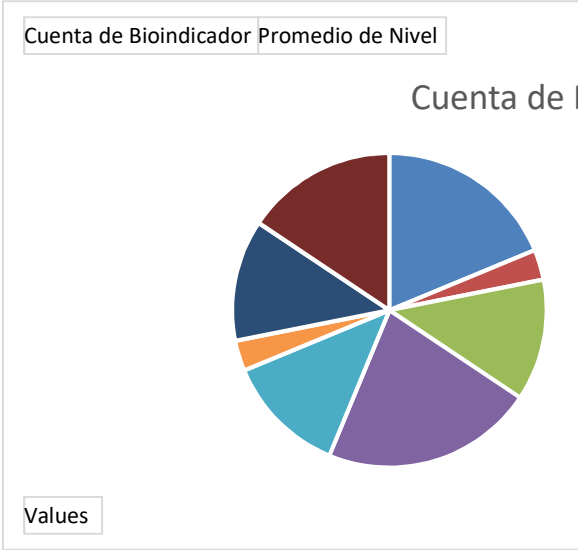


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MATERIA ORGANICA

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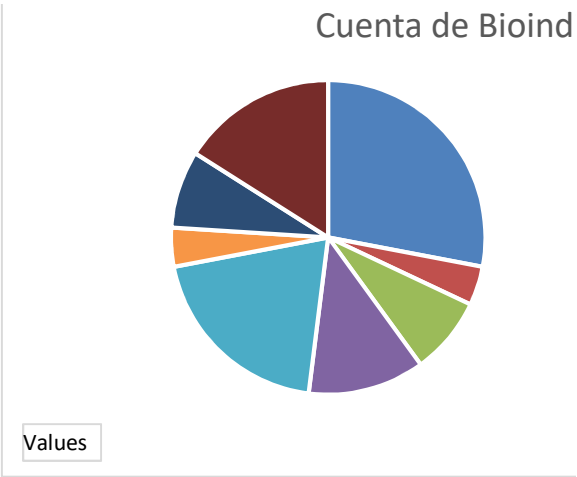
N2, Mg, Ca
SEDIMENTOS Y CONDUCTIVIDAD
TOLERANCIA A PESTICIDAS
TOLERANCIA DE HIDROCARBUROS
Total general



Etiquetas de fila
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CARACTERIZACION
ESTADO TROFICO
MATERIA ORGANICA
N2, Mg, Ca
SEDIMENTOS Y CONDUCTIVIDAD
TOLERANCIA A PESTICIDAS
TOLERANCIA DE HIDROCARBUROS
Total general

Cuenta de Bioindicador Promedio de Nivel

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Cuenta de Bioindicador	Promedio de Nivel
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3	2.333333333
2	2
4	2
1	2
5	2
5	2
31	1.483870968

Estación
Estación 1.

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Bioindicador

■ 0

■ CARACTERIZACION

■ ESTADO TROFICO

Cuenta de Bioindicador	Promedio de Nivel
11	0
2	5
3	2.333333333
2	2
4	2
1	2
4	2
5	2
32	1.53125

icador

Bioindicador

- 0
- CARACTERIZACION
- ESTADO TROFICO

Cuenta de Bioindicador	Promedio de Nivel
10	0
1	5
3	2.333333333
8	2.125
5	2

1	2
6	2
6	2
40	1.625

Bioindicador

Bioindicador

- 0
- CARACTERIZACION
- ESTADO TROFICO
- MATERIA ORGANICA
- N2, Mg, Ca

Cuenta de Bioindicador	Promedio de Nivel
6	0
1	5
4	2.25
7	2

4	2
1	2
4	2
5	2
32	1.75

Bioindicador

Bioindicador

■ 0

■ CARACTERIZACION

■ ESTADO TROFICO

■ MATERIA ORGANICA

■ N2, Mg, Ca

Cuenta de Bioindicador	Promedio de Nivel
7	0
1	5
2	2.5
3	2
5	2
1	2
2	2
4	2
25	1.6

icador

Bioindicador

- 0
- CARACTERIZACION
- ESTADO TROFICO

Indicador	Promedio de nivel	Bioindicación
Caracterización	5	Periodo lluvioso
Estado trófico	2.3	Oligotrófico
Materia orgánica	2	Posible
N2, Mg, Ca	2	Baja
Sedimentos y conductividad	2	Altos
Tolerancia a pesticidas	2	Si
Tolerancia a hidrocarburos	2	Si

Abundancia promedio para cada género, el valor eigen, su papel como bioindicador y el nivel para los datos de la Estación 3

Género	Abundancia promedio	EigenValue	Bioindicador	Nivel
Polycistis	341	0.6648	0	0
Microcystis	332.666667	0.6486	TOLERANCIA DE HIDROCARBUROS	2
Gomphonema	103.5	0.2018	SEDIMENTOS Y CONDUCTIVIDAD	2
Eunotia	93.6666667	0.1826	N2, Mg, Ca	2
Nitzschia	61	0.1189	ESTADO TROFICO	3
Cymbella	47	0.0916	N2, Mg, Ca	2
Navicula	46.75	0.0911	TOLERANCIA A PESTICIDAS	2
Gonatozygon	44	0.0858	MATERIA ORGANICA	2
Klebsormidium	43	0.0838	ESTADO TROFICO	2
Amphora	33	0.0643	N2, Mg, Ca	2
Tribonema	26	0.0507	ESTADO TROFICO	2
Chroococcus	24	0.0468	0	0
Snowella	24	0.0468	0	0
Ophiocytium	24	0.0468	0	0
Mougeotia	15	0.0292	MATERIA ORGANICA	2
Hyalotheca	14	0.0273	MATERIA ORGANICA	2
Meridion	12	0.0234	TOLERANCIA DE HIDROCARBUROS	2
Diploneis	11	0.0214	TOLERANCIA A PESTICIDAS	2
Trentepohlia	11	0.0214	CARACTERIZACION	5
Microspora	9	0.0175	0	0
Scenedesmus	8.5	0.0166	TOLERANCIA A PESTICIDAS	2
Diatoma	7	0.0136	0	0
Phormidium	6.75	0.0132	TOLERANCIA DE HIDROCARBUROS	2
Fragilaria	5.5	0.0107	N2, Mg, Ca	2
Euglena	5	0.0097	TOLERANCIA DE HIDROCARBUROS	2
Oocystis	5	0.0097	TOLERANCIA A PESTICIDAS	2
Peridinium	5	0.0097	TOLERANCIA A PESTICIDAS	2
Anathece	5	0.0097	0	0
bumilleria	4	0.0078	ESTADO TROFICO	2
Rhopalodia	3	0.0058	0	0
Nostoc	3	0.0058	0	0
Spirulina	2	0.0039	0	0
fremyella	2	0.0039	0	0
Staurostrum	1.66666667	0.0033	MATERIA ORGANICA	2
Spirogyra	1	0.0020	MATERIA ORGANICA	2
Lyngbya	1	0.0020	TOLERANCIA DE HIDROCARBUROS	2
Centronella	1	0.0020	0	0
Closterium	1	0.0020	MATERIA ORGANICA	2
Anabaena	1	0.0020	N2, Mg, Ca	2

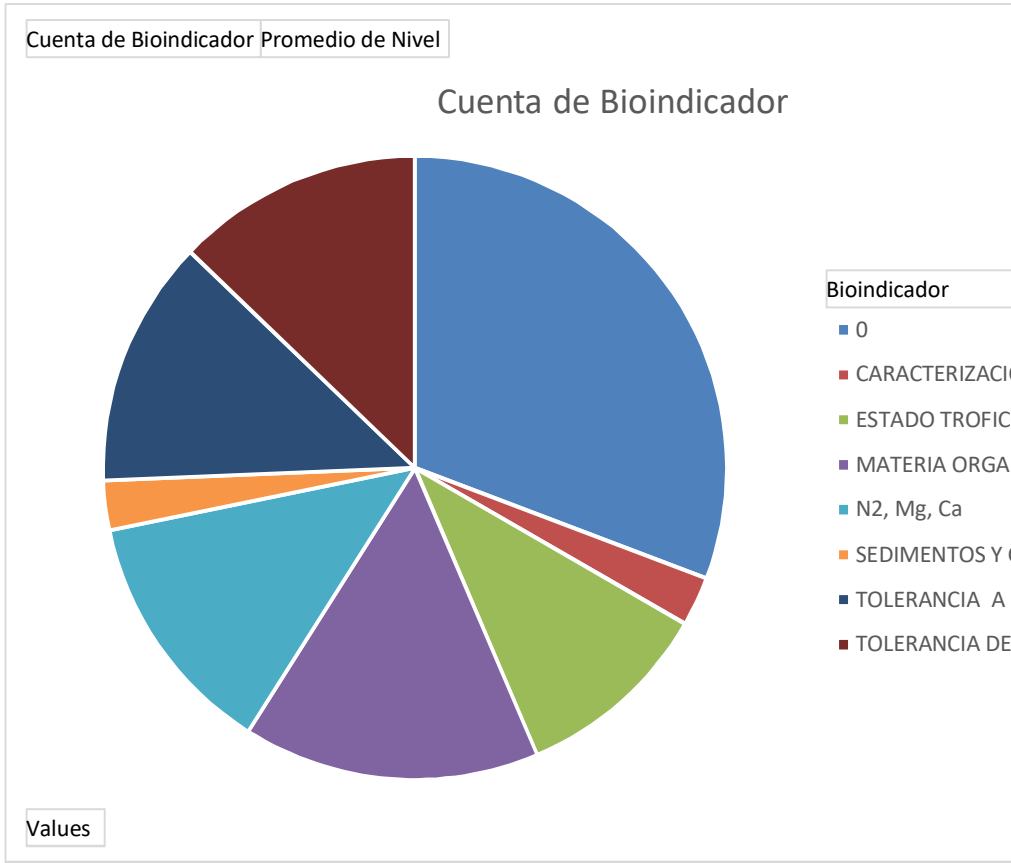
Abundancia promedio para cada género, el valor eigen, su papel como bioindicador y el nivel para los datos de la Estación 2

Género	Abundancia promedio	EigenValue	Bioindicador	Nivel
Polycistis	386	0.6912	0	
Microcystis	345	0.6172	TOLERANCIA DE HIDROCARBUROS	2
Gomphonema	108	0.1934	SEDIMENTOS Y CONDUCTIVIDAD	2
Cymbella	91	0.1630	N2, Mg, Ca	2
Diploneis	75	0.1343	TOLERANCIA A PESTICIDAS	2
Eunotia	73	0.1313	N2, Mg, Ca	2
Navicula	70	0.1245	TOLERANCIA A PESTICIDAS	2
Lyngbya	50	0.0886	TOLERANCIA DE HIDROCARBUROS	2
Amphora	38	0.0680	N2, Mg, Ca	2
Gonatozygon	37	0.0663	MATERIA ORGANICA	2
Nitzschia	30	0.0528	ESTADO TROFICO	3
Meridion	28	0.0501	TOLERANCIA DE HIDROCARBUROS	2
Microspora	15	0.0269	0	
Nostoc	14	0.0251	0	
Scenedesmus	14	0.0251	TOLERANCIA A PESTICIDAS	2
Fragilaria	13	0.0233	N2, Mg, Ca	2
Trentepohlia	11	0.0197	CARACTERIZACION	5
Rhopalodia	10	0.0179	0	
Closterium	10	0.0170	MATERIA ORGANICA	2
fremyella	9	0.0161	0	
Snowella	6	0.0107	0	
Phormidium	6	0.0102	TOLERANCIA DE HIDROCARBUROS	2
Euglena	5	0.0090	TOLERANCIA DE HIDROCARBUROS	2
Anabaena	5	0.0090	N2, Mg, Ca	2
Diatoma	4	0.0072	0	
Centronella	4	0.0072	0	
Oscyllatoria	4	0.0072	TOLERANCIA DE HIDROCARBUROS	2
Peridinium	3	0.0054	TOLERANCIA A PESTICIDAS	2
Cosmarium	2	0.0036	MATERIA ORGANICA	3
Chroococcus	2	0.0036	0	
Hyalotheca	2	0.0036	MATERIA ORGANICA	2
Struktur	2	0.0036	CARACTERIZACION	5
Mougeotia	1	0.0018	MATERIA ORGANICA	2
Tribonema	1	0.0018	ESTADO TROFICO	2
Klebsormidium	1	0.0018	ESTADO TROFICO	2

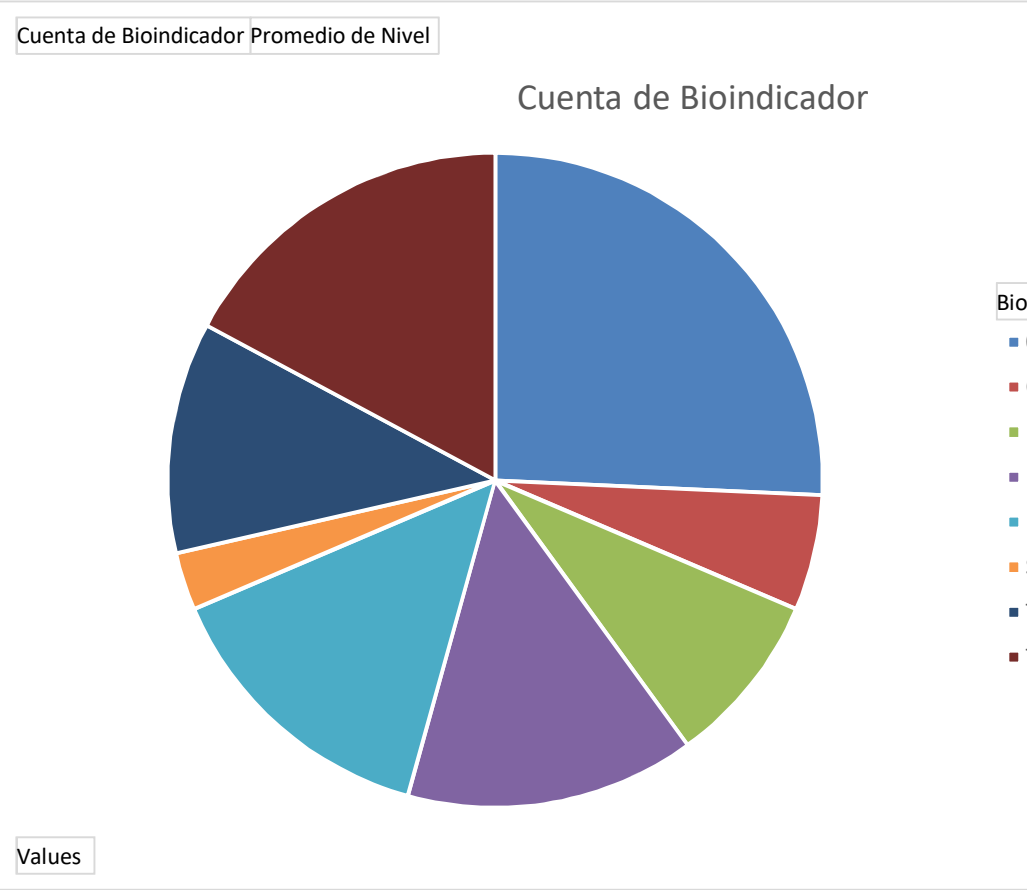
Abundancia promedio para cada género, el valor eigen, su papel como bioindicador y el nivel para los datos de la Estación 1

Género	Abundancia promedio	EigenValue	Bioindicador	Nivel
Microcystis	308	0.5843	TOLERANCIA DE HIDROCARBUROS	2
Polycistis	282	0.5350	0	0
Gomphonema	271	0.5141	SEDIMENTOS Y CONDUCTIVIDAD	2
Trentepohlia	81	0.1537	CARACTERIZACION	5
Eunotia	76	0.1448	N2, Mg, Ca	2
Tribonema	71	0.1347	ESTADO TROFICO	2
Navicula	67	0.1269	TOLERANCIA A PESTICIDAS	2
Microspora	48	0.0911	0	0
Snowella	37	0.0702	0	0
Gonatozygon	32	0.0607	MATERIA ORGANICA	2
Nostoc	26	0.0493	0	0
Klebsormidium	24	0.0455	ESTADO TROFICO	2
Meridion	21	0.0398	TOLERANCIA DE HIDROCARBUROS	2
Ophiocytium	21	0.0398	0	0
Phormidium	21	0.0398	TOLERANCIA DE HIDROCARBUROS	2
Staurostrum	15	0.0291	MATERIA ORGANICA	2
Mougeotia	13	0.0247	MATERIA ORGANICA	2
Rhopalodia	10	0.0190	0	0
Scenedesmus	9	0.0161	TOLERANCIA A PESTICIDAS	2
Chroococcus	7	0.0133	0	0
Pediastrum	6	0.0114	TOLERANCIA A PESTICIDAS	2
Fragilaria	6	0.0104	N2, Mg, Ca	2
Amphora	5	0.0095	N2, Mg, Ca	2
Diploneis	5	0.0095	TOLERANCIA A PESTICIDAS	2
Oocystis	5	0.0095	TOLERANCIA A PESTICIDAS	2
Sphaeroszoma	4	0.0076	MATERIA ORGANICA	2
Centronella	4	0.0076	0	0
Oscillatoria	4	0.0076	TOLERANCIA DE HIDROCARBUROS	2
Lyngbya	3	0.0057	TOLERANCIA DE HIDROCARBUROS	2
Hyalotheca	3	0.0057	MATERIA ORGANICA	2
Nitzschia	3	0.0047	ESTADO TROFICO	3
Euglena	2	0.0038	TOLERANCIA DE HIDROCARBUROS	2
fremyella	2	0.0038	0	0
Closterium	2	0.0028	MATERIA ORGANICA	2
Spirogyra	1	0.0019	MATERIA ORGANICA	2
Anabaena	1	0.0019	N2, Mg, Ca	2
Spirulina	1	0.0019	0	0
Anathece	1	0.0019	0	0

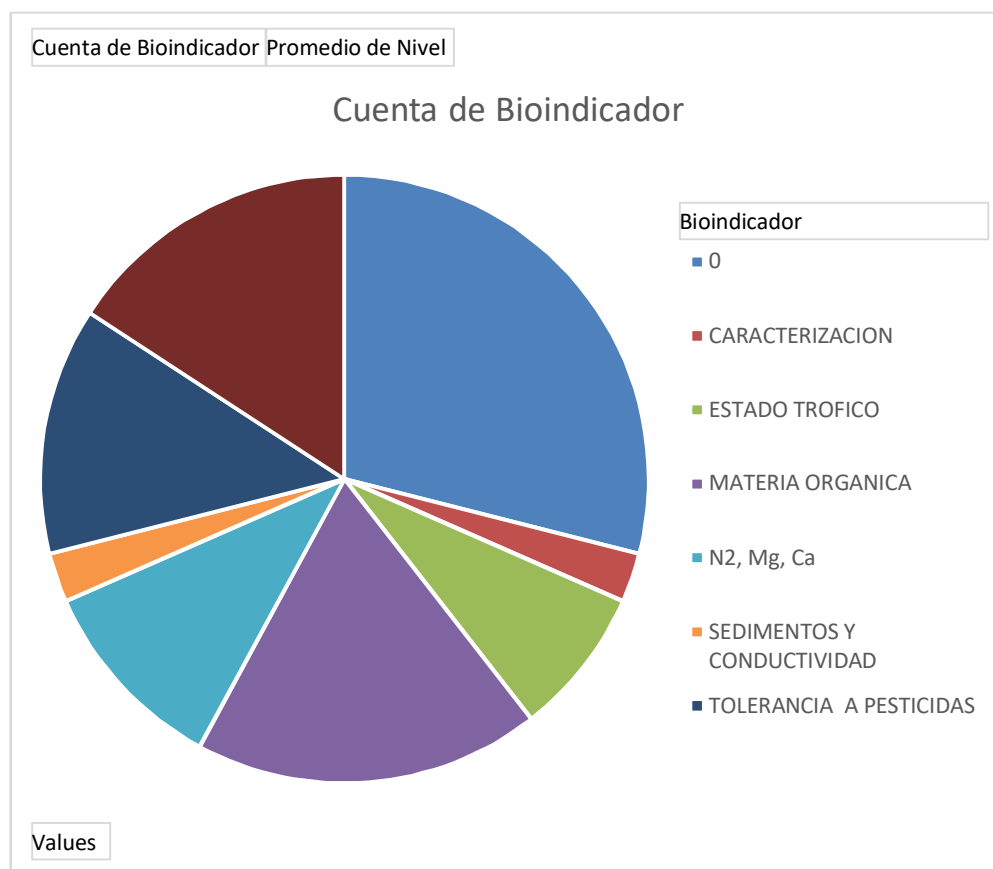
Etiquetas de fila	Cuenta de Bioindicador
0	12
CARACTERIZACION	1
ESTADO TROFICO	4
MATERIA ORGANICA	6
N2, Mg, Ca	5
SEDIMENTOS Y CONDUCTIVIDAD	1
TOLERANCIA A PESTICIDAS	5
TOLERANCIA DE HIDROCARBUROS	5
Total general	39



Etiquetas de fila	Cuenta de Bioindicador
0	9
CARACTERIZACION	2
ESTADO TROFICO	3
MATERIA ORGANICA	5
N2, Mg, Ca	5
SEDIMENTOS Y CONDUCTIVIDAD	1
TOLERANCIA A PESTICIDAS	4
TOLERANCIA DE HIDROCARBUROS	6
Total general	35



Etiquetas de fila	Cuenta de Bioindicador
0	11
CARACTERIZACION	1
ESTADO TROFICO	3
MATERIA ORGANICA	7
N2, Mg, Ca	4
SEDIMENTOS Y CONDUCTIVIDAD	1
TOLERANCIA A PESTICIDAS	5
TOLERANCIA DE HIDROCARBUROS	6
Total general	38



Promedio de Nivel	
	0
	5
	2.25
	2
	2
	2
	2
	2
	2
	1.487179487

ON

DO

.NICA

CONDUCTIVIDAD

PESTICIDAS

± HIDROCARBUROS

Promedio de Nivel
5
2.333333333
2.2
2
2
2
2
2.307692308

Indicador

- 0
- CARACTERIZACION
- ESTADO TROFICO
- MATERIA ORGANICA
- N2, Mg, Ca
- SEDIMENTOS Y CONDUCTIVIDAD
- TOLERANCIA A PESTICIDAS
- TOLERANCIA DE HIDROCARBUROS

