

MEL05516

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Meridian Energy
PO Box 14 100
CHRISTCHURCH

Attention Dave Herrick

Dear Dave

WAIUAU ARM AND LAKE MANAPOURI SURVEY FOR *DIDYMOSPHENIA GEMINATA*: ONGOING MONITORING 17 AUGUST 2005

The fourth survey in the ongoing surveillance of *Didymosphenia geminata* in the Waiau Arm and Lake Manapouri was carried out on 17 August 2005, by Fred Inder and Evan Brunton.

Methods were as used on the previous surveys. In accordance with changes made to the July survey, additional samples were collected from Frasers Beach, from the lakeshore along from the southern side of the Arm, and from around the western end of Zone 2. Thirty benthic samples and two drift samples were collected. Results are shown below (Table 1 and Map).

A single positive sample was found in Zone 2 in the exact same location as positive samples found in this zone during previous surveys. As with the July survey, the *D. geminata* cells were rare throughout the sample and no healthy (live)-looking cells were detected. Three out of four samples from Zone 1 were positive. The stalked *D. geminata* cells contained healthy chloroplasts and were abundant to dominant alga in these samples. Thick mats coating the macrophytes in the sample suggest that *D. geminata* is actively growing at these sites. *D. geminata* was again not found in any subsamples examined from Zone 3 samples.

Yours sincerely



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Table 1. List of samples collected on 25 July 2005, including main algae taxa found in each sample (in approx. order of abundance). Samples were taken from depths of 0.5 to 1.0 m.

Sample number	E	N	Sample type	Zone	Score	Notes on taxa present
1	2090039	5502972	rocks, sand	3	0	Cymbella, Oscillatoria, Tolypothrix
1a	2089828	5502694	weed off bottom, rocks	3	0	No algae
2	2089391	5502243	rocks, weed	3	0	No algae
2a	2089210	5502087	weed, rocks	3	0	Cymbella, Zygnema, Tabellaria, Epithemia, Gomphonema, Leptolyngbya, Fischerella
3	2089020	5502012	sand, rocks	3	0	Fischerella, Cymbella, Achnanthydium, Tabellaria, Mougeotia, Gomphonema.
4	2088889	5501837	rocks	3	0	Tolypothrix, Leptolyngbya, Zygnema, Tabellaria, Gomphonema, Epithemia, Synedra
5	2088916	5501789	rocks, weed	3	0	Tolypothrix, Gomphonema, Epithemia, Phormidium, Fragilaria, Mougeotia, Zygnema.
6	2088826	5501729	Rocks, sediment	3	0	Microcoleus, Cymbella, Tolypothrix, Cymbella, Phormidium, Spirogyra, Nitzschia, Navicula,
6a	2088789	5501674	Rocks, sediment	3	0	Cymbella, Epithemia, Melosira, Aulacoseira, Tolypothrix
6b	2088682	5501624	weed sediment,	3	0	No algae
7	2088927	5501653	weed, rocks	3	0	Cymbella, Fragilaria, Tabellaria, Nitzschia, Oscillatoria,
8	2089586	5501648	weed, branch, sediment	3	0	Synedra, Fragilaria, Cymbella, Navicula, Tabellaria, Eunotia
9	2089756	5501388	Rocks, weed	3	0	Gomphonema, Navicula, Eunotia, Nitzschia, Pinnularia, Cymbella, Gyrosigma
10	2090179	5501205	weed, sediment	3	0	Melosira, Cymbella, Navicula, Epithemia, Synedra.
11	2090109	5501140	Sand, sediment	3	0	Cymbella, Gomphonema, Zygnema, Pinnularia, Gyrosigma
12	2090460	5500871	Weed, rocks	3	0	Zygnema, Oscillatoria, Lyngbya, Cymbella Nitzschia, Navicula, many small diatoms
13	2090321	5500866	stick, weed, sediment	3	0	Achnanthydium, Cymbella, Navicula, Diploneis, Gomphonema, Stigeoclonium, Oscillatoria
14	2090638	5500686	sticks & weed	2	0	Diploneis, Lyngbya, Synedra. Eunotia, Navicula, Cymbella, Tabellaria
14a	2090904	5500507	branches, weed & sediment	2	0	Cymbella, Sellaphora, Tabellaria, Surirella, Lyngbya, Epithemia.
15	2090531	5500641	sticks & weed	2	0	Fischerella, Pinnularia, Synedra, Nitzschia, Cymbella, Navicula, Frustulia, many small diatoms
16	2090957	5500462	branches, weed sediment	2	0	Cymbella, Oscillatoria, Lyngbya, Microcoleus, Nitzschia, Synedra, Frustulia
16a	2090973	5500455	branches & weed	2	0	Many dead daitoms; Frustulia, Pinnularia, Aulacoseira, Surirella
17	2091669	5500214	sticks & weed	2	0	Synedra, Frustulia, Diploneis, G. acuminatum

Table 1 continued

Sample number	E	N	Sample type	Zone	Score	Notes on taxa present
18	2092535	5499946	rocks, weed, branches	2	0	G. acuminatum, Tabellaria, Diatoma tenuis, Cymbella; many small diatoms
19	2093769	5499948	branches, weed, sand	2	0	G. acuminatum, Melosira, Fragilaria, Pinnularia, Cocconeis
20	2093772	5499357	branches, weed, sediment	2	1	Gomphonema, many small diatoms, Nitzschia, Didymosphenia (1 dead-looking cell)
D1	2093713	5499262	drift	2	0	Debris – no algae
D2	2092788	5499864	drift	2	0	Debris – no algae
21	2094518	5498286	sticks, weed, sediment	1	0	Pinnularia, Fragilaria, Gomphonema, small diatoms
22	2095131	5497548	sticks, weed, sediment	1	7	Many small diatoms, Didymosphenia (stalked, mats coating weeds, healthy cells with entire chloroplasts, abundant)
23	2095492	5497413	branches, rocks, weed, sediment	1	7	small diatoms. Didymosphenia (stalked, mats coating weeds, healthy cells with entire chloroplasts, abundant)
24	2095860	5496982	weed, sediment, rocks	1	8	Didymosphenia (stalked, mats coating weeds, healthy cells with entire chloroplasts, dominant)

Results of analyses of samples collected on 17 August 2005. Yellow circles, no *D. geminata* found; green, dead *D. geminata* only; blue – pink – purple – black, live cells (with chloroplasts) rare – occasional – common – abundant – dominant.

