

<b>Version No:</b> 04 <b>Issue Date:</b> 16/03/2021 <b>Portfolio:</b> Discrete Water Quality	<b>Horizons Regional Council</b>	<b>Section No:</b> 15.6 <b>Appendix No:</b> 5 <b>Page:</b> 1 of 3
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## Lake Sampling Procedures and bottles

### Overview:

Horizons Regional Council sample two major types of lakes that require different sampling methods:

- Shallow, un-stratified lakes less than 5 meters deep. (Typically by Helicopter)
- Deep, stratified lakes greater than 5 meters. (Typically by boat)

### Health and Safety

All staff undertaking lake sampling should read the following health and safety plans

- Plan 1- Use of Aircraft
- Plan 4 - Excessive noise in the work environment
- Plan 3 – Use of Boats
- Plan 9 – 4WD vehicles
- Plan 16 – Working on roadsides
- Plan 17 – Ultraviolet radiation (sunlight)
- Plan 18 – Working around water
- Plan 20 – Motor vehicle use
- Plan 22 – Criminal activities
- Plan 24 – Working in isolation
- Plan 26 – Dangerous animals
- Plan 27 – Use of kayaks
- Plan 31 – Leptospirosis
- Plan 34 – Severe Winds
- Plan 35 – Sample bottle handling

**\*\*\* Only those who have completed Helicopter Underwater Escape Training (HUET) are permitted to sample lakes from a helicopter.**



### Lake Sample Method guide

Lake	Means	Near Bottom	Chlorophyll	Bulk	Subsampled
Lake Horowhenua	Boat	No	Yes from 3 sites	yes	yes
Lake Pauri	Boat	Site 1	Yes from 3 sites	yes	yes
Lake Wiritoa	Boat	Site 1	Yes from 3 sites	yes	yes
Lake Dudding	Boat	Site 1	Yes from 3 sites	yes	yes
Lake Waipu	Boat	Yes site ?	Yes from 3 sites	yes	yes
Lake Westmere	Helicopter	No	Yes from 3 sites	yes	yes
Lake Kiotiata	Helicopter	No	Yes from 3 sites	yes	yes
Lake Heaton	Helicopter	No	Yes from 3 sites	yes	yes
Lake Herbert	Helicopter	No	Yes from 3 sites	yes	yes
Lake Alice	Helicopter	No	Yes from 3 sites	yes	yes
Omanuaka Lagoon	Helicopter	No	Yes from 3 sites	yes	yes
Pukepuke Lagoon	Helicopter	No	Yes from 3 sites	yes	yes
Lake Koputara	Helicopter	No	Yes from 3 sites	yes	yes
Lake Papaitonga	Helicopter	No	Yes from 3 sites	yes	yes
Lake William	Helicopter	No	Yes from 3 sites	yes	yes
Hokowhitu Lagoon	Bankside	No	Yes	n/a	In field
Lake Papaitonga	At ESG	No	Yes	n/a	In field

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## Lake Sampling Procedures and bottles

### Lakes Sampled by **boat**:

	Collect 1 x 1 litre bottle from each sample site to be tested for Chlorophyll for ELS  (have increased to three samples to help ground truth the satellite data)
	From the three sample points fill a composite bottle for ELS.  This bottle is subsampled back at the office for algae and toxins, refer to: <a href="#">Ops Manual 15.4 Appendix 4</a>



### Lakes requiring a near bottom sample: (Filled from the Van Dorm):

	Collect 2 x 1 Litre bottles <b>for ELS</b>
	Collect 2 x digi-tubes <b>for ELS</b>
	Collect 1 x metals bottle <b>for ELS</b>
	Collect 1 x <i>acidified</i> metals bottle <b>for ELS</b>
	Collect 1 x micro bottle <b>for ELS</b>
	Collect 1 x Nutrients bottle <b>for ELS</b>

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## Lake Sampling Procedures and bottles

### Lakes Sampled by **Helicopter**:

	<p>Collect 1 x 1 litre bottle from each sample site to be tested for Chlorophyll for ELS</p> <p>(have increased to three samples to help ground truth the satellite data)</p> <p>From each site we collect two 1 litre bottles. 1 is poured into the bulk sample, the other is sent to the lab in the 1 litre bottle</p>
	<p>From the three sample points fill a composite bottle for ELS.</p> <p>This bottle is subsampled back at the office for algae and toxins, refer to: <a href="#">Ops Manual 15.4 Appendix 4</a>.</p>

### All lakes subsampled for Algae and bio-toxin:

### In the office, ALL lakes, sub sample from the bulk

	<p>One unpreserved bottle is sent to Cawthron on the day of sampling. and is tested for Algae..</p> <p><b>CADDIS ID 20XXHRCPHYXXX</b></p>
	<p>One preserved bottle is sent to Cawthron on the day of sampling. and is tested for Algae.</p> <p>-Add 3 – 4 drops of iodine</p> <p><b>CADDIS ID 20XXHRCPHYXXX</b></p>
	<p>½ fill a glass bottle from the bulk sample and store in freezer on its side. Science will send this to Cawthron when we have enough samples of the same toxin</p> <p><b>CADDIS ID 20XXHRCWQUXXXX</b></p>