COMMUNITY SUSTAINABLE LAND MANAGEMENT FOR WAIKATO LAKES CATCHMENTS

Keeping our Water Clean

FACT SHEET – JUNE 2010

THIS FACT SHEET OUTLINES BEST MANAGEMENT PRACTICES TO HELP KEEP YOUR VALUABLE SOIL AND NUTRIENTS ON THE FARM. SILT TRAPS ARE INCLUDED AS ONE OF A RANGE OF OPTIONS TO ASSIST IN REDUCING SILT AND NUTRIENTS LEAVING THE FARM AND ENTERING WATERWAYS AND WATERBODIES.

MANAGING SILT AND NUTRIENTS ON THE FARM

Farm drains directly entering streams, rivers, lakes, and harbours carry silt and nutrients which, over time, degrade water quality. In the Waikato, the small peat lakes, west coast dune lakes and large lakes to the north of Huntly have been very sensitive to land use within their catchments because of their limited depth. Poor water quality can have a major impact on stock health, recreational values, food harvesting and the aesthetic value of our streams, rivers and lakes.

Silt

- Provides a source of phosphorus which leads to declining water quality
- Decreases the depth of waterbodies
- Clouds water affecting both aquatic plant and animal life

Nutrients

- Feed nuisance weed growth which leads to clogged drains
- Encourages the growth of algae which can be toxic to humans and animals and which reduces lake aesthetics.

Lake Kainui (Waikato District). Like many of the region's shallow lakes, Lake Kainui has poor water quality and frequent algal blooms.

Lake Serpentine East (Waipa District). The clear peat-stained waters are some of the highest quality in the Waikato Region.

MINIMISING N, P AND SILT LOSSES

One of the most important approaches to ensuring waterways aren't polluted is to keep nutrients and silt on the farm. Compare your current farm practices with the following checklist of best management practices:

Stocking rate

- ☐ Stock at lower rates within 200m of lake margins
- ☐ Avoid pugging and compaction during the wet winter months to minimise surface run-off
- ☐ Have a properly designed stand-off option

Drain and wet area management

- ☐ Fence drains, plant and/or keep in dense grass sward
- ☐ Fence off wetlands, springs and seeps Bridge/culvert all stock crossings
- ☐ Install silt traps on surface drains leading to waterbodies and waterways

Fertiliser management

- ☐ Follow a nutrient management plan
- ☐ Carry out soil tests regularly
- ☐ Split applications of more than 40kg/ha N and 50kg/ha P
- ☐ Sample effluent for nutrient values

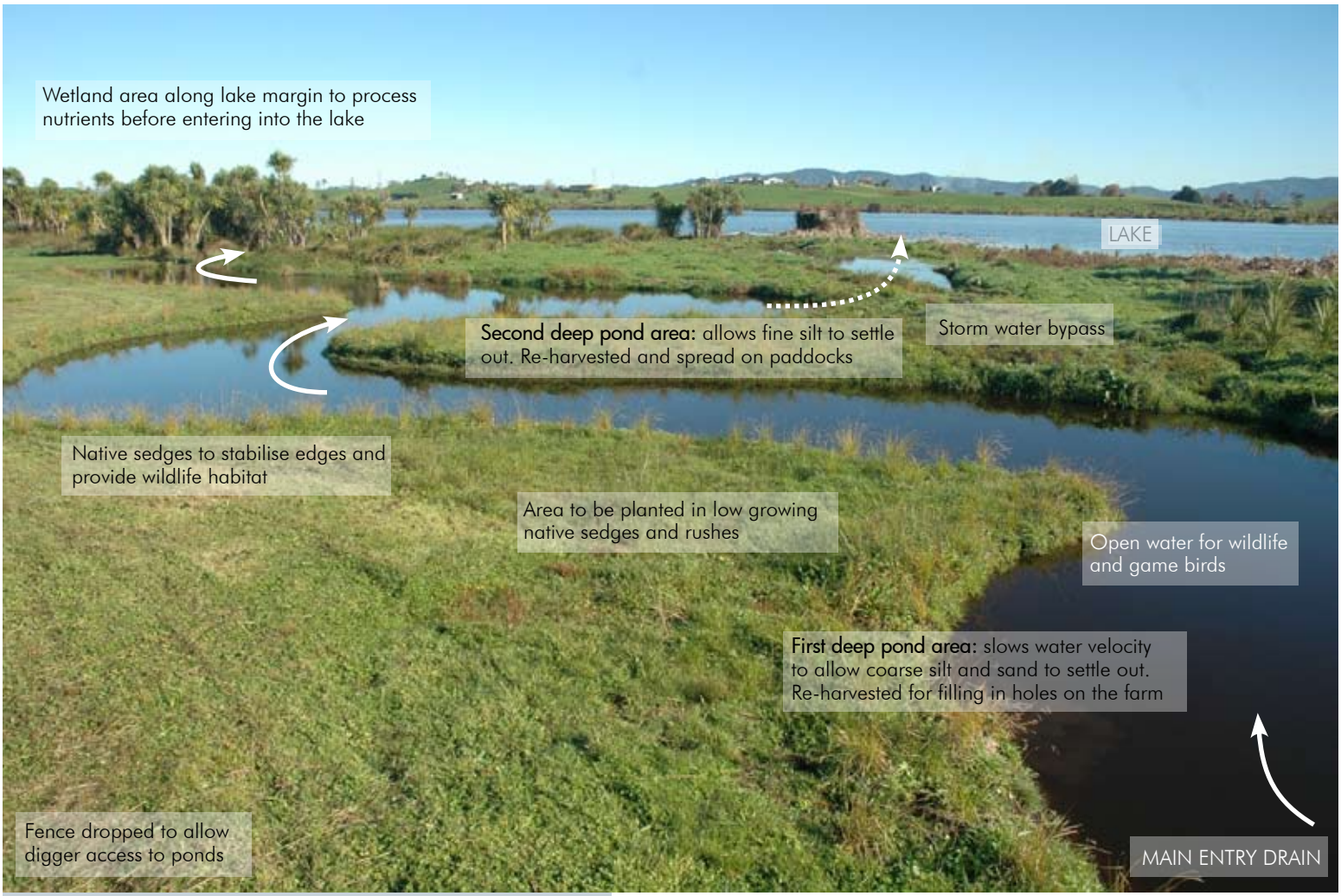
Effluent management

- ☐ Irrigate effluent to avoid ponding
- ☐ Contain stand off/feed pad effluent in suitable capture systems to avoid runoff and divert to treatment system

Gaps in the checklist?

Yes, there are still some things I could improve on…

- ☐ Consider investing in a whole farm plan
- ☐ Seek advice from your farm advisor, Environment Waikato or Dairy NZ Consulting Officer



SILT TRAPS

Silt traps aren't a silver bullet for reducing silt and nutrients (particularly P) leaving the farm, but part of a range of tools available to help minimise the effects of farming on the environment. A key design feature is an area large enough to slow water down allowing sediments to settle out to be re-harvested for use on the farm – potentially saving money on fertiliser. Commonly used in forestry operations, during roading and urban construction, silt traps are relatively new concepts on farm. Though research is ongoing into the most cost-effective and functional designs for farms, a wide variety of silt traps can already be viewed at on the margins of Lakes Kainui, Kaituna and Komakorau (all Waikato District).

Multi-purpose systems

Well designed silt traps can have a variety of practical functions. At Lake Kaituna a basic silt trap was recently redesigned and enlarged to cope with increased loadings of sediment. An option for the future could be for silt traps to be constructed at intervals on farm drains. This would ensure that no one property bears the responsibility for collecting the nutrient-rich sediments that have accumulated throughout the catchment.

One size doesn't fit all

For maximum effectiveness, calculating the size of the excavation for the silt trap will depend on the size of the catchment above the drain, and the water quantity and velocity. Additional considerations include having a stormwater bypass. Note that you may need a resource consent - contact EW for advice.

Basic silt trap design: Former silt trap at Lake Kaituna prior to expansion. Photo: James Sukias, NIWA

Farmer Andrew Hayes highlights that the costs of construction and clearing out sediment build-up can be offset by re-harvesting the nutrients as "the silt grows really good grass".

Related resources

Search www.niwa.co.nz for the "New Zealand Guidelines for Constructed Wetland Treatment of Tile Drainage"

For further information contact: Nardene Berry or Melinda Dresser

0800 LANDCARE (0800 526 322)

Ministry for the Environment
Manatū Mō Te Taiao
Sustainable Management Fund

NZ LANDCARE TRUST