Recent estuarine soils

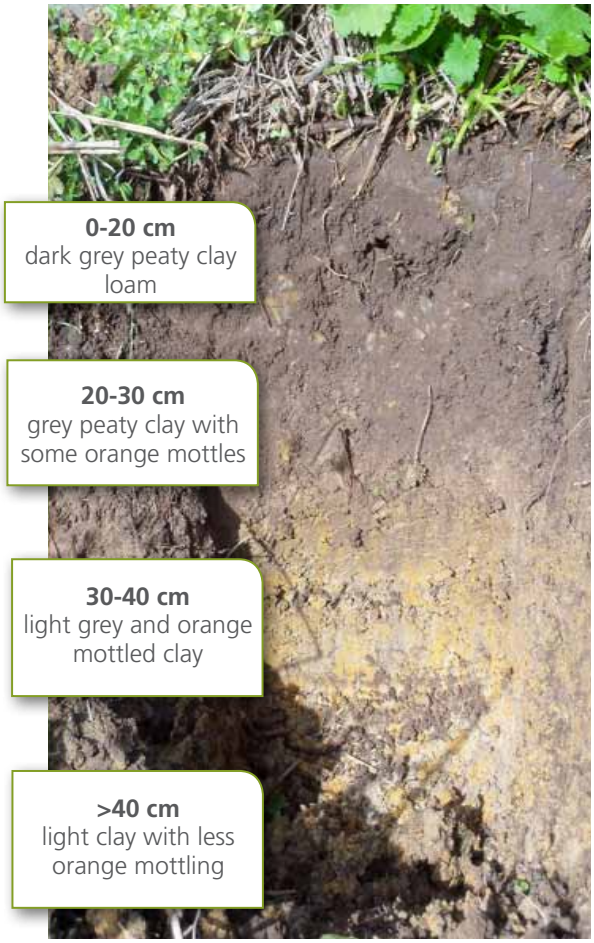
Soil types in this group

- Takahiwai clay – TC
- Takahiwai peaty clay loam – TCy
- Takahiwai peaty sand – TCya
- Takahiwai sand – TCa

This fact sheet uses NZ Soil Bureau map series soil type names and abbreviations.

Features of recent estuarine soils

- These soils developed on areas of former seabed, including reclaimed areas
- They are part of the Kaipara soil suite
- Proximity to the sea makes these soils saline to varying degrees, especially in low-lying areas below spring tide level
- They are found around the fringes of harbours and estuaries throughout Northland
- Poor structure makes these soils very prone to pugging and not suitable to winter grazing



Takahiwai peaty clay loam (TCy) soil profile

Typical estuarine soil landscape

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Structure and drainage management

Issues	Management tips
These soils are very vulnerable to pugging and are not suitable for cattle grazing in winter	Don't graze heavy stock on these soils when soil conditions are wet
Sodium (salt) in soils causes silt and clay particles to disperse rather than bind, making these soils structureless	Added calcium replaces sodium giving these soils enough structure to sustain production
Soils can form a surface crust that overlies deep mud that can trap vehicles and stock	Effective long term management depends on freshwater continuing to flush sodium
Because of their poor structure, these soils don't support subsoil drainage systems	Planting of salt-tolerant crops can help build up organic matter and speed up the process of improving soil structure
They are easily eroded and unsuitable for construction of stop banks	Surface drainage may be effective
	Construct new stop banks with non-saline soils with a higher clay content

Erosion control

Erosion risks	Soil type	Specific problems	Possible solutions
Stop bank breaching	All four soil types	Stop banks have traditionally been made from soil at hand, which does not always bind sufficiently	Keep stock off stop banks Build stop banks as wide as possible, with flat batters Maintain suitable vegetation on existing stop banks to reduce erosion risk Pampas grass, often used for stabilising stopbanks, can become a serious weed; consider alternatives
		Unstable stop banks can erode from heavy rain, constant seaward wave lap, or tidal surges	
		Seawater in paddocks is far more damaging than freshwater flooding	
		Most grass species will die from salt exposure	
		Salt will cause soils to lose structure and become non-productive	

Nutrient management

Soil type	Nutrient status	Management strategies
All recent estuarine soil types	Salt content varies, but is present in all four soil types; pasture cannot grow when sodium levels are too high	High rates of lime may be required; but ensure application rates are based on soil test results. Seek advice from your fertiliser consultant and vet for nutrient requirements
Most recent estuarine soil types	Low in organic matter	Reduced pugging, planting of salt-tolerant crops and appropriate fertiliser applications can help build soil organic matter

Drainage classes

Soil symbol	Full name	Drainage class
KAIPARA SUITE Soils based on estuarine clays and sands		
TCa	Takahiwai sand	1 - Poorly drained
TC	Takahiwai clay	1 - Poorly drained
TCy	Takahiwai peaty clay loam	0 - No natural drainage
TCya	Takahiwai peaty sand	0 - No natural drainage

Northland soil factsheet series

- Northland's climate, topography, historic vegetation and mixed geology have combined to form a complex pattern of soils across the region. There are over 320 soil types in Northland. Other regions in New Zealand average only 20 soil types per region.
- The information in this fact sheet is based on a 1:50,000 mapping scale. Therefore, it is not specific to individual farms or properties. However, it may help you to understand general features and management options for recent estuarine soils.
- Knowing your soils' capabilities and limitations is the key to sustainable production in Northland. Northland Regional Council (NRC) land management advisors are available to work with landowners to provide free soil conservation advice, plans and maps specific to your property.
- Regular soil tests are recommended. If you are concerned about your soil structure or health, the Visual Soil Assessment test could be useful. Contact the land management staff at Northland Regional Council for more information.
- Further background information about the processes that have formed these soils can be found here: **www.nrc.govt.nz/soilfactsheets**