genomics aotearoa

A/Prof Mik Black
University of Otago
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Partners

E/S/R
Science for Communities

THE UNIVERSITY OF
AUCKLAND
NEW ZEALAND

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SAPERE AUDE
Te Whare Wānanga o Otāgo
NEW ZEALAND

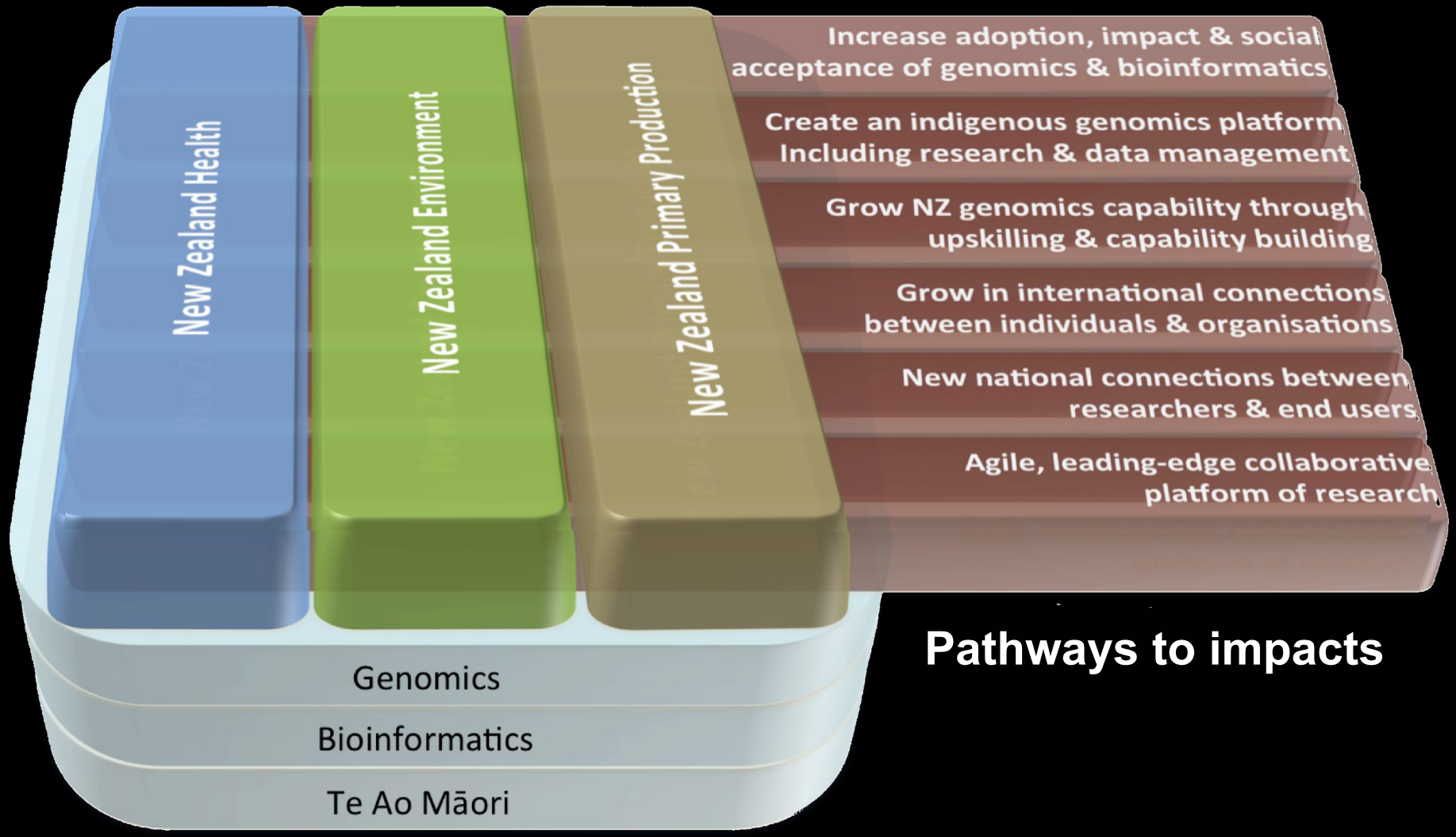
Manaaki Whenua
Landcare Research

Plant & Food
RESEARCH
RANGAHAU AHUMARA KAI

agresearch
āta mātai, mātai whetū

MASSEY
UNIVERSITY
TE KUNENGA KI PŪREHUROA
UNIVERSITY OF NEW ZEALAND

Research projects within 3 themes



Pathways to impacts

Underpinning infrastructure

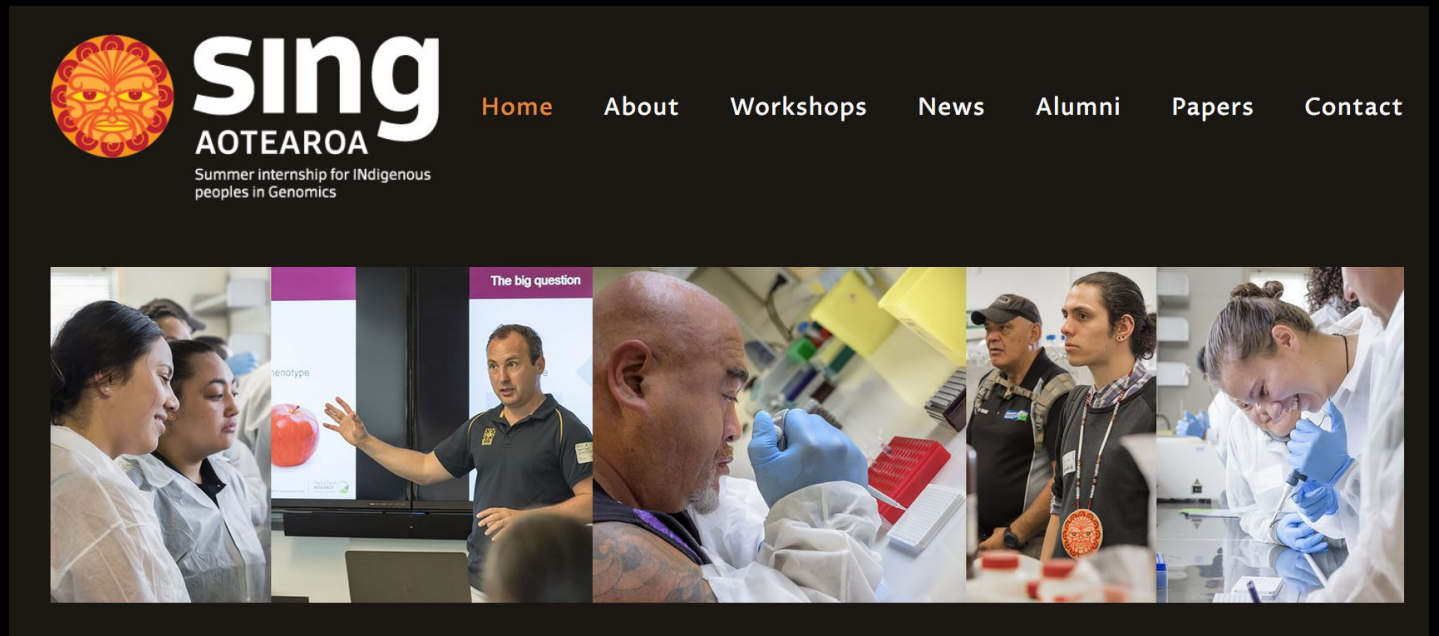
Projects

- Health
  - Aotearoa New Zealand Variome Project
  - Clinical Oncology / Cell-free DNA
  - Bacterial Pathogens
  - Epigenome-wide Association Studies
- Environment and Primary Production
  - High quality genomes
  - Better Breeding Values
  - Environmental Metagenomics

https://www.singaotearoa.nz/

Vision Matauranga

- VM coordinator: Ben Te Aika
- Te Kāhui: Wayne Mulligan (chair), Khyla Russell, Aroha Mead, Jacinta Ruru, Melanie Cheung
- SING Aotearoa: Maui Hudson, Katharina Ruckstahl, Phil Wilcox



Genomic Data Repository

- Urgent and unmet need for long-term genomic data storage.
- Extremely important for genomic data from Taonga species.
- Strong desire (and in many cases *requirement*) for genomic data to remain within New Zealand.
- Guidelines for genomics research with Taonga species being developed (Maui Hudson: Te Nohonga Kaitiaki).
  - benefit sharing
  - data guardianship and sovereignty
  - co-development of research programmes

https://www.genomics-aotearoa.org.nz/data/

Available data

Snapper

Description: RNA-seq data for domesticated and wild type snapper (Chrysophrys auratus) individuals reared under high and low temperatures

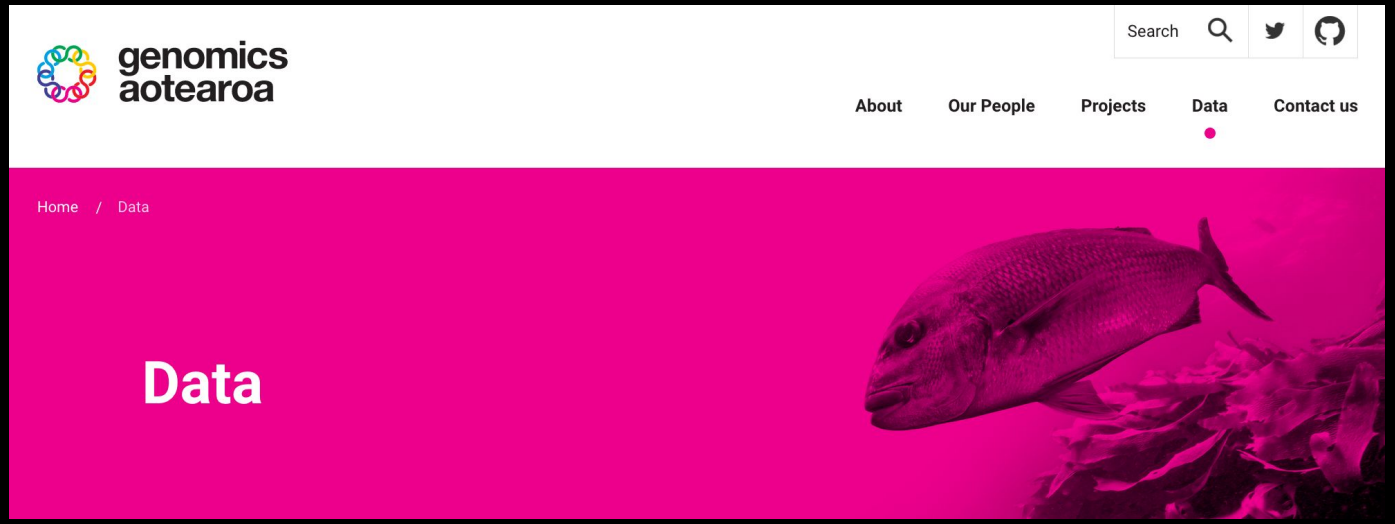
Access: https://cloudstor.aarnet.edu.au/plus/s/LfwXwoPIw8bDj6w↗ Contact Maren Wellenreuther for password access: maren.wellenreuther@plantandfood.co.nz

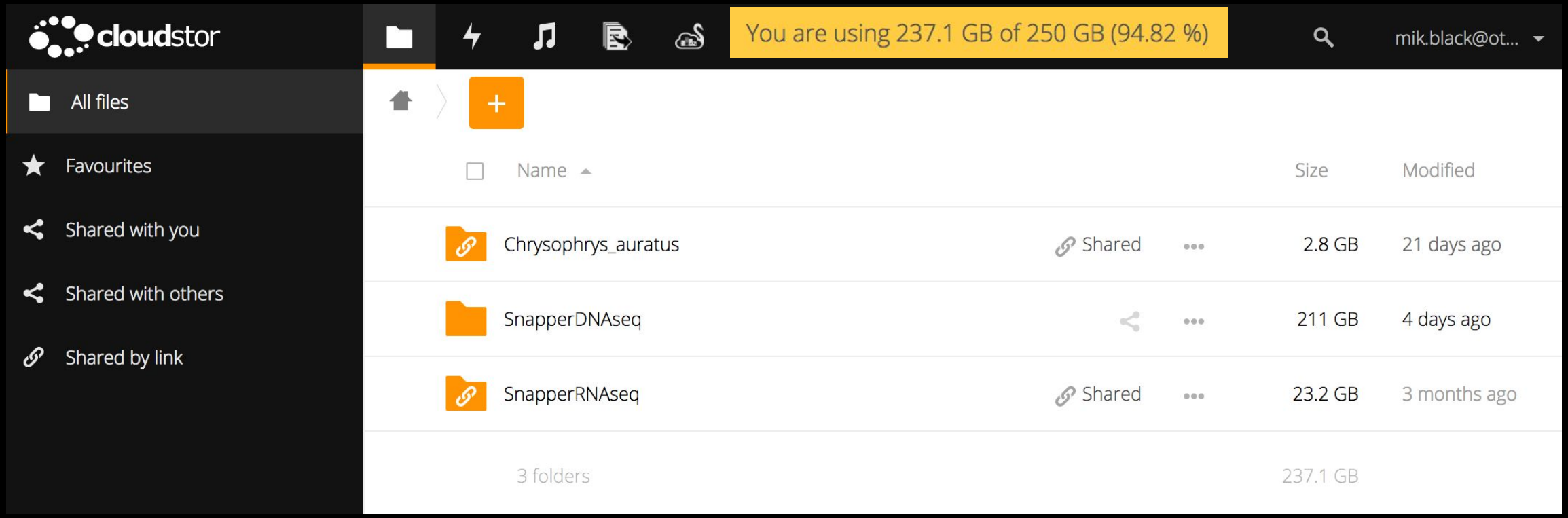
Publication:
Wellenreuther M, Le Luyer J, Cook D, Ritchie PA, Bernatchez L
'Domestication and temperature modulate gene expression signatures and growth in the Australasian snapper Chrysophrys auratus'
G3: Genes, Genomes, Genetics, January 2019, 9 (1), 105-116
https://doi.org/10.1534/g3.118.200647↗

Description: Genome assembly version 1.0 of Chrysophrys auratus including the allpaths assembly, and the super scaffold level assembly

Access: https://cloudstor.aarnet.edu.au/plus/s/eLyvIRy53MSGKm2↗ Contact Maren Wellenreuther for password access: maren.wellenreuther@plantandfood.co.nz

Publication:
Catanach A, Crowhurst R, Deng C, David C, Bernatchez L, Wellenreuther M
'The genomic pool of standing structural variation outnumbers single nucleotide polymorphism by three-fold in the marine teleost Chrysophrys auratus'
Molecular Ecology (in press)




cloudstor
You are using 237.1 GB of 250 GB (94.82 %)
mik.black@ot...
All files
Favourites
Shared with you
Shared with others
Shared by link
Name
Size
Modified
Chrysophrys_auratus
Shared
2.8 GB
21 days ago
SnapperDNAseq
211 GB
4 days ago
SnapperRNAseq
Shared
23.2 GB
3 months ago
3 folders
237.1 GB

Data repository - stages

1. NZ-based bucket
2. Access-controlled bucket
3. Added-value bucket

https://www.temanararaunga.maori.nz

Principles of Māori Data Sovereignty

Brief #1 | October 2018

TE MANA RARAUNGA
Māori Data Sovereignty Network

"He rei ngā niho, he paraoa ngā kauae"

"One must have the right principles for important endeavours."

Definition of terms

- **Māori data** refers to digital or digitisable information or knowledge that is about or from Māori people, our language, culture, resources or environments.
- **Māori Data Sovereignty** refers to the inherent rights and interests that Māori have in relation to the collection, ownership, and application of Māori data.
- **Māori Data Governance** refers to the principles, structures, accountability mechanisms, legal instruments and policies through which Māori exercise control over Māori data.

Challenges – “can I get it yesterday?”

- Access and approval:
  - “just let me on there and I’ll figure out how much I need”
  - “no one really knows how long it will run for…”
- Data transfer: genomic data are large(ish), and seem to need to move around a lot.
- Virtualisation/Containers
  - Training: virtual environments for workshops
  - Research: portable customised computational environments
- Software: “but it runs on my laptop – why doesn’t it work on NeSI?”

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Thank you