Understanding the Exposure of Transient Populations to Disaster Risk

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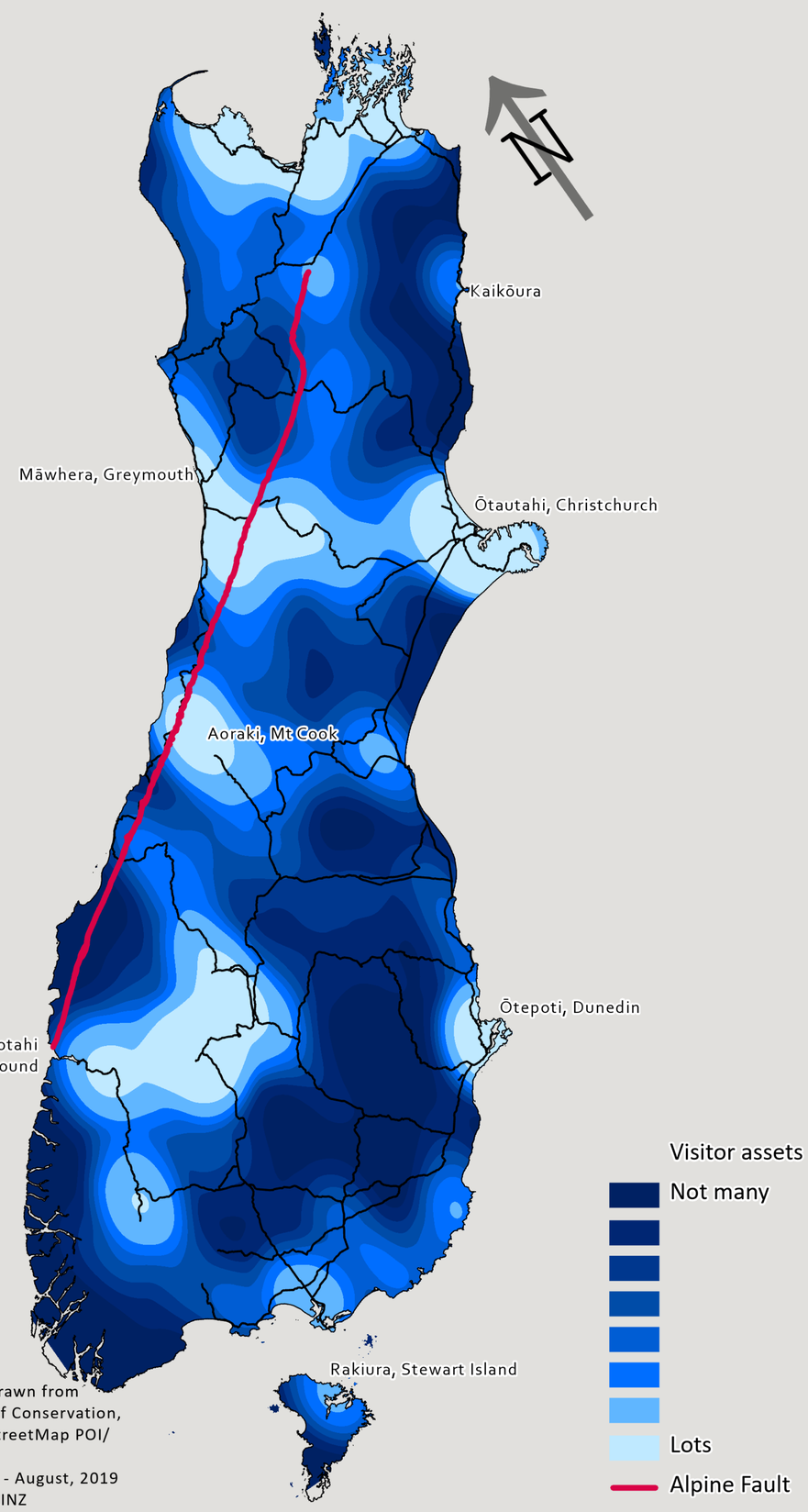
Improving exposure datasets to inform disaster risk management

Spatial distribution of visitor assets



MAP NOTES:
- Kernell Density Plot drawn from available Department of Conservation, TripAdvisor and OpenStreetMap POI/ attaction data
- Drawn by Mat Darling - August, 2019
- Cadastrial data from LINZ

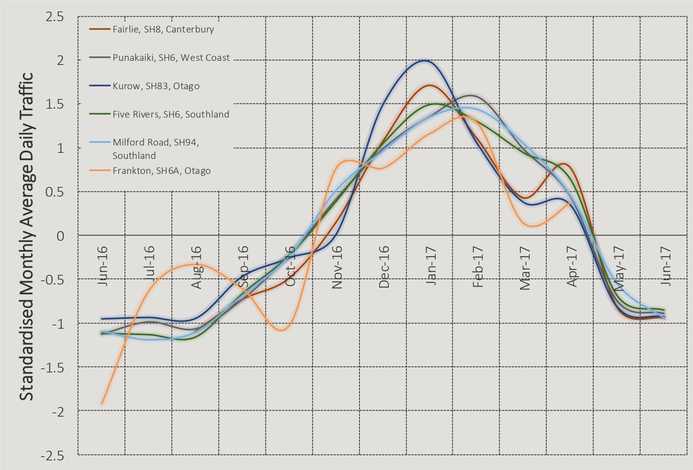
Project objectives:

1. Identify the risks posed by disasters to transient population groups in the New Zealand disaster risk management context.
2. Develop novel methods to assess disaster risk for transient populations in space and time, with focus on dynamic exposure and vulnerability.
3. Assess transient population disaster risk for a high disaster risk case study in New Zealand.

Opportunities in modelling traffic movement

Data routinely collected by NZTA traffic monitoring sites:

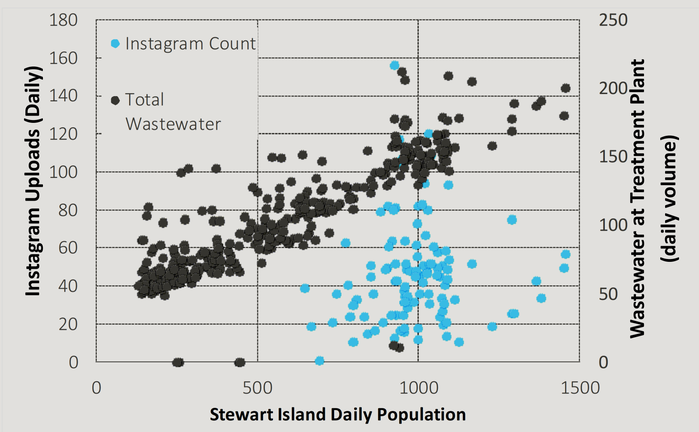
- Demonstrates **strong seasonality** which is consistent with expected 'tourism seasons'
- Highlighted route (blue) is "the tourism route" - a key finding of Vuletich and Becken (2007). Consistent with seasonality observed
- Some routes (e.g. Milford Sound, SH94) are majority used by transient groups and their support industry. These can be used as a **calibration** site

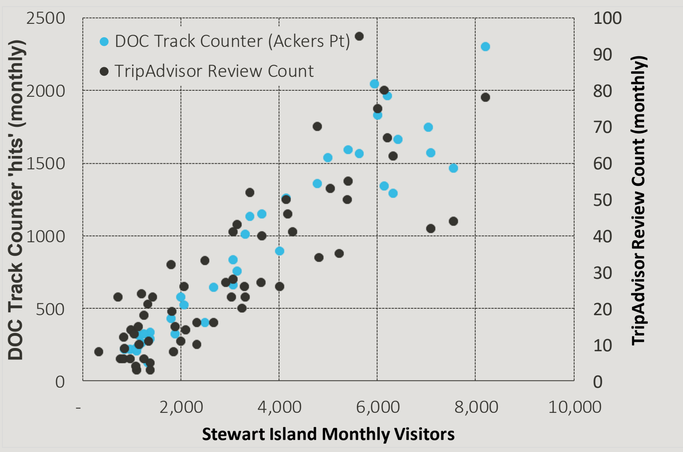


Opportunities to validating methods on Rakiura, Stewart Island

Daily population model for Rakiura built using passenger manifest and visitor levy datasets. Compared to novel indicators:

- Strong relationship with **Wastewater** volumes pumped on the Island
- Relationship with **TripAdvisor** 'review' dataset of Island activities, and **DOC visitor counters** - on a monthly aggregated basis
- Limited relationship with raw **Instagram** posts containing #Rakiura or #StewartIsland - opportunities for data enrichment are being explored





Where to next?

1. Stakeholder interviews to understand what is needed to inform **actionable** DRM insights
2. Define **datascape** opportunities and provide a framework for decision making
3. Explore **data enrichment** methods to further improve datascape (AI)
4. Workshop **data for decision making** through Project AF8 Tier 3 exercises (Nov 19).
5. Undertake a '**high risk' case study** - Otago/Southland

References:

Vuletich, S. and Becken, S. (2007). The tourism flows model: Summary document. Technical report, Ministry of Tourism, Wellington.

Te Hiranga Rū | QuakeCoRE
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