

Geomorphological Effects on Macroinvertebrate Populations

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Questions

The background is a stylized landscape. At the top, there are white, angular shapes resembling snow or clouds against a light blue sky. Below this, a large, white, irregular shape with a dark blue border, resembling a piece of paper or a sign, is centered. On this white shape, the number '01' is written in white inside a dark blue octagon. Below the white shape, there are dark blue, rolling hills. In the foreground, there are green, pointed shapes resembling pine trees and yellow-green, striped, fan-like shapes resembling grass or reeds. The overall style is flat and modern.

01

Introduction

Introduction



What is a macroinvertebrate?

Why is it important that we study them?

What does the riverbed substrate tell us about the river?



02

Methods

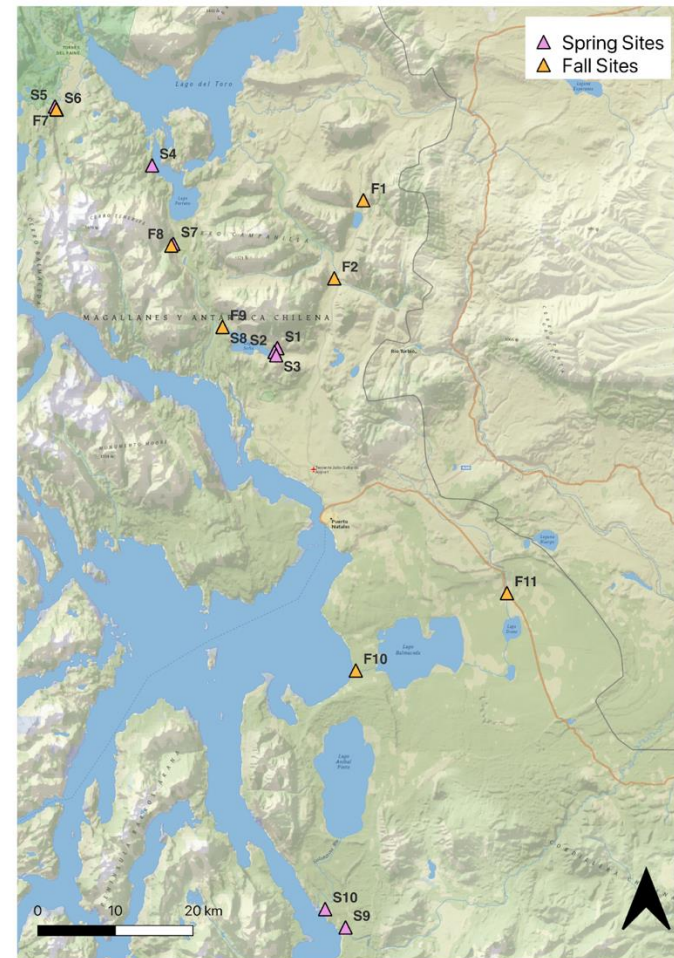
Methods – in the field

- Kick netters
- Rock measurers
- Piggy backing Sarah across rivers



Study Area

Site Code	Month Sampled	Name	Latitude	Longitude
F1	04-2022	Arroyo Picana	-51.35619	-72.43239
F2	04-2022	Río Tres Pasos	-51.44814	-72.48733
F3	04-2022	Río Ascencio Glacial Tributary	-50.95294	-72.92281
F4	04-2022	Río Ascencio Tributary	-50.95589	-72.91222
F5	04-2022	Río Ascencio	-50.957	-72.91192
F6	04-2022	Río Ascencio	-50.97667	-72.88253
F7	04-2022	Río Nutria	-51.24894	-73.01175
F8	04-2022	Río Ventisquero	-51.40964	-72.79472
F9	04-2022	Río Prat	-51.50522	-72.69808
F10	04-2022	Río Hollenberg	-51.907	-72.44667
F11	04-2022	Río Tranquilo	-51.81678	-72.16147
S1	11-2022	Pingo Salvaje 1	-51.530043	-72.594675
S2	11-2022	Pingo Salvaje 2	-51.534448	-72.599985
S3	11-2022	Pingo Salvaje 3	-51.53851	-72.596933
S4	11-2022	Río Rincon	-51.315165	-72.831017
S5	11-2022	Río Nutria 1	-51.245561	-73.014301
S6	11-2022	Río Nutria 2	-51.24929	-73.01077
S7	11-2022	Río Ventisquero	-51.407525	-72.79105
S8	11-2022	Laguna Sofia Outlet	-51.505254	-72.698267
S9	11-2022	Río Primero	-52.204967	-72.465984
S10	11-2022	Cypress Peatland Runoff	-52.18383	-72.50446



Methods – at the center

- Identifying morphospecies
 - Calculating abundance, richness, SI biodiversity by site and water speed
- OLS Model – Relationship between species richness and ...
 - Percent vegetation
 - Pebble cover
 - Cobble cover
 - Boulder cover
 - Discharge
 - Seasonality

The background is a stylized landscape. At the top, there are white, angular shapes resembling snow or ice against a light blue sky. In the center, a large, white, irregularly shaped rock or block is positioned. Below the rock, there are dark blue, rolling hills. In the foreground, there are green, pointed shapes resembling grass or small trees, and some yellow, angular shapes that look like stylized plants or rocks. The overall style is flat and modern.

03

Results

Results

Significant Variables	p-value		
	Fast	Slow	Total
Seasonality	0.000	0.013	0.001
Percent Vegetation Cover	0.054	<i>not significant</i>	0.129
Cobble Streambed Cover	0.006	<i>not significant</i>	<i>not significant</i>
Boulder Streambed Cover	<i>not significant</i>	<i>not significant</i>	0.140
Observations	17	21	21
Adjusted R ²	0.805	0.248	0.501



04

Discussion

Discussion

- Fast water sites – seasonality, percent vegetation cover, cobble coverage
 - Organic matter is vital for viable ecosystems
 - Rougher substrate → more vegetation → stability
- Slow water sites – seasonality
 - Leaf litter → compile in slow water → more organic matter
- Combined sites – seasonality, cobble coverage, boulder coverage
 - Substrate heterogeneity → increased species richness



05

Conclusion

Conclusion

- Sediment size has an effect !
 - Proxy variable -> extrapolate to land-use and flow regime
- Seasonality has greatest effect !!
- Discharge does NOT have an effect ?!?!?!?

Future Research

- More seasonal data needed to better understand trends
- Increasing the number of sites sampled from

The background is a stylized landscape. At the top, there's a light blue sky with white, angular cloud shapes. Below the sky is a large, white, irregularly shaped sign with a dark blue border. The sign is the central focus. In the foreground, there are rolling hills in shades of blue and green. Several tall, thin, green conical trees are scattered across the landscape. In the bottom foreground, there are stylized, yellow-green plants with vertical stripes. The overall style is flat and modern.

06

Questions?