

Data

Traditional

Experience

species & area harvested; years fishing; education

Technology

Environment: Loco biological condition

Loco epibionts & endobionts

Environment: Satellite Image Analysis

Landsat (landscape change) & SeaWiFS-Giovanni (Chlorophyll-a)

Geospatial

Size MA; dist MA to HQ: dist home to HQ

Price (Success)

Per kg

Independent

Dependent

Experience

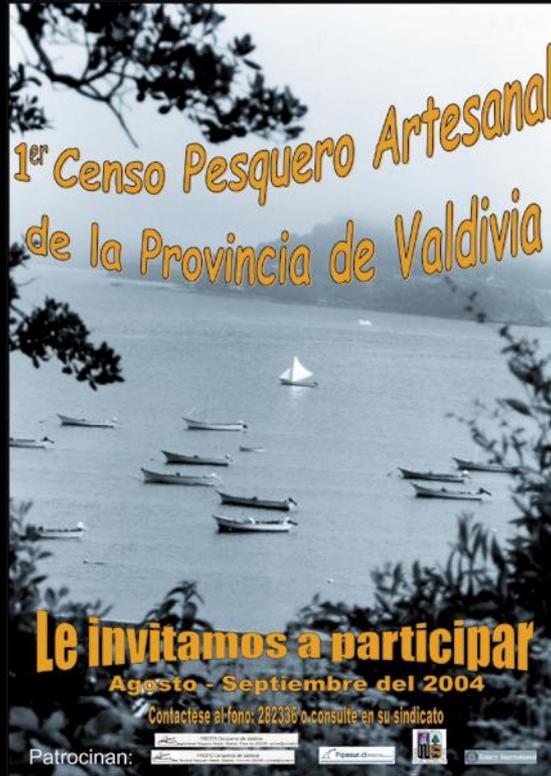
Interviewed
280 fishers



of benthic species harvested

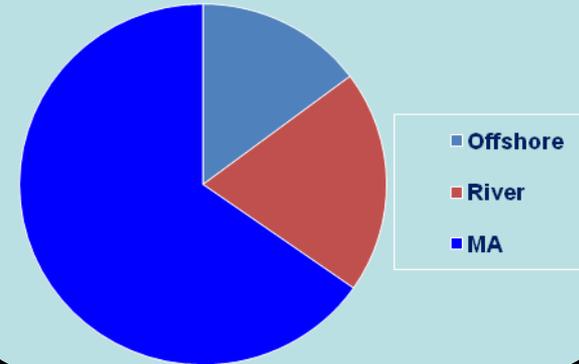


of fish species harvested



11 Management
Areas

% time spent fishing in
different locations



years fishing



education (yr)

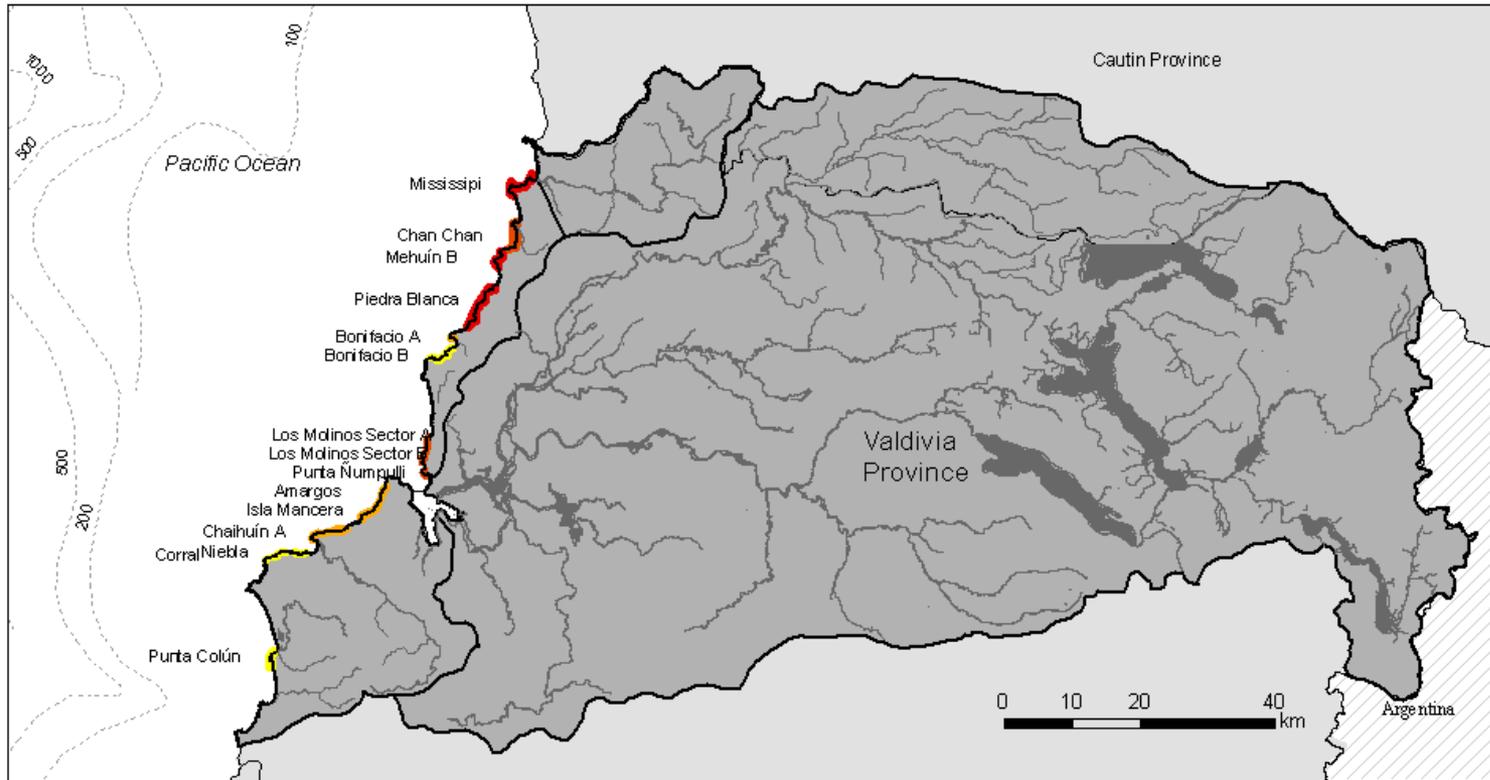
Technology

It is not the type of boat that you have, but whether you have a boat or not that is relevant.



Environment: Loco condition

2003 Loco (*Concholepas concholepas*) Quality in each Fishing Management Area Valdivia-Province Coastal System, Chile



- Rivers and lakes
- Watersheds
- Depth (m)
- Valdivia Province Watersheds

Source: Filizola & Watersheds; Dirección General de Aguas, Chile 2003
Loco quality: Val-Holt 2003 unpublished data

Map created by Tracy Val-Holt 2007.

Loco Parasites per Management Area (% phoronids & polychaetes)

- Low
- Medium
- High
- Very High

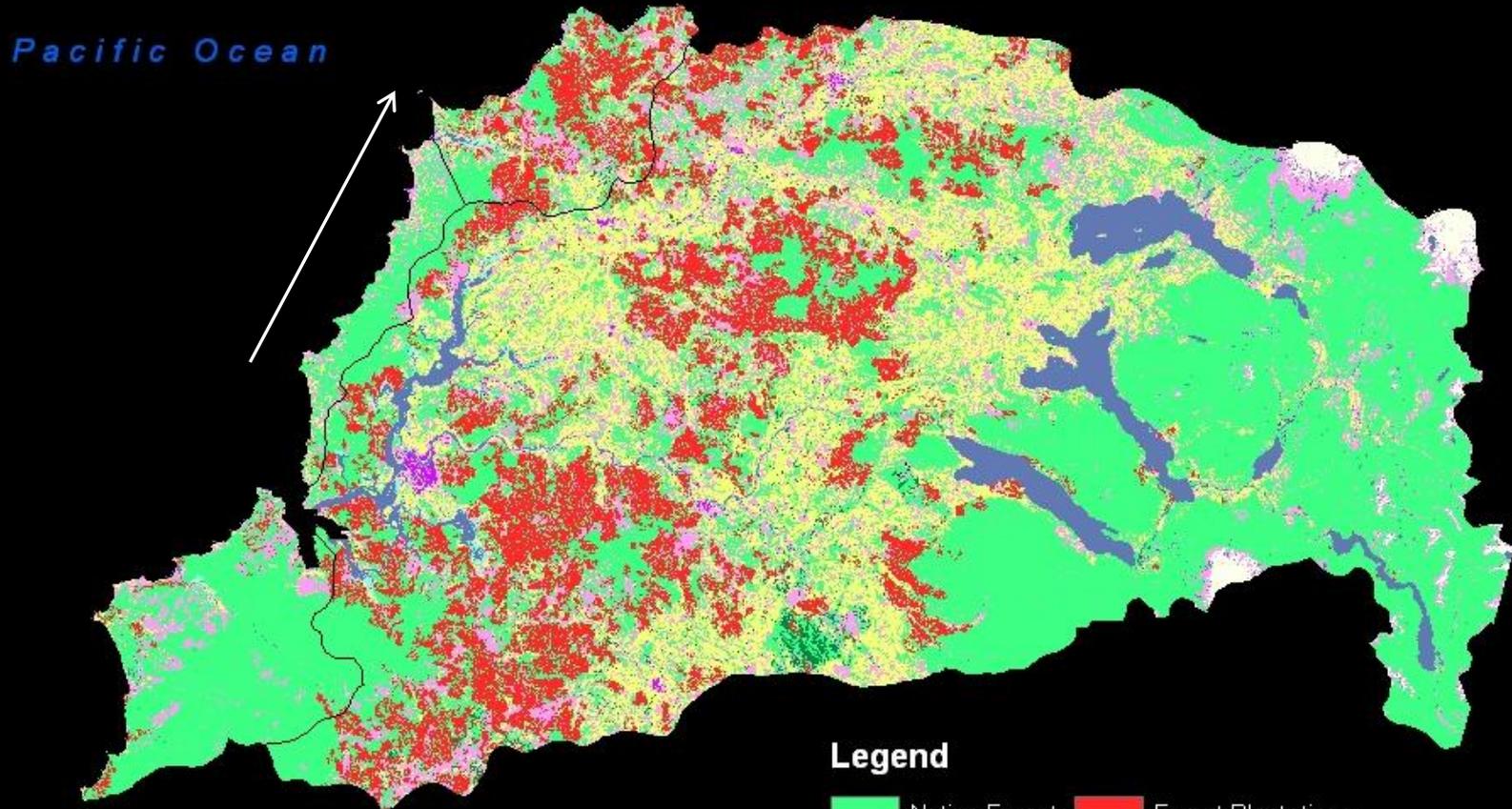


Very High Parasites



Low Parasites

Environment: Satellite Images

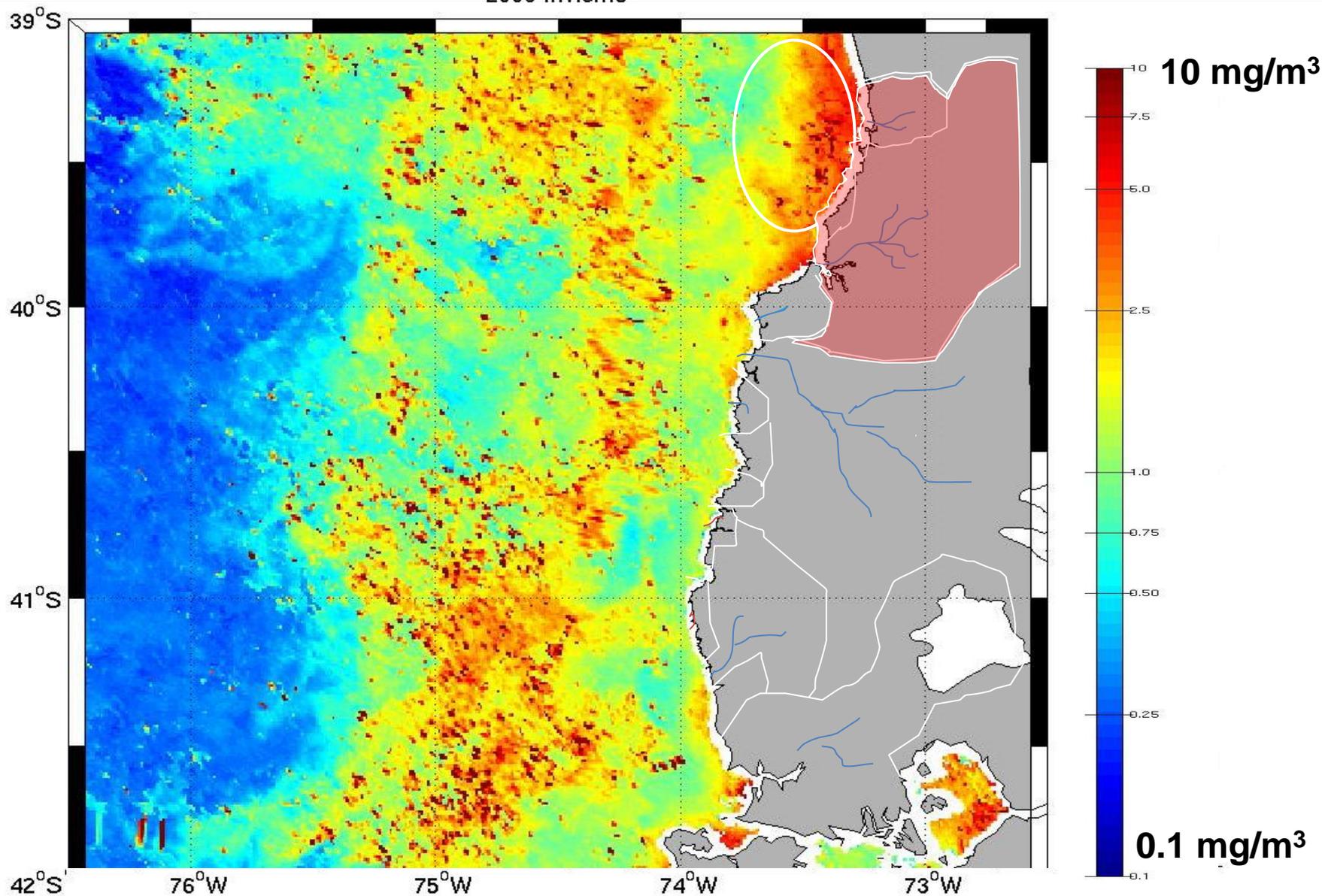


2001 Land Cover/Use
Pine/Eucalyptus
Plantations in Red

Legend

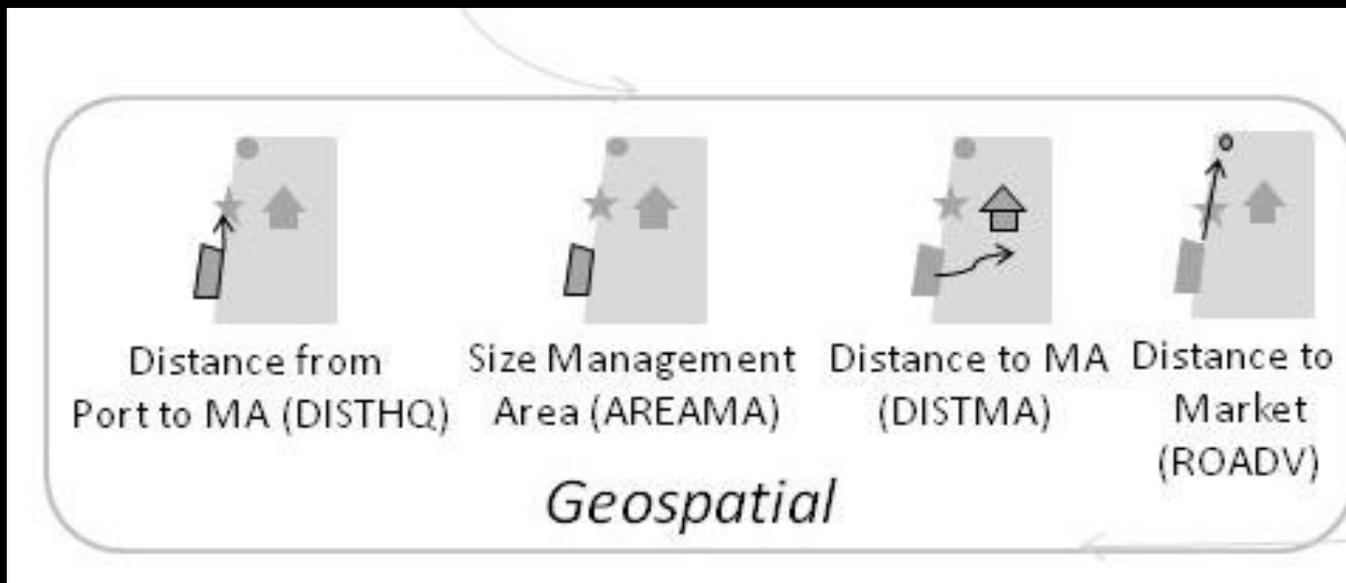
	Native Forest		Forest Plantations
	Agriculture		Cleared Land
	Mattoral		Urban
	Snow		Wetland
	Water		Watersheds

Environment: Chlorophyll-a concentration



SeaWiFS satellite images via Giovanni 1998-2005.

Geospatial Data



Size MA; dist MA to HQ: dist home to HQ
tamaño del AM; distancia AM-caleta; distancia caleta-domicilio

Price (Success)

Per kg



- Not typical supply/demand issues
- Overharvest controlled
- Other measures of success reported on in Ecology and Society Paper



Loco \$7.12/kg base price

N=109, R²= 0.75

Environment	10% increase in loco epibionts/endobionts	-\$0.99/kilo
	0.2 mg/m ³ increase in chlorophyll-a*	\$0.28/kilo
Technology	Each additional boat	-\$0.08/kilo
Experience	10% increase in time spent in river (diving)	\$0.09/kilo

Boats and experience can't compensate for environmental change

*If chlorophyll-a above 2.3 mg/m³, epibionts/endobionts increase



Congrio \$1.44/kg base price

N=75 R²= 0.45

Environment	0.2 mg/m ³ increase in chlorophyll-a*	+\$0.03/kilo
Experience	Each additional year Experience fishing	+\$0.05/kilo
	Each additional fish species harvested	+\$0.02/kilo
Technology	Each additional boat	+\$0.01/kilo

Fishers can compensate for environmental change with boats & knowledge

1-What factors account for fisher success?



Environment predicts success

Experience can *not* help fisher adapt to succeed

Technology (boats) is detrimental to success



Experience predicts

Experience can help fishers adapt to succeed

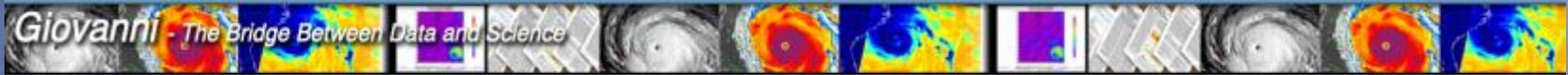
Technology (boats) foster success

2- How are fishers adapting to environmental change?

Fishers are moving to open access fisheries; leaving fishery; little adaptation within the loco (closed) fishery



Questions?



How might Giovanni be used to advance our understanding of landscape change and the consequences for fishers and coastal economies worldwide?

What about other areas of research? How can we tie Giovanni data to understand how people adapt to environmental change?

Van Holt, T. 2012. Landscape influences on fisher success: adaptation strategies in closed and open access fisheries in southern Chile. *Ecology and Society* 17(1): 28.
<http://dx.doi.org/10.5751/ES-04608-170128>