

IMECOCAL and Related Activities in the Southern Sector of the CCS

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IMECOCAL

Investigaciones Mexicanas de la
Corriente de California



PaCOOS Board of Governors Mtg, Seattle, 10-11 September, 2009

OUTLINE OF ACTIVITIES

1. OBSERVING SYSTEMS

- > IMECOAL - Quarterly cruises – pelagic ecosystem**
- > IMECOAL - Near coastal moorings with instrumented buoys – pCO₂**
- > Coastal and Island sea level stations (CICESE Network)**

2. MODELING

- > Developing modeling component for integration and analysis of IMECOAL data set: nested ROMS / IMECOAL domain / initial run for 1985-2007 period.**

3. DATA MANAGEMENT

- > Development of pilot project for interactive web served data base with IMECOAL hydrography and zooplankton collection-- using period of oct.1997-oct.2000 test for developing architecture, policies and outreach.**

4. DIAGNOSTICS AND PROJECTIONS OF CLIMATE IMPACTS (State of B.C.N.)

- > Pelagic Ecosystem = IMECOAL data and sample collection 1997-2008**
- > Ocean Acidification = UABC component integrated into IMECOAL**
- > Rocky Intertidal = UABC → sensitivity and response of key species**
- > Coastal Lagoons = CICESE → sensitivity and response of key species**
- > Industrial and small scale fisheries = CICESE → sensitivity/vulnerability**

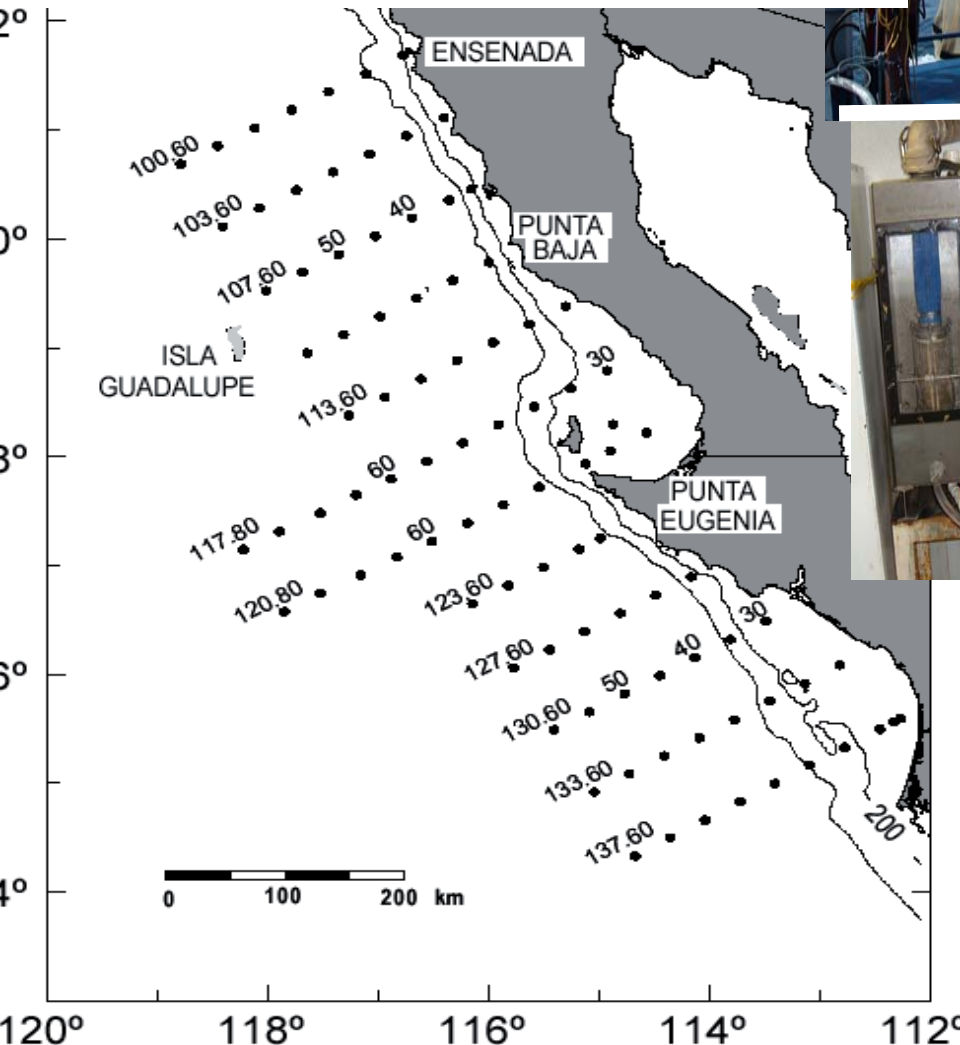
5. CAPACITY BUILDING AND RECRUITMENT

- > Development of graduate courses at MS and PhD level at CICESE in collaboration with UABC Ensenada → orientation for studies of biological-physical interactions and coupling in marine ecosystems**

1. OBSERVING SYSTEMS

- > **IMECOCAL - Quarterly cruises – pelagic ecosystem**
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MONITOREO Y ANALISIS
1997 – 2009 / cruceros trimestrales
Diagnóstico y síntesis →
Generación conocimientos →
...Proyecciones experimentales



**Investigación
Interdisciplinaria-
Integrada del Ecosistema
de la Corriente de
California**

2009 has been a difficult year due to delayed financing from CONACYT—we are operating on financing (loans) from CICESE through institutional funding for (April and ? Oct.? Cruises only)

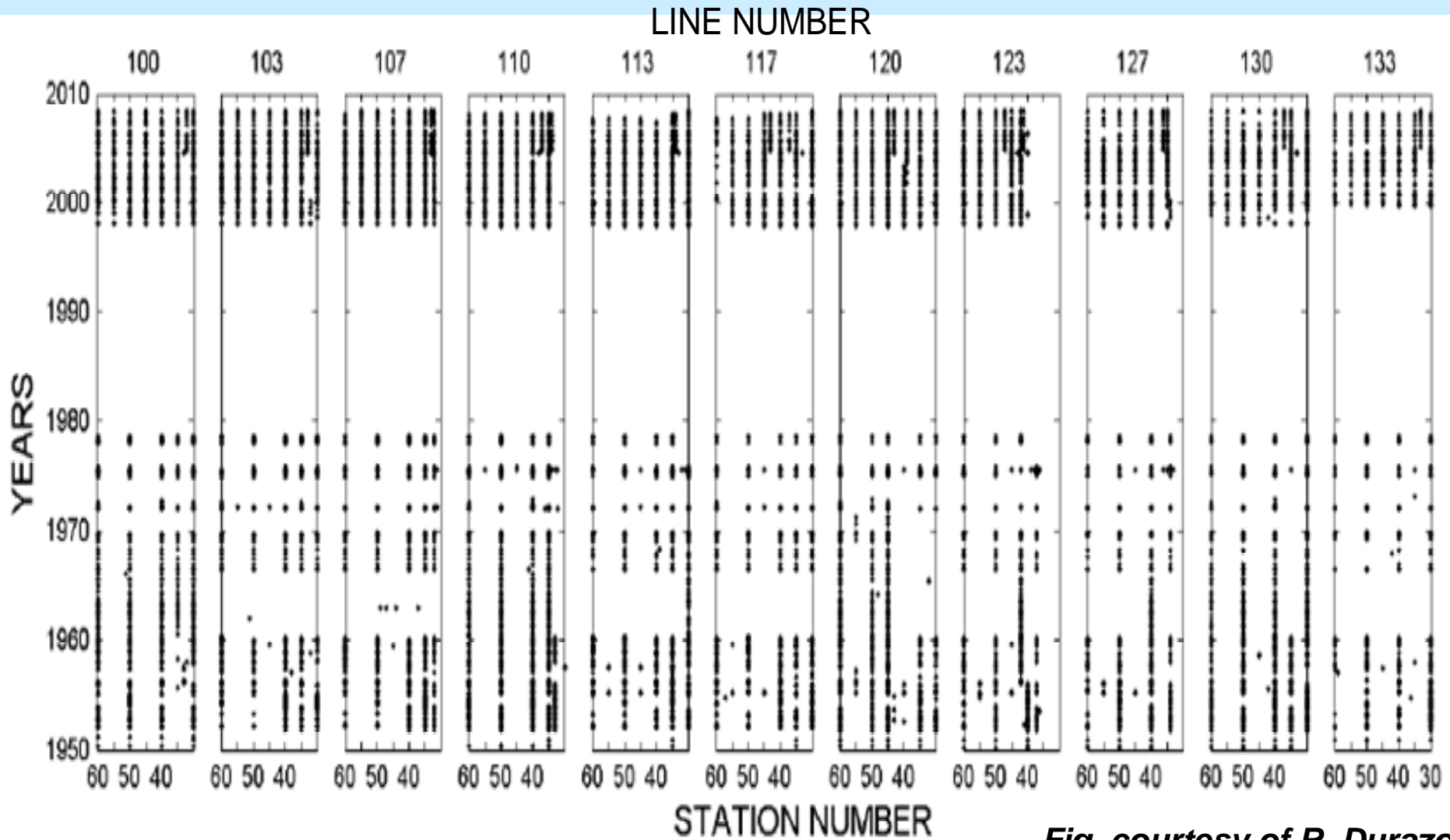


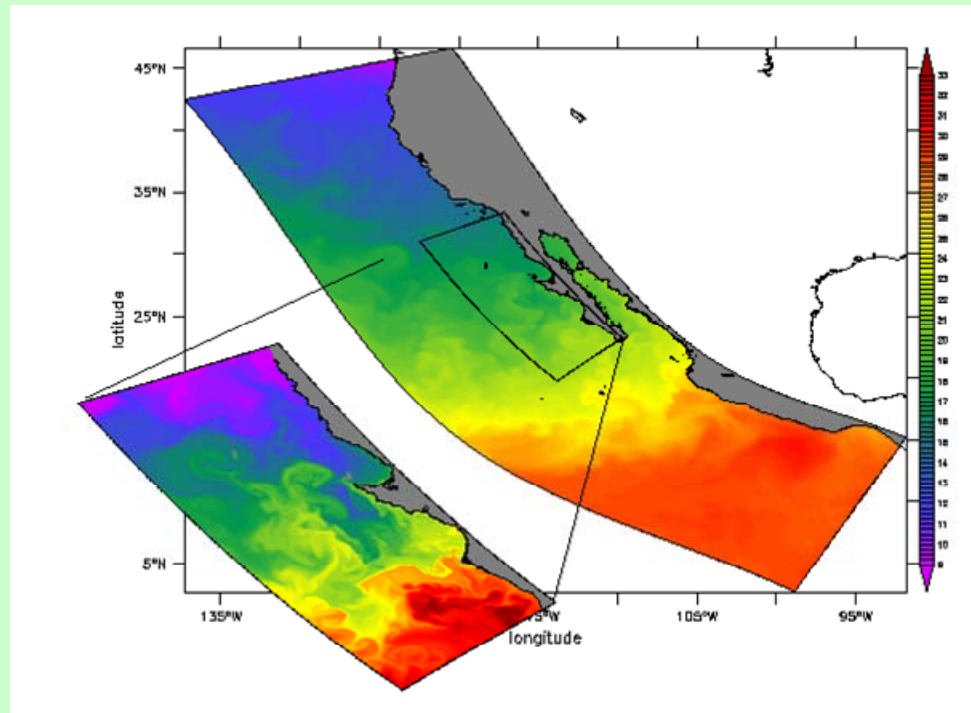
Fig. courtesy of R. Durazo

2. MODELING

- > Developing modeling component for integration and analysis of IMECOAL data set: nested ROMS / IMECOAL domain / initial run for 1985-2007 period.

Status of the circulation model of the reduced NE Pacific with embedded higher resolution model of the IMECOAL region

Alejandro Pares Sierra, Felipe Gomez, Ana Laura Flores
CICESE



Nesting IMECOAL ROMS models

Forcing I:

Surface: NARR, AVHRR
Climatology NARR (radiation, etc.)

Boundary:

SODA

Tides (TPX06)

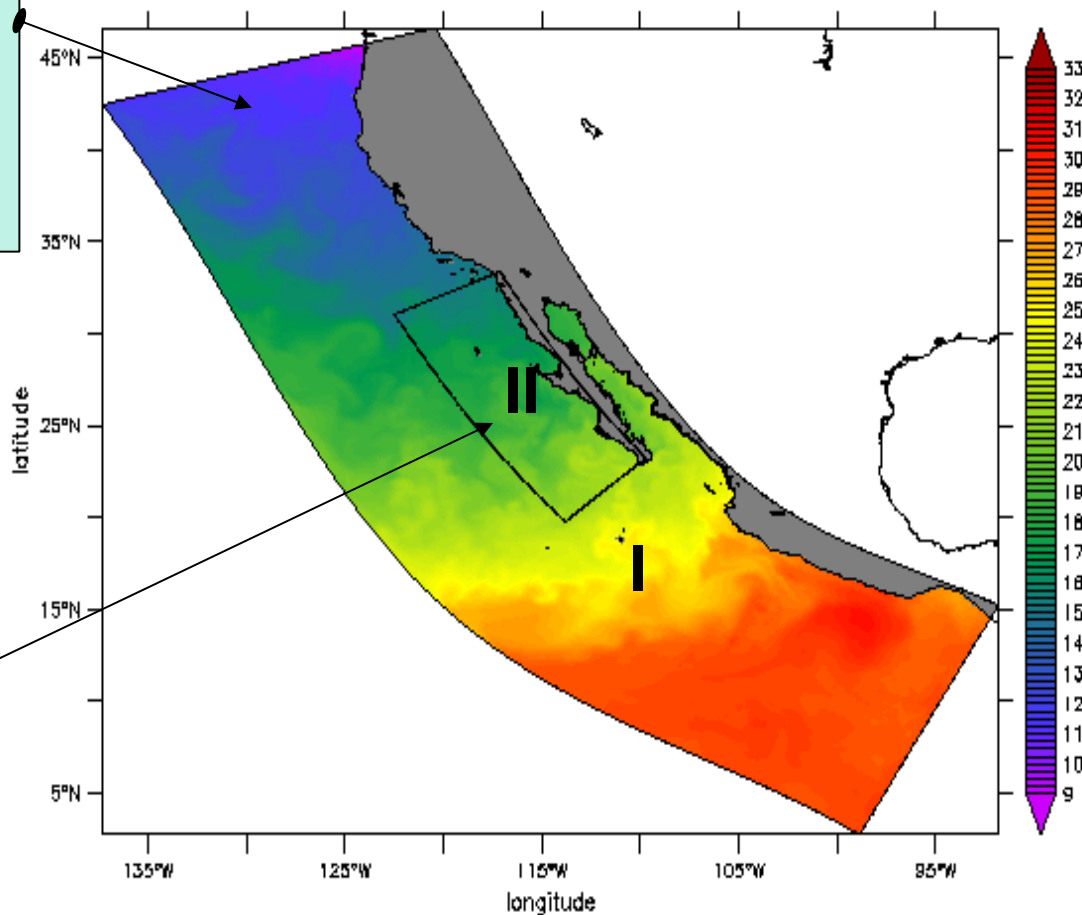
Batimetry: etopo2

(ROMS, ROMS_tools)

Resolution:

I ~ 15Km

II ~ 4Km



Forcing II

Surface: NARR
, AVHRR

Boundary: Pacific model

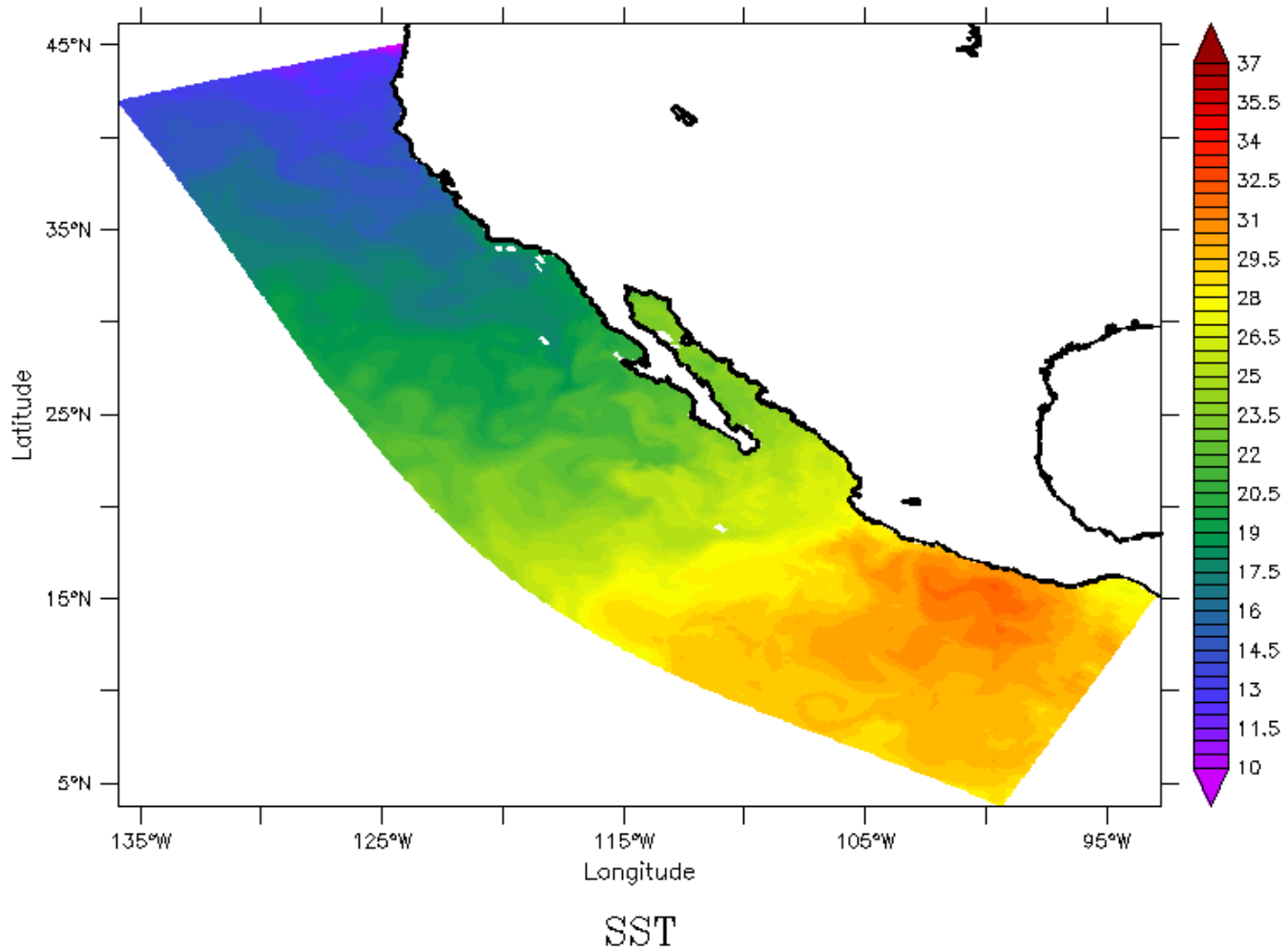
Batimetry: etopo2

Domains of NE Pacific (I) and IMECOAL (II) ROMS

Run from 1985-2007

2000

TIME : 03-JAN-2000 04:08



3. DATA MANAGEMENT

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Seleccionar o Deseleccionar Variables

Seleccione o deseleccione las **variables (temperatura, salinidad, oxígeno, etc.,)** que desea desplegar en la página

[Salir]
 Registros encontrados 1 - 154 of 154

Hidrografía

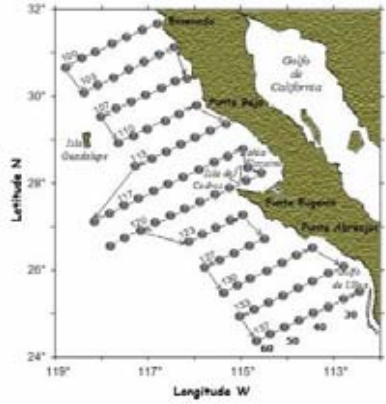
Guardar (ZIP) Guardar (TXT) Búsqueda

■ Paso 1. Seleccione las opciones iniciales para su búsqueda

Latitud y Longitud
 Año
Año Inicial 1997 Año Final 2000
 Mes
 Línea
Línea Inicial 100 Línea Final 100
 Estación
Estación Inicial 45 Estación Final 45
 Profundidad

■ Paso 2. Seleccione las variables que quiere desplegar

Temperatura
 Salinidad
 Oxígeno
 Fluorescencia
 Sigma-t
 Spiciness
 Altura Dinámica



Filtro Id Número exacto solamente

Búsqueda Limpiar Filtro

	Id	Cruzera	Año	Mes	Día	Hora	Minuto	Línea	Estación	Longitud	Latitud	Profundidad	Temperatura	Salinidad	Oxígeno	Fluorescencia
Ver	9801005	9801	1998	01	25	20	01	100	45	-117.775	31.193	0	16.9801	33.7322	9999	9999
Ver	9801005	9801	1998	01	25	20	01	100	45	-117.775	31.193	10	16.9231	33.7323	9999	9999
Ver	9801005	9801	1998	01	25	20	01	100	45	-117.775	31.193	20	16.9152	33.7334	9999	9999
Ver	9801005	9801	1998	01	25	20	01	100	45	-117.775	31.193	30	16.9177	33.7347	9999	9999
Ver	9801005	9801	1998	01	25	20	01	100	45	-117.775	31.193	50	16.9142	33.7351	9999	9999

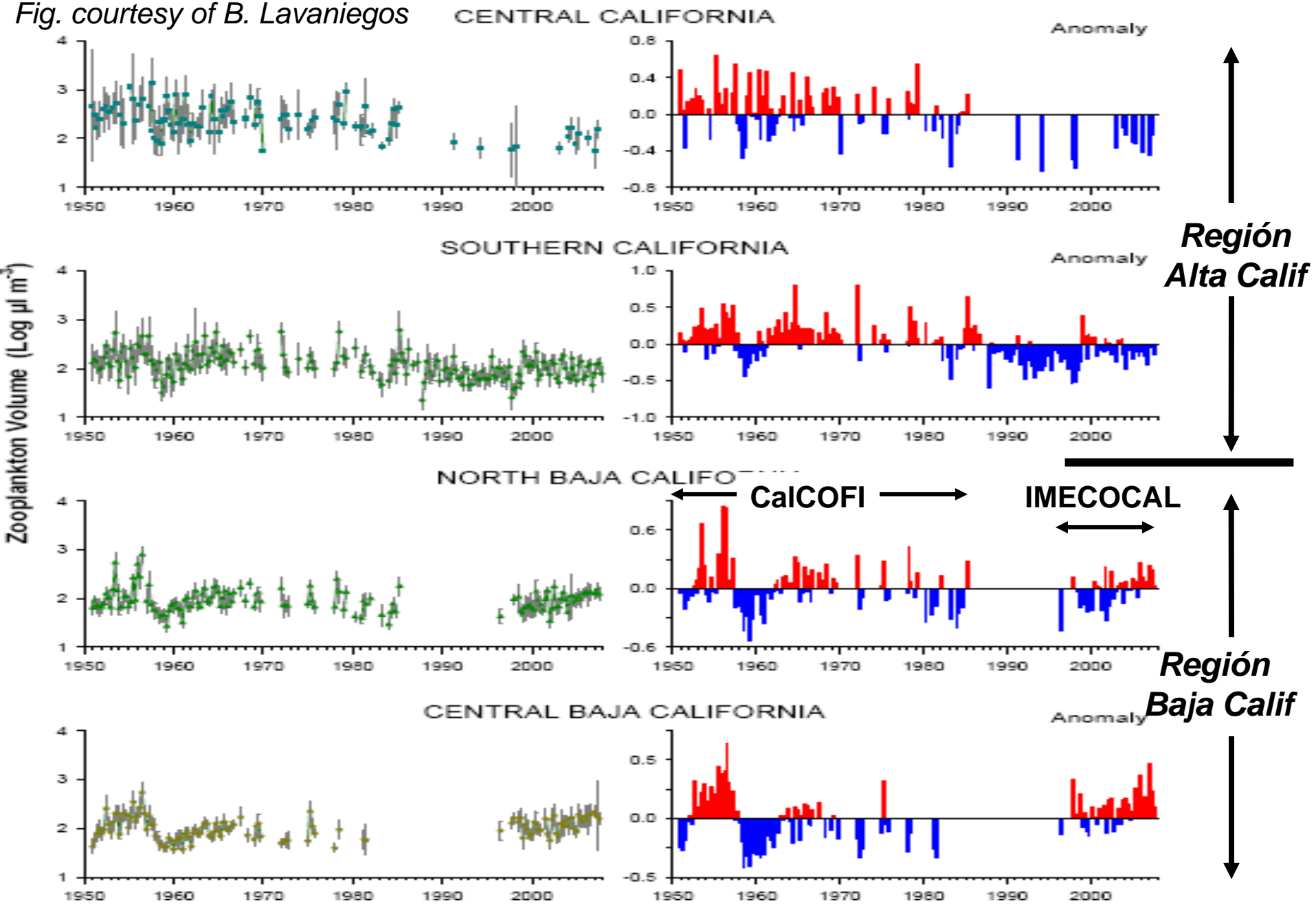
4. DIAGNOSTICS AND PROJECTIONS OF CLIMATE

IMPACTS (Part of the “Climate Plan” State of B.C.N.)

- > **Pelagic Ecosystem = IMECOAL data and sample collection 1997-2008**
- > **Ocean Acidification = UABC component integrated into IMECOAL**
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Following slide shows regional time series of zooplankton biomass and their anomalies for period of 1950-2008 compiled by Bertha Lavaniegos from CalCOFI and IMECOAL collections. The series from Central and Southern California and from Northern and Central-Southern Baja California show striking north-south differences that appear to increase over time. We interpret these spatial differences to “differential regional response to ocean warming.**” .**

Fig. courtesy of B. Lavaniegos



Variabilidad temporal-regional de la biomasa de zooplancton, 1950-2008.

5. CAPACITY BUILDING AND RECRUITMENT

- > **Development of graduate courses at MS and PhD level at CICESE in collaboration with UABC Ensenada** → orientation for studies of biological-physical interactions and coupling in marine ecosystems

This is a project of the IMECOCAL Group within the Department of Biological Oceanography at CICESE

1. Baumgartner and Durazo: Introduction to Physical-Biological Interactions in the Sea (Core course in the Marine Ecology Graduate Program at CICESE)
2. Gaxiola and Durazo: Studies in Biophysical Coupling in the Sea (Advanced course on methods for PhD students in Marine Ecology Graduate Program at CICESE)