

# Progress in studies on the life history and ecology of “monchong”



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# North Pacific Bramids

*Taractichthys steindachneri*



*Taractes rubescens*



- Two largest of eleven known pelagic “Bramid” species in North Pacific (most “forage-fishes”)

*Taractes asper*



*Eumegistus illustris*



- Attain ca. 80 cm TL & 13.5 kg (~30 lbs)

*Brama orcini*



*Brama japonica*



*Pterycombus petersii*

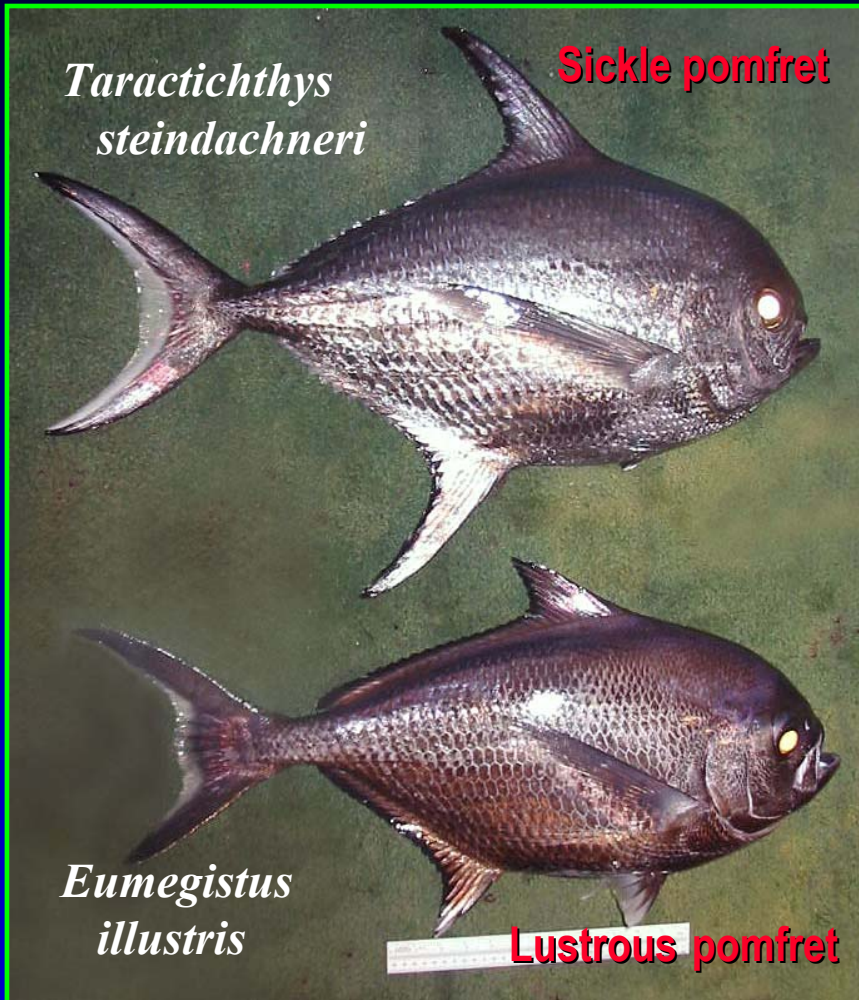




## What are monchong?

- Commercially prized “exotic” fish – particularly in the Hawaii restaurant trade
- Most monchong landed by Hawaii-based longliners and treated as incidental catch not “bycatch”

# What are monchong?



- *E. illustris* also taken by bottomfishers (and seamount handliners)
- Unfortunately, for most (if not all) existing data, no distinction between species made – i.e., treated as a species complex

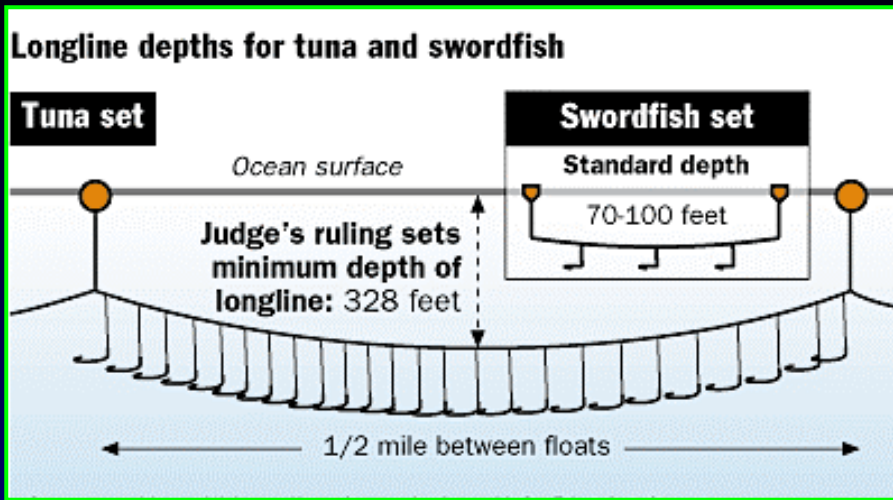
# Background:

## United Fishing Agency landings, 1987-2002



<b>Annual landings (lbs)</b>	<b>18K - 300K</b>
<b>Avg. individual fish wt. (lbs)</b>	<b>13.0-17.7 lbs</b>
<b>Mean price (per lb)</b>	<b>\$ 1.35 - 1.96</b>
<b>Annual ex-vessel revenue</b>	<b>\$35K - \$630K</b>

(Data courtesy R. Ito, NMFS PIFSC)



# MOTIVATION

- Study funded by the PFRP beginning Sept 2001 ... continues today
- Because not a target species, VERY limited information available regarding the life history and ecology of these resources
- A “signature species” in the “deep ecosystem” of tuna longlining (with bigeye tuna and opah)
- Fascinating ecological subjects but quite a challenge to study

# Results from the study provide:

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- **insights into factors that enhance and reduce the incidental take of these species**



# Primary Objective

**Simply ...**

**to investigate and define some of the fundamental life history and ecological characteristics of the “monchong” resources in the North Pacific.**

# Specific project goals ...

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- **First cut age and growth estimations**
- **Distribution patterns, preferred habitat, faunal associations, and trophic relationships**

# **Principle project activities:**

- 1. Conduct a comprehensive shore-based biological sampling program**

# United Fishing Agency (UFA); i.e., fish auction:

- Catch and size composition
  - ✓ For monchong – species differentiation
- Special effort to link UFA metrics with biological sampling

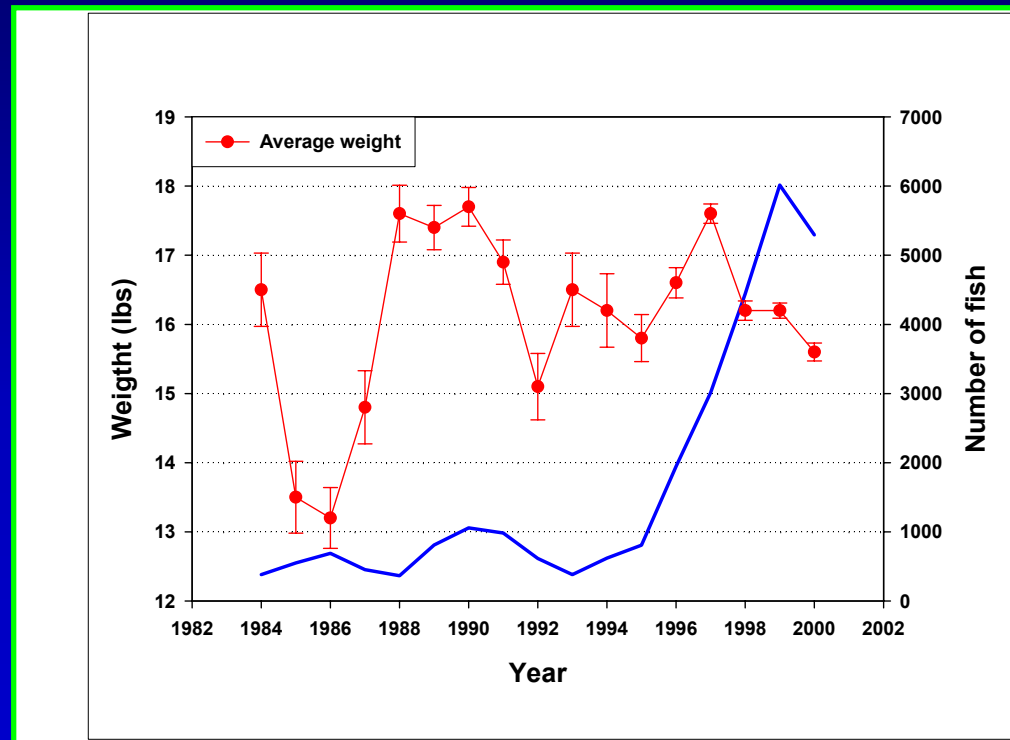


# Monchong Species Specific UFA Sampling

NMFS-UFA monitoring, 1984-2000

<u>Species</u>	<u>No. (%)</u>	<u>Lbs. (%)</u>
<i>E. illustris</i>	1,020 (2.1%)	14,526 (2.0%)
<i>T. steindachneri</i>	46,786 (97.9%)	717,174 (98.0%)

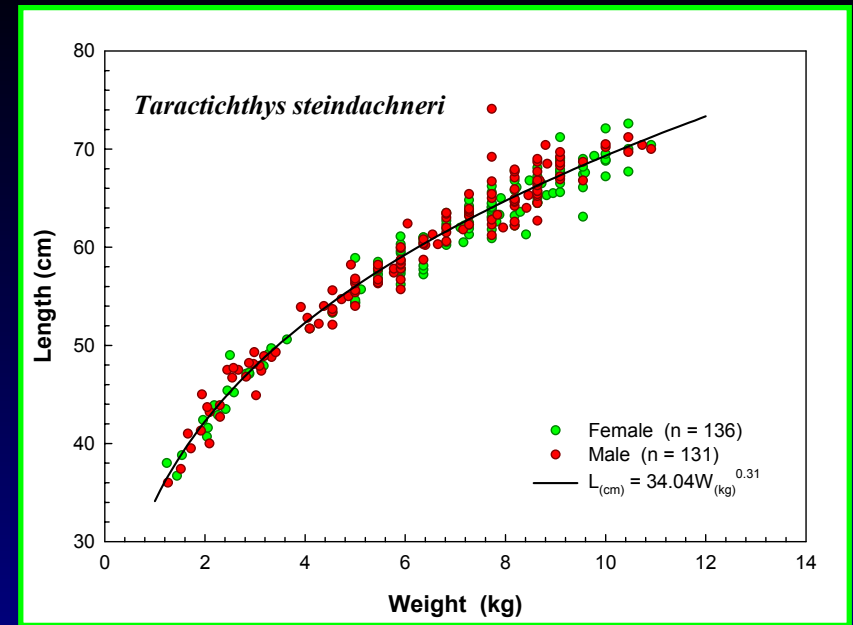
\*\*recent confirmation of mixed catch on set – mixed schools (?)





# Buyers/Dealers

- Length, Weight, Sex
- Morphometrics
- Biological samples for reproduction and ageing



# Age & Growth, *Taractichthys steindachneri*

- For *T. steindachneri*, n = 183
- Using microincrements on postrostrum and/or rostrum of sagittal otolith
- IF microincrements are daily, monchong appear to grow rapidly in 1<sup>st</sup> year; ages of 42-49 cm FL fish ranged from ~12 – 13.5 months.
- Microincrement counts also suggests spring spawning.
- Oldest fish estimated at about 8 yrs. (based on annuli counts)
- Juveniles from stomach contents (e.g, swordfish rats) now being employed

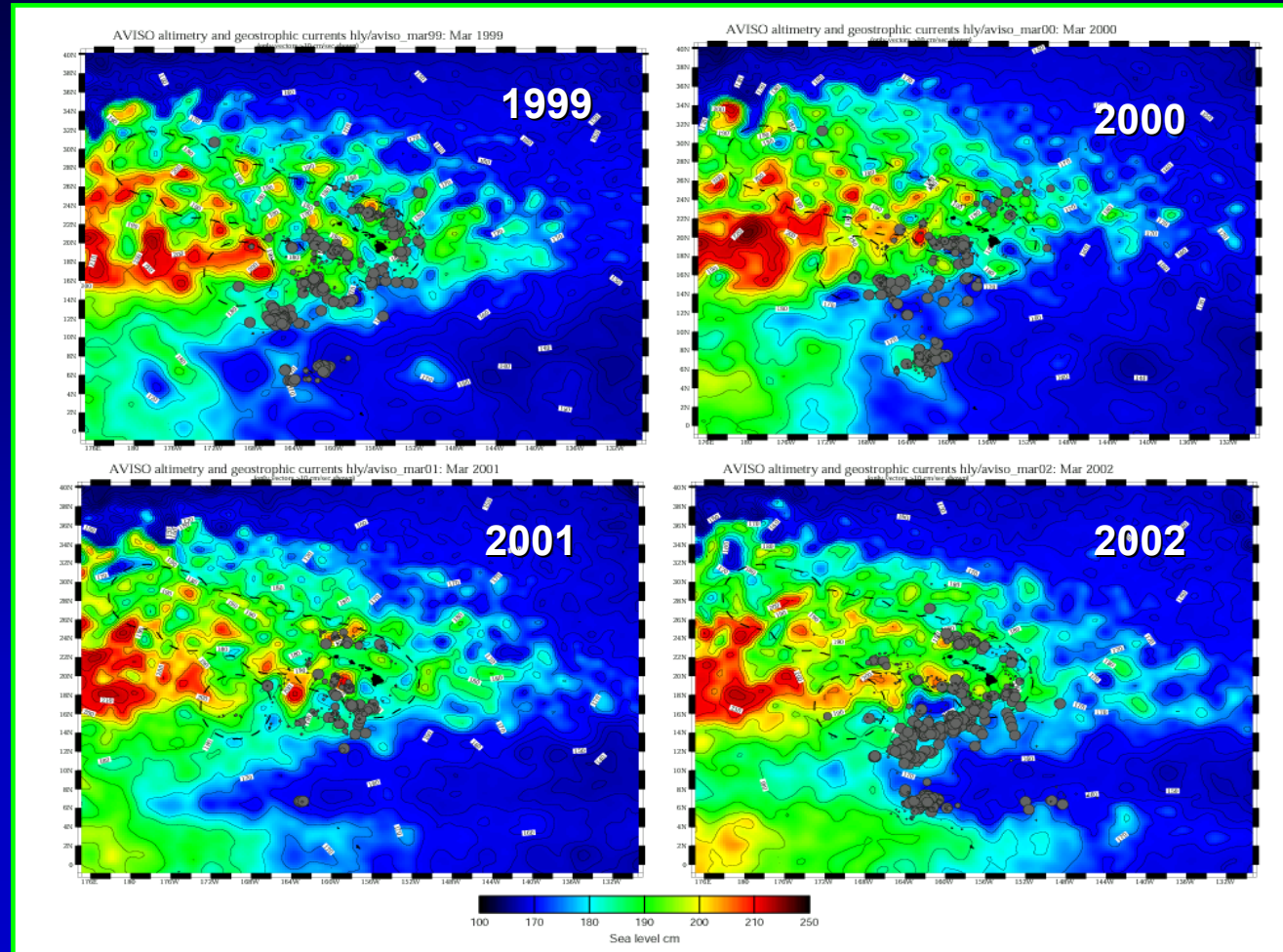
# Principle project activities:

1. **Conduct comprehensive shore-based biological sampling program**
2. **Perform an analysis of spatial distribution patterns, preferred habitat, faunal associations, and trophic relationships**

# Spatial distribution patterns, preferred habitat, faunal associations and trophic relationships

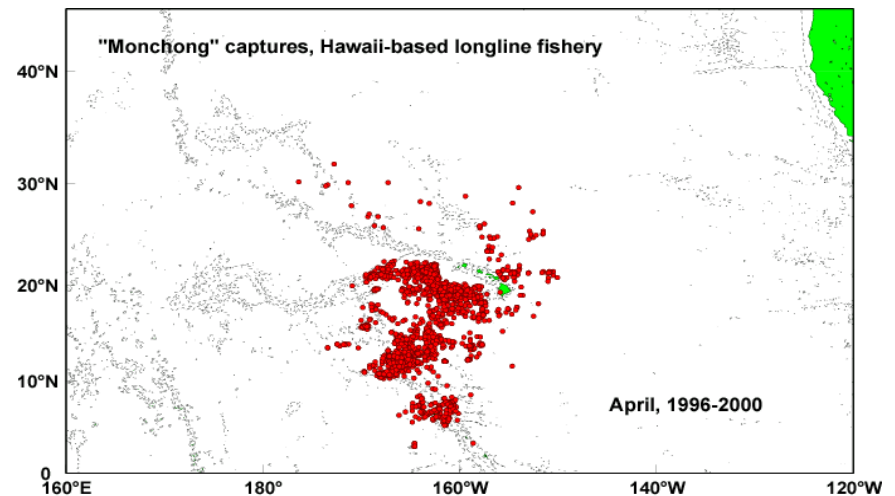
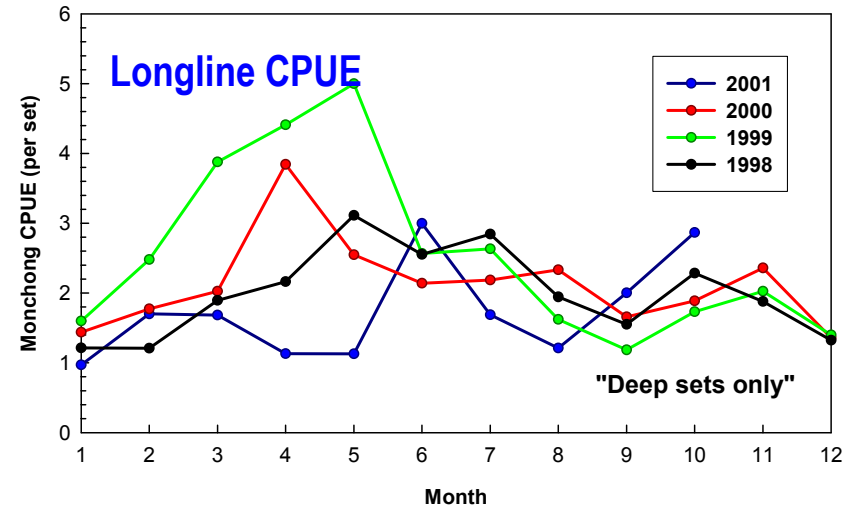
## March Monchong catches with Topex altimetry

➤ Analysis and merging of industry (fishery), research, and environmental datasets



# Monchong catches typically peak in spring

- 99.29% taken in “deep” tuna sets;
- no evidence of surface occupation
- spring catches
  - ~ related to spawning?
  - ~ GSI (♀s): 3.35 – 5.11
- fall catches
  - ~ GSI (♀s): <2.25



# ➤ Capture depth & temp information collected from vessels of opportunity:

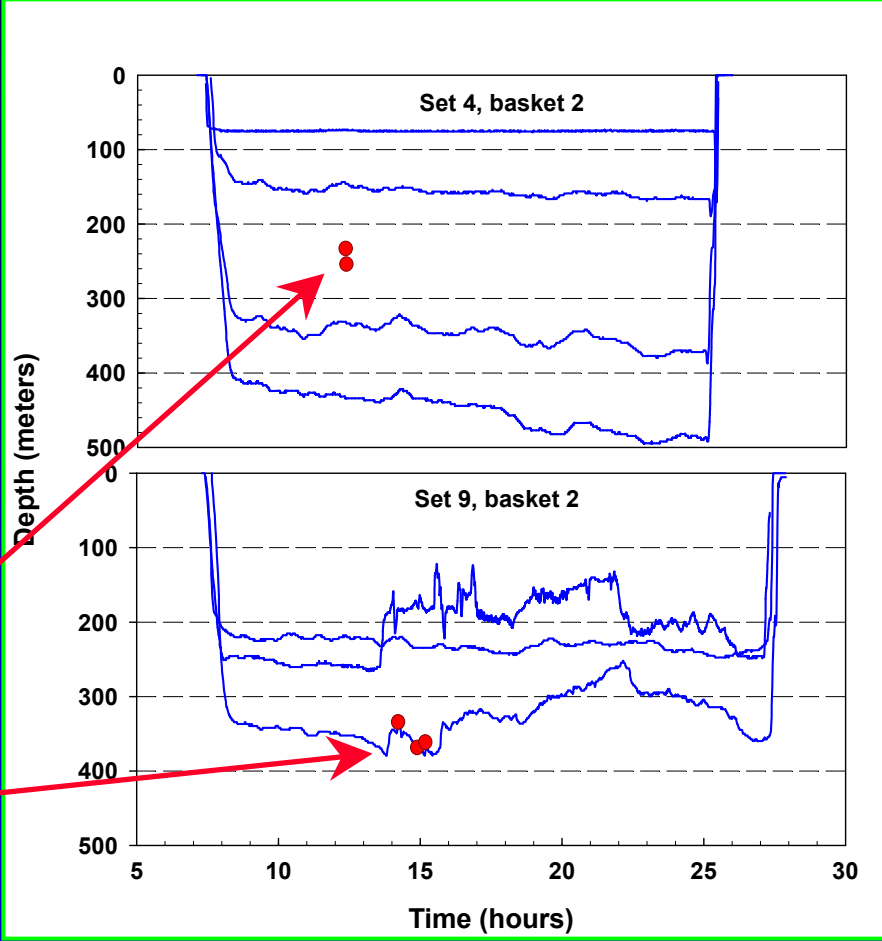
F/V *Tucana*: 87 monchong / 16 opah in 13 sets; 30 fish in TDR instrumented sections – including 13 monchong & 1 opah; 2 opah & 1 monchong tagged w/PATs

F/V *Sea Pearl*: 21 monchong / 18 opah in 13 sets; breakdown in instrumented sections yet to be determined

“Monchong (10) in instrumented sessions taken in depths ranging from 174-415 m; mean capture depth = 299.9 m (M=313 m) ... in comparison, bigeye tuna caught in depths ranging from 233-384 m; mean = 285.5 m ... *T. rubescens* (telecon): 406-415 m

# ➤ Diet studies

“monchong”



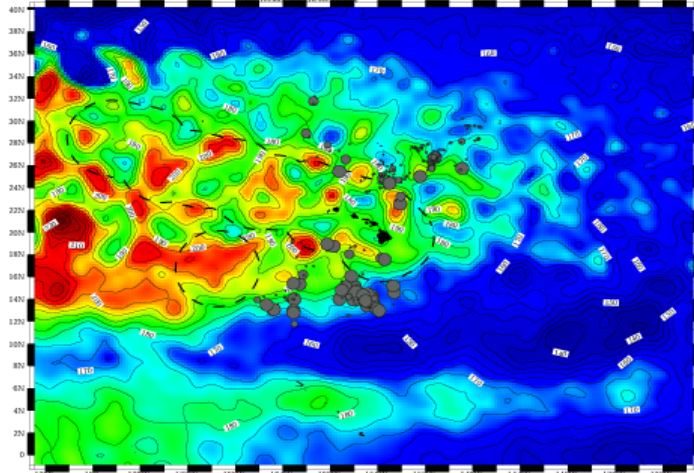
## **Project status:**

- **Progressing: some facets of study faster than others**
- **Data/sample collections and analyses continue; added summer '03 sampling trip**

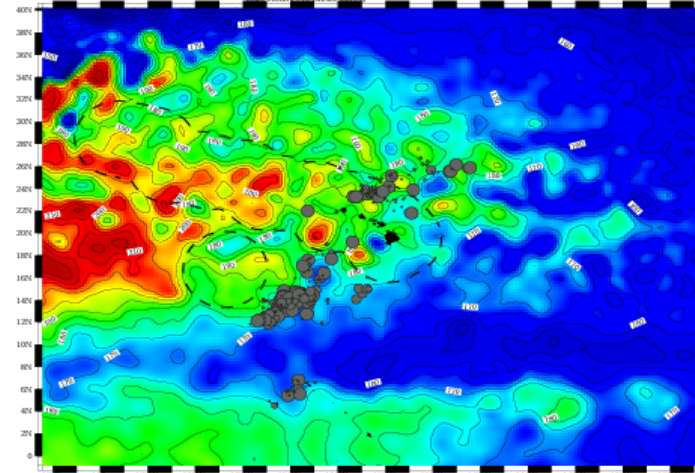




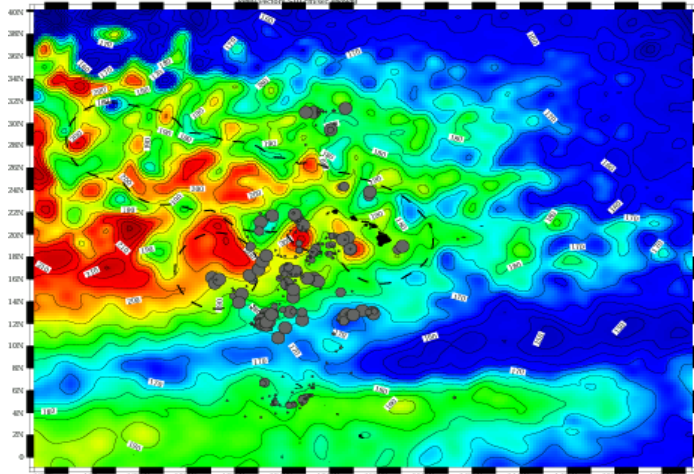
AVISO altimetry and geostrophic currents hly/aviso\_aug99: Aug 1999



AVISO altimetry and geostrophic currents hly/aviso\_aug00: Aug 2000



AVISO altimetry and geostrophic currents hly/aviso\_aug01: Aug 2001



AVISO altimetry and geostrophic currents hly/aviso\_aug02: Aug 2002

