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

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North Pacific Bramids

- Two largest of eleven known pelagic “Bramid” species in North Pacific (most “forage-fishes”)
- Attain ca. 80 cm TL & 13.5 kg (~30 lbs)
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?

- *Taractichthys steindachneri* (Sickle pomfret)
- *Eumegistus illustris* (Lustrous pomfret)

- *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

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

(Data courtesy R. Ito, NMFS PIFSC)
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:

- new and much needed information that will help refine a precautionary reference point and input into ecosystem-based fishery management policy
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- New and much needed information that will help refine a precautionary reference point and input into ecosystem-based fishery management policy.

- 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 ...

- Comprehensive seasonal and where possible, interannual biometric summaries and relationships (e.g., length-weight frequencies, sex ratio, etc)
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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**

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<th>Species</th>
<th>No. (%)</th>
<th>Lbs. (%)</th>
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<tr>
<td><em>E. illustris</em></td>
<td>1,020 (2.1%)</td>
<td>14,526 (2.0%)</td>
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<td><em>T. steindachneri</em></td>
<td>46,786 (97.9%)</td>
<td>717,174 (98.0%)</td>
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**recent confirmation of mixed catch on set – mixed schools (?)**

![Graph showing weight and number of fish over years](image)
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 1st 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 ($\varpi$) s: 3.35 – 5.11
- fall catches
  ~ GSI ($\varpi$) s: <2.25

### Longline CPUE

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“Monchong” captures, Hawaii-based longline fishery

April, 1996-2000
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