

Dirk Zeller and Daniel Pauly

Sea Around Us Project, Fisheries Centre, University of British Columbia, Vancouver, BC, Canada



Global fisheries crisis:

- fisheries declines & closures, stock collapses;
- pathological export of overcapacity to developing countries;
- FAO global statistics static or declining catches, despite increasing technological fishing power.

FAO database:

- only global dataset;
- data submitted by member countries;
- often ignores small scale fisheries;
- no mandate to correct submissions.

Project aims:

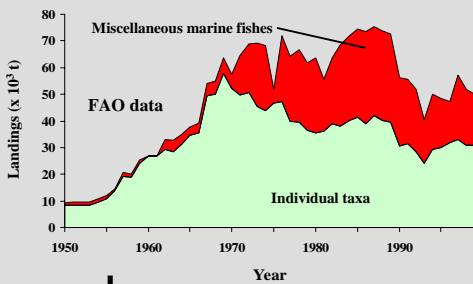
- reconstruct historic fisheries catch time series to improve baseline for assessing fisheries impacts on ecosystems;
- improvement targets: taxonomic; quantitative; spatial.

Taxonomic improvements

Example: Cuba shrimp fisheries by-catch²

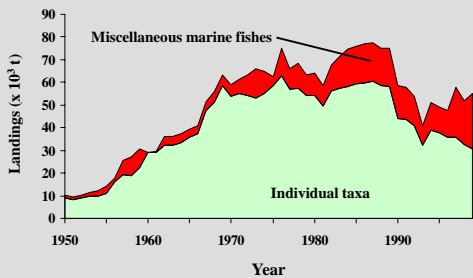
All shrimp fisheries by-catch is landed

- Utilized for animal feed (reduction);
- Reported to FAO as miscellaneous marine fishes.



Local shrimp fisheries by-catch study

- Percentage species composition;
- Total tonnage of by-catch.



Reassigned 41% of FAO miscellaneous marine fishes to individual taxa.

Quantitative improvements

Example: Barbados catch reconstruction³

Sources:

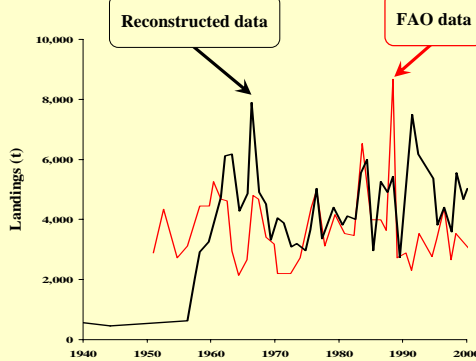
- Local databases and datasets
- Historical documents
- Reports
- Surveys
- Case studies
- Expert knowledge

Adjustments:

- Unrecorded components;
- Incomplete sampling.

Anchor points of best available estimates

Interpolate missing years



Reconstructed versus FAO statistics

- Deviations in the pre-1970 and post-1990 periods.

- 1960s
 - Gillnet introduction in the flyingfish fishery;
 - Complete mechanization of fleets.

- 1990s
 - Statistical reporting issue.

Ongoing limitations in the reconstructed data

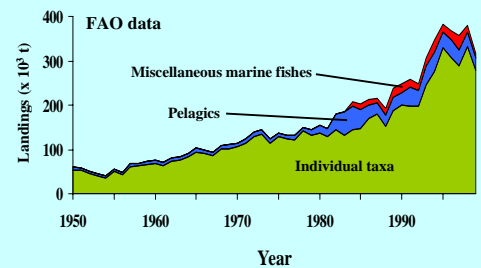
- Incomplete records of catches in:
 - Recreational fishery;
 - Foreign fleets;
 - Bait fish and sea urchin fisheries;
 - Inshore reef, slope and shelf fishery.

Discarding not a problem, as nearly all fish are landed.

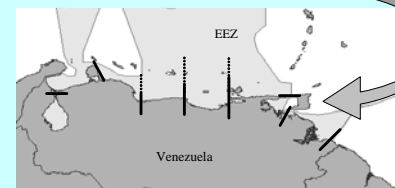
Spatial improvements

Example: Venezuela spatial catch distribution⁴

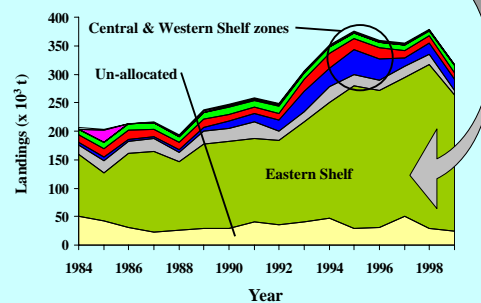
- Large small-scale, artisanal sector;
- > 60% of small-scale fisheries operate close to home ports;
- Mainly serving local consumption, some export.



- National data reported by coastal states;
- Allows allocation to eight major national zones.



- Re-allocation indicated eastern shelf is most productive:
 - Oceanic upwelling (nutrient input)
 - Orinoco river outflow (nutrient input)



- National zone allocation improved spatial breakdown of catches compared to FAO area 31;
- Breakdown of landing locations likely good representation of spatial location of catches:
 - Localized nature of artisanal fishery.

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References

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- 4 Mendoza J., Booth S. & Zeller D. 2003. Venezuelan marine fisheries catches in space and time: 1950-1999. pp. 171-180 In Zeller D., Booth S., Mohammed E. & Pauly D. (eds.) From Mexico to Brazil: Central Atlantic fisheries catch trends and ecosystem model. UBC Fisheries Centre Research Reports 11(6), Vancouver

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