Fishery science in Cuba

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Four coastal zones in Cuba constitute relatively independent fishing areas for monitoring, stock assessment and management purposes.
Organization of the fisheries

The fishing industry is organized into 14 state enterprises operating 705 boats between 10 and 20 m in length, 55% of which target finfish.

There are 128 fishing communities, with small private boats, mostly less than 10 m in length.
Fishing modalities

- Commercial state
- Commercial private (strict contract regime with the state enterprises)
- Recreative (private sector)
- Sport fishing (tournaments, catch and release, spear fishing; private sector and tourism).

All with fishing licenses from MINAL (Ministry of Food).

All of the invertebrate species and approximately 90% of finfish are captured by the commercial state sector.
Percentage of fishery resources catch for mayor groups in the Cuban fisheries

- Spiny lobster (20%) - 75% revenues
- Finfishes (62%)
- Molluscs (10%)
- Other crustaceans (3%)
- Shrimp (3%)
- Other (2%)
Percentage of finfish catch for major groups in the Cuban fishery

- Billfishes + Dolphinfishes: 17.6%
- Herrings: 13.6%
- Sharks: 10.6%
- Mullets: 6.7%
- Snappers: 6.1%
- Jacks: 4.8%
- Graunts: 3.9%
- Mojarras: 2.8%
- Small tuna: 1.4%
- Rays: 0.5%
Billfishes, dolphinfishes, permit, bonefish and tarpon are not main target for the commercial fishery, but are important species for sport fishing.
CIP: “...the scientific institution responsible for generating the necessary technical support for fishery management...”

MINAL: “...the government agency responsible for all production and management of fishery resources...”
The Cuban Fishery Management Model

Legal Framework
Cuban Fishery Law 164 (1996)
Fishery Policy (2017)

Stock assessment, provide technical support
Center for Fishery Research

Propose management strategy
Directorate of Fishing Regulations

Consultation with interested parties
Advisory Commission on Fishing

Approve management strategy as decree laws
Minister

Enforcement
National Inspection Office

Apply and control regulations in the fisheries
State Enterprises and Private Sector
Monitoring

Protocolo para el monitoreo de recursos pesqueros en el archipiélago cubano

Ministry of the Food Industry

National Plan of Action for the Conservation and Management of Chondrichthyes in the Republic of Cuba

Havana, Cuba 2015
Example of Cuba-US collaboration


(1) CIP, Cuba
(2) EDF, US
(3) CNAP, Cuba
Biomass-\(F\) equilibrium curves. Stone crab. (CIP stock assessment research project)

- Overexploitation till 2011
- Depleted till 2013
- Recovered
Stock assessment

Biomass-\(F\) equilibrium curves. **Sea cucumber.**

(CIP stock assessment research project)

- No overexploitation
- Not depleted

- Biomass - Fishing mortality rate (\(F\))
- MSY
- No overexploitation
- Not depleted
Lobster fishery. \textbf{Catch-}F \textit{equilibrium curves with the effect of environmental conditions. Reference Points} \( F_{\text{MSY}} \) \text{ and } \( F_{\text{SPR40\%}} \). Puga et al (2013). International Journal of Marine Science, Vol.3, No.6, 36-45.

\textbf{Observed Catch-F}

\begin{itemize}
  \item \textbf{Favorable environment}
  \item \textbf{Average environment}
  \item \textbf{Unfavorable environment}
\end{itemize}
State property regimen
Limited access (effort licenses)
Catch quotas
Territorial User Rights for Fishing
Closed seasons
Fishing gears restrictions
Minimum legal sizes
Marine Protected Areas

Fishery science
Fisheries management
THANKS

FAO (2006)