

Transformations in Brazilian aquaculture: technological intensification and capital concentration

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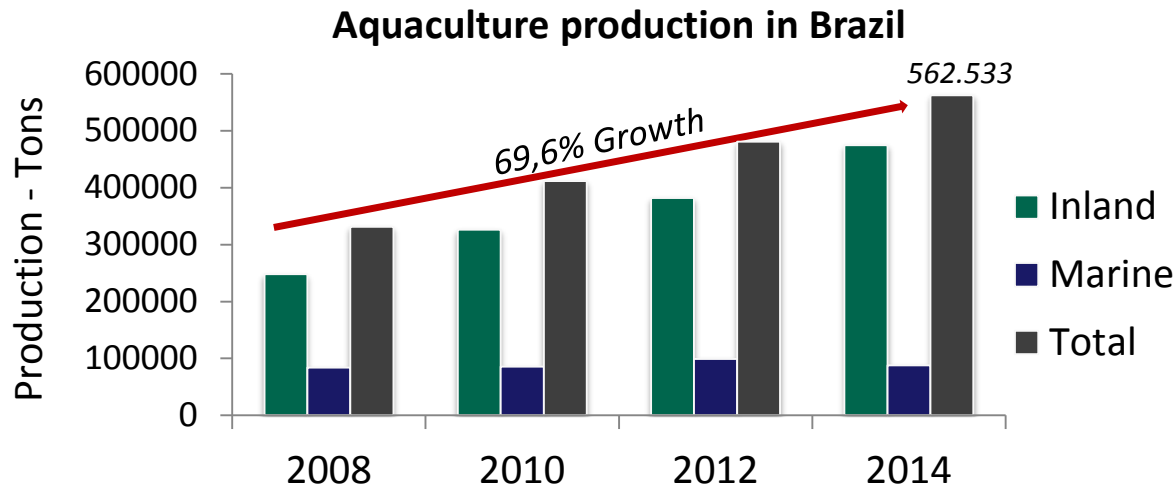
Embrapa Fisheries and Aquaculture

Brazilian Agricultural Research Corporation



What about the Brazilian aquaculture?

- » Significant growth in recent years

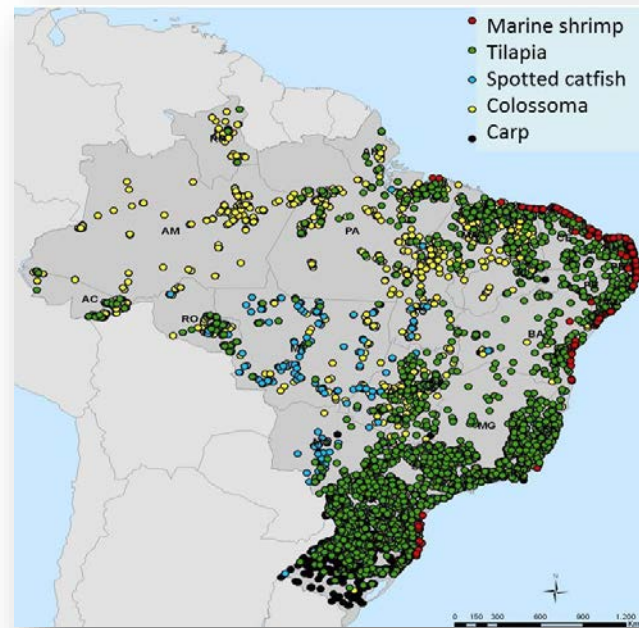


**14^o biggest
world
producer**

- » Inland production → semi-intensive and extensive systems

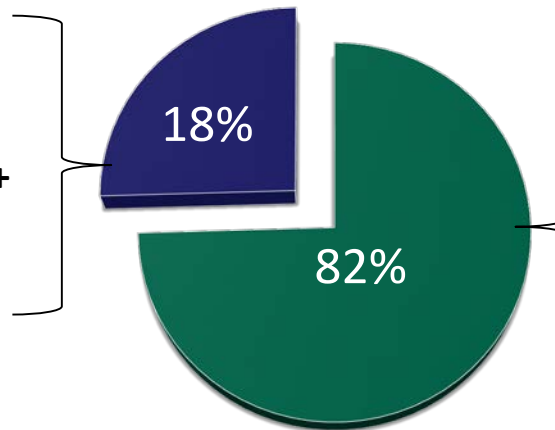


- » Great diversity of species
 - » Manly native
 - » Geographical dispersion



Aquaculture production in Brazil (2014)

- **White legged shrimp (78%)** (*L.vannamei*)
- **Pacific oyster (*C. gigas*) + Brown mussel (*P.perna*) (22%)**



- Inland aquaculture
- Mariculture

- **Tilapia (42%)** (*O. niloticus*) ≠'s strains (Thai/Chitralada/ Gift)
- **Tambaqui (29%)** (*Colossoma macropomum*)
- **Tambacu and tambatinga (9%)** (*hybrids*)
- **Carps (4%)** (≠'s spp.)
- **Spotted catfish (4%)** (*Pseudoplatystoma spp.*)
- **Others (12%)**

Historical driving forces in the Brazilian aquaculture

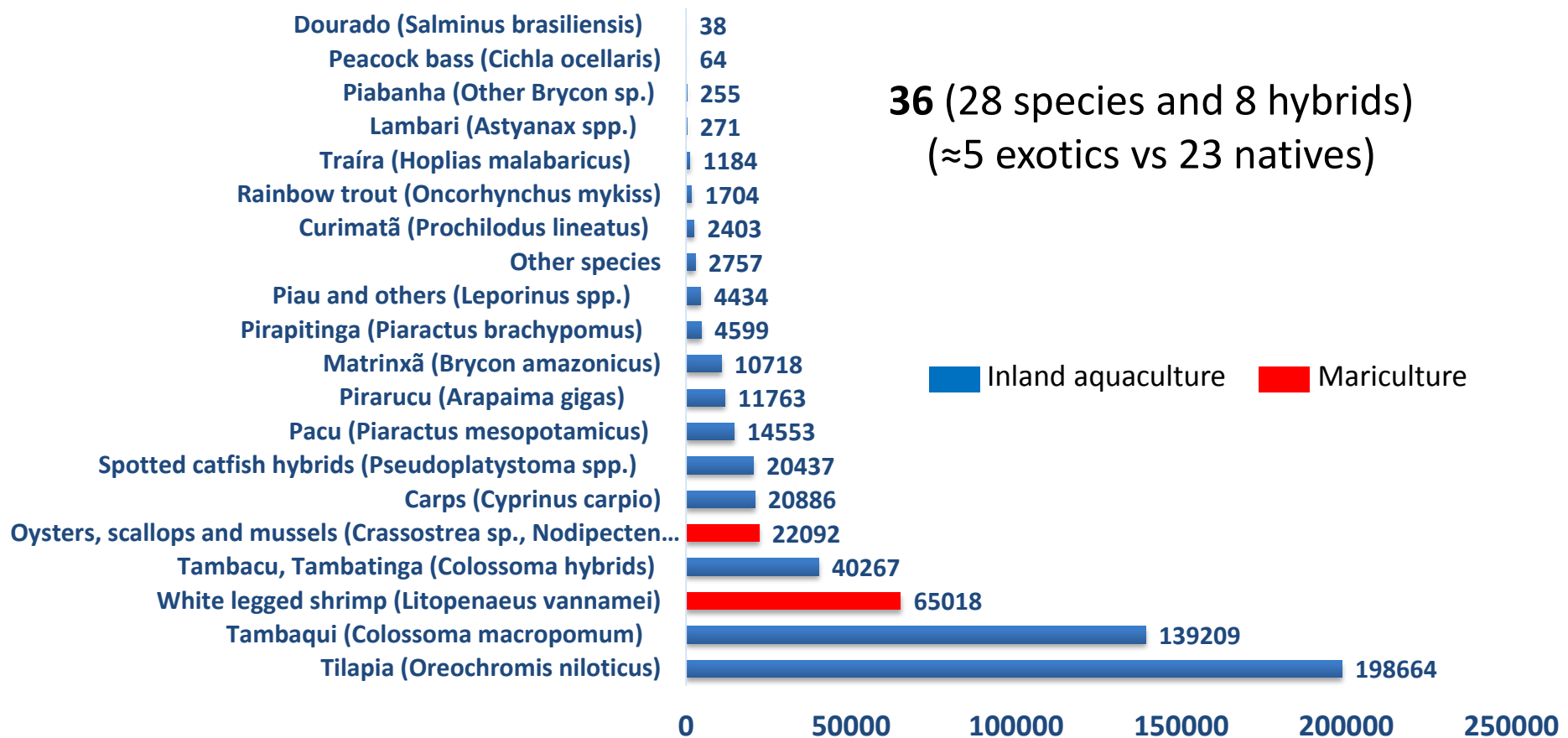
- » Increase in demand of seafood
 - » 2005 = 6,6 kg/habitant/year → 2015 = 10,6 kg/habitant/year **(+60,6%)**
 - » 1 billion US\$ seafood imports
- » Low scale of producers
 - » Most of producers with annual production of less than 5.000 tones
 - » Few producers organizations



» Low technological intensity

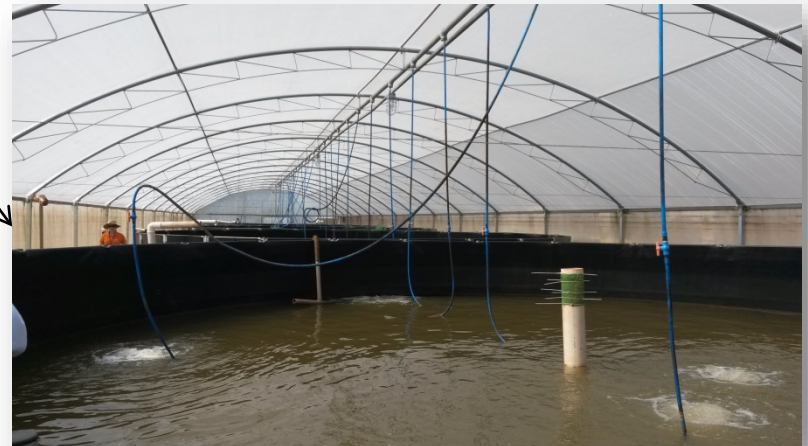
» Innovation gap on native species

Aquaculture production in Brazil by category of species (tons)



Technological intensification

- » Tilapia is leading innovation and attraction of investors in Brazil
 - » Basis to further technology development for other species
 - » Providing well trained personnel and equipments
- » Main technologies in tilapia industry in Brazil:
 - » Vaccine (only medicine for aquaculture in Brazil)
 - » Breeding and genetics
 - » Large volume floating cages
 - » Automatization of fish removal and feeding
 - » Biofloc and recirculation system
 - » Fish processing and packaging



Technological transfer from tilapia to native species

Breeding and genetics

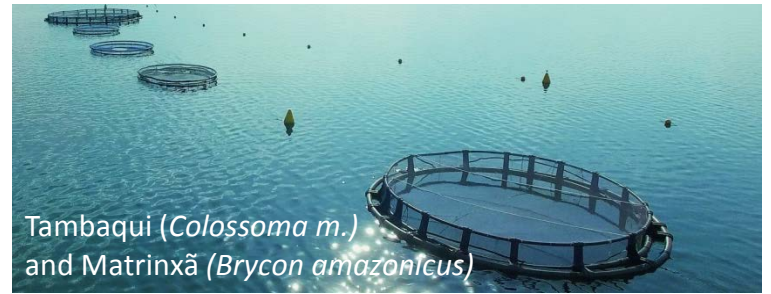


Tambaqui (*Colossoma m.*)



Pirarucu (*Arapaima gigas*)

Large volume cages



Tambaqui (*Colossoma m.*)
and Matrinxã (*Brycon amazonicus*)

Processing and packaging



Tambaqui (*Colossoma m.*)



Spotted catfish
(*Pseudoplatystoma spp.*)

Capital concentration

- » Aiming to increase production scale and productivity
- » Investment lead by Brazilian companies and cooperatives, Foreign Direct Investment (FDI)
- » Some examples of Brazilian companies and FDI (2013-2016):

Investor	Value (US\$)	Specie	Activities
Regal Springs (USA)/ Axial Private Investment Holding (Brazil)	51 millions	Tilapia	Vertical integration
Aquagen- EWGroup(Norway)/ Aquabel (Brazil)	???	Tilapia	Breeding and genetics
Peixes da Amazônia/ Kaeté Private Equity (Brazil)	5 millions	Native species	Vertical integration

Investment by cooperatives

» Large agricultural cooperatives → *Aquaculture as economic diversification*

Name	Main sectors	Total turnover US\$ (all sectors)	Investment in aquaculture
COOPACOL	Grains, poultry, pork	0,9 billion	15 millions
C.Vale	Poultry, pork, milk	1,8 billions	24 millions

Main findings

- » Brazilian aquaculture is becoming more competitive
 - » Increase in productivity and scale
- » Better position to face seafood imports in the domestic market
- » **Some concerns...**
 - » What future for small scale farmers ?
 - » ***Organization (i.e. coops, associations) is crucial!!!***

Thank you!

Obrigado!

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