Tuna or tilapia?
Food security and environmental implications of aquaculture
Increasing demand for seafood

More People
- 1960s – 3 billion people
- 2007 – 6.6 billion people

Eating More Fish
- 1961 per capita fish consumption: 9 kg
- 2007 per capita fish consumption: 17 kg

FAO SOFIA 2010
World fisheries and aquaculture production (million tonnes)

- Aquaculture, inland
- Aquaculture, marine
- Capture fisheries, inland
- Capture fisheries, marine

GRID, FAO 2009
Trends in world aquaculture production 1970-2008

Chinese carp ≈ 14 million tonnes

(2008 Chinese production= 33 million tons)

Note: NEI=not elsewhere included
2004 Production (mt)

- Agr (Agriculture): 7,000,000,000 (94.3%)
- Lvstck (Livestock): 260,000,000 (3.5%)
- Fshries (Fisheries): 97,000,000 (1.3%)
- Fwater (Freshwater): 26,000,000 (0.9%)
- Swater (Saltwater): 20,000,000 (0.9%)
- Plant (Plant): 14,000,000 (0.9%)

Annual Growth 94-04:
- Aquaculture: >7%
- Agriculture: >2%

Duarte et al. 2009 BioScience
Aquaculture and food security
Contribution of fish to animal protein supply (average 2005–2007)

Fish proteins
(per capita per day)

- < 2 g
- 2-4 g
- 4-6 g
- 6-10 g
- > 10 g

Contribution of fish to animal protein supply

- > 20%

FAO SOFIA 2010
Potential for aquaculture to address food insecurity: some considerations

• Providing inexpensive protein distributed through global markets (industrial tilapia) ??
• Alleviating pressures on wild stocks that the food insecure depend on??
• Substituting farmed protein systems for subsistence fishermen and impoverished farmers ??
  – Cultural/infrastructural impediments
  – Requires significant agricultural extension work
Bluefin tuna farming
Food security implications
Tilapia
Environmental and food security Implications
Who should invest? In what?