Implications of Demographic Changes on Fisheries Education in the United States

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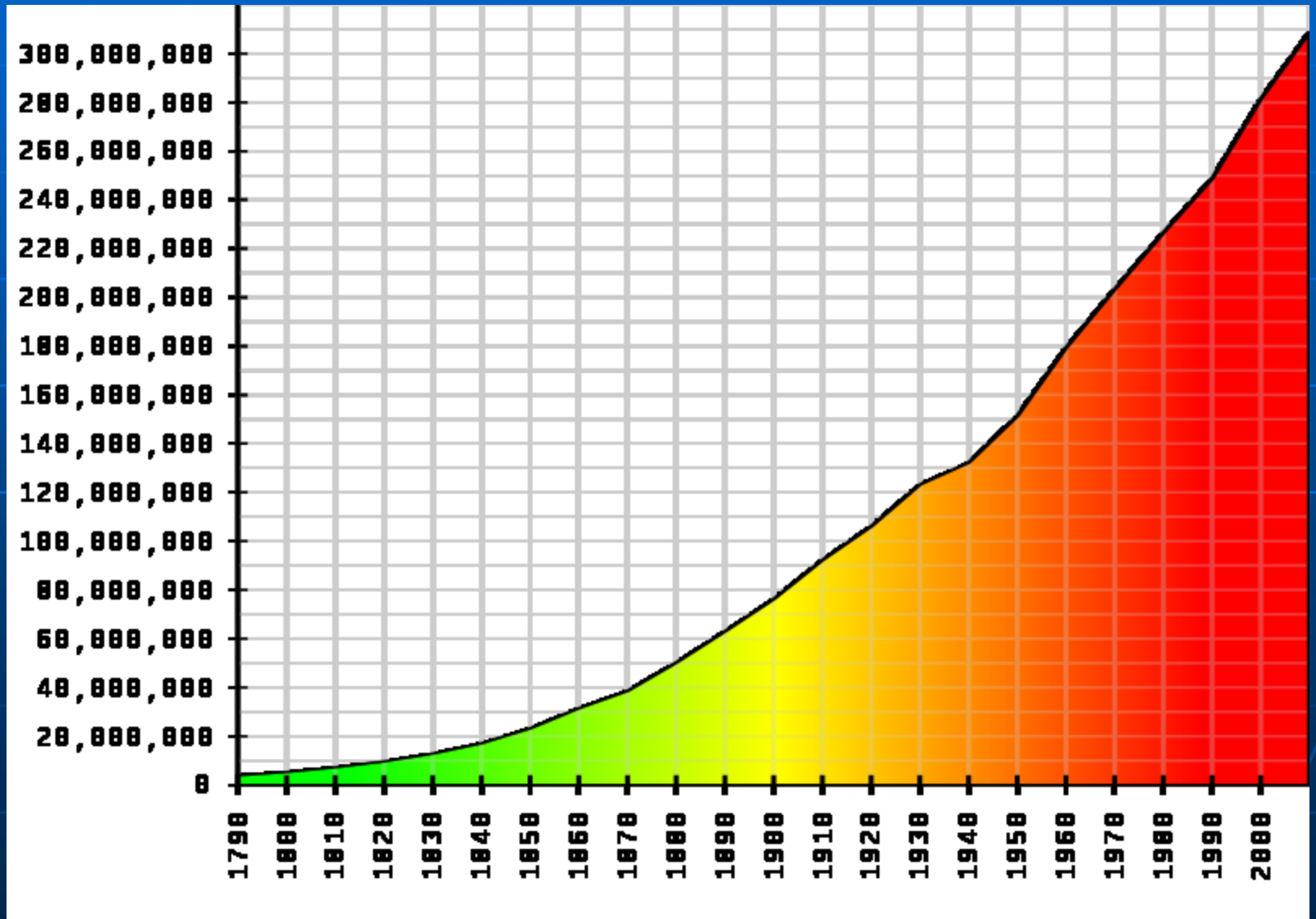
Goals of Presentation

- Introduce major demographic trends occurring in the U.S.
- How demographic changes may impact fisheries education in the short and long term
- My opinions!

Major Demographic Trends in U.S.

- Increasing population
- Urbanization
- Aging population
- Increase in cultural diversity

Increasing Population



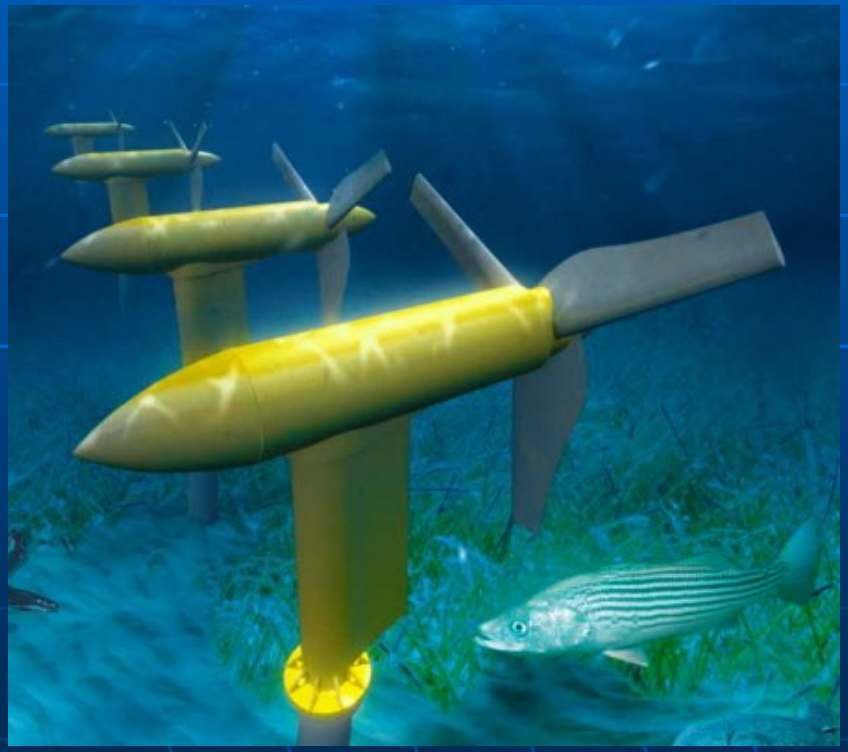
Secondary effects of increasing population

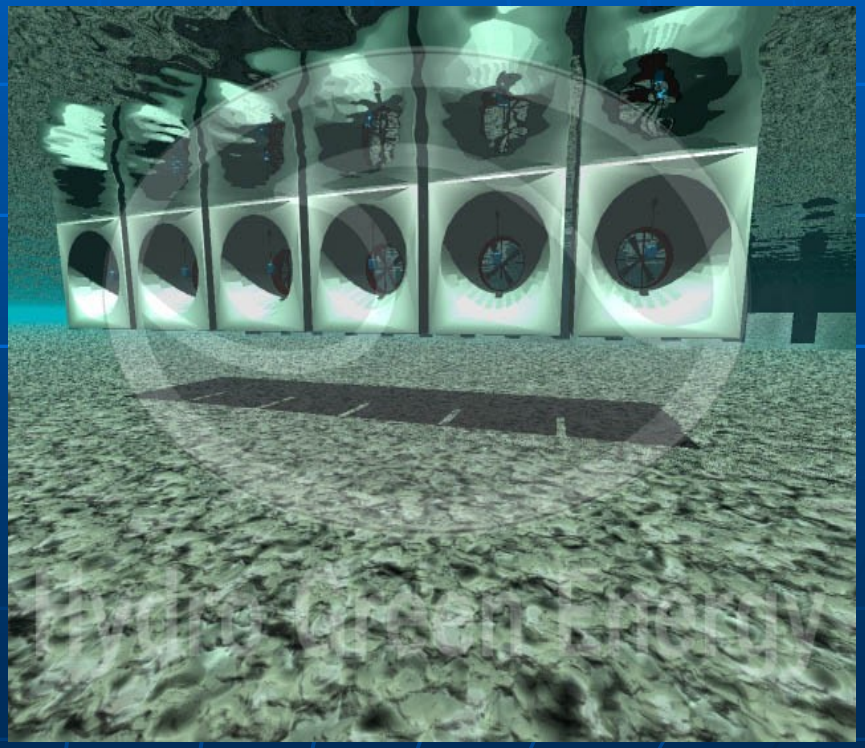
- More demand for fresh water
  - Where will water come from?
  - More demand for conservation aquaculture to restore populations
  - May see a resurgence in dam development

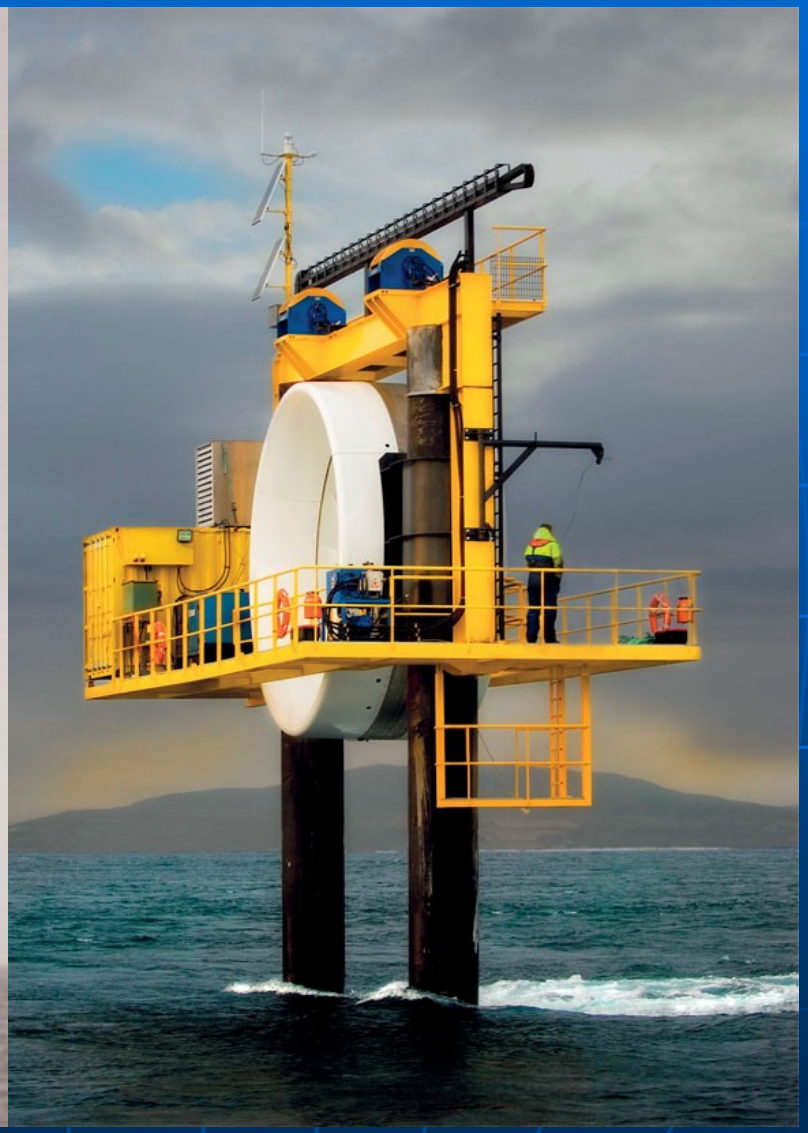
Desalination Plants

Secondary effects of increasing population

- More demand for clean sources of energy







Secondary effects of increasing population

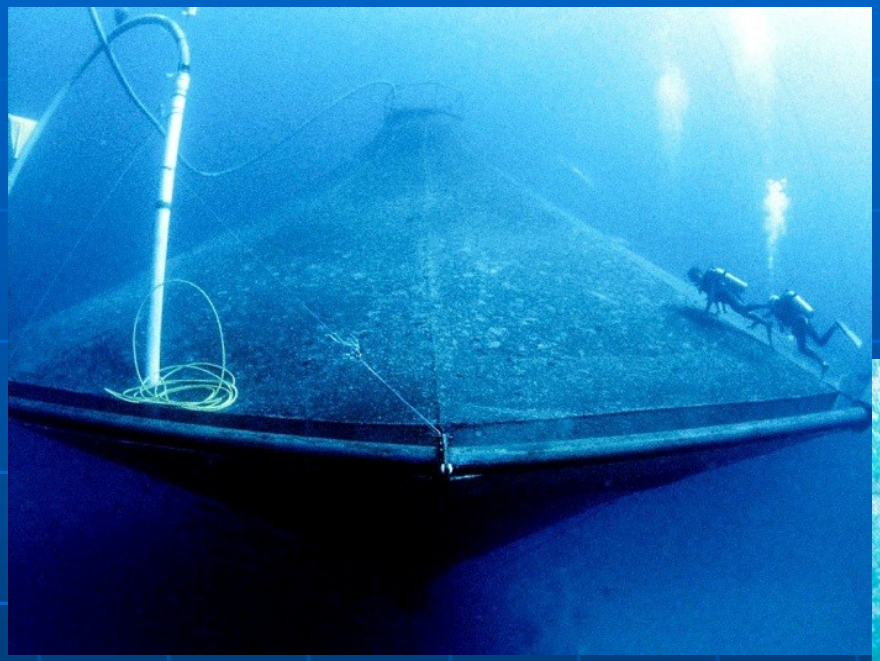
- Recreational Fishing Pressure Expected to Double
- Fish for stocking
- More stakeholder conflict

Secondary effects of increasing population

- More demand for fresh fish
  - Projected food fish demand (2020) - 238 million metric tons
    - Current Capture Fisheries 100.0 million metric tonnes
    - Current Culture Fisheries 39.8 million metric tonens
    - Projected deficit 98.2 million metric tonnes

Metric tonne = 2200 lb

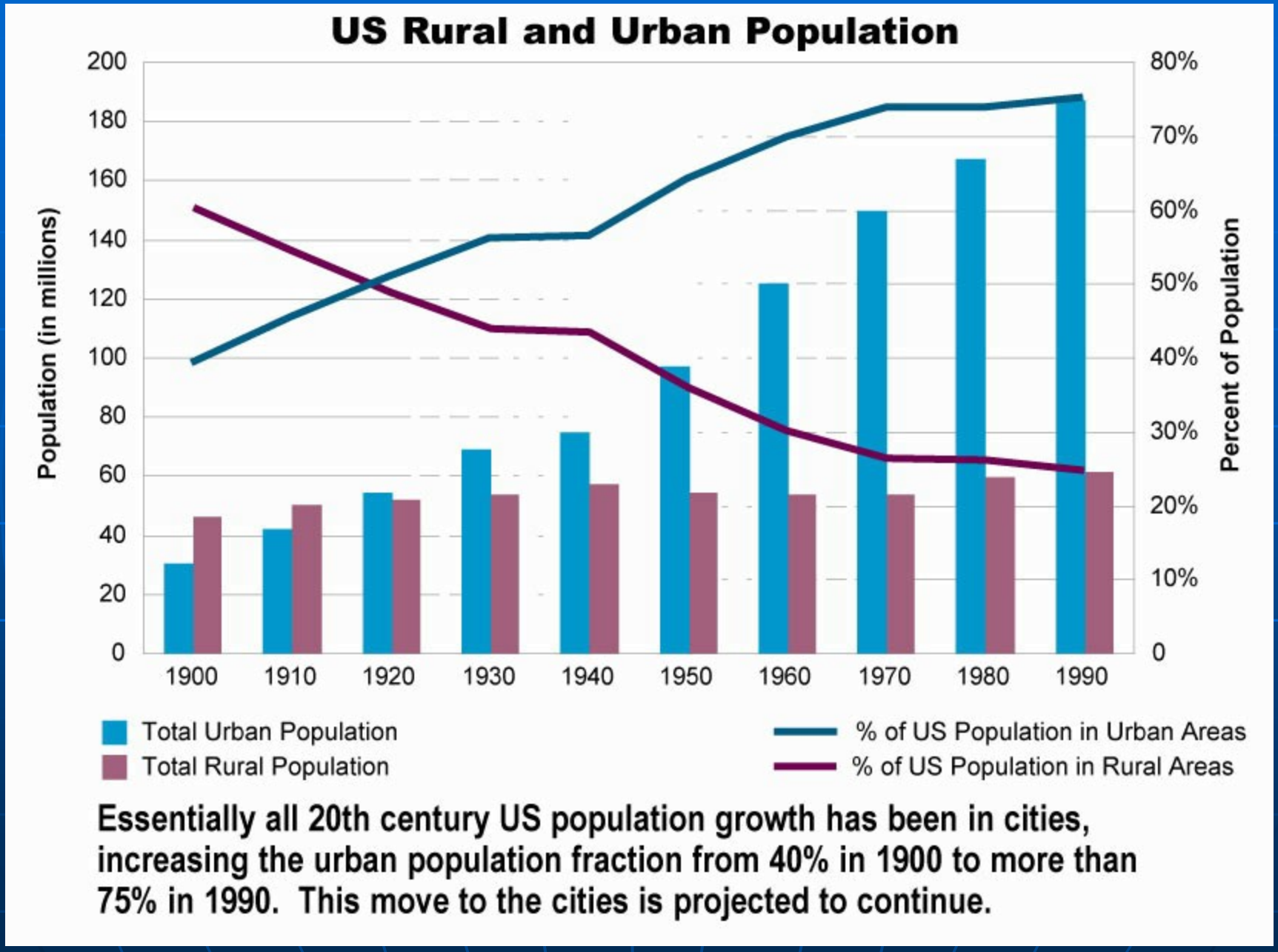

T. DeJager



Educational needs with more aquaculture

- Disease diagnostics (Aquatic-Vet)
- Water Quality Management
- Nutrition (Feeds/Feeding Practices)
- Sale of Feeds, chemicals, equipment
- Consulting services
- Good human relations/marketing skills

Urbanization



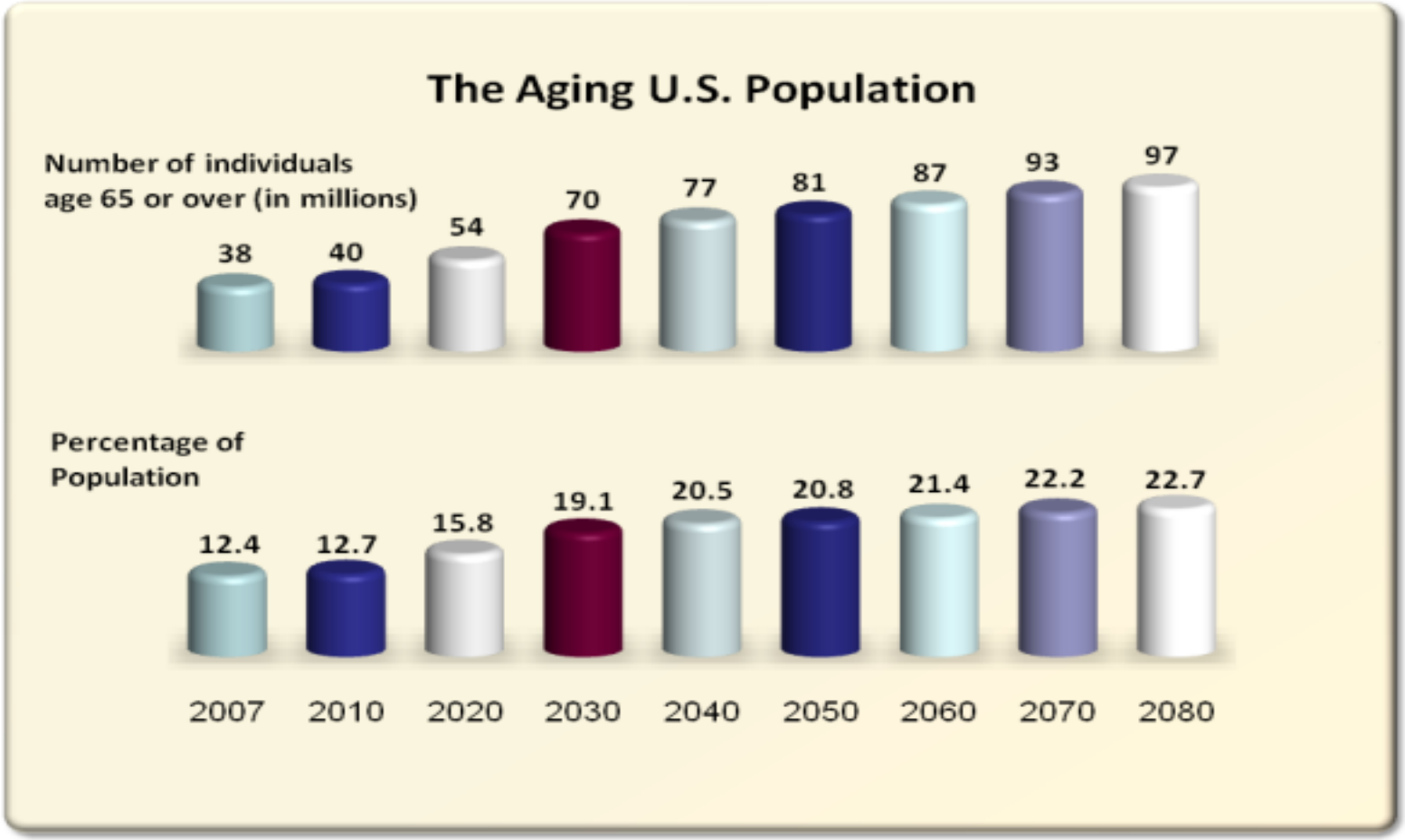
Essentially all 20th century US population growth has been in cities, increasing the urban population fraction from 40% in 1900 to more than 75% in 1990. This move to the cities is projected to continue.

Secondary effects of Urbanization

- Increase in demand for fishing opportunities close to where people live
- Likely will have to train fish biologists to be more than biologists
- Further ignorance on where food supply comes from and disconnection from the natural world

Public Outreach & Education

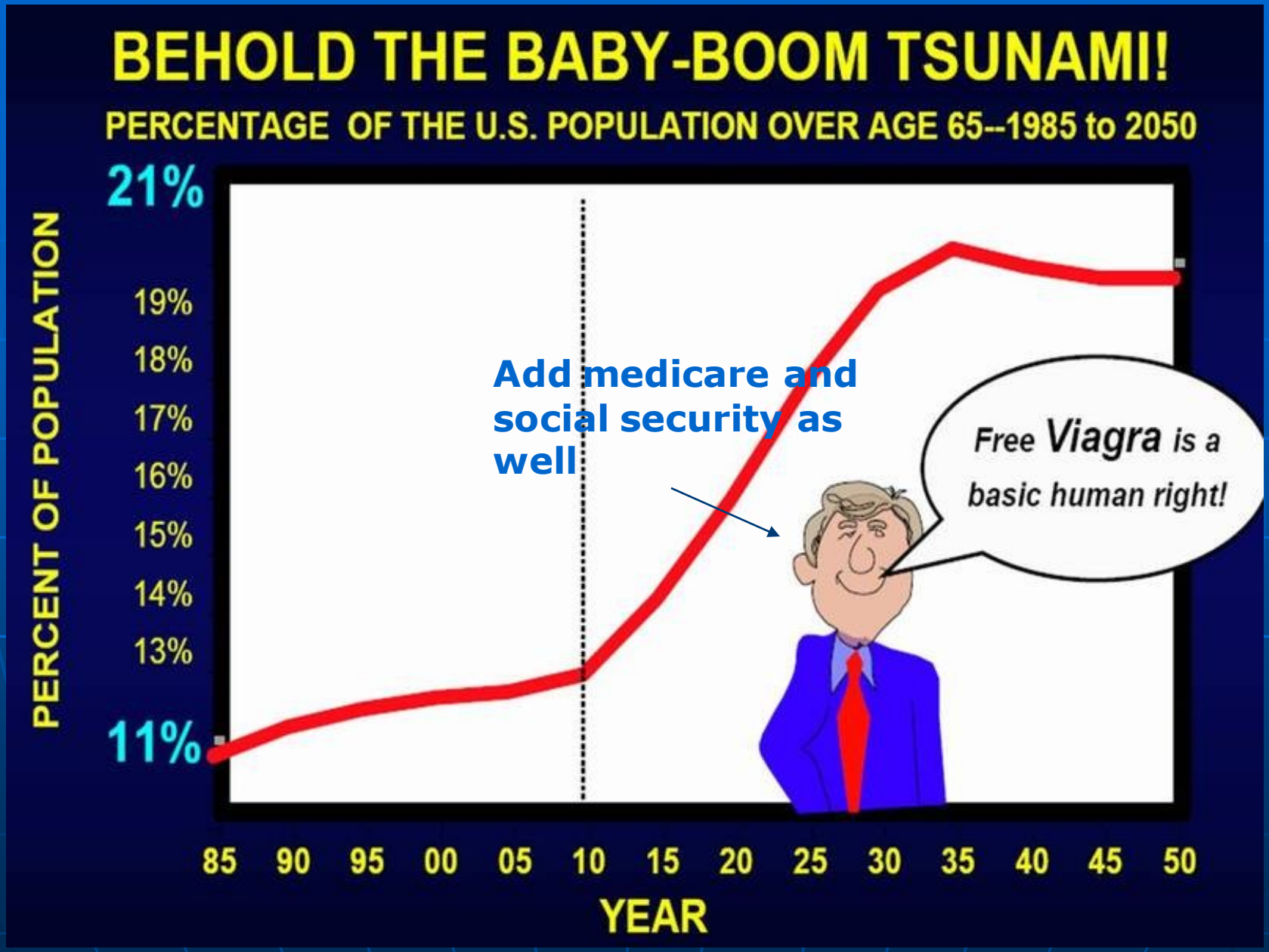
Aging Population



Source: U.S. Social Security Administration
2007 OASDI Trustees Report (April 2007), Table V.A.2

Implications of Aging Population

- Seniors have special needs
- Easier access and more emphasis on amenities: piers, walking paths, etc..
- Funding for education will likely be reduced. Must remain relevant to older population if expect continued political support.


BEHOLD THE BABY-BOOM TSUNAMI!
PERCENTAGE OF THE U.S. POPULATION OVER AGE 65--1985 to 2050
PERCENT OF POPULATION
21%
19%
18%
17%
16%
15%
14%
13%
11%
Add medicare and social security as well
Free Viagra is a basic human right!
85 90 95 00 05 10 15 20 25 30 35 40 45 50
YEAR

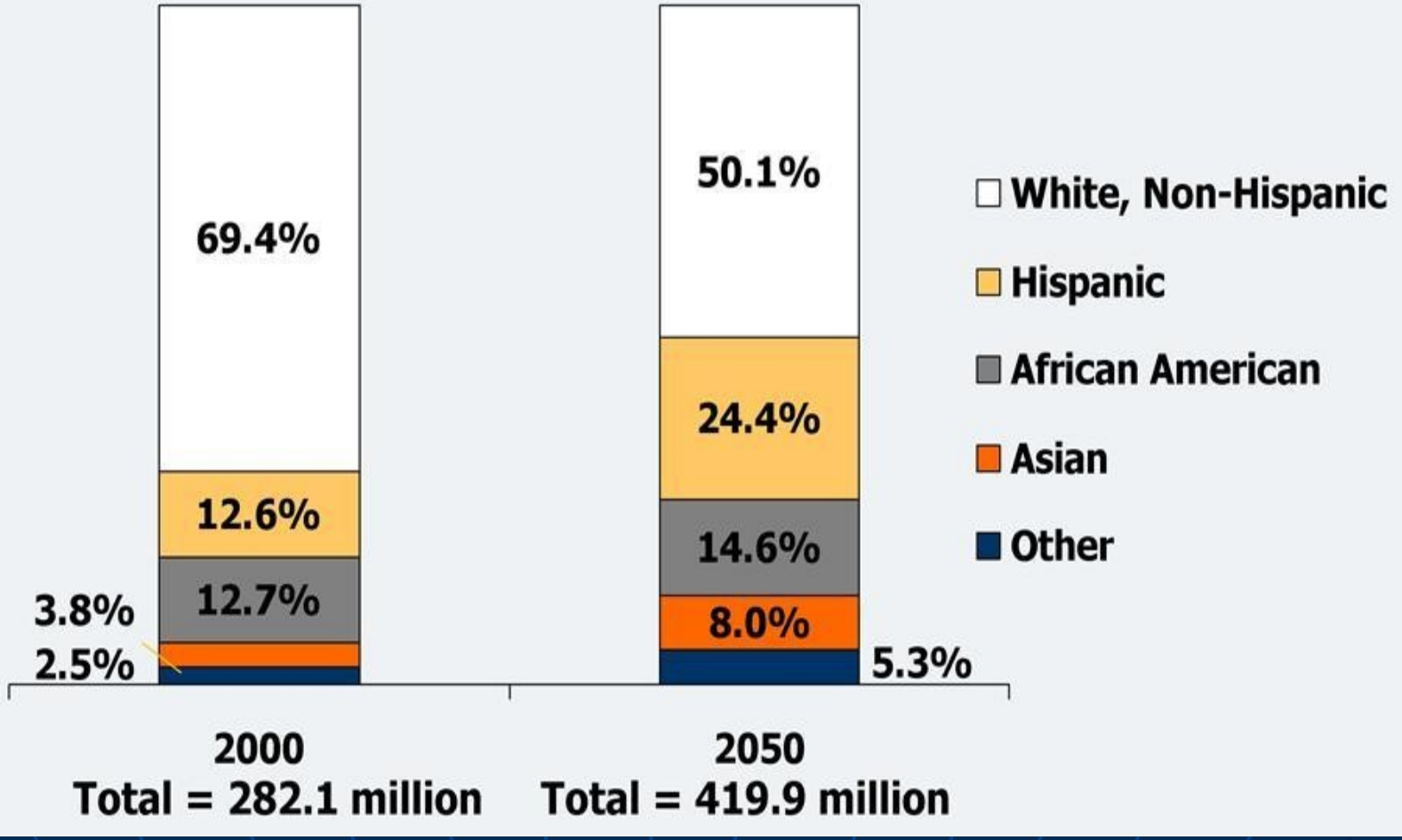
Students will seeking highest paying jobs. What will these be in Fisheries?

Increase in Students over Traditional Age?

Increasing Cultural Diversity

- 1 in 8 people in U.S. in 1900 were non-white; 1 in 4 in 2000
- Black population went from 8.8 million in 1900 to 35 million in 2000
- Hispanic population went from 14.6 to 35.3 million from 1980-2000.

Distribution of U.S. Population by Race/Ethnicity, 2000 and 2050



Implications of Increasing Cultural Diversity

- Current immigration different than previous waves in that Europeans are not dominant group
- Socio-cultural norms of immigrants less likely to be analogous to American culture.
- Assimilation likely to be slower, less complete and different, e.g., selective acculturation

Implications of Increasing Cultural Diversity

- Is CD going to change attitudes toward natural resources and its management?
- What is important to non-white groups?
  - Lower participation rates in recreational fishing, so will it remain relevant?
  - Increase in biologists conducting recruitment and retention activities
  - If non-whites get more involved, will recreational species focus change?
  - Deal with introductions of exotic species

Implications of Increasing Cultural Diversity

- We don't know enough about these cultures to answer questions, make decisions, or even engage them
- Diversifying the field will be extremely important

Conclusions

- Curriculums contain too much biology/ecology to prepare them for what they will likely face
- Most of the funding sources for fisheries research/education is focused on short term not long term
- Some demographic changes will require that long term plans be made now; social change does not wait on laggards