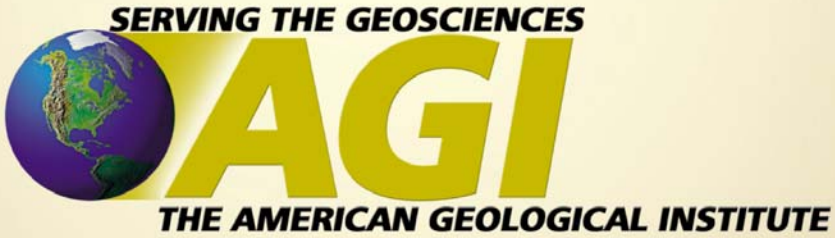
Why is recruitment an issue?



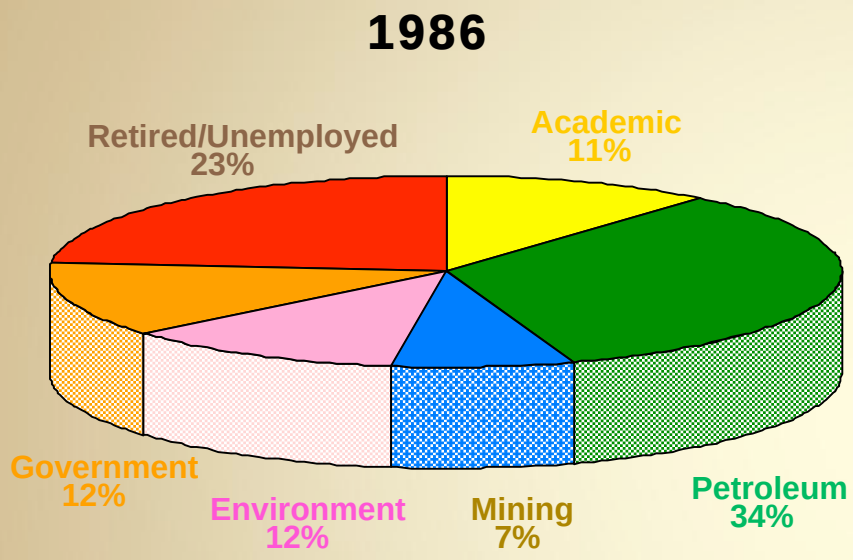
Christopher M. Keane
American Geological Institute
27 October 2007

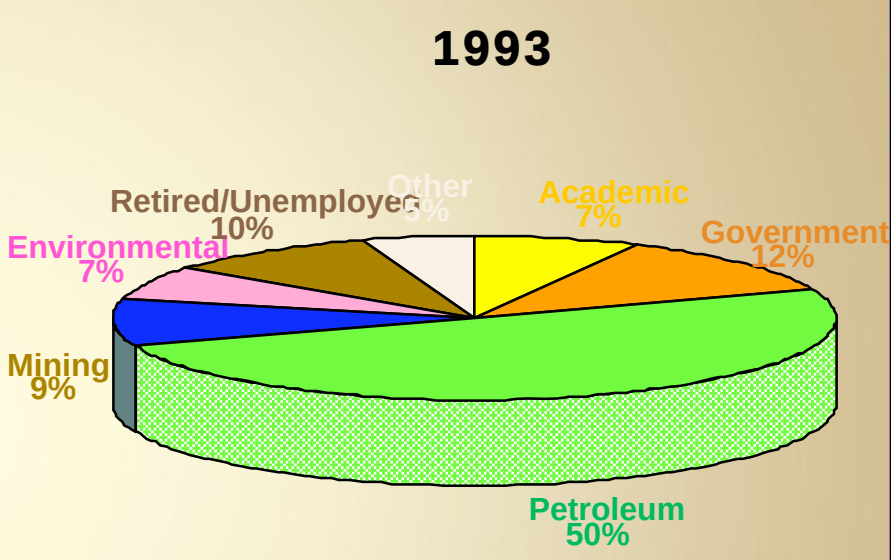
The End of the Pipeline

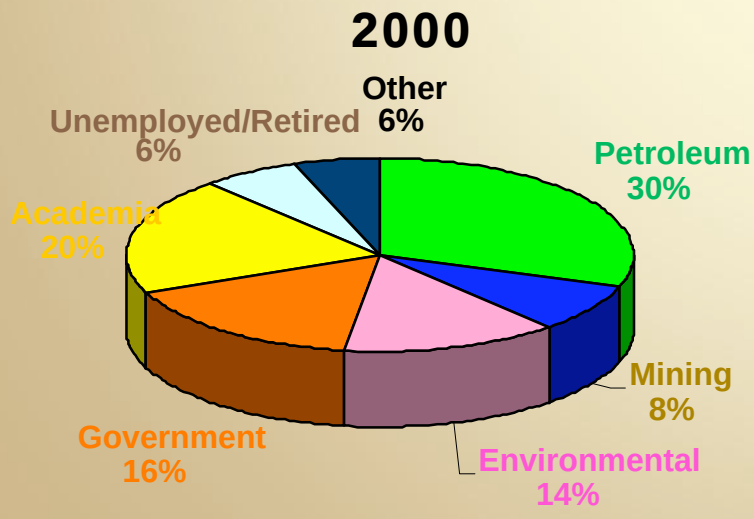
Where we are today…

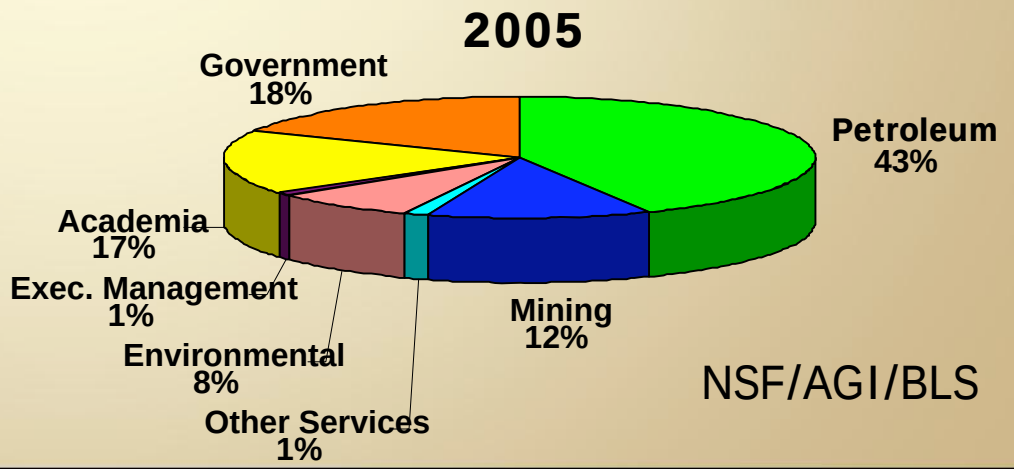
- **~50% of geoscience highest degree earners do NOT work as a geoscientist**
- **~50% of working geoscientists do NOT have their highest degree in geosciences**
- **Functionally 0% MS & Ph.D. unemployment since 2001**
- **Rapid new hire demand**
- **Employer dissatisfaction with new hires**

US Geoscience Employment





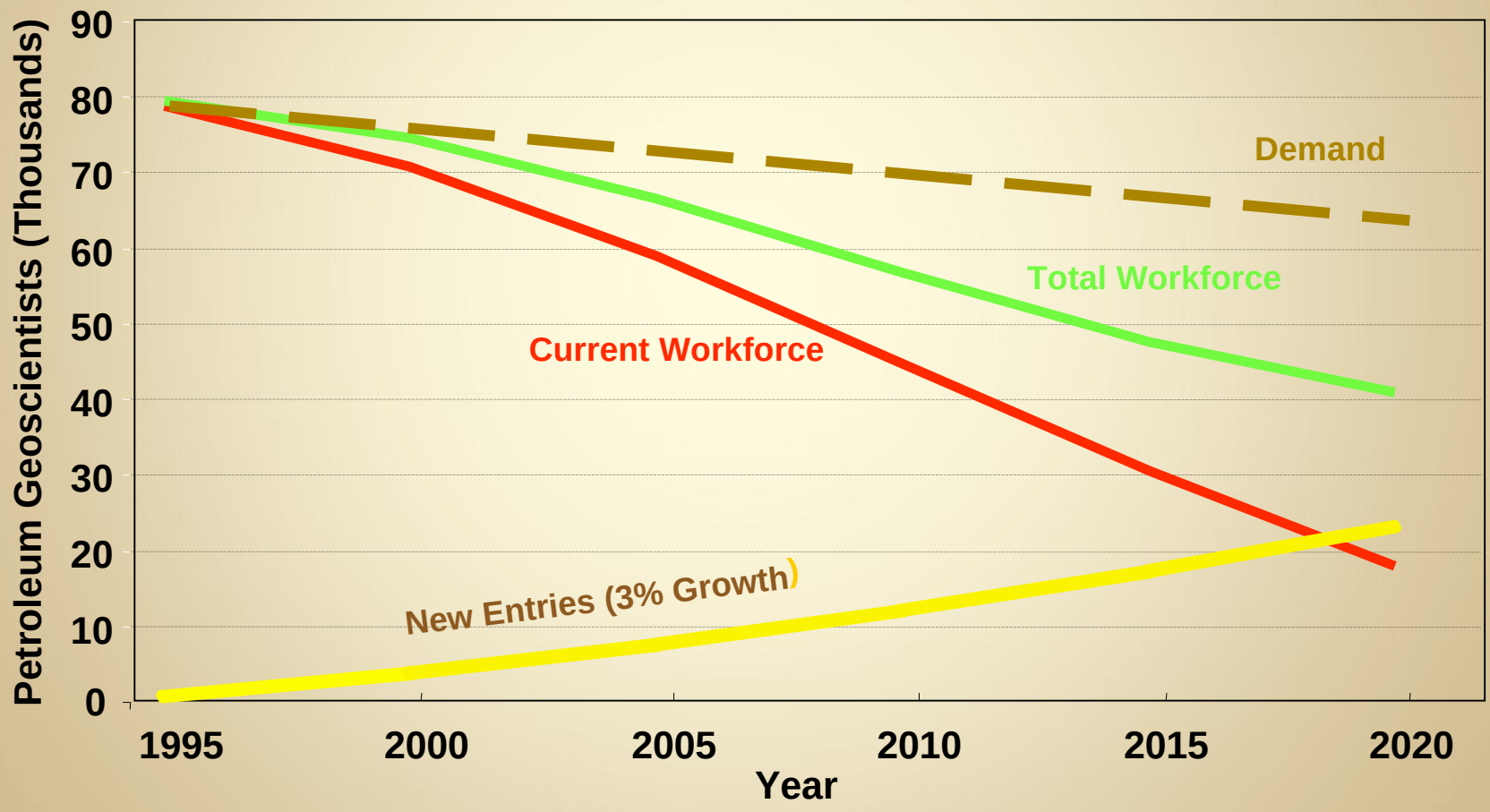




NSF/AGI/BLS

Petroleum Geoscientist Demand

Geologists, Geophysicists, and Engineers



Mean Salaries 2005

- **Geologists**
  - Petroleum $107K
  - Mining $69K
  - Finance $84K
  - Consulting $68K
  - Academia $58K
  - Government
    - Federal $86K
    - State $51K
    - Local $62K
- **Hydrologists**
  - Consulting $65K
  - Academia $57K
  - Government
    - Federal $75K
    - State $52K
    - Local $63K

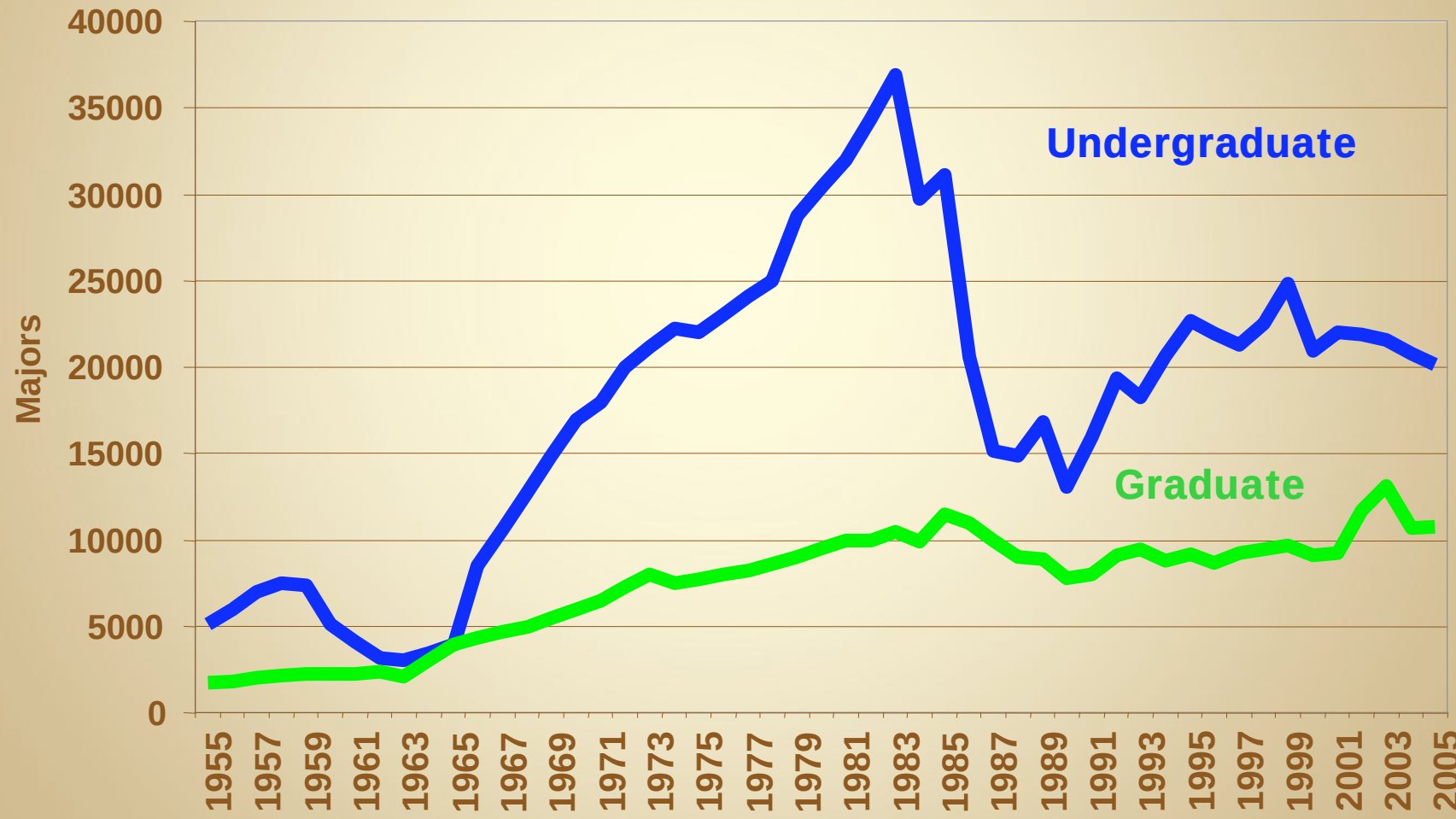
BLS

What about these B.S. New Hires?

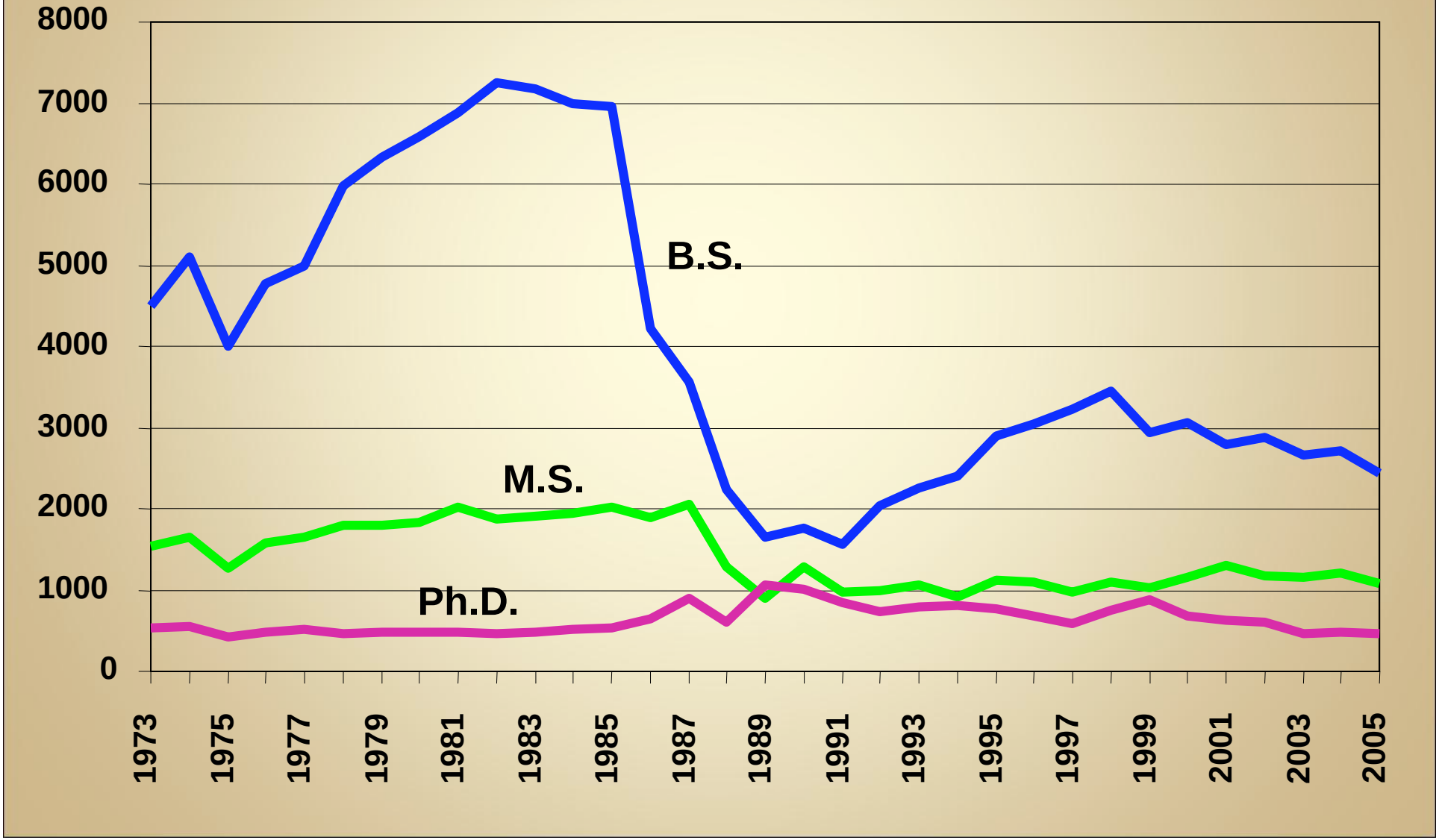
- **Substantial hiring of new geology/environmental science Bachelor recipients**
- **What are their REAL future prospects?**
  - **Professional geoscientist?**
  - **Starbucks Barrista?**
  - **Wal-Mart Greeter?**
- **Is the profession serving them honestly?**

The Pumping Station

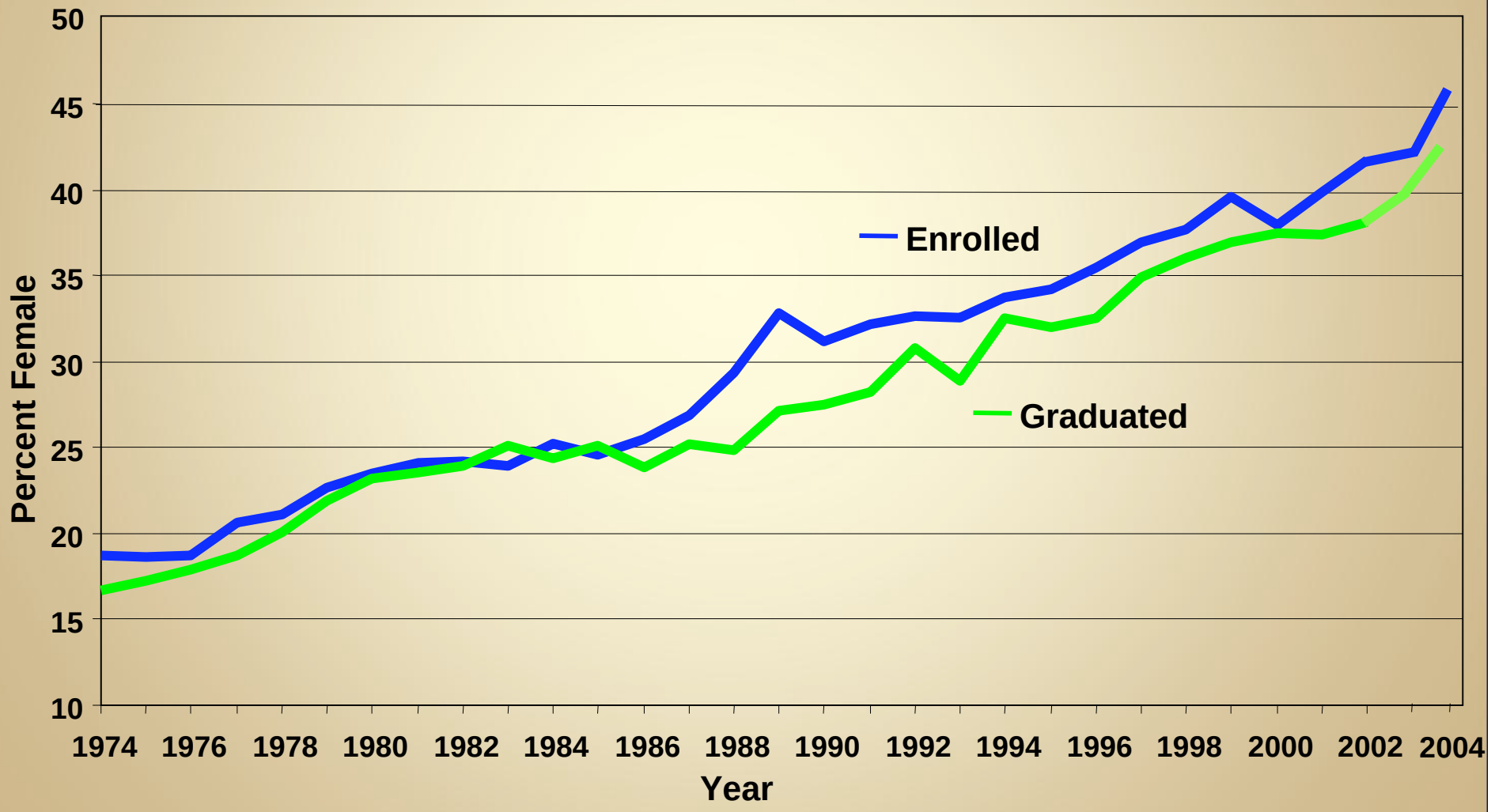
The Enrollment Rollercoaster
1955-2005



Newly Minted Geoscientists



Female Geoscience Enrollment and Degrees 1974-2004

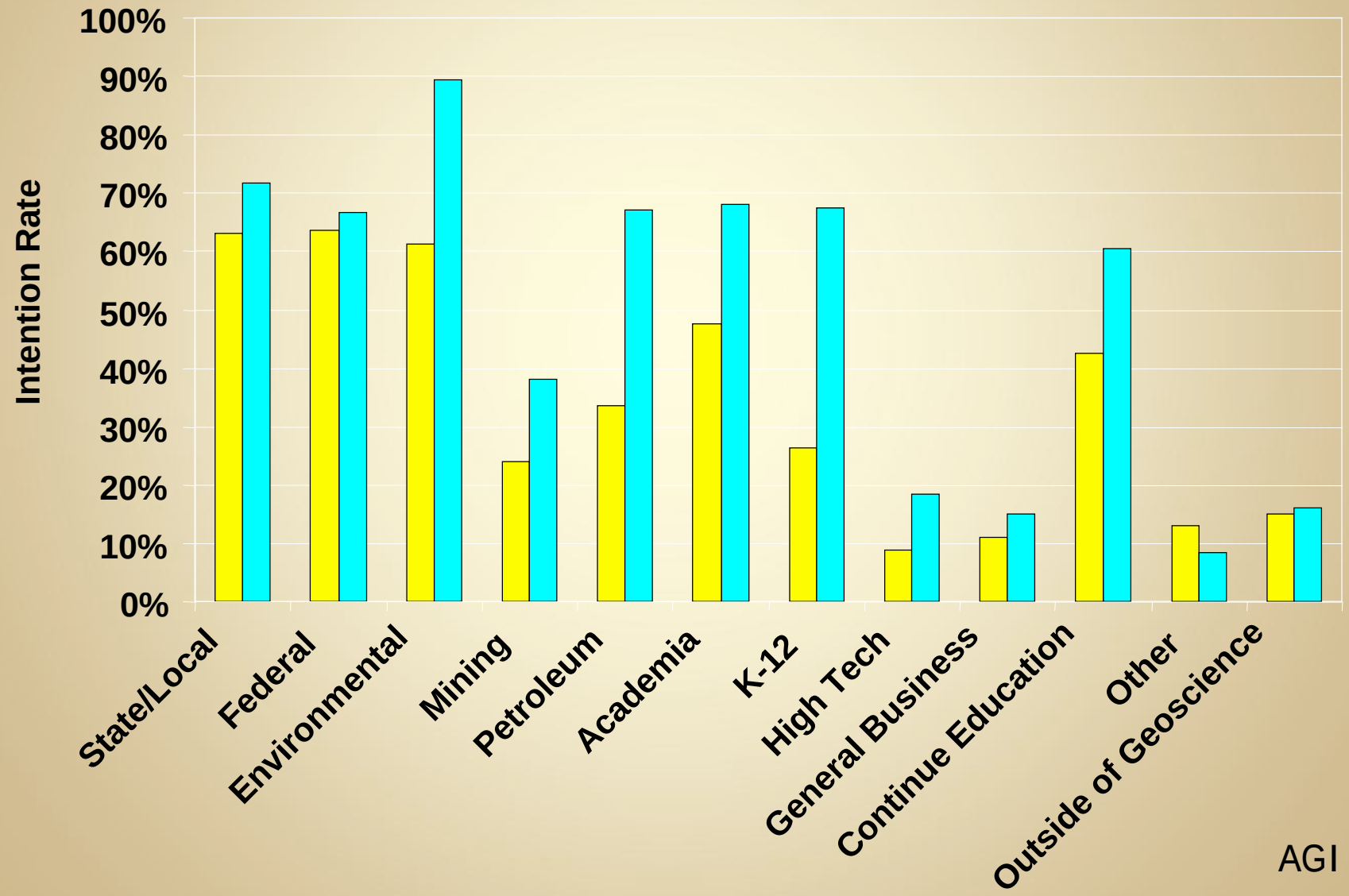


Race and Gender – the future?

- **Gender**
  - **Females now dominate at the university**
  - **Geoscience second at attracting women**
  - **Industry discontinuing female preferences**
- **Race**
  - **Minorities tend not to move for college**
  - **Few geo programs near minority areas**
  - **Most come through Community Colleges**
  - **Lack of cultural continuity**

The Wellhead

Student Attitudes and Careers
2005



AGI

Student Interest vs. Opportunity

- **Hostility towards private sector**
  - **Source of bulk of opportunities**
- **“Environmental Awareness”**
  - **Student interest declines precipitously**
- **Preference for government**
  - **Little to no hiring growth**
- **29% of students intend to look at “non-traditional” careers**

Why Do Students Choose a Field?

1. **Self-Efficacy**
   - Work towards tangible success
   - Make the class attractive and applied
2. **Outcome Expectations**
   - Promote rewards of the success
   - Social & Intellectual Standing
3. **Interest**
   - Align with interests and currency
   - Be innovative
   - Make success attainable

Akbulut & Looney, ACM Communications, October 2007

Challenges Today and Ahead

Common Employer Concerns

- **Poor student preparation**
  - **Little or poor quality field experience**
  - **Too much specialization (e.g. Env. Companies want geologists, not environmental science majors, but will hire a strong back)**
- **Work ethic challenges**
  - **Little sense of professionalism**
  - **US new hire parochialism**
- **Business sense**
  - **What business sense?**
- **The Sleepless Night Points**
  - **Fear the budget at all levels**
  - **Future leadership**

The Challenges

- **Geoscience must compete aggressively for the best**
- **Budget issues are not unique**
- **Why do we want majors**
  - **Meet societies needs**
  - **Framework for leadership**
- **Not losing the opportunities**
  - **K-12 is starting to rebound**
  - **Jobs are available**
  - **Bridging the gap from K-12 to major**

Need Some New Thinking

- **Attrition Math**
  - **340,000 Intro Geo Students**
  - **6,000 New Geo Majors Per Year**
  - **2,700 New Geo BS Degrees Per Year**
- **Internal Competition**
  - **Are we fighting for other STEM students?**
  - **Are other STEM fields friends or enemies?**
- **How to meet needs in a Uni. Environment**
  - **Divergent university and professional demands**
- **Is there a moral imperative in how we treat students?**