

Characteristics of Graduate Programs in Ocean Sciences

Russell McDuff, University of Washington

Allison Miller, Consortium for Ocean Leadership

(minor update 27 Sep 2012)

Broad Outline

- Examples from Recent Surveys (10-11, 11-12)
- A Flow Model for Graduate Programs (Four Years of Data, 06-11)
- Interesting Trends (03-12)
- Concluding Comments

The Survey

- Applications, Offers and First Year Enrollment by Discipline, Gender, Citizenship, Ethnicity
- Characteristics of Student Body by Discipline, Gender, Citizenship, Ethnicity, Support
- Characteristics of MS and PhD Graduates by Discipline, Gender, Citizenship, Ethnicity, Next Position, Time in Program

Survey Returns

- 29 responding institutions 2010-11
- 34 responding institutions 2011-12
- Δ : 1 out and 6 new, net +5
- 28 responding both years
- 14 responding each of the past five years

Data Fidelity and Consistency

- Changing mix of responding institutions
- Internal consistency of data
- Some examples
 - Check sum: number of applications not consistent with sum of total number of applications from US citizens and foreign nationals (4/34)
 - Check sum: number of applications from US citizens not consistent with sum of ethnicity of US citizens (15/34)
 - Data not collected or recorded: ethnicity of US citizens (6/34)
 - Continuity of record

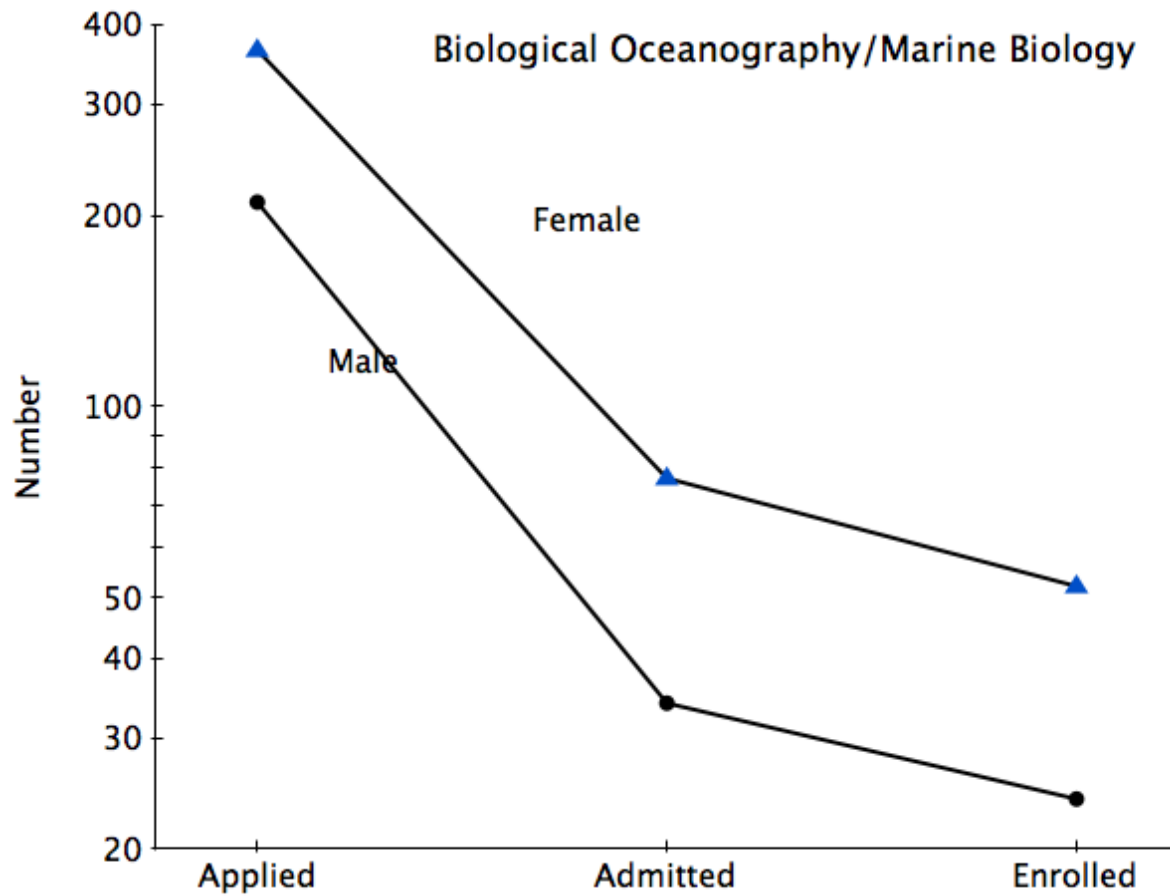
Specific Example of Data Fidelity

- ~3300 Applications among 34 Institutions
- Filtering for Valid Checksums, Have High Degree of Confidence in Data From 19: ~2000 Applications (60% of Pool)
- This Subset is Similar To Overall Data (But Differences Exist)
- General Approach: Use the Largest Subset

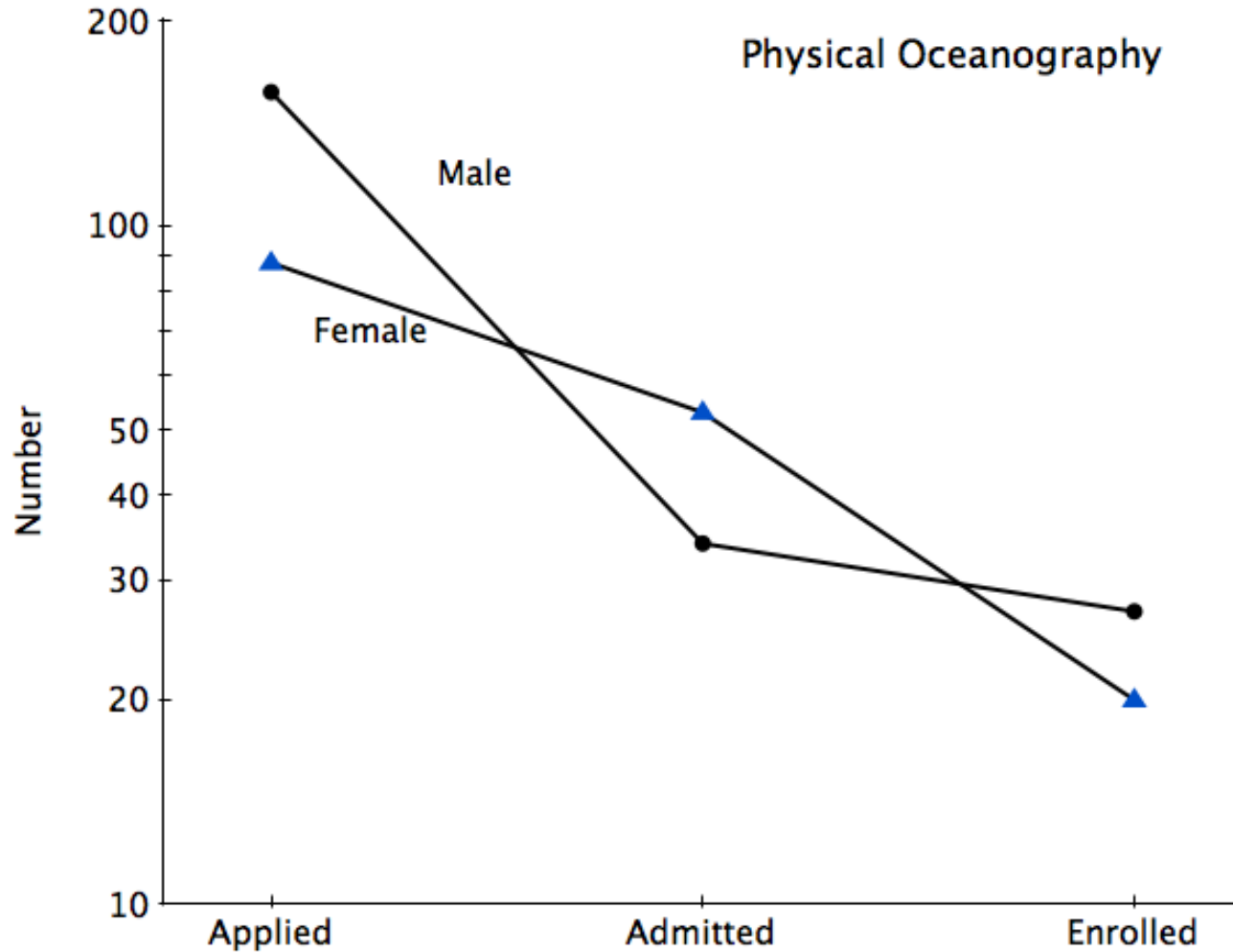
The Admission Sequence

- ~2000 Applicants, 51% Female
- To These Applicants, ~570 Offers, 28% of Pool
- Success of Women 32%, Success of Men 24%
- Enroll ~375 Students, 19% of Applicants of Each Gender

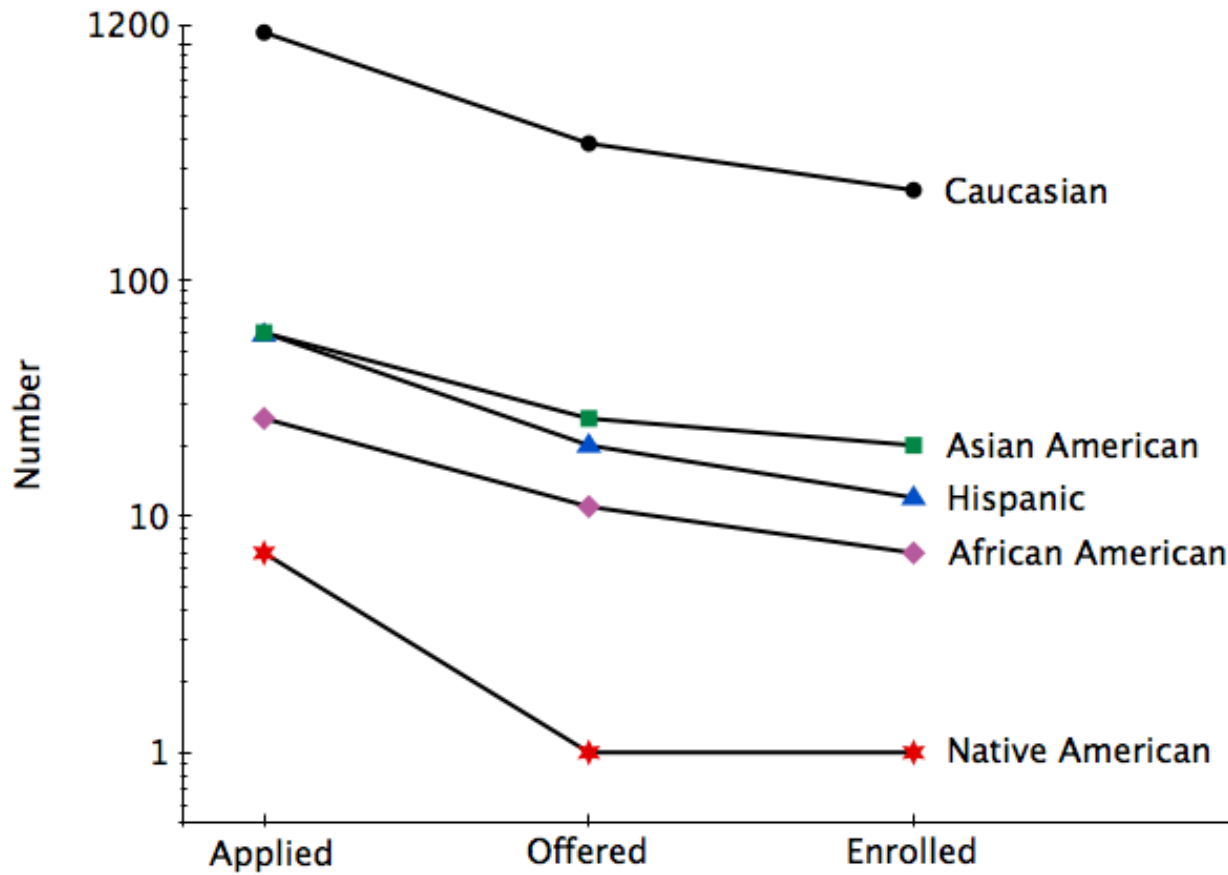
Bioscience Sequence



Physical Sequence



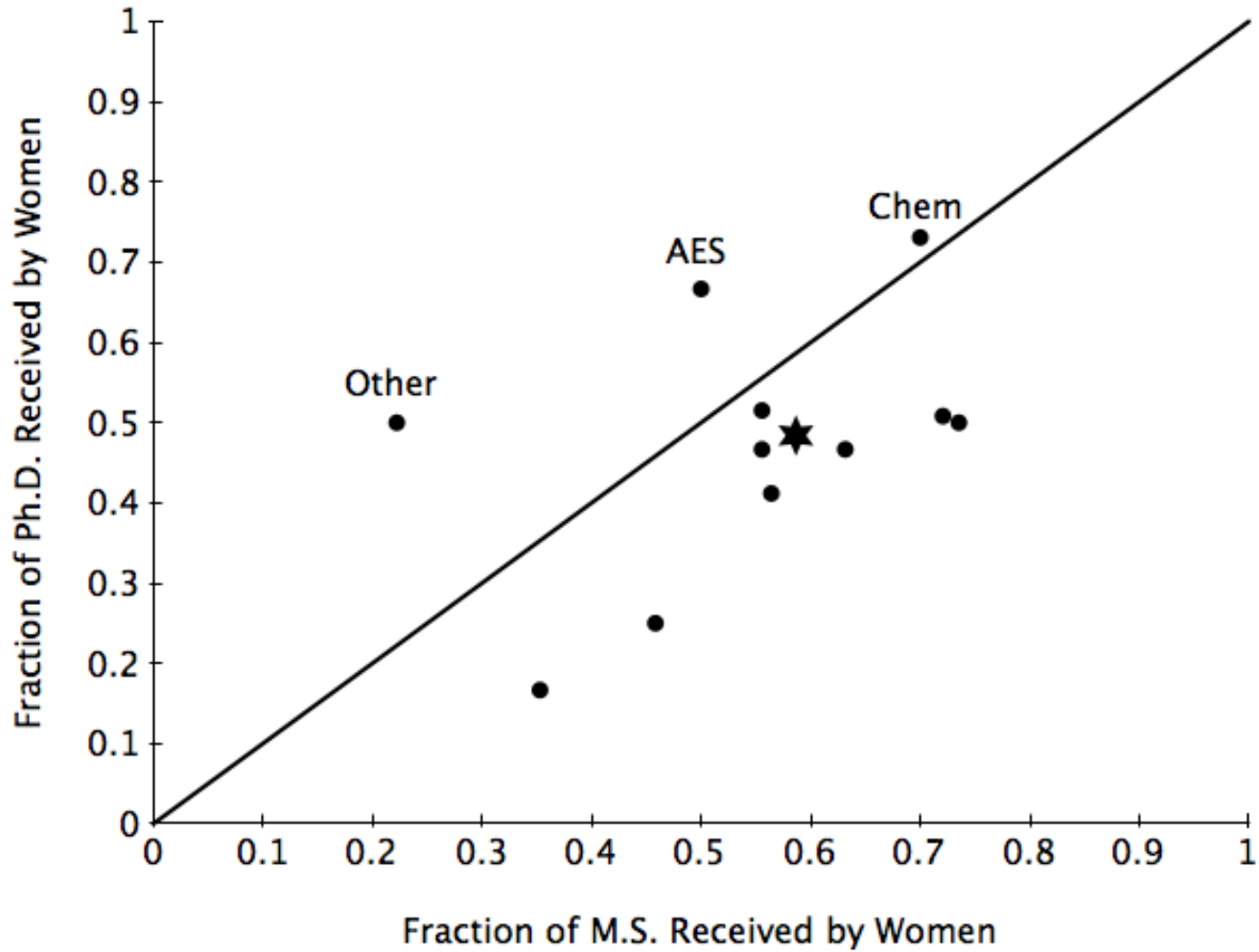
Ethnicity Sequence



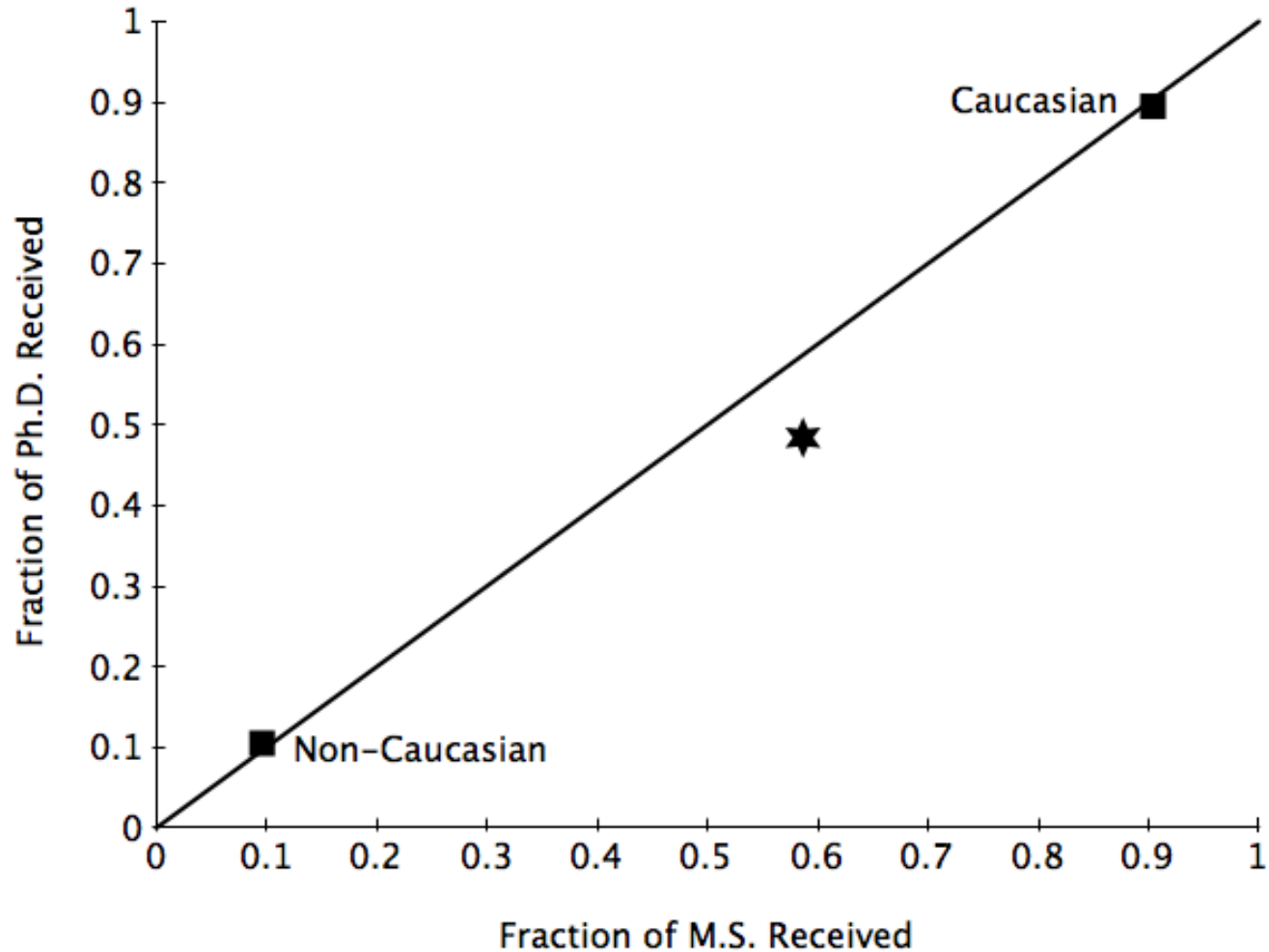
Program Characteristics 2011-2012

- 2749 Graduate Students in Residence
- ~1/3 Biological Oceanography or Marine Biology, ~1/3 Chemical, Physical, Geological
- 79% US Citizens
- Among US Citizens: 88% Caucasian
- Degrees Granted: 358 MS, 219 PhD
- 67% supported by RA/Fellowship/Traineeship, 15% as TA, 18% Unsupported

Degrees Granted: Gender



Degrees Granted: Ethnicity



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A Flow Model

Assessing the State of Graduate Programs in the Ocean Sciences

ALLISON MILLER, DIRECTOR FOR OCEAN LEADERSHIP, UNIVERSITY OF CALIFORNIA, SAN DIEGO
KIMBERLY B. MILLER, UNIVERSITY OF CALIFORNIA, SAN DIEGO

OVERVIEW OF SURVEY DATA

Only 35% of terminal degree recipients become academics!

10 students graduate with a MS for every 11 students graduating with a PhD!

Category	Count	Percentage
PhD students awarded	1,000	100%
MS students awarded	100	10%
PhD students awarded	1,000	100%
MS students awarded	100	10%

CHALLENGES

WHAT STUDENTS LIKE EXPLORED

FLOW MODEL METHODOLOGY

The UMDS Academic Research Fleet

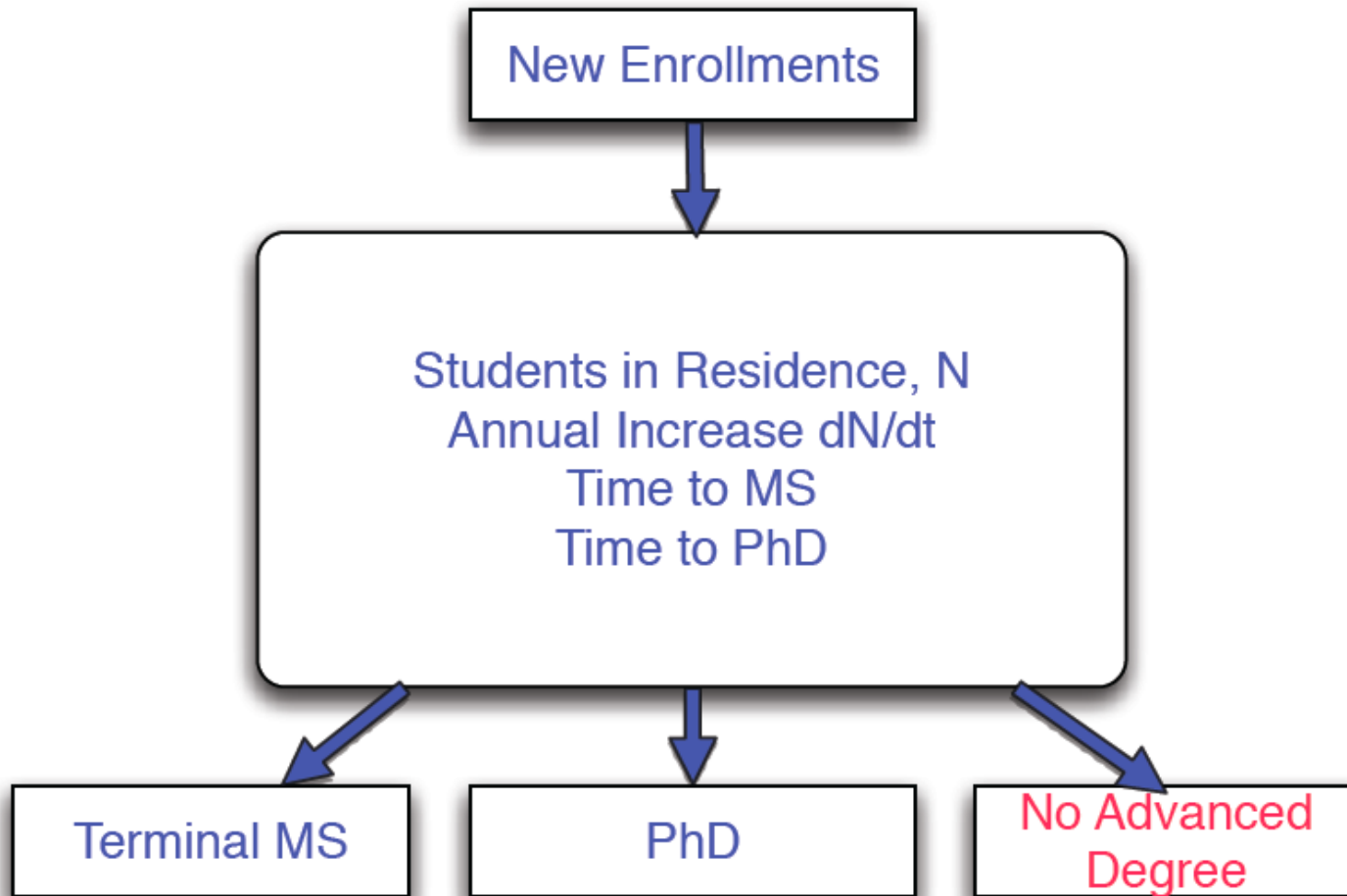
Benefits of

Elizabeth D. Roberts, M.J.D.,
St. Mark's Catholic School

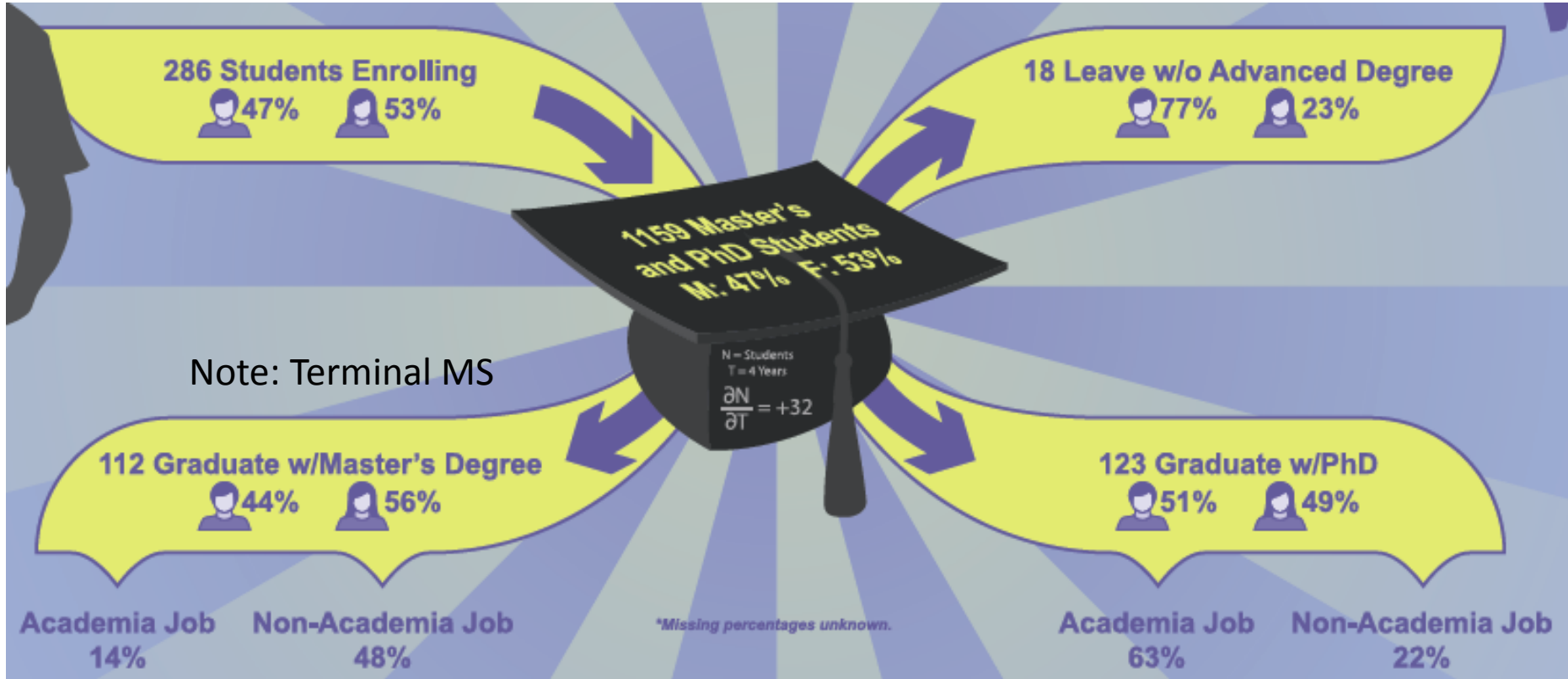
Peter J. Miller, Ph.D.,
Director of the Center for Oceanographic Research and Education

Methodology

- Composite Data from Subset of 14 Institutions Responding to Four Years of Surveys in 07-08, 08-09, 09-10, 10-11
- Quasi Steady State Model (N is adjusted for $dN/dt \Delta t$), Blue Derived from Survey Data, Red Inferred
- Separately Tracks Gender (Except for Post Degree Outcomes)



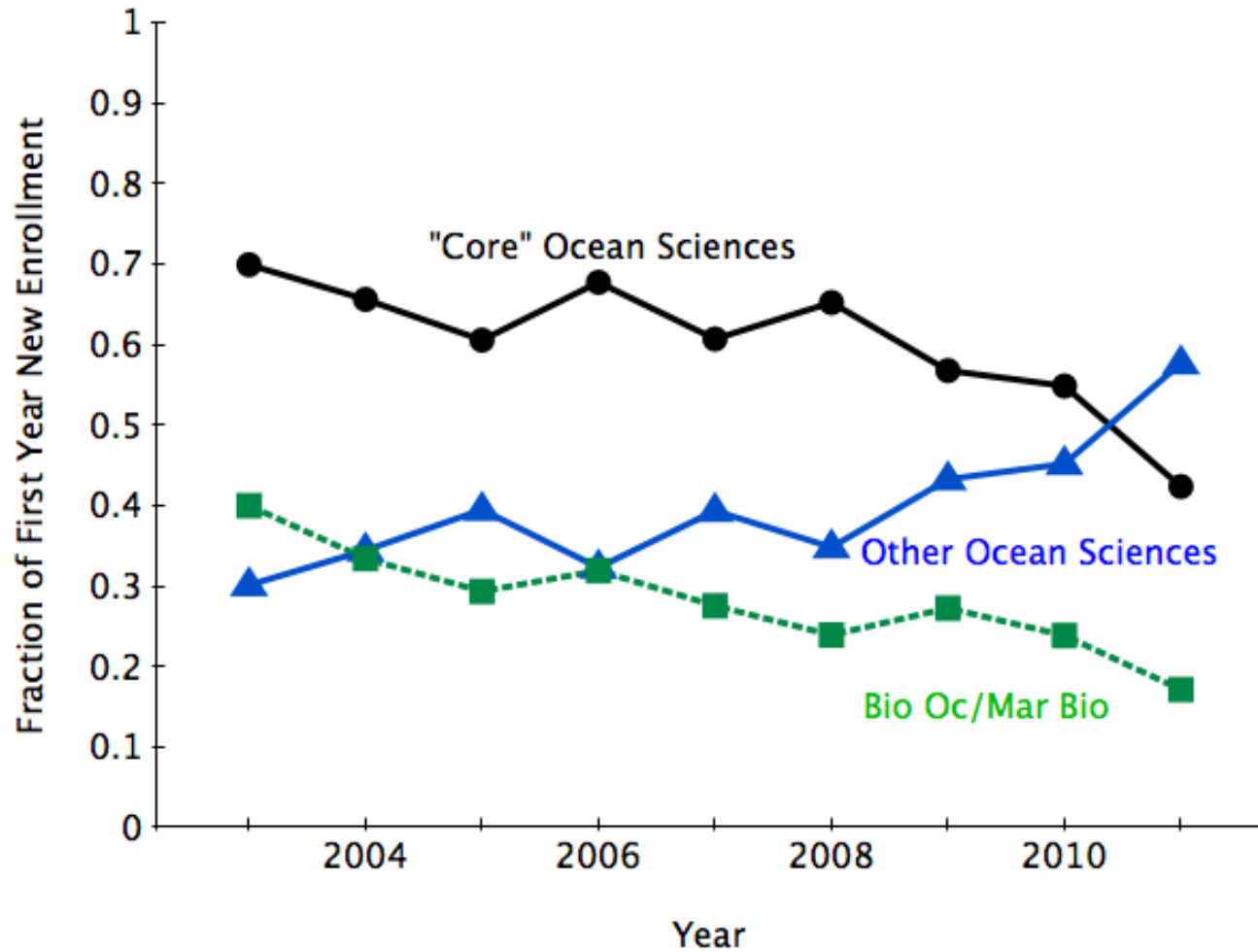
Results



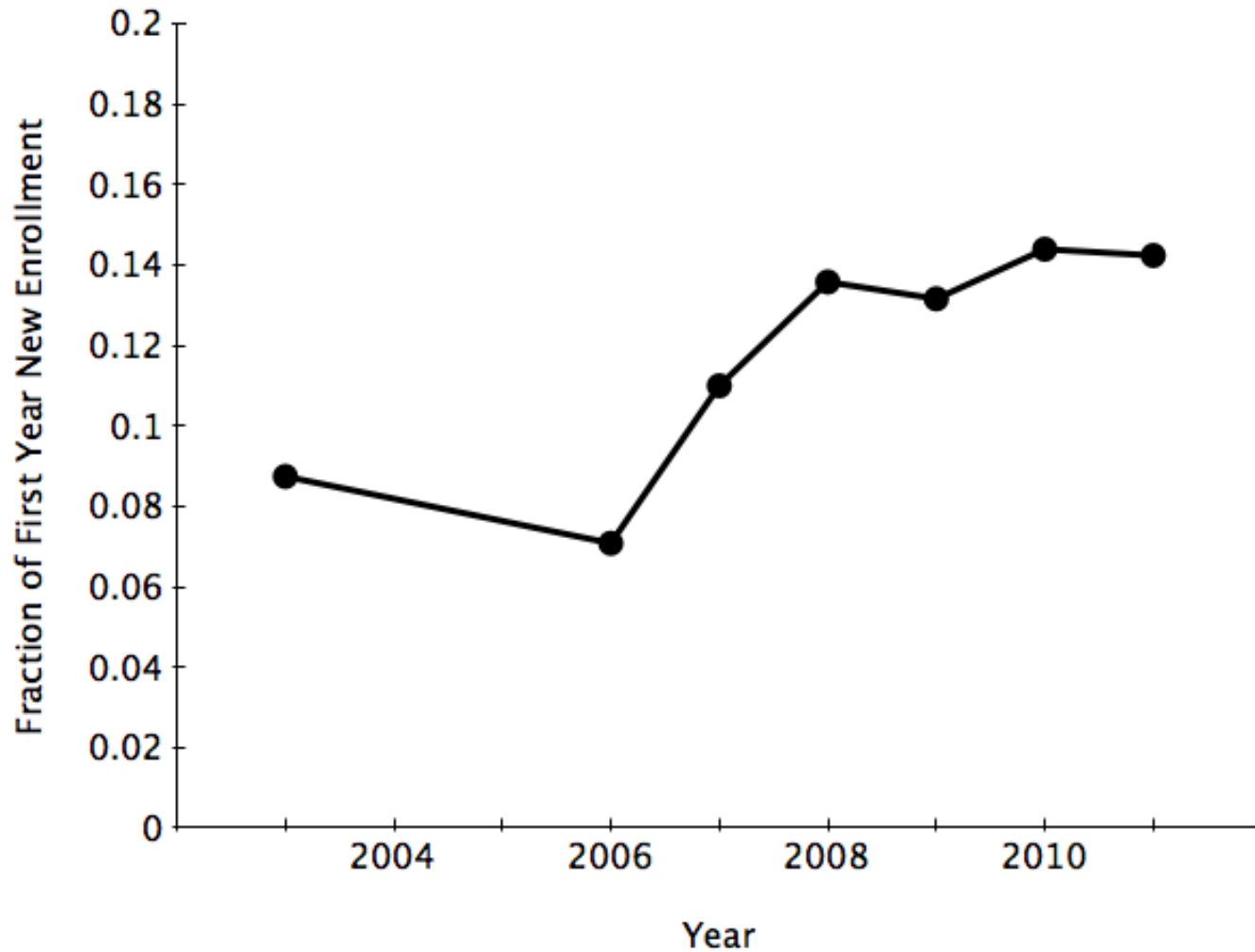
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Disciplinary Expertise: New Enrollment



Ethnicity: New Enrollment



Entering in 2011

- ~1/3 of institutions: no new students from underrepresented groups
- ~1/3: one or more up to 15%
- ~1/3: more than 15% (no obvious geographic pattern)

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Connecting Observation and Issues

- Less Than 40% of Incoming Students Continue Into Academia (And Further Attrition after Postdoc Not Measured): Do Curricula Reflect This? Are Faculty Supportive Mentors? Are We Meeting Expectations of Funders?
- Attrition Among Women. See in Offer -> Enrollment, See in MS vs PhD
- (Uncertain, but ~25% of Incoming Non-Caucasian Students Receive No Degree)

Wrapping Up

- My Personal Transition
- Preserving Legacy Data: Boundaries Between Confidentiality and Meaningful Access
- Survey Design and Future

