

# Measures of Success: Survey of Graduates from Oregon State University's Department of Fisheries and Wildlife, 2006—2008



*Fish and Wildlife Club trip to Baja California, Spring 2008*

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## **INTRODUCTION**

The Oregon State University (OSU) Department of Fisheries and Wildlife Survey of Alumni graduating from 2006 to 2008 was conducted by the Survey Research Center (SRC) at OSU from February through May 2009. The goal of the survey was to evaluate the Fisheries and Wildlife undergraduate and graduate programs for the past 3 years. Specifically, we wished to obtain information on employment and our graduates' perception of the value of their OSU education. We also wanted information on the value of internships, group problem solving, and specialty option components of the undergraduate curriculum. This information will be used to recruit students and to inform curriculum changes in the future.

## **SAMPLING DESIGN AND OPERATION**

We used the same survey we developed for the 1998-2002 and 2003-2005 surveys with a few modifications in the order of questions. According to OSU Foundation records, 197 domestic undergraduate and graduate students obtained degrees from the department between 2006 and 2008. In order to improve response rates, an advance letter printed on Department of Fisheries and Wildlife letterhead was mailed to these former students residing in the United States. Approximately 5 days later, the first survey mailing was sent out to all potential respondents. One week later, a reminder/thank-you postcard was mailed to all students on the mailing list. Finally, about 3 weeks after the postcard, a final survey mailing was sent to all nonrespondents. Copies of the advance letter, questionnaire, postcard, and other cover letters are available from the department head.

## **RESULTS**

Of the 197 students who were mailed surveys, 115 returned the survey; 16 surveys were returned undeliverable as addressed. Thus, we had an adjusted response rate of 63.5%. Of the 115 respondents, 70 (61%) earned B.S. degrees, 36 (31%) earned M.S. degrees, and 9 (8%) earned Ph.D. degrees.

### ***Employment***

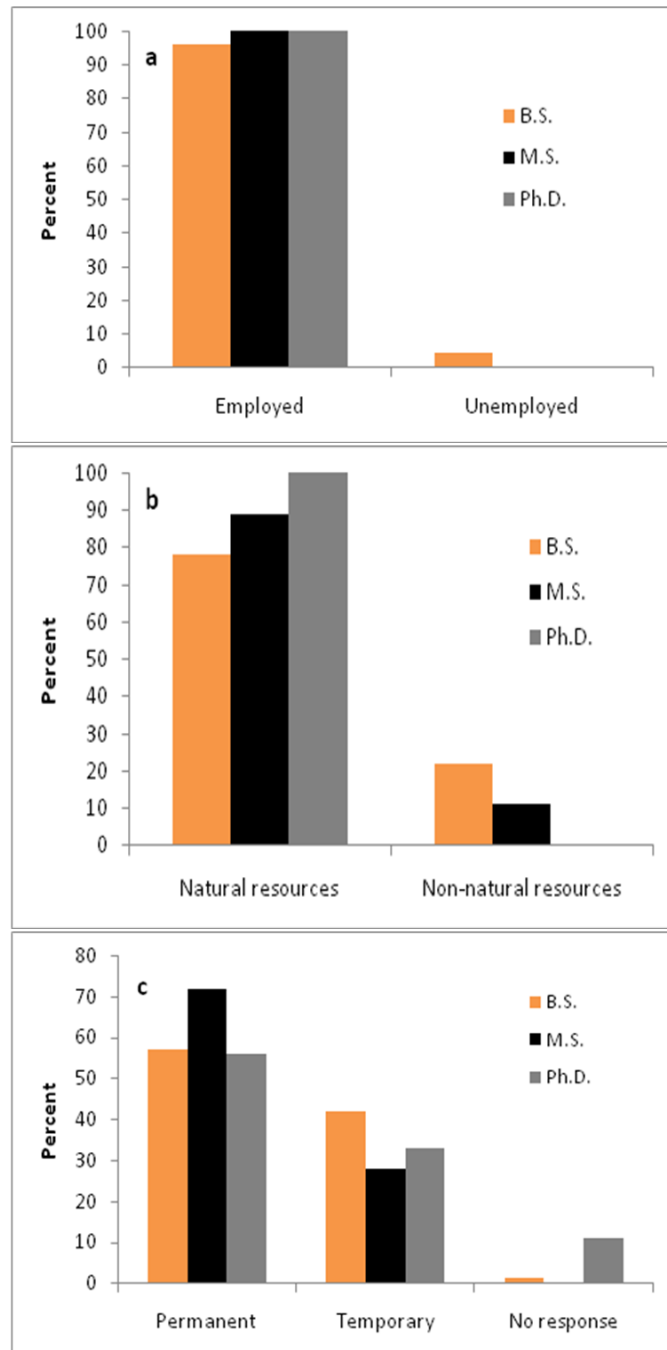
Of the 115 respondents, 112 (97%) were currently working for pay. Of those 112 graduates with jobs, 61% were permanently employed, 88% were working full time, and 83% were working in a natural resources field (i.e., fish, wildlife, forestry, range, water resources, etc.). Success in finding employment and income level were dependent on the degree obtained from OSU. Employment status was dependent on degree level: 96% of graduates with a B.S. degree were currently employed and all M.S. and Ph.D. graduates were employed (Fig. 1a). Most employment was in the natural resources professions for all degree levels (Fig. 1b). However, graduates with Ph.D. degrees had the highest likelihood of working in the natural resources professions, with 100% of Ph.D. graduates working in those professions; 89% of M.S. and 78% of B.S. graduates found employment in the natural resources professions. Whether employment was permanent or temporary was also degree dependent (Fig. 1c). Fifty-seven

percent of B.S. degree graduates responded that they were permanently employed, while 72% of respondents with M.S. degrees and 56% with Ph.D. degrees reported that they were permanently employed.

We also sought to determine if the likelihood of permanent employment increased over time for B.S. degree graduates. Students graduating in 2007 and 2008 had a difficult time finding permanent employment (Fig. 2), but 66% of our B.S. graduates from 2006 did find permanent employment.

Income level of respondents was variable and dependent on degree level (Fig. 3). Annual income ranged from under \$10,000 to over \$70,000 for graduates with a B.S. degree and the modal response was \$20,000–\$29,900. Seventy-two percent of graduates with M.S. degrees earned between \$30,000 and \$59,900, while annual income ranged from \$10,000 to over \$70,000 for these graduates. Graduates with a Ph.D. degree earned more than graduates with less education. The modal income level for Ph.D. graduates was between \$40,000 and \$49,900, and 22% earned over \$60,000.

Place of employment for our graduates also depended on their degree (Table 1). Most graduates with B.S. or M.S. degrees obtained employment with a state or federal agency. Oregon Department of Fish and Wildlife employed 11% of our B.S. graduates but only 5.6% of our M.S. and none of our Ph.D. graduates. The U.S. Forest Service employed approximately 4%, 8%, and 11% of our B.S., M.S., and Ph.D. graduates, respectively. Other universities and colleges accounted for most of the employment of our Ph.D.



**Figure 1. Success of OSU Fisheries and Wildlife graduates in finding (a) employment, (b) employment in natural resources versus other professions, and (c) permanent versus temporary employment by degree for students graduating between 2006 and 2008.**

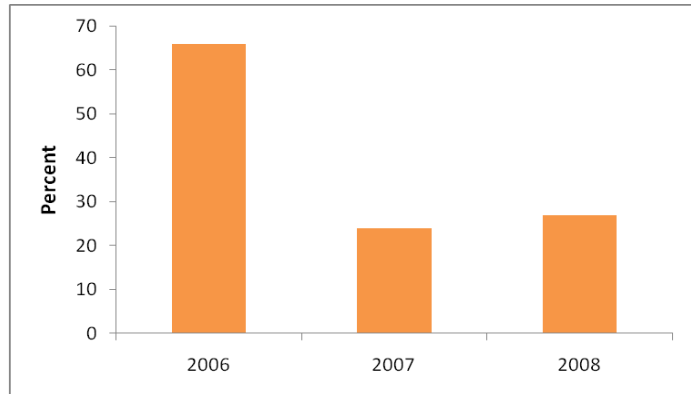
graduates. Consulting firms employed 8.6% and 14% of our B.S. and M.S. students, respectively, but none of our Ph.D. graduates. Nonprofit organizations hired 11% of our Ph.D. graduates.

**Bachelor of Science Curriculum**

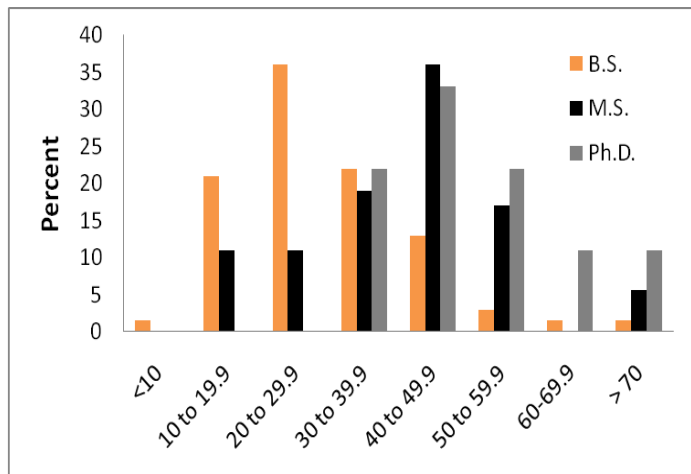
We sought to determine how students perceived the specialization, group problem solving, and internship components of the undergraduate curriculum. Of the 70 undergraduates returning the survey, most respondents thought that each of the components was very or somewhat valuable (Fig. 4). Positive perceptions were highest for the internship requirement: 89% thought internships were very (69%) or somewhat (20%) valuable. The capstone group-problem-solving requirement was viewed as very (47%) or somewhat (26%) valuable, while only 3% thought the requirement was not at all valuable. The self-designed specialization was viewed as very (39%) or somewhat (43%) valuable, while only 3% responded that the requirement was not at all valuable.

**Knowledge, Skills, and Abilities**

We sought to determine graduates’ perceptions of how well OSU prepared them in knowledge, skills, and abilities (KSAs) typically used by natural resources professionals. We also wanted to know how often our graduates needed these KSAs in their current jobs. Over half of the respondents stated that the KSAs identified in our survey are sometimes or often used in current jobs (Table 2). Skills and abilities (e.g., technical writing, conflict resolution, interpersonal communications, data sampling and design, etc.) are used more consistently than specific knowledge areas (e.g., fish and wildlife ecology, habitat management, species identification, etc.). Most respondents believed that OSU had done a good or excellent job in teaching them most KSAs needed in their current positions. More than 75% of the respondents stated that KSAs most often used in their current position included interpersonal communication, team work and facilitation, computer use and software, critical thinking, and interpretation of



**Figure 2. Percent of OSU Fisheries and Wildlife B.S. degree graduates who were permanently employed, for graduation years 2006 to 2008.**



**Figure 3. Annual income (in \$1,000s) of OSU Fisheries and Wildlife graduates by degree for students graduating between 2006 and 2008.**

**Table 1. Percent of working OSU Fisheries and Wildlife graduates by employer and degree level for students graduating between 2006 and 2008 (n = 112).**

Agency	Degree		
	B.S.	M.S.	Ph.D.
Oregon Department of Fish and Wildlife	11.0	5.6	0
Oregon State University	4.3	22.0	0
Other Oregon State Agency	0	2.8	0
Other State Agency	7.1	8.3	0
U.S. Forest Service	4.3	8.3	11.0
U.S. Fish and Wildlife Service	2.9	2.8	0
Bureau of Land Management	4.3	0	0
National Marine Fisheries Service	2.9	2.8	11.0
Other federal agency	7.1	5.6	0
Non-profit organization	5.8	2.8	11.0
Consulting	8.6	14.0	0
Private firm	4.3	0	0
Other college or university	2.9	5.6	33.0
Native American tribes	4.3	5.6	11.0
Other	4.2	2.8	11.0

information. Over 70% of the respondents thought that OSU had done a good or excellent job in preparing them for these high-use KSAs. OSU scored less well in preparing students in areas of conflict resolution, public policy, laws and regulations, and people management; fewer than 45% of respondents reported good or excellent preparation in these areas.

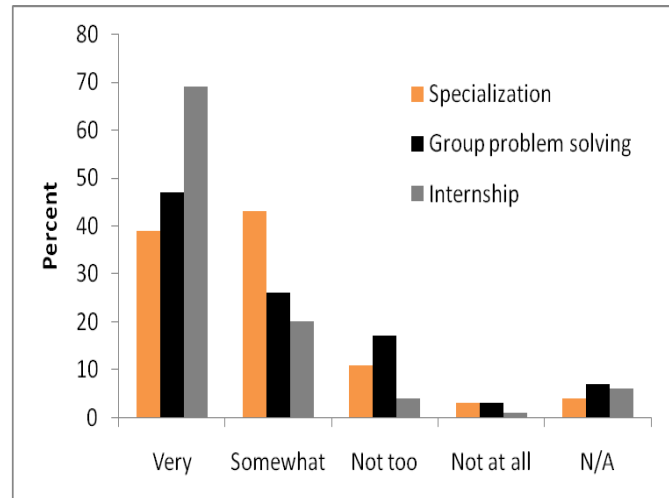
### ***Distance and Continuing Education***

One of the goals of the Department of Fisheries and Wildlife is for our graduates to be life-time learners. The Department has made substantial investments in distance education (DE)

over the past 10 years as a means of increasing access to our educational programs throughout the state and country, and to provide flexibility to student schedules.

With respect to continuing education, 34% of the respondents are planning to, or have already continued their education since graduating from the Department; 33% were unsure, and 31% had no plans to continue their education. Of the 38 respondents who were planning to or were already continuing their education, 74% were planning to or were currently pursuing an M.S. degree; 18% a Ph.D. degree; and 3% and 3% were planning to or currently pursuing a second B.S. or professional degree (e.g., Law., Veterinary Medicine, Medicine, etc.), respectively. Only 20 graduates responded to questions concerning Graduate Record Exam scores. Of these 20, 13 scored over 500 on the verbal test component, while 17 scored over 500 on the math test components.

Fisheries and Wildlife has developed 24 undergraduate and 7 graduate distance education (DE) classes in video or web-delivery formats. Forty-two percent of respondents had taken at least one DE class from the department whereas only 29% had taken a DE class from another department. Twenty-one percent of respondents had taken 1 or 2 of our classes, 12% had taken 3 or 4 classes, and 7% had taken at least 5 of our DE classes.



**Figure 4. Perceptions of OSU Fisheries and Wildlife B.S. graduates (2006-2008) regarding the value of undergraduate curriculum components.**

### **Alumni Relations**

We also sought to understand how graduates from our Department kept in touch with the Department after graduating. Sixty-four percent of the respondents (72) reported that they receive the department’s annual newsletter, *News and Views*. Of these 72, 83% stated that it was a valuable source of information regarding the department. Thirty-nine percent of respondents had visited the department’s website within the past 6 months. Only 8% of respondents had subscribed to the department’s alumni list serve.

### **DISCUSSION**

Our survey of Fisheries and Wildlife majors from the last 3 graduating classes provides us with valuable information on the success of our academic programs. Based on 115 responses out of 197 questionnaires mailed, graduates from the Department of Fisheries and Wildlife at OSU are generally successful in obtaining jobs. Ninety-seven percent of all graduates were employed within 3 years of graduating from OSU. Success in finding permanent employment and employment in natural resources professions increased with advanced degree levels and with

time post-graduation. Although most graduates were employed in natural resources professions, students with M.S. or Ph.D. degrees were most successful at finding employment in their chosen professions. Although an M.S. degree has always increased the likelihood of permanent employment in the natural resources professions, data on the last 3 graduating classes suggest that the likelihood of employment for the B.S. graduate increases with time since graduation. Thus, students who persist in searching for jobs and who have a series of temporary jobs are likely to find permanent employment over time. These data suggest that incoming undergraduates should be apprised of the estimated time it will take to find permanent employment with a B.S. degree. With persistence, over 65% may obtain permanent employment while others may need to continue their education. Developing employment histories in the natural resources field and developing contacts among natural resource professionals will continue to be a very important role of our internship program.

Income levels of our graduates indicate that employment in fisheries and wildlife or other natural resources fields leads to competitive salaries. Most employed graduates are being paid consistent with salary rates reported by the Bureau of Labor Statistics for the Pacific region. Entry-level salaries for M.S. and Ph.D. degrees were \$20,000 more than those for B.S. degrees. Salary levels of respondents included temporary and part-time employees (12%). Those with permanent positions had substantially higher salaries; most respondents earning less than \$19,900 were temporarily employed.

Our employment and salary survey represents a snapshot in a dynamic job market. The graduating classes represented by these data were seeking employment during a period of relatively poor economic growth compared to our previous surveys. Graduates from the classes of 2007 and 2008 appeared to have greater challenges in finding employment than the class of 2006. However, respondents were more successful at finding employment than we anticipated, given the economy. These higher than expected employment statistics may be due to the large pulse of retirements that most state and federal employers are experiencing, which may further increase the likelihood of employment in the natural resources fields.

Our undergraduate degree program appears to be well designed for producing successful graduates. The current degree program has 3 innovative features: internships, a group problem-solving sequence, and a self-designed specialization. Over 70% of the graduates from this program had somewhat or very positive perceptions regarding the value of each of these curriculum components. Our internship and specialization components were especially well received. The knowledge, skills, and abilities that students acquire while obtaining a degree from our program also appear to be largely on target. Basic skill and ability areas such as interpersonal communications, team work and facilitation, computer use, critical thinking, and interpretation of information in particular are frequently used in current jobs, and most ( $\geq 74\%$ ) respondents stated that OSU does a good or excellent job in preparing students in these areas. These skill areas are likely to be important and transferable to any career our graduates may pursue. Graduates identified 4 knowledge or skill areas that were sometimes or often used in their jobs in which over 50% of respondents reported they received only fair or poor preparation. These four areas, all in the human dimensions aspects of fish and wildlife work, were conflict resolution, public policy, laws and regulations, and people management. Each of these areas is covered in our human dimensions requirements in which students must select three classes from a list of 34. These results suggest we should encourage students to take classes in these areas when selecting

courses in the human dimensions or specialization components of our curriculum. When compared to the 2006 survey the number of students who felt they were inadequately prepared for public speaking increased from 33% to 41%. This fall we begin a new curriculum with a capstone course titled *Effective Communications in Fish and Wildlife Science*, which will have discipline-specific training in public speaking. Adding presentations throughout the curriculum would also help improve the training in this important skill area.

## **ACKNOWLEDGMENTS**

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**Table 2. Perception (%) of respondents graduating between 2006 and 2008 on how often different knowledge, skills, and abilities are used in their current job and how well OSU prepared them in these areas (n = 94).**

Knowledge, skills, and abilities	Frequency of use in current job				OSU preparation				
	Never	Sometimes	Often	No response	Excellent	Good	Fair	Poor	No response <sup>a</sup>
Technical writing	14	35	45	1	24	54	20	2	0
Public speaking	15	62	23	0	16	42	35	6	1
Interpersonal communication	0	4	96	0	19	55	19	3	3
Team work and facilitation	0	14	86	0	31	48	20	0	1
Conflict resolution	10	53	36	1	10	33	43	8	6
Computer use and software	1	10	89	0	22	60	15	3	0
Statistics	21	46	31	0	24	49	23	3	1
Mathematical concepts or modeling	28	52	20	0	12	61	20	6	1
Critical thinking	0	22	78	0	41	44	14	1	0
Interpretation of information	0	21	78	1	30	54	14	2	0
Synthesis of information	3	27	69	1	24	57	18	0	1
Data sampling and design	13	32	55	0	30	55	11	2	1
Data collection	6	22	71	0	39	43	17	0	1
Data management	6	21	72	0	25	44	20	8	2

Table 2. Continued.

Knowledge, skills, and abilities	Frequency of use in current job				OSU preparation				
	Never	Sometimes	Often	No response	Excellent	Good	Fair	Poor	No response <sup>a</sup>
Fish ecology	48	18	32	2	51	25	8	0	16
Wildlife ecology	37	34	29	0	34	49	10	2	6
Plant ecology	16	51	33	0	13	49	25	8	5
Population management	21	39	39	0	26	57	16	0	2
Habitat management	37	41	21	0	21	60	13	0	5
Ecosystem management	19	55	24	1	21	62	16	0	1
Fish identification	39	21	37	2	38	33	9	2	2
Wildlife identification	34	37	28	1	31	40	10	3	16
Plant identification	34	40	22	1	13	43	15	1	18
Public policy	27	45	29	0	9	30	42	11	7
Laws and regulations	22	40	36	1	8	27	39	18	8
People management	13	39	47	0	9	32	43	7	7

<sup>a</sup> Includes those who had no basis for opinion.