
2008 AFS Membership Study



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Prepared by:

Nancy A. Connelly and Tommy L. Brown
Human Dimensions Research Unit
Department of Natural Resources
Cornell University



Cornell University
Department of Natural Resources
Human Dimensions Research Unit

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EXECUTIVE SUMMARY

Introduction and Methods

AFS has found it important as part of its strategic planning process to periodically survey its membership to ascertain the level of satisfaction with current services and to determine future priorities. Previous membership surveys were conducted in 1997 (Brown 1998) and 2004 (Brown and Cooke 2005). In conjunction with its strategic planning cycle, AFS staff, officers, and the Membership Concerns and Publications Overview Committees indicated the need for an updated survey, which was conducted in 2008 by the Human Dimensions Research Unit (HDRU) at Cornell University.

A random sample of 1,500 AFS members with e-mail addresses was selected from the membership database for this web-based survey. (Ninety-four percent of AFS members have an e-mail address.) The complete membership list, including students, retired people and international members, was used. Invitation e-mails were sent out on Feb. 19, 2008. Up to four reminder e-mails were sent to non-respondents over the course of the following month. Of the 1,500 e-mail invitations sent out, 158 were undeliverable (10.5% of the sample). A total of 747 surveys were completed on-line, for an adjusted response rate of 55.7%.

Results: Profile

Based on the survey results, the profile of the AFS membership has changed little in the past 11 years, but these small changes may suggest some longer-term trends:

- There has been a consistent increase in female members from 16% in 1997 to 24% in 2008.
- The mean age of members, length of membership, and years as a fisheries professional increased between 1997 and 2004 but decreased between 2004 and 2008. Thus, while fluctuating somewhat from survey to survey, these characteristics are remaining relatively constant over time.
- Although “state/provincial/tribal” remains the largest single employer of AFS members, the proportional size of this group declined between 1997 and 2004, and in 2008 remains near the 2004 level. The percentage of members who are students has increased in recent years.
- The majority of AFS members consider themselves to be fisheries biologists/scientists. Another 25% consider themselves fishery researchers, followed by managers, administrators and educators.
- Most respondents work in freshwater fisheries as compared with marine/estuarine. About half of respondents worked in research, while 40% were involved in management.
- Half (50%) of the respondents had participated in at least one of the parent society activities in the past 3 years, most likely attending the annual meeting. There appears to be some growth in the proportion of members who attend the annual meeting. In the

2008 survey, 42% indicated they had attended an annual meeting within the past *three* years, whereas 38% in 2004 and 32% in 1997 indicated they had attended an annual meeting within the past *five* years. Chapter activities were also popular among respondents--more so than division or section activities.

Views on Electronic Media and AFS Publications

Respondents were asked a variety of questions about publications and their willingness to access electronic media over print media. Most respondents (93%) thought agency reports and grey literature should be made accessible electronically (e.g., through Infobase or other electronic products). Most (86%) also thought that if they were an author of an AFS publication, they would be willing to have their work published in an on-line journal rather than a print journal (with electronic copy).

Concerning publication costs, regardless of their willingness to publish in an on-line journal, only 30% would be willing to pay \$250 or more to have their manuscript available in an open-access format (where authors pay a fee in lieu of page charges to defray the cost to readers of accessing the paper online). Of the 23% who had published in an AFS journal within the last five years, 83% would be willing to publish in an online journal and 43% would be willing to pay \$250 or more for an open-access format.

The reputation of AFS journals among respondents was generally quite high. The majority of respondents felt the *Transactions* and *NAJFM* had a high reputation compared with other publication outlets for fisheries science and management. The majority of respondents did not know about the reputation of the *North American Journal of Aquaculture* and the *Journal of Aquatic Animal Health*.

Views on AFS Meetings

Respondents were generally split between medium (41%) and high (54%) interest levels in science-based meetings that are focused on particular topics and sponsored by AFS and other fisheries or scientific organizations. Respondents also were split in their support for occasionally holding AFS meetings outside of the US and Canada, with 53% supporting the idea and 47% opposing it. Most respondents (79%) felt that AFS should pursue joint meetings with other professional societies that have overlapping missions, such as the International Council for Exploration of the Sea or the World Aquaculture Society.

Looking to the future, most respondents (88%) support the development of web-based broadcasts of symposia from the annual meeting, thus allowing members to view the symposia without having to travel to the meeting. The preferred methods of electronic communication are webcast of symposia (77%) and online continuing education courses (72%). Only 30% favored podcasts of technical sessions from the annual meeting.

Views on Education, Mentoring, and Certification

Respondents were generally supportive of AFS education and mentoring opportunities. Over half (64%) thought the Hutton Junior Fisheries Biology program was important. Most respondents (96%) supported the development of a mentoring program connecting young professionals entering the field of fisheries with established professionals. Most (95%) also favored developing a program to support undergraduate and graduate fellowships in fisheries, similar to the J. Frances Allen Scholarship fund.

Interest in the certified fisheries scientist program may be declining. In 2004, 13% of respondents were certified compared to 9% in 2008. Among those who had some type of certification, 63% thought the program was of some value to them. Of those who were not certified, one-quarter (22%) thought the program still had value to them. Possibly counteracting the slight declining participation in the program, students were most likely to say the program had value to them (51%), and therefore might pursue certification in the future.

Views on AFS Governance

The survey asked a series of questions on governance issues, with the results highlighted below.

- 44% of respondents said AFS should continue to play a leadership role in the World Council of Fisheries Societies; 22% thought AFS should continue to build formal international relations; <1% thought AFS should play a less significant role; and 34% did not know what role AFS should play.
- 32% of respondents said they were aware of the procedures used to govern AFS and how members can raise aquatic resource or membership issues for consideration.
- 37% of respondents said they understood the role of AFS Sections in regards to the governance of the AFS.
- 77% of respondents said that the AFS Sections were meeting their needs.
- 54% of respondents felt that the current practice of permitting non-AFS members to be chapter members was appropriate.
- 28% of respondents said that as an AFS Chapter member, they felt the Division leadership was representing their interests well on the AFS Governing Board; 4% did not feel well represented; the remaining 68% did not know – perhaps because they were not chapter members.

Views on Recruitment and Retention

The majority of respondents felt AFS is doing enough to recruit and maintain students and young professionals as members. However, about 30 to 40% of respondents thought AFS could do more. The most popular suggestions for retaining students after they cease being students and young professional were providing mentorship opportunities, reducing membership fees, and reducing meeting registration fees.

Three-quarters of respondents (78%) thought AFS should be doing more to encourage participation by new members.

Since only about one-third of North American fisheries professionals are AFS members, respondents were asked what they thought limited other professionals from joining AFS. The most commonly mentioned limiting factors were costs, support by employer, and time invested in other activities.

Views on Outreach and Advocacy

The results of a series of questions on outreach and advocacy are highlighted below.

- 71% of respondents thought AFS should put more emphasis on public outreach, such as developing products for public education; 3% thought AFS should do less, with the remaining 26% indicating no change is needed.
- 64% of respondents thought AFS should put more emphasis on political advocacy for fisheries and aquatic resources by increasing interactions with government policy makers; 6% thought AFS should do less, with the remaining 30% indicating no change is needed.
- Most respondents (92%) thought AFS should coordinate with the Fisheries Conservation Foundation, Sea Grant, or other groups such as anglers and teachers to increase public outreach and advocacy.
- About half of the respondents (52%) felt that AFS effectively communicates goals for aquatic stewardship.

Future Priorities for AFS

Of the nine options respondents were given for future priorities, enhancing public outreach was the most popular. Half of the respondents also indicated that providing a mechanism to connect professionals among different scientific societies and supporting local social gatherings to connect students with professionals were things AFS should make a priority in the future.

ACKNOWLEDGMENTS

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The Cornell University Survey Research Institute implemented the Web based survey and provided HDRU with the final data set. HDRU staff (Karlene Smith and Margie Peech) assisted with coding of open-ended questions and table preparation.

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INTRODUCTION

AFS has found it important as part of its strategic planning process to periodically survey its membership to ascertain the level of satisfaction with current services and to determine future priorities. Previous membership surveys were conducted in 1997 (Brown 1998) and 2004 (Brown and Cooke 2005). In conjunction with its strategic planning cycle, AFS staff, officers, and the Membership Concerns and Publications Overview Committees indicated the need for an updated survey in 2008. The Human Dimensions Research Unit (HDRU) at Cornell University, which conducted the previous surveys, was chosen to conduct the 2008 survey.

METHODS

AFS members and staff developed a draft of the survey questions. They retained some questions from previous surveys to enable longitudinal comparisons, and added new questions on topics of high priority to AFS. The authors worked with the Cornell Survey Research Institute and the AFS contact person on slight modifications to improve clarity and survey response.

A random sample of 1,500 AFS members with e-mail addresses was selected from the membership database for this web-based survey. (Ninety-four percent of AFS members have an e-mail address.) The complete membership list, including students, retired people and international members, was used. Invitation e-mails were sent out on Feb. 19, 2008. Up to four reminder e-mails were sent to non-respondents over the course of the following month. Data collection ended on March 24, 2008. The data were analyzed using SPSS (Statistical Package for the Social Sciences).

RESULTS

Of the 1,500 e-mail invitations sent out, 158 were undeliverable (10.5% of the sample). A total of 747 surveys were completed on-line, for an adjusted response rate of 55.7%. This compares to a 63.5% response rate for the 2004 survey and 76.6% response rate for the 1997 survey (both of which were sent out by mail). HDRU research has shown that response rates to mail surveys are gradually declining over time (Connelly et al. 2003). This trend probably holds for all types of surveys, including those that are web-based.

Profile of Members and 1997-2008 Trends

Based on the survey results, the profile of the AFS membership has changed little in the past 11 years, but these small changes may suggest some longer-term trends:

- There has been a consistent increase in female members from 16% in 1997 to 24% in 2008 (Table 1).
- The mean age of members, length of membership, and years as a fisheries professional increased between 1997 and 2004 but decreased between 2004 and 2008. Thus, while fluctuating somewhat from survey to survey, these characteristics are remaining relatively constant over time (Table 1).

- Although “state/provincial/tribal” remains the largest single employer of AFS members, the proportional size of this group declined between 1997 and 2004, and in 2008 remains near the 2004 level (Table 2). The percentage of members who are students has increased in recent years.
- The majority of AFS members consider themselves to be fisheries biologists/scientists (Table 3). Another 25% indicated they were fishery researchers, followed by managers, administrators and educators. The relatively large percentage reported under “Other” consisted primarily of respondents who felt constrained by the qualifier “fisheries” before biologist, researcher and manager. They used “aquatic,” “environmental,” or “natural resources” as the qualifier to describe themselves.
- Most respondents work in freshwater rather than with marine/estuarine fisheries (Table 4). About half of respondents worked in research, while 40% were involved in management. Other areas of work beyond those listed in Table 4 included toxicology, fish health, and habitat restoration.
- Half (50%) of the respondents had participated in at least one of the parent society activities listed in Table 5 in the past 3 years, most likely attending the annual meeting. There appears to be some growth in the proportion of members who attend the annual meeting. In the 2008 survey, 42% indicated they had attended an annual meeting within the past *three* years, whereas 38% in 2004 and 32% in 1997 indicated they had attended an annual meeting within the past *five* years. Chapter activities were also popular among respondents--more so than division or section activities.

Table 1. Comparative profile of AFS members, 2008, 2004, and 1997.

<i>Characteristics</i>	2008	2004	1997
Percent female	24.2	19.2%	15.7%
Mean age	44	45	43
Mean years AFS member	13.2	15.2	13.5
Mean year a fisheries professional	15.4	18.3	16.1

Table 2. Employment of members in 2008, 2004, and 1997.

<i>Agency or organization</i>	2008	2004	1997
	Percent		
Federal	19.4	22.7	19.2
State/provincial/tribal	28.5	28.1	31.4
College or university	14.2	14.1	15.6
Nongovernmental organization	3.4	2.1	2.1
Private company	13.8	14.1	13.5
Retired	5.0	6.8	5.0
Student	11.4	7.9	7.5
Post-doctoral fellow	0.5	0.3	>0
Unemployed	0.8	1.0	0.7
Other	3.0	2.5	5.0

<i>Type of work</i>	Percent checking*
Fisheries biologist/scientist	53.9
Fisheries researcher	25.4
Fisheries manager	12.4
Field technician	5.4
Administration	8.7
Education	8.0
Aquaculturist	5.8
Social scientist	2.5
Other	12.3

*Percentages add to more than 100% because respondents were allowed to check up to two categories.

<i>Area of fisheries</i>	Percent checking*
Freshwater	72.0
Marine/estuarine	30.3
Research	49.7
Management	39.8
Recreational fisheries	29.3
Aquaculture	16.9
Commercial fisheries	15.5
Artisanal fisheries	2.9
Other	11.1

*Percentages add to more than 100% because respondents could check as many categories as applied.

<i>AFS activity in past 3 years</i>	Parent Society	Division	Chapter	Section
	Percent			
Served as an officer	1.1	1.3	10.0	6.7
Chaired a committee	2.5	2.5	7.4	3.1
Served on a committee	8.0	6.6	14.5	5.8
Organized a meeting or symposium	8.2	4.8	7.2	4.1
Presented a paper at an annual meeting	26.1	14.9	26.0	4.7
Attended an annual meeting	42.4	24.2	43.9	11.5
Attended a meeting	19.1	15.9	32.3	13.4
Participated in a continuing education course	5.9	5.1	16.3	2.7

Views on Electronic Media and AFS Publications

Respondents were asked a variety of questions about publications and their willingness to access electronic media over print media. Most (93%) thought agency reports and grey literature should be made accessible electronically (e.g., through Infobase or other electronic products). Most (86%) also thought that if they were an author of an AFS publication, they would be willing to have their work published in an on-line journal rather than a print journal (with electronic copy). Similarly, 86% indicated they would publish their research results in an on-line journal of similar quality and readership to a traditional print journal if the costs of the on-line journal were lower than those associated with the print journal. Responses to these questions did not differ based on the primary type of work done by respondents (biologist, researcher, manager).

Concerning publication costs, regardless of their willingness to publish in an on-line journal, only 30% would be willing to pay more than \$250 to have their manuscript available in an open-access format (where authors pay a fee in lieu of page charges to defray the cost to readers of accessing the paper online). Of the 23% who had published in an AFS journal within the last five years, 83% would be willing to publish in an online journal and 43% would be willing to pay \$250 or more for an open-access format. As expected, those who identified their primary work as research were more likely to have published in an AFS journal within the last five years (43%) and were willing to pay more than other respondents for an open-access format (36% would pay \$250 or more).

The reputation of AFS journals among respondents was generally quite high (Table 6). The majority of respondents felt the *Transactions* and *NAJFM* had a high reputation compared with other publication outlets for fisheries science and management. Managers and biologists rated these journals somewhat higher on average than researchers. The majority of respondents did not know about the reputation of the *North American Journal of Aquaculture* and the *Journal of Aquatic Animal Health*. Respondents who had an opinion were generally split between rating the reputation of these journals medium versus high compared to other publication outlets.

Views on AFS Meetings

Respondents were generally split between having medium (41%) and high (54%) interest levels in science-based meetings that are focused on particular topics and sponsored by AFS and other fisheries or scientific organizations. Respondents also were split in their support for occasionally holding AFS meetings outside of the US and Canada, with 53% supporting the idea and 47% opposing it. People who worked at or attended universities were more likely to support the idea (64-66%), while government, private company, or NGO employees were less likely to support it (47-49%). Most respondents (79%) felt that AFS should pursue joint meetings with other professional societies that have overlapping missions, such as the International Council for Exploration of the Sea or the World Aquaculture Society. Responses to this question did not differ based on type of employer.

Table 6. Reputation among 2008 respondents of AFS journals compared with other publication outlets for fisheries science and management.

<i>AFS journals</i>	All respondents			
	Low	Medium	High	Don't know
	Percent			
<i>Transactions of the American Fisheries Society</i>				
All respondents	1.0	18.0	67.4	13.6
Fishery managers or biologists	0.7	14.6	73.2	11.5
Fishery researchers	1.1	24.6	68.4	5.9
<i>North American Journal of Fisheries Management</i>				
All respondents	1.4	26.7	52.5	19.4
Fishery managers or biologists	0.9	22.5	60.6	16.0
Fishery researchers	3.7	40.6	42.9	12.8
<i>North American Journal of Aquaculture</i>				
All respondents	2.8	15.5	16.0	65.7
Fishery managers or biologists	1.8	13.5	15.3	69.4
Fishery researchers	4.3	24.1	11.2	60.4
<i>Journal of Aquatic Animal Health</i>				
All respondents	1.9	10.5	13.6	74.0
	Among those with an opinion			
	Low	Medium	High	
<i>Transactions of the American Fisheries Society</i>	1.1	20.9	78.0	
<i>North American Journal of Fisheries Management</i>	1.7	33.2	65.1	
<i>North American Journal of Aquaculture</i>	8.1	45.2	46.7	
<i>Journal of Aquatic Animal Health</i>	7.4	40.4	52.2	

Looking to the future, most respondents (88%) supported the development of web-based broadcasts of symposia from the annual meeting, thus allowing members to view the symposia without having to travel to the meeting. The preferred methods of electronic communication were webcast of symposia (77%) and online continuing education courses (72%). Only 30% favored podcasts of technical sessions from the annual meeting. For those interested in online continuing education courses, half (51%) were government employees, followed by those in private companies or NGOs (18%).

Views on Education, Mentoring, and Certification

Respondents are generally supportive of AFS education and mentoring opportunities. Over half (64%) thought the Hutton Junior Fisheries Biology program was important; 32% did not know (with a higher percentage [46%] among those employed by private companies or NGOs), and only 4% thought it was not important. Of those who thought it was important, about half (49%) thought the program should continue as is (supporting 20-40 students per year), whereas 51% thought the program should be expanded by increasing the number of scholars, increasing the scope of the program (wildlife, conservation biology, etc.), and obtaining additional funding from fish, wildlife, and conservation agencies and organizations.

Most respondents (96%) supported the development of a mentoring program connecting young professionals entering the field of fisheries with established professionals. Most (95%) also favored (95%) developing a program to support undergraduate and graduate fellowships in fisheries, similar to the J. Frances Allen Scholarship fund.

Interest in the certified fisheries scientist program may be declining. In 2004, 13% of respondents were certified compared to 9% in 2008. (The percent who were associate and emeritus remained similar, 3% and 2% respectively.) Among those who had some type of certification, 63% thought the program was of some value to them. Of those who were not certified, one-quarter (22%) thought the program still had value to them. Possibly counteracting the slight declining participation in the program, students were most likely to say the program had value to them (51%), and therefore might pursue certification in the future.

Views on AFS Governance

The survey asked a series of questions on governance issues, with the results highlighted below.

- 44% of respondents said AFS should continue to play a leadership role in the World Council of Fisheries Societies; 22% thought AFS should continue to build formal international relations; <1% thought AFS should play a less significant role; and 34% did not know what role AFS should play. Fishery researchers were more likely than managers to have an opinion on this question, with 47% indicating AFS should continue to play a leadership role and 29% indicating AFS should continue to build formal international relations.
- 32% of respondents (46% of fishery managers) said they were aware of the procedures used to govern AFS and how members can raise aquatic resource or membership issues for consideration.
- 37% of respondents (53% of fishery managers) said they understood the role of AFS Sections in regards to the governance of the AFS.
- 77% of respondents said that the AFS Sections were meeting their needs. No differences were found based on type of employer or type of work performed by respondents.

- 54% of respondents felt that the current practice of permitting non-AFS members to be chapter members was appropriate. In states/provinces with 20 or more respondents, those in Minnesota and Texas were more likely to favor the current practice, whereas those in Alaska, California, Idaho, and Oregon were less likely to favor it.
- 28% of respondents said that as an AFS Chapter member, they felt the Division leadership was representing their interests well on the AFS Governing Board; 4% did not feel well represented; the remaining 68% did not know – perhaps because they were not chapter members. In states/provinces with 20 or more respondents, those in Minnesota and North Carolina were more likely to feel that the Division leadership was representing their interests well.

Views on Recruitment and Retention

The majority of respondents felt AFS is doing enough to recruit and maintain students and young professionals as members (Table 7). However, about 30 to 40% of respondents thought AFS could do more. No differences were found based on the type of employer.

The most popular suggestions for retaining students after they cease being students and young professional were providing mentorship opportunities, reducing membership fees, and reducing meeting registration fees (Table 7). Travel awards and leadership opportunities were also seen as good suggestions by roughly half of the respondents who thought AFS was not doing enough. Special awards were not viewed as being helpful by many respondents.

Table 7. Evaluation of AFS efforts to recruit and maintain student and young professional members and suggestions for retention.				
<i>AFS efforts to recruit and maintain:</i>		Not enough	Adequate	Too much
		Percent		
student members		31.3	68.1	0.6
young professionals		38.4	61.4	0.2
<i>Suggestions for retaining:</i>	Students after they cease being students		Young professionals as regular members	
	All respondents	Those who thought AFS was not doing enough	All respondents	Those who thought AFS was not doing enough
Percent Checking*				
Reduced membership fee	60.3	69.2	53.5	64.4
Mentorship opportunities	57.6	73.9	49.8	65.2
Reduced meeting registration fee	51.3	68.7	47.5	61.7
Travel awards	39.0	52.1	34.4	42.7
Leadership opportunities	33.6	42.2	42.4	54.9
Special awards	15.2	24.6	15.2	22.9
Other	5.2	6.2	5.0	6.3
*Percentages add to more than 100% because respondents could check as many categories as they wanted.				

A majority of respondents thought AFS should look to the fields of conservation biology and environmental sciences to recruit new members to AFS (Table 8). Oceanography/marine sciences was suggested by about one-third of respondents.

Table 8. Scientific disciplines 2008 respondents think would provide the greatest opportunity to recruit new AFS members from.	
<i>Scientific discipline to recruit from</i>	Percent checking*
Conservation biology	61.5
Environmental sciences	55.5
Oceanography/marine sciences	30.9
Invertebrate biology	7.9
Amphibian biology	3.7
Other	3.7
*Percentages add to more than 100% because respondents were allowed to check up to two categories.	

Three-quarters of respondents (78%) thought AFS should be doing more to encourage participation by new members. This percentage did not differ based on respondents' type of employer. The survey did not ask what specifically they thought AFS should be doing.

Since only about one-third of North American fisheries professionals are AFS members, respondents were asked what they thought limited other professionals from joining AFS. The most commonly mentioned limiting factors were costs, support by employer, and time invested in other activities (Table 9). A recent HDRU study of U.S. Fish and Wildlife Service and U.S. Geological Survey employees found similar results on limiting factors (Lauber, pers. comm.). Respondents to this survey could write in other reasons why they thought people did not join AFS. Of the 12% who wrote in a reason, many listed a lack of perceived benefits of membership or a lack of understanding of the benefits of membership.

Table 9. Respondents' views on what limits others from joining AFS.	
<i>Limiting factors</i>	Percent checking*
Costs	52.9
Support by employer	43.4
Time invested in other activities	43.0
Accessibility of meetings	19.5
Other	12.4
*Percentages add to more than 100% because respondents were allowed to check up to two categories.	

Views on Outreach and Advocacy

The results of a series of questions on outreach and advocacy are highlighted below.

- 71% of respondents thought AFS should put more emphasis on public outreach, such as developing products for public education; 3% thought AFS should do less, with the remaining 26% indicating no change is needed. No differences were found based on respondents' type of employer.
- 64% of respondents thought AFS should put more emphasis on political advocacy for fisheries and aquatic resources by increasing interactions with government policy makers; 6% thought AFS should do less, with the remaining 30% indicating no change is needed. No differences were found based on respondents' type of employer.
- Most respondents (92%) thought AFS should coordinate with the Fisheries Conservation Foundation, Sea Grant, or other groups such as anglers and teachers to increase public outreach and advocacy.
- About half of the respondents (52%) felt that AFS effectively communicates goals for aquatic stewardship. This percentage was significantly higher among student members (70%).

Future Priorities for AFS

Of the nine options respondents were given for future priorities, enhancing public outreach was the most popular (Table 10). (This percentage did not differ based on respondents' type of employer.) Half of the respondents also indicated that providing a mechanism to connect professionals among different scientific societies and supporting local social gatherings to connect students with professionals were things AFS should make a priority in the future. Of lesser interest were increasing the number of books published by AFS and expanding international membership.

In a related question, just under half of the respondents (46%) thought AFS should place more emphasis on marine fisheries issues. Those currently working in the marine/estuarine area were much more likely (71%) to think AFS should place more emphasis on these issues. Respondents who thought more emphasis should be placed on marine fisheries issues were then asked to write-in what products or services they would recommend to improve the current situation at AFS. Only half of the applicable respondents wrote in a suggestion. The most frequently mentioned items were outreach activities and research on marine issues (Table 11). Increasing the number of journal articles on marine issues or supporting the new marine journal were also common suggestions, as was partnering with other organizations and having more marine-focused meetings.

The last question in the survey asked what AFS should do to promote more diversity in the fisheries profession. Many respondents were uncertain what type of diversity the question was focusing on: gender, race/ethnicity, subject matter interest, membership type, or point in

<i>Future priorities</i>	Percent checking*
Enhance public outreach	58.9
Provide a mechanism to connect professionals among different scientific societies	51.7
Support local social gatherings to connect students with professionals	49.1
Increase national and world leadership in conserving marine and aquatic resources	46.1
Increase the number of mentoring programs	44.4
Pursue a greater role in political advocacy	40.7
Increase the diversity of AFS publications by publishing selected gray literature	39.0
Expand international membership	20.3
Increase the number of books published by AFS	13.0
Other	3.3
*Percentages add to more than 100% because respondents could check as many priorities as they wanted to.	

<i>Recommended Products or Services</i>	Percent
Outreach to stakeholders and general public	14.4
Work on marine research issues (e.g., overharvesting, global climate change)	14.4
More marine topics in current AFS journals	13.1
Partnerships with other societies and organizations	13.1
Marine journal—start one or support one being started	12.3
Meetings focused specifically on marine issues or more marine symposia at annual meeting	11.8
Work on marine policy issues (e.g., overharvesting, global climate change)	7.8
Encourage more interaction among AFS members	3.9
Recruit new members involved in marine issues	3.3
More support to Marine Fisheries Section	1.3
Other	4.6

career development. This uncertainty led to a wide variety of responses (Table 12) and perhaps contributes to the lack of response to this question. Typically open-ended questions are skipped by many respondents because of the extra effort required to provide an answer. For this question, only one-third of respondents wrote in an answer. Most of those who responded offered a suggestion, such as increasing outreach and education -- especially to pre-college students. A number of people also suggested mentoring opportunities, scholarships, and general support for college students and young professionals. One group (14%) thought nothing needed to be done to promote more diversity.

Table 12. Respondents' opinions on what AFS should do to promote more diversity in the fisheries profession.	
<i>Suggestions for Promoting Diversity</i>	Percent
Nothing needs to be done	13.6
Define "diversity"	3.7
Don't know	9.6
Outreach and education to general public, children and pre-college students	24.9
Broaden subjects covered by AFS	12.9
Expand partnerships with other organizations	7.4
Provide mentorship opportunities to college students and young professionals	6.6
More general support to college students and young professionals	5.9
Financial support/scholarships for membership or meeting costs	5.1
Expand the Hutton program	4.8
Make jobs in the field more attractive by improving salaries	1.5
Encourage employers to support employee membership in AFS	1.1
Survey minorities within AFS to determine needs	1.1
Have meetings in urban areas and focus on diversity	1.1
Breakdown stereotypes within AFS	0.7

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APPENDIX A: STUDY QUESTIONNAIRE

AFS Membership Survey

BASIC MEMBERSHIP PROFILE

Gender	Year of birth	# of years you have been an AFS member	# of years employed as a fisheries professional
<input type="checkbox"/> M <input type="checkbox"/> F	19__	___	___

Current employment

- Federal government
- Provincial/Regional/State/Tribal government
- University/College
- Non-government organization (NGO)
- Private company
- Retired
- Student
- Post doctoral fellow
- Unemployed
- Other _____

Primary type of work (check no more than two):

- Fisheries biologist/scientist
- Fisheries researcher
- Fisheries manager
- Field technician
- Aquaculturist
- Education
- Social scientist
- Administration
- Other _____

In what specific area(s) of fisheries do you work? Check all that apply:

- Freshwater
- Marine/estuarine
- Research
- Management
- Aquaculture
- Commercial fisheries
- Artisanal fisheries
- Recreational fisheries
- Other _____

State/Province in which you work: _____

PARTICIPATION IN AFS ACTIVITIES

1. Please check the AFS or unit activities in which you have participated during the past 3 years:

Recent activity	AFS	Division	Chapter	Section
Served as an officer				
Chaired a committee				
Served on a committee				
Organized a meeting or symposium				
Presented a paper at an annual meeting				
Attended an annual meeting				
Attended a meeting				
Participated in a continuing education course				

PUBLICATIONS

2. Should agency reports and grey literature be made accessible electronically (e.g., through Infobase or other electronic products)?
 Yes
 No
3. Have you published at least one manuscript in an AFS journal within the last 5 years?
 Yes
 No
4. As an author of an AFS publication, would you be willing to publish your work in an online journal rather than a print journal (with electronic copy)?
 Yes
 No
5. Would you publish research results in an online journal if the costs were lower than those associated with traditional print journals?
 Yes, I would publish online
 No, I would rather publish in the print journal

6. Many journals are moving to an open-access format in which authors pay a “publication fee” to defray the cost to readers of accessing the paper online. (This publication fee is in lieu of page charges, which are currently \$75/page for the AFS print journals.) Under such a scheme, a single fee will be charged to an author regardless of the length of the manuscript. How much would you be willing to pay to have your paper available in an open-access format?
- less than \$250
 \$250 to \$750
 greater than \$750
7. How would you rate the reputation of AFS journals, compared with other publication outlets for fisheries science and management?
- *Transactions of the American Fisheries Society
 Low Medium High Don't Know
- *North American Journal of Fisheries Management
 Low Medium High Don't Know
- *North American Journal of Aquaculture
 Low Medium High Don't Know
- *Journal of Aquatic Animal Health
 Low Medium High Don't Know

MEETINGS

8. What is your level of interest in science-based meetings that are focused on particular topics, and sponsored by AFS and other fisheries or scientific organizations?
- Low
 Medium
 High
9. Do you support occasionally holding AFS annual meetings outside of the US and Canada?
- Yes
 No
10. Do you feel that AFS should pursue joint meetings with other professional societies that have overlapping missions, such as the International Council for the Exploration of the Sea or the World Aquaculture Society?
- Yes
 No

11. Do you support the development of web-based broadcasts of symposia from the annual meeting (this will permit you to view the symposia without having to travel to the meeting)?

- Yes
 No

12. Which of the following electronic services would you like to have (check all that apply)?

- Podcasts (audio only) of technical sessions from the AFS annual meeting
 Webcast (audio & video) of symposia from the AFS annual meeting
 Online continuing education courses

EDUCATION / MENTORING

13. Do you think that the Hutton Junior Fisheries Biology program is important? (The Hutton program is a summer mentoring program for high school students from groups underrepresented in the fisheries profession.)

- Yes
 No
 Don't know

14. If so, which alternative do you prefer?

- Continue to support 20-40 students per year with AFS support
 Increase the number of Hutton scholars by increasing the scope of the program (wildlife, conservation biology, etc.) and obtaining additional funding from fish, wildlife, and conservation agencies and organizations

15. Do you support development of a mentoring program connecting young professionals entering the field of fisheries with established professionals?

- Yes
 No

16. Do you favor developing a program to support undergraduate and graduate fellowships in fisheries similar to the J. Frances Allen Scholarship fund?

- Yes
 No

PROFESSIONAL CERTIFICATION

17. Are you a certified fisheries scientist?

- Yes, I am a certified associate fisheries professional
 Yes, I am a certified fisheries professional
 Yes, I am an emeritus certified fisheries professional
 No

18. Does the certification program serve any value to you?
 Yes
 No

AFS GOVERNANCE

19. What role should AFS play in the World Council of Fisheries Societies?
 Continue to be a leader
 Continue to build formal international relations
 Play a less significant role
 Don't know
20. Are you aware of the procedures used to govern AFS and how members can raise aquatic resource or membership issues for consideration?
 Yes
 No
21. Do you understand the role of AFS Sections in regards to the governance of the AFS?
 Yes
 No
22. Are the AFS Sections meeting your needs?
 Yes
 No
23. Do you feel that the current practice of permitting individuals to be chapter members, but not AFS members, is appropriate?
 Yes
 No
24. As an AFS Chapter member, do you feel that the Division leadership is well representing your interests on the AFS Governing Board?
 Yes
 No
 Don't know

RECRUITMENT AND RETENTION

25. Which of the following describes how you feel about current AFS efforts to recruit and maintain student members?
 not enough
 adequate
 too much

26. How can we better retain student members after they cease being students?

(Check all that apply.)

- Reduced membership fee
- Special awards
- Reduced meeting registration fee
- Travel awards
- Leadership opportunities
- Mentorship opportunities
- Other _____

27. Which of the following describes how you feel about current AFS efforts to recruit and maintain young professionals as members?

- not enough
- adequate
- too much

28. How do you suggest that AFS retain young professional members as regular members? (Check all that apply.)

- Reduced membership fees
- Special awards
- Reduced meeting registration fee
- Travel awards
- Leadership opportunities
- Mentorship opportunities
- Other _____

29. Which scientific discipline would provide the greatest opportunity to recruit new members to AFS? (Check no more than two.)

- conservation biology
- invertebrate biology
- amphibian biology
- oceanography/marine sciences
- environmental sciences
- other _____

30. In your opinion, do you feel that AFS should be doing more to encourage participation by new members?

- Yes
- No

31. Only about one third of all North American fisheries professionals are AFS members. What do you think limits other non-AFS members from joining AFS? (Check no more than two.)

- Costs
- Time invested in other activities
- Support by employer
- Accessibility of meetings
- Other _____

OUTREACH & ADVOCACY

32. Do you feel that AFS should put more or less emphasis on public outreach, for example, by developing products for public education?

- More
- Less
- No change is needed

33. Do you feel that AFS should put more or less emphasis on political advocacy for fisheries and aquatic resources by increasing interactions with government policy makers?

- More
- Less
- No change is needed

34. Do you think that AFS should coordinate with the Fisheries Conservation Foundation, Sea Grant, or other groups such as anglers and teachers to increase public outreach and advocacy?

- Yes
- No

35. Do you feel that AFS effectively communicates goals for aquatic stewardship?

- Yes
- No

FUTURE PRIORITIES FOR AFS

36. Do you think AFS should place more emphasis on marine fisheries issues?

- Yes
- No

If you answered "Yes," what products or services would you recommend to improve the current situation at AFS?

37. In your opinion, what should AFS do to promote more diversity in the fisheries profession?

38. Which of the following do you feel AFS should make a priority for the future?

(Check all that apply.)

- Increase the number of mentoring programs
- Increase the diversity of AFS publications by publishing selected gray literature
- Increase the number of books published by AFS
- Support local social gatherings to connect students with professionals
- Provide a mechanism to connect professionals among different scientific societies
- Increase national and world leadership in conserving marine and aquatic resources
- Expand international membership
- Enhance public outreach
- Pursue a greater role in political advocacy
- Other _____