

Commentary

IAGLR: Who Are We Today and How Did We Evolve?

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SOCIETY CONCEPTS AND ORIGINS

The roots of IAGLR lie in the annual Great Lakes Research Conferences, which offered an opportunity for communication through the presentation of scientific papers, organized discussions, and for publication in the Proceedings. These conferences were initially organized by the University of Michigan's Great Lakes Research Institute (Kramer 1977). The first conference, held in 1953 at the Douglas Lake Biological Station, was chaired by Prof. Frederick K. Sparrow. Conferees (35) from the U. S. and Canada concluded that the Institute could assume leadership for a Great Lakes agenda, which included in priority 1) furthering public education, 2) development of research facilities, and 3) the establishment of graduate fellowships (Sparrow 1953).

From 1953 through 1965 the conferences were held at the University of Michigan (five) and the University of Toronto (two), and were chaired by George B. Langford. I remember attending conferences beginning in 1962 in Toronto, and first contributing a paper in 1966 in Chicago. Lists of conferences from 1953 through 1981 with their chairpersons appear in histories by J. R. Kramer (1977) and R. A. Sweeney (1982); the more recent conferences are summarized in Table 1.

As attendance grew (reaching 300 in 1965 for the 8th Conference) organizational responsibility became cumbersome. Thus in 1962 David C. Chandler (Fig. 1) organized a Great Lakes Study Group. Structurally it consisted of a Steering Committee (Alfred M. Beeton, Univ. Wisconsin-Milwaukee; Marvin Fast, FWPCA Ann Arbor; A. Donald Misener, Univ. Toronto; James W. Moffett, US-FWS; and William S. Nichols, U.S. Lake Survey) and four subcommittees covering biological, chemical, physical, and regional problems. Importantly, the Study Group was not formally linked to the annual confer-

ence. The purpose of the Study Group was to create a partnership between the University of Michigan's Great Lakes Research Institute and local federal agencies, initially US-FWS and U.S. Lake Survey, and Canadian universities. The linkages between this Study Group and IAGLR remain clouded. On 31 March 1970, the formal representation of IAGLR at the meetings of the Steering Committee of the Study Group was an order of business for the IAGLR Board, but disposal of the resolution does not appear in subsequent board minutes.

In February 1966 Dave Chandler prepared a draft of bylaws for an "International Association for Great Lakes Research." Formal responses to this initial draft were prepared by Study Group members Al Beeton, Marvin Fast, and Bill Nichols. These called for such things as changes in election procedures and scheduling of business meetings.

The final draft was reviewed by John Housley (replacing Nichols), Leonard J. Goodsell and Allen T. Prince. At a Steering Committee meeting on 5 May Chandler noted that Drs. Misener and Beeton were working on articles of organization, and that Prince had agreed to join the committee, which was chaired by Chandler. This group met in Ann Arbor on 15 September 1966 and elected an interim secretary for the Association and considered adopting the bylaws. Members of the Steering Committee were elected as the Board of Directors of IAGLR. Changes in the articles were submitted to Al Beeton (as Secretary) during October. In November 1966, Margaret Everett, Administrative Assistant to Chandler, drafted a list of individuals to receive invitations for membership in the association. These came from records of conference attendees, mailing lists of the Great Lakes Research Division (the new name of the old Great Lakes Research Institute), and Canadian mailing lists. Invitees

TABLE 1. Chairperson and location of IAGLR Conferences, 1982-92.

YEAR	LOCATION	CHAIRPERSON
1992	Univ. Waterloo and Wilfrid Laurier University	M. Sanderson
1991	SUNY at Buffalo and NY Great Lakes Res. Cons.	J.V. DePinto and R.R. Rumer
1990	Univ. Windsor	G.D. Haffner
1989	Univ. Wisconsin-Madison and EPA-Duluth	A. Andren and G. Glass
1988	McMaster Univ., NWRI, Great Lakes Lab., IWD	F. Rosa and M. Whittle
1987	Univ. Michigan and NOAA/GLERL	B.S. Eadie and M. Evans
1986	Univ. Toronto-Scarborough	C. Nalewajko
1985	Univ. Wisconsin-Milwaukee and Wisconsin Sea Grant	D. Edgington and R. A. Ragotzkie
1984	Brock Univ. and CCIW	J. Terasmae
1983	SUNY Oswego and NY Sea Grant	J. Gannon
1982	Sea Lamprey Control Centre Dept. Fisheries Oceans Dept. Environment, NWRI	J.J. Tibbles and J.R.M. Kelso

totalled 311 individuals: 56% in academia, 4% in industry, and 39% in government. Approximately 48 were from Canada and 260 from the U.S., with the remainder from Europe.

On 23 January 1967 the Board of Directors met for the first time. In addition to the members who came from the Study Group, John F. Carr was listed as active and by the April 1967 meeting Charles F. Powers had joined the board. During the 10th Conference in Toronto Dave Chandler was elected President, Don Misener Vice-President, and Charlie Powers Secretary. Limits on the terms of officers were set, and importantly a publications committee was appointed (Carr, Everett, and Housley). On 9 April in a decision of considerable importance to the association dues for members were set at \$7 U.S. It was also agreed that the GLRD of the University of Michigan would publish the Proceedings for the next 2 years, with Margaret Everett continuing as managing editor. On 18 April 1968 David V. Anderson accepted the position of editor and Jean Seddon became editorial associate. Dave Anderson was a visionary who had helped plan a multi-vessel survey of Lake Huron (I participated as an undergraduate student for Chandler in the summer of 1954) along with John Ayers (Fig. 2) of the Great Lakes Research Division of the University of



FIG. 1. David C. Chandler, founder of IAGLR.

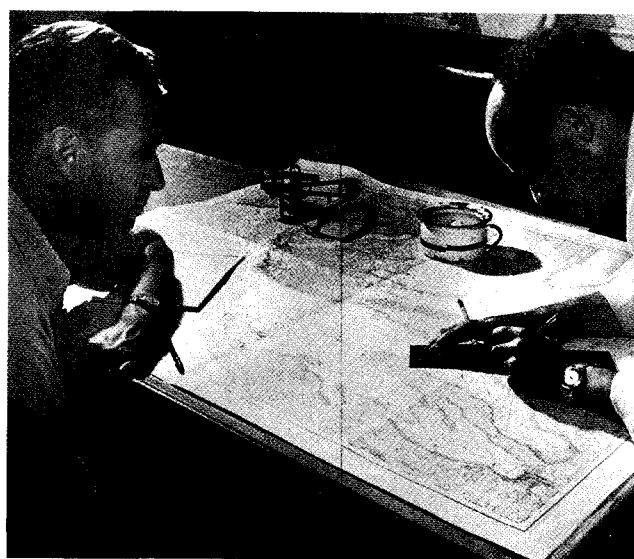


FIG. 2. John Ayers (r) at University of Michigan Biological Station in 1954 conducting the study of currents of Lake Huron and planning future investigations.

Michigan. The resulting product, "The Currents and Water Masses of Lake Huron" (Ayers *et al.* 1956) was the first research paper of Chandler's tenure at Michigan and Anderson's efforts in Ontario. With the help of the Ontario Department of Lands and Forests, Anderson had initiated a Great Lakes research program and had moved to the University of Toronto in 1959 to operate it. His background in math and physical limnology likely did not influence his ability to sponsor a broad range of papers on the bacteria, plankton, and benthos in the early 1960s in the Proceedings. Anderson also started the "Lakes Letter." In another major development an editorial board was established. These early memberships are summarized in Table 2.

Throughout the first 15 years of the association Dave Chandler was clearly the founder and organizer, involved directly in organizing conferences, the Study Group, writing bylaws, and calling the first meeting of the board. At the same time Margaret Everett was involved in running conferences, technical editing of the Proceedings and doing the daily work of the association. She edited all papers in the Proceedings, from the 3rd through the 10th Conference.

The binational nature of the association was completed with the election of Don Misener as Chairman of the Board and the second President of the Association. Misener was from the University of Western Ontario and had replaced George Langford upon his retirement as director of the Great Lakes Institute in Toronto. Thus an appropriate final paragraph of origin was completed; both Chandler and Misener had occupied the presidency. In April 1971, in honor of our founders, the Chandler-Misener Annual Award for the best paper in the Proceedings was announced by the Board ("Lakes Letter," October 1989).

TRANSFORMATIONS

The Proceedings reflected the presentation of formal papers at the early conferences, and while they were generally well edited, papers beginning from the 7th Conference were reviewed, usually by one expert, and seldom rejected. In the strictest sense, these papers were not peer reviewed, and with special regard to tenure and promotion within academia, papers did not count as refereed publications, as noted eloquently by Sam Mozely at the 19th Conference. On 20 April 1971 James Kramer and Herbert Allen, in a report of the publications committee, proposed that the Proceedings be replaced by a journal. Under the strong leadership of President Clifford Mortimer (1973-74), the Journal of

Great Lakes Research was born, and with it came quality peer review necessary to a modern journal.

Earlier in May 1969 the considerable costs to the institution employing the editor and associate editor were noted. By establishing support for editing, the membership laid the groundwork for a first-rate journal.

The editors and assistants (Table 2) stand beside the conference organizers, presidents, and board members as important pillars of the society. In fact from the first editors of the Proceedings, Dave Anderson and Jean Seddon (5 yr), followed by Norm Rukavina and Jean Seddon (3 yr), Fred Fry and Jean Seddon (2 years), and Jim Kramer and Joyce Allen (6 yr), most of the editing was done by William Sonzogni (9.5 yr). As all of us who have had papers rejected or have received requests for rewrites know, the office of editor has served the society well.

On the appointment of Jim Kramer as Editor and Steve Schneider as Managing Editor (in 1977), modern production techniques patterned after *Geochemica et Cosmochimica Acta* brought efficiency to the office of editor. At the same time, much help was provided by the new editorial assistant, Joyce Allen.

Bill Sonzogni became editor in 1982. He increased library memberships (Fig. 3) through international exposure via Current Contents and other abstracting services. The quality of individual papers was reemphasized and increased cooperation with the authors led to an improved journal.

THE LAKES LETTER AND STUDENT FELLOWSHIPS

The association's newsletter, the "Lakes Letter," was started in 1970 by Jean Seddon and Dave Anderson. It provides useful current information on the activities of members and events in the Great Lakes basin, as well as program material for annual conferences. Paula Casey became editor with volume 2, number 2 in 1971, and served until 1977, when Herbert Johnson assumed the position. Herb held this position for almost 10 years, until October 1986 when Thomas J. Murphy took over. Tom held the post until 1991. Recently the Managing Editor, Steve Schneider, has assumed responsibility for its publication, replacing Tom.

Other transformations are equally important, especially the increased attention to graduate students interested in the Great Lakes. Graduate student fellowships were first supported by the C.S. Mott Foundation in 1989 (Table 3). Each year the Fellowship Committee chair has been responsible

TABLE 2. Board of Directors, officers, and editors.

Year	President	Vice Pres.	Past Pres.	Directors	Treas.	Sec'y.	Editor(s)
1967-68	David C. Chandler	A. Donald Misener		Alfred M. Beeton Marvin Fast John G. Housley Theodore A. Olson James W. Moffett Allen T. Prince	John F. Carr	Charles F. Powers	David V. Anderson
1968-69	A. Donald Misener	Theodore A. Olson		David C. Chandler William J. Drescher John G. Housley Alfred M. Beeton James P. Bruce	John F. Carr	Norman S. Baldwin	David V. Anderson
1969-70	Theodore A. Olson	James P. Bruce		David C. Chandler Robert A. Ragotzkie William J. Drescher Margaret B. Davis T. Lloyd Richards	John F. Carr	Norman S. Baldwin	David V. Anderson
1970-71	James P. Bruce	Robert A. Ragotzkie		Margaret B. Davis William J. Drescher Theodore A. Olson G. Keith Rodgers T. Lloyd Richards	John F. Carr	Norman S. Baldwin	David V. Anderson
1971-72	Robert A. Ragotzkie	T. Lloyd Richards		Margaret B. Davis Stan H. Smith Robert K. Lane John H. Neil Theodore A. Olson G. Keith Rodgers	John F. Carr	David C. N. Robb	David V. Anderson
1972-73	G. Keith Rodgers	Clifford H. Mortimer		John H. Neil Jack L. Hough Stan H. Smith Robert K. Lane Margaret B. Davis	John F. Carr	David C. N. Robb	Norman A. Rukavina
1973-74	Clifford H. Mortimer	John H. Neil		Floyd C. Elder Robert K. Lane Stanford H. Smith Robert A. Sweeney David V. Anderson Donald C. McNaught (for J. Hough)	Robert A. Sweeney	James J. Tibbles	Norman A. Rukavina
1974-75	Robert K. Lane	Floyd C. Elder		Carlos M. Fetterolf, Jr. Henry A. Regier Donald C. McNaught David V. Anderson Andrew Robertson	Robert A. Sweeney	James J. Tibbles	Norman A. Rukavina
1975-76	Floyd C. Elder	Carlos M. Fetterolf, Jr.	Robert K. Lane	Gabriel T. Csanady Murry G. Johnson Andrew Robertson David A. Anderson Henry A. Regier	Robert A. Sweeney	James J. Tibbles	Fred E. J. Fry B. G. Herbert Johnson James R. Kramer
1976-77	Carlos M. Fetterolf, Jr.	Andrew Robertson	Floyd C. Elder	Carol I. Dell LaRue Wells Merv D. Palmer Henry A. Regier Murray G. Johnson	Robert A. Sweeney	James J. Tibbles	Fred E. J. Fry B. G. Herbert Johnson James R. Kramer
1977-78	Andrew Robertson	Joseph H. Leach	Carlos M. Fetterolf, Jr.	Murray G. Johnson LaRue Wells Nelson A. Thomas Marie Sanderson Robert A. Sweeney	Merv D. Palmer	James J. Tibbles	James R. Kramer

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TABLE 2. (continued)

Year	President	Vice Pres.	Past Pres.	Directors	Treas.	Sec'y.	Editor(s)
1978-79	Joseph H. Leach	Robert A. Sweeney	Andrew Robertson	Nelson Thomas Herbert Allen LaRue Wells Marie Sanderson Richard L. Thomas	Merv D. Palmer	James J. Tibbles	James R. Kramer
1979-80	Robert A. Sweeney	Richard L. Thomas	Joseph H. Leach	Marlene S. Evans Edward C. Herdendorf Marie Sanderson Nelson A. Thomas David N. Edgington	T. Milne Dick	Wayland R. Swain	James R. Kramer
1980-81	Richard L. Thomas	Marlene S. Evans	Robert A. Sweeney	John E. Gannon John A. Robbins Noel M. Burns Edward C. Herdendorf David N. Edgington	T. Milne Dick	Wayland R. Swain	James R. Kramer
1981-82	Marlene S. Evans	Edward C. Herdendorf	Richard L. Thomas	W. Jack Christie Victor J. Bierman John A. Robbins Noel M. Burns John E. Gannon	T. Milne Dick	Wayland R. Swain	James R. Kramer
1982-83	John E. Gannon	John A. Robbins	Marlene S. Evans	Peter G. Sly Peter J. Dillon Donald C. McNaught Steven J. Eisenreich W. Jack Christie	T. Milne Dick	Wayland R. Swain	William C. Sonzogni
1983-84	Peter G. Sly	Frank H. Quinn	John Gannon	Farrell M. Boyce Peter J. Dillon Donald C. McNaught Douglas J. Hallett W. Jack Christie	William L. Richardson	Donald Scavia	William C. Sonzogni
1984-85	Frank H. Quinn	Douglas J. Hallett	Peter G. Sly	Farrell M. Boyce Murray N. Charlton Joseph V. DePinto Peter J. Dillon Czesia Nalewajko	William L. Richardson	Donald Scavia	William C. Sonzogni
1985-86	Douglas J. Hallett	Joseph V. DePinto	Frank H. Quinn	Martin T. Auer Farrell M. Boyce Murray N. Charlton Brian J. Eadie Czesia Nalewajko	William L. Richardson	Donald Scavia	William C. Sonzogni
1986-87	Joseph V. DePinto	Klaus L. E. Kaiser	Douglas J. Hallett	Martin T. Auer David R. Barton Murray N. Charlton Brian J. Eadie Czesia Nalewajko	David J. Schwab	Russell G. Kreis, Jr.	William C. Sonzogni
1987-88	Klaus L. E. Kaiser	Brian J. Eadie	Joseph V. DePinto	Martin T. Auer David R. Barton Keith W. Bedford John R. Krezoski Fernando Rosa	David J. Schwab	Russell G. Kreis, Jr.	William C. Sonzogni
1988-89	John R. Krezoski	Fernando Rosa	Klaus L. E. Kaiser	David R. Barton Keith W. Bedford Alena Mudroch Thomas F. Nelapa	David J. Schwab	Russell G. Kreis, Jr.	William C. Sonzogni
1989-90	Alena Mudroch	Thomas L. Nalepa	John R. Krezoski	Keith W. Bedford G. Douglas Haffner Fernando Rosa Deborah L. Swackhamer	Barry M. Lesht	Michael J. Mac	William C. Sonzogni
1990-91	Thomas L. Nalepa	G. Douglas Haffner	Alena Mudroch	Deborah L. Swackhamer Gary L. Fahnenstiel Michael A. Quigley D. Michael Whittle	Barry M. Lesht	Michael J. Mac	William C. Sonzogni

Continued

TABLE 2. (continued)

Year	President	Vice Pres.	Past Pres.	Directors	Treas.	Sec'y.	Editor(s)
1991-92	G. Douglas Haffner	Michael A. Quigley	Thomas L. Nalepa	Steven B. Brandt Gary L. Fahnenstiel Deborah L. Swackhamer D. Michael Whittle Michael A. Zarull	Barry M. Lesht	Michael J. Mac	Thomas J. Murphy
1992-93	Michael A. Quigley	Michael A. Zarull	G. Douglas Haffner	Steven B. Brandt Gary L. Fahnenstiel John P. Giesy Melanie Neilson D. Michael Whittle	Thomas C. Young	Michael J. Donahue	Thomas J. Murphy
1967-74 Assistant Editor	Jean S. Seddon		1977-81	Assistant Editor	Joyce Allen		
1967-75 Managing Editor	Margaret N. Everett		1977-Present	Managing Editor	R. Stephen Schneider		
1975-77 Managing Editor	Jean S. Seddon		1987-Present	Business Manager	Wendy L. Foster		

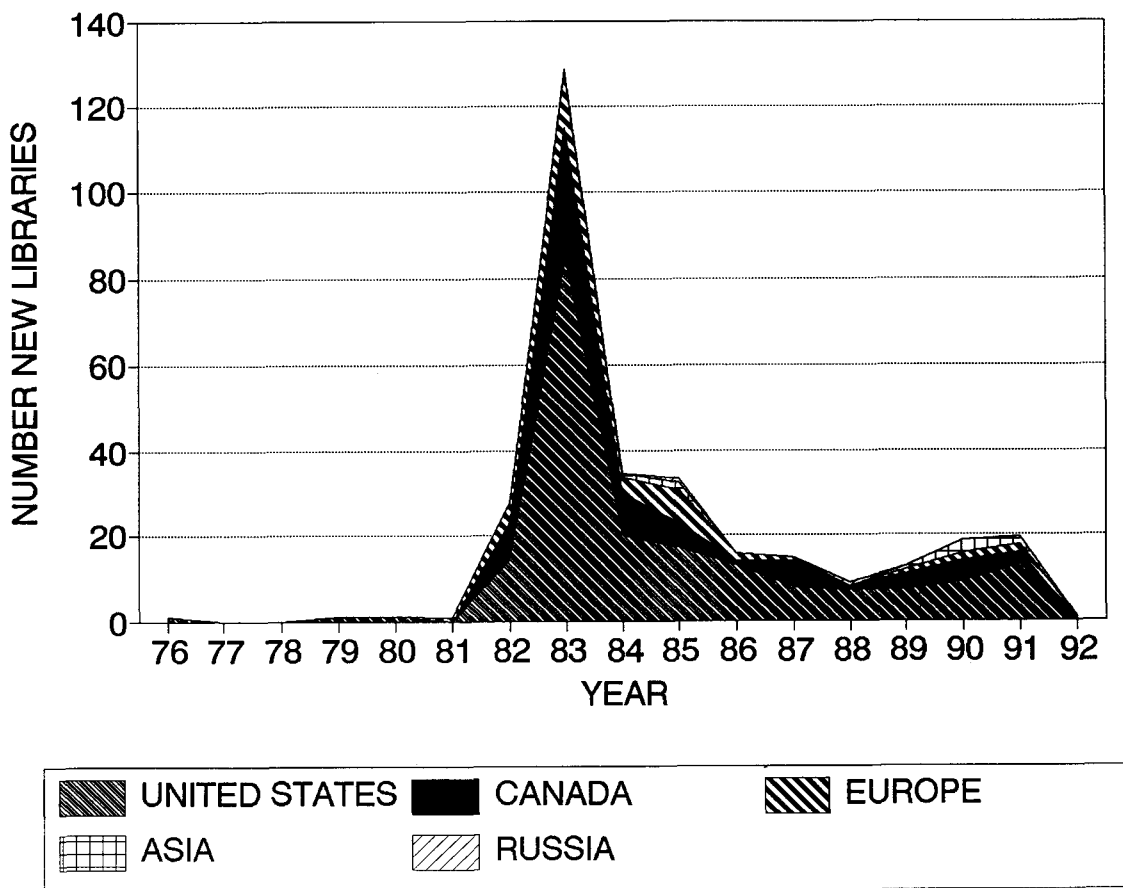


FIG. 3. Rate of receipt (library subscriptions/year) of new library memberships.

TABLE 3. IAGLR/Mott Foundation Fellowship winners.

YEAR	NAME	UNIVERSITY	FIELD
1992	Scott DeBoe	Univ. Michigan	env health/fisheries
	Jeffrey Fisher	Cornell Univ.	env health/fisheries
	Robert Currie	Univ. Manitoba	environmental health
	Brenda Koenig	York Univ.	environmental health
1991	Paul Sibley	Univ. Waterloo	toxicology
	Peter Delorme	Univ. Manitoba	toxicology/fisheries
	Mark Hewitt	Univ. Waterloo	environmental health
	Todd Williams	Univ. Waterloo	environmental health
	Kirk Dean	Univ. Wisconsin	environmental health
1990	Keri Hornbuckle	Univ. Minnesota	environmental health
	Gordon Balch	Trent University	environmental health
	Donna Carter	Indiana Univ.	environmental health
	Ronald Russell	Univ. Windsor	environmental toxicology
1989	Nancy Walker	Univ. Wisconsin	toxicology/fisheries
	Michael Twiss	Univ. Toronto	toxicology
	Lynn Brown	Trent Univ.	environmental health
	Bruce Wainman	York Univ.	environmental health
	Margaret Lansing	Eastern Mich. Univ.	environmental health
	Steven Voss	Clarkston Univ.	environmental health
	Linda Phillips	George Mason Univ.	environmental health

for soliciting, receiving and evaluating proposals. He handles about 25 applications, awarding up to six Fellowships worth \$17,000/8,500 U.S. for Ph.D. or MS students. The chair since 1989 has been John Krezoski of the University of Wisconsin-Milwaukee. Winners of these IAGLR/Mott Fellowships are shown in Table 3. The members must be especially proud of their support for these outstanding students.

SERVICE TO THE ASSOCIATION

Four groups have provided the leadership necessary for a successful scientific society, including 1) the officers and Board Members, 2) the Editor of the Proceedings/Journal, managing editor and reviewers, and 3) the IAGLR office staff, including the Executive Secretary and Business Manager, components common to most scientific societies. Because IAGLR originated as an annual meeting for contributed papers, the 4) conference organizer has also provided pivotal leadership.

The officers, board members, editors, and office staff are listed in Table 2. Each deserves recognition for service to the Association, but as with all scientific societies, certain ones stand above the rank-and-file. The Chandler-Misener Award for the best paper in the Journal was established 18 April 1971. This award recognizes the initial leadership of

Dave Chandler in organizing the first meetings, the Study Group, and the initial charter. As Dave recently told me, Fred Sparrow, who organized the first two meetings when Chandler was teaching at the University of Michigan Biological station (1953, 1955), also deserves credit.

Likewise, the work of Don Misener in organizing the Canadian membership of the enlarged Association was preceded by significant input by George Langford at the University of Toronto. While the development of the Association with regard to policy matters was born by these individuals, the nitty-gritty day to day organization of both conferences and the earliest Proceedings was done by Margaret Everett. Later Dave Anderson assumed responsibility and together they have been honored with the Anderson/Everett award for service to the Association.

The Association matured politically with the 9th Conference at the Illinois Institute of Technology, Chicago, chaired by B.M. McCormac. No longer were meetings held only in Ann Arbor and Toronto. The 11th Conference in Milwaukee, chaired by Al Beeton of the University of Wisconsin-Milwaukee, was notable for the increased public visibility of the Association, as well as the large number of papers. The chairpersons of the 13th Conference in Buffalo, Gerhard Neumaier and Robert Sweeney, were successful in improving the fiscal worth of the Association by attracting paying exhibitors.

THE MEMBERSHIP: EVOLUTION OF INTERESTS

Earlier, Carr (1973) had determined members' degree interests, and Phillips and Veinot (1977) had made a statistical analysis of research papers. This history and analysis of memberships differs from previous ones in my attention to our earliest times, as well as an analysis of member's interests designed to aid future directions of the Association.

The scientific careers of some of our members go back a long way. The earliest Ph.D. received by a current member was in 1927, appropriately in limnology and zoology. In contrast to such an early recipient, most members (77%) received their degrees after 1969 (Table 4), illustrating the current youthfulness of our society.

Members with degrees in biology (133), engineering (95), biological and physical limnology (91), fisheries (69), and ecology (40) now predominate. Most biologists received degrees between 1970 and 1989, as did the ecologists. The limnologists graduated beginning in 1960, but the degree is not as common today. These five groups constitute 428 members or 52% of the association. The engineers also received their degrees in large after 1970, but most (46%) got theirs after 1980. Those with degrees in civil and environmental engineering currently dominate, while degrees received in chemical engineering are decreasing.

In environmental health and science, fields related both to engineering and medicine, the particular designation and the more recent development of such degree programs means most members received degrees after 1980. In the related area of toxicology all got degrees after 1970.

With the advent of truly multidisciplinary programs at our universities in the 1960s, ecosystems

scientists were joined by social scientists in recognition of the holistic nature of the Great Lakes system. The social scientists probably came to the association with more experience and academic plasticity, and while few in number most received their degrees in the 1960s.

Degrees awarded in natural resources and water quality management often indicate individuals with interests in the management of Great Lakes resources. While these are only 8% of the Association they are vocal and, along with others, have requested a change in the name of our journal to the J. Great Lakes Research and Management. These careers are also reflected in current interest codes selected upon joining (summarized below). While only a few indicated an interest in management, that interest was not properly coded and we don't know the extent of such membership.

Perhaps the most traditional degree of early members was in fisheries. Currently only 8% indicate such degrees. Members first received degrees in fisheries in 1950, and between 1970-79 and 1980-89 this category experienced a 50% increase, from 20 to 30 degrees. With a limited number of graduate schools providing fisheries degrees, it will be interesting to see how this segment of the membership changes after the year 2000.

Member interests change with time, often not reflecting their original degree. The four leading interest areas for 800 members are currently aquatic toxicology (13%), environmental chemistry (11%), fisheries management (11%), population dynamics (7%), and eutrophication (6%). Thus it is not surprising that many members are interested in water quality issues (Fig. 4). As noted previously, many members have indicated informally an interest in resource management, but they cannot be identified within the present system.

TABLE 4. Degrees (Ph.D., M.S., M.A.) received by members within 10-year intervals within 8 general categories.

CATEGORY	TOTAL	1920-29	1930-39	1940-49	1950-59	1960-69	1970-79	1980-89	1990-91
BIOLOGY	133	0	0	0	2	10	51	53	17
ECOLOGY	40	0	0	0	0	5	12	20	3
LIMNOLOGY	75	1	0	0	4	16	22	28	4
FISHERIES	69	0	0	0	6	10	20	30	3
SOC. SCIENCE	9	0	0	0	0	2	5	1	1
ENGINEERING	95	0	0	1	2	14	34	38	6
CHEMISTRY	64	0	0	0	5	22	19	15	3
ENV. TOXICITY	50	0	0	0	0	3	17	21	9

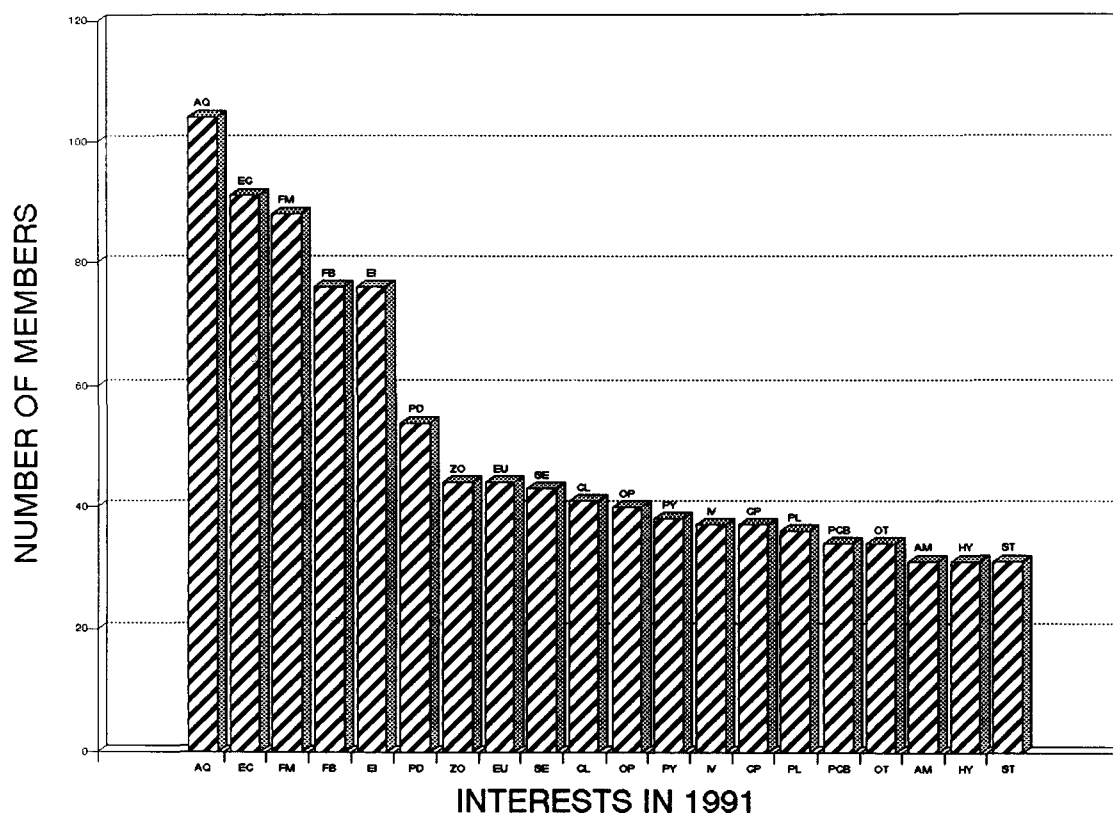


FIG. 4. *Interests of members: first 20 of 104; AQ = aquatic toxicology, EC = environmental chemistry, FM = fisheries management, FB = fishes and benthos, EI = environmental impacts, PD = population dynamics, ZO = zooplankton, EU = eutrophication, SE = sediment, CL = chemical limnology, OP = organic pollution, PY = phytoplankton, IV = invertebrates, CP = coastal processes, PL = physical limnology, PCB, OT = other, AM = aquatic modeling, HY = hydrobiology, ST = sediment transport.*

Historically, the initial interests of members have changed markedly. Beginning in 1966 (some claimed to have joined as early as 1957) members were mostly interested in eutrophication (8%) and modeling (7%), with the remainder equally divided among aquatic toxicology (AQ), environmental chemistry (EC), population dynamics (PD), and (SE) sediments (Fig. 5). Large increases in membership occurred in the periods 1975-79 and 1985-89. In the former period, most joining were interested in environmental chemistry and fisheries management. By 1985-89 most were interested in aquatic toxicology and fisheries management. During the early 1990s aquatic toxicology (11%) has remained the dominant interest of new members, and attention to fisheries management has dropped from 7% to 6%, reflecting my

forementioned concern in the vitality of education in the fisheries sciences in the Great Lakes basin. Association management should continue to follow these trends, so that the journal and plenary sessions may reflect the interests of members.

Another interest index for potential members is new library memberships. Generally in academia and also in government and industrial laboratories, the demand for a scientific journal should be an indicator of scientists' interests in the papers therein. This is especially true in the case of relatively new journals like ours. While library loans are possible in areas where the journal is common, they are impossible in countries without a single subscription. Following the first issue of the Proceedings in 1953 the library membership was inconsequential. With the

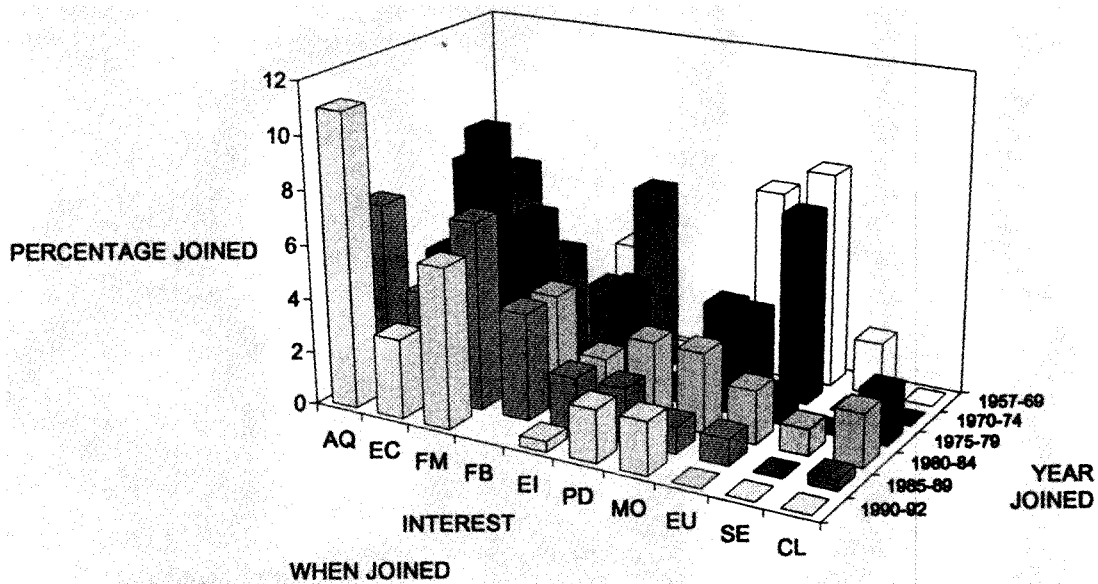


FIG. 5. Changing interests of members related to year member joined IAGLR. MO = modeling.

TABLE 5. IAGLR new memberships and totals, 1966-91.

MEMBER TYPE	1991	1990	1989	1988	1987	1980	1975	1970	1966
Sustaining	2	0	0	0	0	0	0	0	0
Libraries	19	18	12	10	13	1	2	0	0
Regular	75	67	53	57	82	47	199	271	225
Student	38	20	11	14	10	26	54		
Other	4	0	4	3	3				
TOTAL NEW	138	105	80	84	108	74	255	271	225
TOTAL ANNUAL	1,095	1,000	970	949	935	679	695	496	225

first issue of the journal in 1976 practically the only libraries to request the journal through 1981 were in the Great Lakes region (namely in Michigan (2) and Ontario (3), as well as in England (1). In 1981, with the strong leadership of Marlene Evans, voluntary office manager and member of membership committee, the library subscriptions simply soared (Fig. 3). In 1982 there were 28 new library subscriptions and in 1983 the journal requests peaked at 129 new ones. Marlene tells me this was due to her concerted effort to contact new libraries through purchase of subscription lists, and through acceptance of the Journal by more abstracting services. For this she deserves our gratitude. In 1991 a second peak occurred, due to

new subscriptions from libraries in Europe and Asia (4) as well as in the US and Canada (16).

THE MEMBERSHIP: GROWTH

IAGLR was established, with 225 members and a board of directors, at the 10th Conference in 1967 in Toronto. The first library membership was from the US Fish and Wildlife Service in 1975 (Fig. 3); we now have 237 library subscriptions. Student memberships, which provide savings to young scholars, were initiated in 1989 and total about 80 per year. The current membership is 1,095 (Table 5). Since 1987 our annual growth has averaged 4% per year. Initially most members were from the U.S., with an undeter-

mined but significant number from Canada. However, with planning for the Canada Centre for Inland Waters initiated in 1968 and with rather significant hirings in 1970-72, Canadian membership grew rapidly.

THE MEMBERSHIP: FUTURE CHANGES

The membership, through president Mike Quigley and the Board, will of necessity guide IAGLR into the 21st century. Hopefully these reflections on our evolution will enlighten this process. Certain mechanisms are obvious. Scholarships might be provided outside of the current emphasis on environmental toxicology, specifically in environmental chemistry, fisheries management, environmental impacts, population dynamics and modeling where members have interests which have not been reflected in recruitment. However this would have to be done with the foreknowledge that these are not "dead" areas — certainly they are basic to understanding Great Lakes ecosystems. Secondly, the board of reviewers can assist the editor in broadening the topics of papers in the Journal, as can the organizers of annual meetings through the planning of symposia, which will in turn generate new ideas and new papers. Lastly, the members might return to one of the interests of our founders - involvement in public education. Currently university organizations like Sea Grant Advisory Services are active in this area; state and provincial outfits could do more.

ACKNOWLEDGMENTS

Steve Schneider provided a valuable source of information on the workings of the association. Wendy Foster opened the membership records, and made Tables 2 and 3. David Chandler reminisced with me in March 1992 on the important landmarks

relating to our early days, concomitant with the founding of the Great Lakes Research Institute in Ann Arbor. Keith Rogers and Dave Anderson provided historical insights with regard to our evolution in Canada. Detailed reviews by Dave Anderson, Floyd Elder, and Bob Sweeney led to numerous revisions. Preparation of this article was made possible through the support of CILER (Cooperative Institute for Limnological and Ecosystems Research), and by provision of an office by Al Beeton in the Great Lakes Environmental Research Laboratory (NOAA), Ann Arbor. This paper is contribution number 827 from GLERL.

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